A Case Study of Social Enterprise Adoption of Sustainable Business Model Innovations: Shining a light on Sub Saharan Africa’s energy sector at the BoP
ABSTRACT

Only 25% of rural Sub Saharan Africans have access to electricity despite progress towards the universal target, established under Sustainable Development Goal (SDG) 7. Off-grid solutions, cheaper than grid-extensions, have advanced tremendously, but some businesses choose to serve wealthier people in society, excluding people living at the Base of the economic Pyramid (BoP), in remote rural areas. Social enterprises, lauded for their ability to create social and economic value, are urged to help reach SDG7. Adoption of sustainable business model innovations (SBMI) is considered critical for attainment of SDG7, but there has been little research into use of SBMI by social enterprises working to alleviate energy poverty in Sub Saharan Africa (SSA). Adopting a longitudinal qualitative case study approach, this research investigates a social enterprise’s SBMIs to provide access to renewable energy to people at the BoP in rural Zambia. The study contributes to theory and practice, demonstrating how social enterprises can maintain a focus upon provision of social value, while avoiding mission drift that is inherent in seeking to concurrently create economic value through revenue generation. Use of multiple sources of revenue and adoption of a variety of innovative routes to market has allowed the social enterprise to maintain its social-value driven mission. A number of challenges are identified, including the ecosystems in which social enterprises operate, their need to carefully navigate them, and the importance of differentiating between them. In conclusion, this research makes three incremental contributions, advancing theoretical understanding, as well as practical knowledge. It also provides empirical evidence from SSA which continues to be under reported in the business and management, social enterprise and BoP literature. The thesis concludes with recommendations for future research avenues to help ensure that those at the BoP are not left underserved.
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<td>BoP</td>
<td>Base of the economic Pyramid</td>
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<td>ESMAP</td>
<td>Energy Sector Management Assistance Programme, World Bank</td>
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<td>World Energy Council</td>
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CHAPTER 1

INTRODUCTION

1.0 Introduction

A lack of access to energy, or energy poverty is identified as one of the components of multidimensional poverty, and its prevalence as a global phenomenon is acknowledged, with people living in rural Sub Saharan Africa (SSA) reported to be suffering from the worst rates of energy poverty. Therefore, this chapter begins with an introduction to poverty and its multidimensional nature. Next, the extent of poverty is identified, with its effects on four billion people living at the base of the economic pyramid. Provision of access to energy is costly, particularly in poor rural areas, and alternatives to traditional grid-based systems are discussed, as are recent trends in the off-grid market. Challenges associated with the provision of off-grid technologies are subsequently introduced and the likelihood that people already living in energy poverty will be left behind. This provides the context for the introduction of a social enterprise whose mission seeks specifically to provide off-grid solutions to people living in energy poverty in SSA. Its status as a social enterprise is then situated within the wider context of social enterprise development, and the importance of innovations within its business model are then introduced as the premise for this research. Next, the study’s research question, research aim, and research objectives are presented. This is then followed with an outline of the methodological approach and the study’s contributions. An overview of the thesis chapter’s content concludes this introductory chapter.
1.1 Background

Despite recent progress in the fight against poverty (Lowder et al., 2017), approximately 656 million people were still classed as living in extreme poverty, that is living on less than US$1.90 per day (World Bank, 2020a; United Nations, 2019). Since then, the Covid-19 pandemic has wreaked global havoc; the outbreak of war in Ukraine has resulted in massive increases in the costs of fuel, fertilizer and food; and more violent conflicts are currently being fought than at any time since 1946 with the result that 25% of the world’s population now lives in conflict-affected countries (United Nations, 2022). As a result of these and other compounding factors, the progress made in the fight against poverty has been reversed and millions more people have been pushed back into extreme poverty over the last four years, with current projections suggesting that up to 676 million people will still be living on less than US$ 1.90 per day by 2030, the target year for ending poverty in all its forms everywhere (ibid.).

Income related poverty, such as US$ 1.90 per day, is but a single measure and the reality of poverty is that it is much more complex (Townsend 1979; Sen, 1999; Nájera Catalán & Gordon, 2020). For this reason, the Multidimensional Poverty Index (MPI) was developed, providing a more comprehensive evaluation than living on less than US$1.90 per day (Alkire et al., 2014; OPHI, 2018; Salecker et al., 2020). According to the latest global assessment using the MPI, over 1.3 billion people are classed as living in extreme poverty, affected by multiple and overlapping forms of deprivation (Alkire et al., 2021). This is double the number reported as living in poverty according to the US$ 1.90 per day threshold. The deprivations associated with multidimensional poverty include lack of access to improved drinking water, substandard housing, undernourishment, very limited
educational opportunities, a lack of assets (such as phone, radio, bicycle), exposure to inadequate sanitation, and a lack of access to electricity (ibid.) To these 1.3 billion people living in multidimensional poverty can be added an extra one billion, when factoring in those people who live on US$2-3 per day, barely above the threshold of extreme poverty (Independent Group of Scientists appointed by the Secretary-General, 2019). This number rises further, to approximately four billion, when considering people who have just moved out of extreme poverty but who remain on the cusp of falling back into it, lacking social protection, threatened by economic and environmental crises, or living in countries affected by war and armed conflict (ibid.). These four billion people are sometimes referred to as living at the base of the economic pyramid (BoP) (Prahalad & Hammond, 2002; Prahalad, 2006; Kolk et al., 2014, Dembek et al., 2020).

These statistics paint a stark picture of deprivation and inequalities in access to basic services, rights and goods. Thus, rising levels of inequality and their effects are considered to be among the most defining issues of our time (United Nations, 2015; Mair et al., 2016; Amis et al., 2018; Oxfam, 2018). Greater inequality within a country tends to slow national rates of poverty alleviation (Cornia, 2004; Wade, 2011) as well as threaten social stability, democracy and accountability (Piketty, 2014). Those societies in which levels of economic inequality are higher, also tend to suffer increased rates of crime and incarceration, a greater prevalence of mental and physical health diseases, and greater levels of mistrust (Wilkinson & Pickett, 2010; Wade, 2011; Dorling, 2015).

One of the basic services upon which all people rely is access to energy (Nussbaumer et al., 2012; IEA, 2021). It can contribute to meeting basic human needs, supporting social,
economic and sustainable development through the advancement of health, education, wellbeing and productivity (Birol, 2007; Vezzoli et al., 2018; WEC, 2021). However, provision of access to reliable, affordable and clean energy can be costly and as a result, millions of households are deprived of access to it, thus living in energy poverty, one of the components of the MPI (Alkire et al., 2014; Robles Aguilar & Sumner, 2020; Salecker et al., 2020). In recognition of this, the United Nations established Sustainable Development Goal 7 (SDG7), which comprises five targets focused specifically upon provision of universal access to modern energy (UN, 2015; 2022). Target 7.1 aims “by 2030, [to] ensure universal access to affordable, reliable and modern energy services” (UN, 2015) and seeks to ensure provision of access to electricity and to clean fuels and technology for cooking. Although energy poverty is prevalent in the UK (Liddell et al., 2012; Walker et al., 2014; Mahoney et al., 2020), in Europe (Bouzarovski et al., 2021), in Asia (Wang et al., 2015; Jiang et al., 2020), and in SSA (Alem & Demeke, 2020), it is unsurprisingly, people who live at the BoP, and particularly in SSA who suffer from the lowest levels of access to electricity and to clean fuels and technology for cooking (Chirambo, 2018; UN, 2022).

Traditionally, access to electricity has been provided through national grid-based systems, and these continue to prove very popular (IEA, IRENA, UNSD, World Bank, WHO, 2019; Narayan et al., 2020). However, grid-based systems can be very costly, particularly in more rural areas with low population density, difficult terrain, high infrastructure costs and greater losses associated with service provision (Haanyika, 2008; Szabó et al., 2011; Hansen & Xydis, 2020; Narayan, 2020). As a result of these and other factors, rural electrification in SSA stands at only 25% of the rural population, thus lagging a long way
behind the rest of the world. Oceania is the next lowest region in terms of rural electrification, yet stands at 76% of the population (IEA, IRENA, UNSD, World Bank, WHO, 2019), having achieved considerably better provision in rural areas than SSA.

There are alternatives to grid-based supply of electricity, usually referred to as off-grid, which can support provision of electricity in both urban and rural settings (Haanyika, 2008; Barrie & Cruickshank, 2017; Munro & Samarakoon, 2022). Many of these systems are based on use of renewable energy, including wind, solar and hydro power. This research is situated specifically within the context of solar power.

Development of solar-based products has made significant progress in recent years, with the costs of production having decreased, and technologies becoming more efficient (Nygaard et al., 2016; Orlandi et al., 2016). For instance, in 2009, approximately 18,000 branded small-scale solar products were sold; in 2016, that number had risen to nearly four million (Munro et al., 2022). Similarly, the number of companies working in the branded small-scale solar sector had risen from 60 in 2010 to more than 330 in 2017 (Lighting Global, 2018). New business models were being developed, organisations were improving their understanding of customer preferences, innovative payment systems were being created, and quality assurance systems introduced (Orlandi et al., 2016; Barrie & Cruickshank, 2017). The market volume grew by over 2,000 per cent between 2010 and 2014, but then contracted, growing by only seven per cent between 2014 and 2018 (Munro et al., 2022), and international investment to developing countries for renewable technologies declined for a second consecutive year (UN, 2022).
Despite early, positive developments in the small-scale solar sector and other off-grid sectors, progress towards the UN’s SDG7 remains a long way off track (UN, 2022; SDG7 Tracking Report) and it is projected that 679 million people will continue to live without access to electricity by 2030 (UN, 2022). Furthermore, the initial excitement in small-scale solar power that was expressed by solar companies and their impact investors (Clowes et al., 2019) has now been replaced with a more measured response. Analysis of the ecosystems in which these companies operate has demonstrated that the markets are more complex than initially envisaged and companies, encouraged by their investors (Jacome & Ray, 2018; Cross & Neumark, 2021; Groenewoudt & Romijn, 2022) have shifted their focus to urban and peri-urban customers, including the middle-class, from whom they can more easily make profit, rather than the rural poor and those living in extreme energy poverty (Pothering, 2020; Barry & Creti, 2021; Cross & Neumark, 2021; Munro & Samarakoon, 2022; Trompette & Cholez, forthcoming). This trend runs the risk of leaving the rural poor continuing to live in energy poverty, while financial motives, once again become the key driver (Clowes et al., 2019; Cross & Neumark, 2021).

Not all companies have gone down this route, however. One social enterprise, Sunny Money, has continued its focus upon reaching those people living in extreme energy poverty, often located in rural areas (SolarAid, 2016, 2021; Munro et al., 2022). Retention of this focus has not been easy and the organisation, one of the early entrants to the small-scale solar market, has experienced many challenges. Despite this, it continues to operate, having sought to adapt and innovate its business model since its inception in 2008. This organisation will form the case study focus of this thesis.
The selection of Sunny Money, classed as a social enterprise, is noteworthy for several reasons. In the first instance, most social enterprises seek to combine environmental, social and economic goals, and are credited with being less profit-driven than traditional companies (Müller, 2012). This is of particular relevance given the concern highlighted earlier that enterprises working in the small-scale solar sector may increasingly focus their efforts on financial profit rather than on social and environmental gains. In addition, the rise of social enterprises has been associated with failures of the market (e.g. Spear et al., 2001; Williams, 2007; Defourny & Nyssens, 2006), failures of government (e.g. Dees, 2007), and the need for non-profit organisations to diversify their income base (e.g. Eikenberry, 2009; Battilana et al., 2012). These reasons, which are not considered to be mutually exclusive (Teasdale, 2011), seem relevant in the context of the lack of provision of access to electricity – a basic service that is usually provided by the State and/or private companies.

Further, there has been considerable interest in the growth of social enterprises since the late 1990s, among academics (Dees, 1998; Austin et al., 2006; Doherty et al., 2014; Davies & Doherty, 2019), among policy makers (EU/OECD, 2016; Stephan et al., 2017) and the media (The Guardian, 2014; Financial Times, 2019) some of which is now beginning to extend to SSA (Navarette-Moreno & Agapitova, 2017; The Namibian, 2017; Richardson, 2020) but for which there remains a paucity of research (Holt & Littlewood, 2015; Kolk & Rivera-Santos, 2018). Social enterprises are credited with generating over €6 billion in revenue in nine European countries in 2015, supplying products and services to over 870 million people (OECD/EU, 2017), and creating thousands of new jobs while other sectors lost thousands of jobs (McKinsey & Company, 2016). The accomplishments
of social enterprises in Europe may be suggestive of their capacity to reach large numbers of people, an achievement that is worthy of consideration given the hundreds of millions of people living without access to electricity. Finally, by combining social, environmental and economic goals, social enterprises are often referred to as hybrid organisations (Battilana et al., 2012; Doherty et al., 2014; Ebrahim et al., 2014; Holt & Littlewood, 2015). The concept of hybridity is not unique to social enterprises, with a number of scholars recognising potential overlaps between social enterprises and sustainability-oriented companies (Lüdeke-Freund et al., 2017; Margiono et al., 2018), but also recognising that this is an emergent field of research (Davies & Chambers, 2018).

Social enterprises, by definition, include some form of revenue generation in their supply of a socially-led product or service to customers (Mair & Martí, 2006; Peattie & Morley, 2008, Doherty et al., 2014). As such, social enterprises make use of business models that help to “articulate the logic, the data and other evidence that support a value proposition for the customer, and a viable structure of revenues and costs for the enterprise delivering that value” (Teece, 2010, p. 179). Faced with a challenging customer base, in this case one in which people live in energy poverty and suffer from numerous elements of wider multidimensional poverty, social enterprises need to develop innovative and creative solutions. Given the tensions that are inherent in both social enterprises and sustainability-oriented companies (Schaltegger & Wagner, 2011; Grassl et al., 2011), there may be lessons to be learned from the business model innovations adopted by hybrid entities such as social enterprises (Davies & Chambers, 2018).
In recognition of the background and rationale provided in Section 1.1, above, this research seeks to explore the business model innovations adopted by a hybrid social enterprise working to provide a service to people living in energy poverty at the BoP in rural SSA. Section 1.2 articulates the research question, aim and objectives that have been identified as part of this study.

1.2 Research question, aim and objectives

Given the scale of the challenge of meeting SDG7 and the mixed findings with regard to provision of access to renewable electricity in SSA, this research asks the following question: What do sustainable business model innovations that have been adopted by socially-driven enterprises look like and do they adequately serve the poorest members of society in SSA? Therefore, the overarching aim of this research is to advance our understanding of business model innovations adopted by hybrid social enterprises seeking to provide a basic service to people living at the BoP in SSA. Specifically, this research will consider such provision in the context of rural Zambia. In order to fulfil the overarching research aim, the following three research objectives are proposed:

**Research Objective One:** To provide an insightful, longitudinal analysis of the challenges of establishing sustainable business model innovation in the context of social enterprise in SSA. A longitudinal analysis is adopted as it facilitates understanding of “the underlying dynamics of phenomena that play out over time” (Siggelkow, 2007, p. 22). This seems particularly important given the dynamic contexts in which organisations operate, the need to “capture organisational change processes” (Bansal & Corley, 2011, p. 235), and the desirability of better understanding how organisations adapt in seeking
to provide a basic service to an impoverished segment of society. Furthermore, longitudinal case studies are identified as one of the “five rationales for single-case designs” (Yin, 2018, pp. 49 & 51) and they can “somewhat surprisingly…enable the creation of more complicated theories than multiple cases” (Eisenhardt & Graebner, 2007).

**Research Objective Two:** To conduct a critical analysis of the emergent ecosystem challenges that can support or constrain the development of sustainable business model innovations. This second research objective is closely aligned with Research Objective 1. While a longitudinal analysis may help to provide insight into the adaptations and innovations adopted by a focal organisation, any such adaptations necessarily occur within the context, or ecosystem in which the organisation operates. By seeking to offer such an ecosystem-level analysis, the “research strategy focuses on understanding the dynamics present...” (Eisenhardt, 1989, p. 534) and such qualitative research has the “potential to rehumanize research and theory by highlighting the human interactions and meanings…often addressed in the field.” (Gephart, 2004, p.455).

**Research Objective Three:** To propose a business model archetype for sustainable business model innovation in the energy sector in SSA. The design of this archetype will be rooted in ensuring provision of access to people living in energy poverty at the BoP. Explicitly, it will prioritise provision to this segment of society, above prioritising financial gain. In so doing, it aims to address persistent inequalities (United Nations, 2015; Groenewoudt et al., 2022), relates directly to SDG7 (Munro & Samarakoon, 2022;
United Nations, 2022) and seeks to contribute to tackling a “societal...grand challenge” (Mair et al., 2016, p. 2021).

The methodological approach set out in Section 1.3 is adopted in order to address the above Research Objectives (ROs).

1.3 Methodological approach

Given the relative paucity of empirical research into use of sustainable business model innovations by social enterprises in SSA, an inductive, qualitative case study approach has been selected, based on approaches identified by Yin (2014, 2018). This is undertaken from a pragmatist-informed perspective (Morgan, 2007, Yin, 2016) and allows for lessons to be learned from practitioners who understand what they are trying to do and how they are trying to achieve it (Gioia et al., 2013; Gioia, 2021).

To ensure that findings are triangulated, in most cases with three sources of corroborating evidence (Yin, 2016), the methodology employs a series of in-depth, semi structured interviews with staff holding different positions within the case study organisation, and analysis of over 45 supplementary sources of evidence, including sales records being both contemporary and historical, field notes, review of seven years of annual reports and audited accounts, as well as review of relevant websites. Reflexive thematic analysis is employed to make sense of the enormous amount of data, going back and forth in an organic and iterative manner (Braun & Clarke, 2012, 2021). Use of multiple sources of evidence is associated with the researcher’s desire to demonstrate credibility in this study (Tracy, 2010) and to enhance substantiation (Eisenhardt, 1989).
1.4 Research Contribution

In fulfilling the above research aim, the research contribution from this thesis is threefold. Each contribution is described according to the categories and sub-categories proposed by Nicholson et al (2018), these being “revelatory, incremental, replicatory and consolidatory” (p. 206).

Contribution One proposes a sustainable business model archetype designed to support social enterprises seeking to work at the BoP in rural SSA. In so doing, this theoretical contribution extends earlier work by building upon the concept of “value spillover” and the “market hybrid” as a commercially-recognisable business model (Ebrahim et al., 2014; Santos et al., 2015, pp. 37 & 45). This is done in two ways. First, social enterprises can simultaneously apply multiple SBMIs (Boons & Lüdeke-Freund, 2013; Schaltegger et al., 2016) in their quest to provide people living in sparsely populated areas with access to off-grid electricity. Zambia’s population density of 25ppkm² provides a stark contrast to Rwanda’s 558ppkm², which features in the case reviewed by Santos et al (2015), thus providing the first theoretical extension of earlier work. Secondly, recent literature (Jacome & Ray, 2018; Cross & Neumark, 2021; Groenewoudt & Romijn, 2022; Munro et al., 2022) highlights the risks of investor-led mission drift in organisations that have chosen to accept equity or debt financing. However, development of the sustainable business model archetype proposed in this research is based upon empirical evidence that demonstrates that SBMs can be developed without the need for investor-led financing and some of the risks inherent in it. This incremental theoretical contribution (Nicholson et al., 2018) has additional significance because it is SSA’s rural poor who lag furthest behind the rest of the world in gaining access to electricity (CSO, 2016; IEA, IRENA,
UNSD, World Bank, WHO, 2021) while urban and peri-urban dwellers with more disposable income have become the focus of enterprises working in the off-grid solar sector in SSA (Barry & Creti, 2021; Cross & Neumark, 2021; Munro & Samarakoon, 2022; Trompette & Cholez, forthcoming).

A number of managerial recommendations for social enterprises arise from this contribution. To maximise their resilience (Littlewood & Holt, 2018) they should familiarise themselves with the taxation, infrastructure, labour market, and currency conditions of the environments in which they hope to operate (Navarette-Moreno & Agapitova, 2017; Richardson et al., 2020). To accommodate customer preferences (Hasan et al., 2019; Singh et al., 2022) and cater to the heterogeneity of customers living at the BoP (Laporte, 2017; Lappeman et al., 2019; Dembek et al., 2020), they should develop multiple customer profiles and associated offerings. They should also explore different legal structures (Battilana et al., 2012; Doherty et al., 2014) and adopt those most suitable for varied contexts, and flexible in terms of facilitating diversity in revenue generation (Di Domenico et al., 2010; Teasedale, 2011; Davies & Doherty, 2019). Finally, in recognition of potential economic challenges, pandemics, or conflicts (UN, 2022) this sustainable business model archetype recommends adoption of multiple routes via which to sell to market, as well as application for grant funding provided by philanthropic and government institutions (ibid.; Battilana et al., 2012), even in times of relative economic prosperity.

**Contribution Two** advances our theoretical understanding of the ways in which environmentally, socially and economically sustainable customer choice can be provided
to people living at the BoP by recognising that customers living at the BoP are rarely provided with the same range of offers as other customers (Hasan et al., 2019; Lappeman et al., 2019). By demonstrating that incremental or radical innovations (Dwivedi & Weerawardena, 2018) of sustainable business models can viably be tailored to customers living at the BoP, this second contribution extends recent literature (such as Davies & Chambers, 2019) which demonstrates the economic advantages of targeting environmentally sustainable products at wealthier segments of European society.

This second incremental contribution (Nicholson et al., 2018) is supported by empirical data on a number of the SBMIs (Boons & Lüdeke-Freund, 2013; Schaltegger et al., 2016) designed and operationalised by the case study enterprise. Chronologically first among these, was a radical shift in which village-level macro-installations were replaced by pico-solar products designed for the individual household, thus creating additional social value and introducing updated technology. Later, various purchase options were introduced, including the Try-Before-You-Buy concept of Light Libraries, as well as long-term rental, outright purchase, and rent-to-own schemes, all of which benefit from micro-franchisee technical support. More recently, initiatives to help tackle pico-solar e-waste have been developed, despite these products being considered by many as a clean and renewable source of energy. Initiatives such as these demonstrate the potential for continuous innovation, even from a sustainable business model perspective, and contributes to the literature both theoretically and contextually, regarding the need for further research into non-Western-market models for BoP settings (Landrum, 2007).
A supplemental observation connects the second contribution of this research to the first. In some cases, novel changes or BMI (Foss & Saebi, 2017), can be self-financing, such as the radical shift from macro-installations to pico-solar. In others, such as Project Switch in Malawi, grants or publicly-raised funds may be required to pilot the novel change (ibid.). It can thus be suggested that, in seeking to offer greater choice to the BoP customer, continuous innovation is best supported by diverse resource acquisition strategies (Di Domenico et al., 2010; Teasedale, 2011; Davies & Doherty, 2019).

**Contribution Three** enriches our theoretical understanding of the multiple levels at which ecosystems must be designed to enable social enterprises and other organisations to alleviate poverty at the BoP (Prahalad & Hammond, 2002). Research by Richardson et al. (2020) and Navarette Moreno & Agapitova (2017) identifies the need for ecosystems that support social enterprises and their BoP customers. However, based on empirical data, this third incremental contribution (Nicholson et al., 2018), recognises the central role played by micro-franchisees, or agents, who are critical to the distribution and sale of products by many social enterprises and other organisations. The unaffordable loans and micro-credit schemes that afflict the BoP customer also diminish the ability of micro-franchisees to buy stock at discounted rates. In addition, to increase their chances of becoming financially sustainable, micro-franchisees were found to need 12-18 months of support in basic business skills.

This contribution extends the work by Santos et al. (2015, p. 45) and proposes that the need for training and access to affordable loans for micro-franchisees, might, in some instances, mean that business models in which micro-franchisees play a central role
would be better considered as “contingent value spillover” rather than “automatic value spillover” (ibid.). For many social enterprises and other organisations, it would be beyond their scope to create a cooperative able to offer affordable loans (such as FEBCO in Malawi), and/or to provide 12-18 months of training in business skills. Instead, affordable micro-credit facilities and training could be facilitated by government and the market, in a bid to create more supportive ecosystems. Policy makers, finance institutions and organisations operating through micro-franchisees may, therefore, be interested in the practical implications of this third incremental contribution (Nicholson et al., 2018).

1.5 Thesis structure

To guide the reader in terms of thesis structure, this thesis is divided into five chapters. Chapter 1, the current chapter, introduces the reader to the topic, setting out the rationale for the research, presenting the research objectives, briefly explaining the methodology and key contributions, as well as outlining the structure of the remainder of the thesis. Chapter 2, is the literature review, which comprises two parts. The first part covers literature on poverty, studies regarding poverty at the BoP, energy poverty as a facet of multidimensional poverty, and energy poverty in Zambia. This first part of Chapter 2 aims to provide relevant contextual information. Part 2 of Chapter 2 reviews key literature on social enterprises and the ecosystems in which they operate, especially in SSA. This is followed by a critical review of key literature on business models and business model innovations. In recognition of the multiple strands of literature to which this doctoral study refers, an evolving conceptual model is presented at the end of Chapter 2, with the aim of illustrating the ways in which understanding of these complex topics has evolved and continues to do so. In Chapter 3, the philosophical and adopted methodological
framework for the research are presented, concluding with the thematic identification of three broad themes. Empirical findings from the research, as well as their analysis and discussion form the basis of Chapter 4, which is divided into two parts in keeping with the themes identified. Chapter 5 presents the conclusions from the research.

1.6 Summary

Chapter One introduces the reader to the topic, before providing an overview of global levels of poverty and deprivation, and the lack of access to energy as one facet of poverty. The creation of SDG7 is introduced, illustrating that access to energy has been recognised by the United Nations for its global significance, and that access may be provided both via grid-extensions and off-grid supply. Social enterprises are introduced next, as potential vehicles to help address social inequalities, and ones that need to innovate within their business models. This provides the background for the organisation upon which this research is based, it being a social enterprise working to help alleviate energy poverty at the BoP. Research objectives are subsequently articulated, the methodological approach is introduced, and key contributions are summarised. Thereafter, the structure for the remainder of the thesis is set out.
CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter is presented in two sections. The first, begins with a review of the literature regarding poverty, its complexity, its multidimensional nature, and the ways in which it is measured. Next, the scale of poverty globally is reviewed and expanded within the context of the literature regarding people reported to be living at the BoP. Energy poverty features in both bodies of literature yet, as the subsequent section of the review demonstrates, there remains no universally agreed definition of it, and efforts to measure energy poverty have suffered from some of the same challenges as efforts to measure poverty and BoP characteristics. Following the review of energy poverty, global energy targets are next presented, with a specific focus on provision of access to electricity, which is set within SDG7. The situation in Zambia, the geographical context for this research, is illustrated. Next, as access to electricity can be provided through grid-extension and through off-grid means, these two alternatives are introduced and the relative advantages of each is considered as is its suitability in rural areas. This provides the context for the introduction of a social enterprise whose mission seeks specifically to provide off-grid solutions to people living in energy poverty in SSA.

A review of the literature regarding social enterprises forms the second section of this Chapter. Following an introduction to the rise of social enterprises in Europe and the
USA, before reviewing the more limited body of literature on social enterprises in SSA, and the complex ecosystems in which they operate, the use, by social enterprises, of business models is presented next, leading in turn into a review of the literature on business models, sustainable business models, and innovations within them both. Finally, parallels are drawn between the business model innovation literature aimed at encouraging more sustainable practices, and the social enterprise literature. The literature review concludes with an evolving conceptual model.

2.1 Poverty

2.1.1 Headline statistics and progress

Approximately 656 million people were still classed as living in extreme poverty, that is on less than US$ 1.90 per day (World Bank, 2020; United Nations, 2019). This figure indicates that progress has been made in the fight against extreme poverty (Lowder et al., 2017), especially when compared with 1.9 billion people who were assessed as living in extreme poverty in 1990, a figure which had fallen to an estimated 736 million people by 2015 (Olaoye et al., 2021). It does not, however, appear to be consistent or to show persistent trends in decline. Recent events serve to illustrate this, with an estimated 93 million people having been pushed back into extreme poverty as a result of the combined effects of the Covid-19 pandemic; the increased costs of fuel, fertilizer and food that have been associated with the outbreak of war in Ukraine; the widespread consequences of climate change; and the highest number of conflicts since 1946 being fought around the world (United Nations, 2022). The events of the last three years have led to projections that the absolute number of people living in extreme poverty will actually increase from its current level to 676 million people by 2030, despite this being the target year for
“ending poverty in all its forms everywhere” (United Nations, 2015, 2022), and despite this giving the world another eight years to achieve this stated goal.

While conflicts, pandemics and increases in the price of food and fuel cause unimaginable and widespread suffering, and can reverse progress in the fight against poverty (Gates et al., 2012; Robinson & Mattioli, 2020; Okunlola et al., 2022; United Nations, 2022), the impact of these recent events on the numbers of people reported to be living in extreme poverty may be less pronounced than the ways in which we actually define, interpret and measure extreme poverty. This is important because it affects our ability to inform the design of policies (Batana, 2013; Fransman & Yu, 2019; Aminu et al., 2021) in a theoretically and methodologically sound fashion (Sen, 1976; Townsend, 1979; Gordon, 2000; Nájera Catalán & Gordon, 2020), to ensure that poverty reduction takes centre stage in policy development (Lang & Lingnau, 2015), to measure and monitor progress (Alkire & Santos, 2013), and to assist our abilities to evaluate, adjust and confirm the suitability of strategies that are designed to help reduce poverty (Alkire et al., 2017; Salecker et al., 2020).

### 2.1.2 Nuanced definitions of multidimensional poverty

As our understanding of the multidimensional and complex nature of poverty has improved, so have attempts to define it (Lang & Lingnau, 2015). While there is no single, universally agreed definition of poverty (Sovacool et al., 2012), some useful propositions have been put forward, for instance, Townsend defines multidimensional poverty as cases in which:
individuals, families and groups in the population can be said to be in poverty when they lack the resources [cash income, capital assessments, value of employment benefits in kind, public social services and private income in kind] to obtain the types of diet, participate in the activities and have the living conditions and amenities which are customary or are at least widely encouraged or approved, in the societies to which they belong (Townsend, 1979, p. 98, cited in Nájera Catalán & Gordon, 2020, p. 1763)

For Laderchi et al. (2003, p. 14), poverty is the “failure to achieve certain minimal or basic capabilities … [where those capabilities refer to] the ability to satisfy certain crucially important functionings up to certain minimally adequate levels.” Others have developed a more succinct definition, for instance defining poverty as a “pronounced deprivation of well-being” (Bersisa & Heshmati, 2021, p. 807). According to Salecker et al. (2020, p. 552) “poverty is understood as a lack of freedom of choice that results in non-achievement of well-being functionings.” Despite the lack of a universally-agreed definition of poverty, the key point is that our understanding of the multidimensionality and complexity of poverty has improved, as well as the recognition that while scarcity of financial resources does affect a person’s capacity to lead a decent life, there are many other factors that also affect this (Bersisa & Heshmati, 2021). As Sen (1999, p. 14) notes “Economic growth cannot be sensibly treated as an end in itself. Development has to be more concerned with enhancing the lives people lead and the freedoms they enjoy.”

2.1.3 Measuring poverty – monetary approaches

How, then, do we measure poverty? Poverty was primarily conceived and measured in monetary terms until the late 1970s and early 1980s (Salecker et al., 2020). This monetary or income-based measure, sometimes referred to as “indirect”, is determined relative to a person’s ability to afford basic needs with a specified daily sum of money (Ravallion et
al., 1991; Alkire & Santos, 2014, p. 251). As a result of using a specified sum, extended over the course of a year, it is possible to establish a poverty line and conduct surveys to determine whether people’s incomes sit above, or fall below that line (ibid).

The sum used to create these poverty lines was originally based on notions of absolute poverty, a situation in which an individual lacked sufficient income to meet their basic needs (Reeves et al., 2020). During the 1990s, the sum was set at US$ 1 per day, building on work by Ravallion et al., (1991) and used in the World Bank’s World Development Report 1990: Poverty (Lang & Lingnau, 2015). In 2008, this sum was revised to US$ 1.25 per day, a figure that was used for a period during the Millennium Development Goals (2000-2015). Naturally, the figure needs to be updated regularly and adjusted for Purchasing Power Parity (PPP) (ibid.). Since then, and during the period of the Sustainable Development Goals (2015-2030), the daily income-based figure for the international poverty line has been adjusted to US$ 1.90\(^1\) (adjusted for PPP) (World Bank, 2018; Reeves et al., 2020; Salecker et al, 2020). One of the key advantages of this income-based approach is that it is relatively easy to use and, as a result, enables comparisons across most countries in the world (Ravallion et al., 1991; Chen & Ravallion, 2010; Alkire & Santos, 2014; Lang & Lingnau, 2015; World Bank, 2020). Monetary, or income-related measures have proved very popular and remain in widespread use, for example continuing to be used by the World Bank in their measurements of extreme poverty (Alkire & Santos, 2014, p. 251). As a result of using a specified sum, extended over the course of a year, it is possible to establish a poverty line and conduct surveys to determine whether people’s incomes sit above, or fall below that line (ibid).

\(^1\) In the last two decades there have been calls to revise this figure upward. Extending it from US$ 1.25 to US$ 2 PPP (2008) per day would, for instance, have led to an additional 1.7 billion people being included in the poverty figures reported at that time (Brooks et al., 2013; World Bank, 2012). Pritchett (2013) has taken these calls a step further and suggested the figure be revised to US$ 12.50 per day, which would bring it closer to the figures used in developed economies and would help to create much greater parity in terms of living standards between rich and poor nations.
2014; World Bank, 2018, 2020) and featuring in the opening paragraph of this review of the literature.

In addition to the efforts outlined above to create and measure an international poverty line, many countries continue to use measures based on their national Gross Domestic Product (GDP), this being the most widely used alternative economic measure (Lang & Lingnau, 2015). The advantage that GDP measures have over a global international poverty line is that they are perceived to correspond better to national realities and thus have greater relevance at a national level (ibid.). However, the problem with measures that rely solely on income and economic growth, whether at a national or international scale, is that there is an implicit assumption that they contribute to human development and a permanent reduction in the deprivations associated with living in poverty (Sen, 1999; Stiglitz et al., 2009; Reeves et al., 2020; Salecker et al., 2020).

2.1.4 Multidimensional understanding and measures of poverty

Several scholars (including Sen, 1999; Stiglitz et al., 2009; Sen et al., 2010; Fitoussi & Stiglitz, 2013; Allin & Hand, 2014) have challenged the notion that economic well-being is synonymous with rising living standards and the alleviation of deprivation. A number of alternative approaches have therefore been proposed, key amongst them being work on global poverty by Sen (1973, 1982, 1984, 1985, 1999) (Robles Aguilar & Sumner, 2020), and work by Townsend (1979, 2010) on poverty in the UK (Nájera Catalán & Gordon, 2020). Both scholars identified the multidimensional nature of poverty, with Sen relating poverty to a lack of capabilities (Alkire & Santos, 2014; Robles Aguilar & Sumner, 2020; Salecker et al., 2020), while Townsend considered poverty in terms of a
deficit in access to resources and the resultant inability for people to engage in broader society (Nájera Catalán & Gordon, 2020; Reeves et al., 2020). Other recent work has demonstrated that income is only marginally correlated with subjective well-being and that its contribution to this is considerably less than the contributions made through, for example, our social relationships and our health (Luhmann et al., 2011; Lamu Olsen, 2016; Salecker et al., 2020).

Increased recognition of the multidimensional nature of poverty has revealed a number of important points. For instance, prices fluctuate and a variety of prices can be offered to different people, especially in informal markets, thus reducing the relative accuracy and utility of a fixed poverty line (Sen, 1981; Alkire & Santos, 2014). Additionally, people’s consumption patterns and behaviours are not uniform, as a result of which they may not be able to meet their basic needs as intimated by use of a fixed daily sum of money (ibid.). A number of studies have also demonstrated that use of a single poverty line does not account for intra-household disparities in income poverty, and have focused on differences between men and women (Klasen & Wink, 2003; Sen, 2003; Batana, 2013; Vijaya & Swaminathan, 2014), children (Cuesta et al., 2020) and people with living with disabilities (Banks et al., 2017).

Two other critical points stand out. Foremost amongst these is that a number of participatory studies have found that people considered to be poor describe the poverty they experience not merely in monetary terms, but as a combination of deprivations that go beyond a lack of income (Narayan et al., 2000; Narayan & Petesch, 2007; Alkire & Santos, 2014). Second, many of the deprivations that people face and report, for example
access to services such as water, sanitation, education, energy and health, are not captured by the use of a single, income-based poverty line (Bourguignon & Chakravarty, 2003; Salecker et al., 2020), thus further calling into question its utility.

2.1.5 Multidimensional Poverty Index in detail

A number of more comprehensive measures have been designed as a result of improvements in our understanding of poverty and its multidimensional nature (Lang & Lingnau, 2015). These measures, sometimes referred to as “direct” (Alkire & Santos, 2014, p. 251), have been designed to take into account a number of non-monetary dimensions and indicators, including specifically, people’s access to health, education, electricity, water, sanitation, cooking fuels, housing and assets (Alkire & Santos, 2014; Robles Aguilar & Sumner, 2020; Nájera Catalán & Gordon, 2020; Alkire & Kanagaratna, 2021). Each of these dimensions and its associated indicators is weighted to provide a final measure of poverty for the country or region being surveyed (ibid.).

One of the earliest measures developed was the Unmet Basic Needs (UBN) measure, pioneered in Latin America, and in which people living in poverty “were identified by counting the number of deprivations they experienced” (Santos & Villatoro, 2018, p. 55; Nájera Catalán & Gordon, 2020). An exploratory multidimensional assessment was undertaken in India, based on eight dimensions linked to family health (Jayaraj & Subramanian, 2009, cited in Alkire & Seth, 2015), while European measures adopted a similar approach to the ones used in Latin America (Alkire et al., 2017). However, of all the non-monetary measures, the one that is currently most widely used is the Multidimensional Poverty Index (MPI) which builds on earlier concepts, extends the
number of indicators and dimensions, and adopts approaches developed by Alkire & Foster (2007, 2011) (Robles Aguilar & Sumner, 2020; Nájera Catalán & Gordon, 2020). The MPI has formed the basis of a collaboration between the Oxford Poverty and Human Development Initiative and the United Nations Development Programme’s Human Development Report Office (Alkire & Santos, 2010, 2014) and has been applied to over 100 countries (Alkire & Santos, 2014) thus demonstrating that it has similar versatility and can be used just as well as the international monetary approach (Salecker et al., 2020).

Each of the MPI’s dimensions, these being health, education and living standards are equally weighted, at one third each. Health and education both comprise two indicators (weighted equally), while the living standards dimension is divided into six equally weighted indicators (Alkire et al., 2017). The MPI was most recently revised in 2018 (Alkire & Kanagaratna, 2021). Table 1, developed by Robles Aguilar & Sumner (2020), summarises the results and the slight alterations to the each of the iterations of the MPI, and uses data from 2015 to illustrate the effects of the different iterations. It also includes the definitions of poverty that are associated with each of the iterations of the MPI (ibid.), those these can only really be understood in the context of the measure, and not in a more abstract manner.
<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>Nutrition</td>
</tr>
<tr>
<td></td>
<td>Any adult or child in the household with nutritional information is undernourished (1/6)</td>
</tr>
<tr>
<td></td>
<td>Any child has died in the household (1/6)</td>
</tr>
<tr>
<td></td>
<td>Child mortality</td>
</tr>
<tr>
<td></td>
<td>Any child has died in the household (1/6)</td>
</tr>
<tr>
<td>Education</td>
<td>Years of schooling</td>
</tr>
<tr>
<td></td>
<td>No household member (aged 10 or older) has completed five years of schooling (1/6)</td>
</tr>
<tr>
<td></td>
<td>No household member (aged 10 or older) has completed six years of schooling (1/6)</td>
</tr>
<tr>
<td></td>
<td>No household member (aged 10 or older) has completed six years of schooling (1/6)</td>
</tr>
<tr>
<td></td>
<td>School attendance</td>
</tr>
<tr>
<td></td>
<td>Any school-aged child in the household is not attending school up to class 8 (1/6)</td>
</tr>
<tr>
<td></td>
<td>Any school-aged child in the household is not attending school up to class 8 (1/6)</td>
</tr>
<tr>
<td></td>
<td>At least one school-aged child up to the age of grade 8 is not enrolled in school (1/6)</td>
</tr>
<tr>
<td>Standard of living/basiconfrastructure</td>
<td>Electricity</td>
</tr>
<tr>
<td></td>
<td>The household has no electricity (1/18)</td>
</tr>
<tr>
<td></td>
<td>The household has no electricity (1/18)</td>
</tr>
<tr>
<td></td>
<td>The household has no electricity (1/18)</td>
</tr>
<tr>
<td></td>
<td>Sanitation</td>
</tr>
<tr>
<td></td>
<td>The household’s sanitation facility is not improved, or it is shared with other households (1/18)</td>
</tr>
<tr>
<td></td>
<td>The household’s sanitation facility is not improved, or it is shared with other households (1/18)</td>
</tr>
<tr>
<td></td>
<td>The household’s sanitation facility is not improved, or it is shared with other households (1/18)</td>
</tr>
<tr>
<td></td>
<td>Water</td>
</tr>
<tr>
<td></td>
<td>The household does not have access to safe drinking water, or safe water is more than a 30-minute walk, round trip (1/18)</td>
</tr>
<tr>
<td></td>
<td>The household does not have access to clean drinking water, or safe water is further than a 30-minute walk, round trip (1/18)</td>
</tr>
<tr>
<td></td>
<td>The household has a dirt, sand, or dung floor (1/18)</td>
</tr>
<tr>
<td>Shorthand</td>
<td>MPI-1a</td>
</tr>
<tr>
<td>-----------</td>
<td>--------</td>
</tr>
<tr>
<td><strong>Institutional basis</strong></td>
<td>Original OPHI MPI</td>
</tr>
<tr>
<td>Cooking fuel</td>
<td>The household cooks with dung, wood, or charcoal (1/18)</td>
</tr>
<tr>
<td>Assets</td>
<td>The household does not own more than one of the following: radio, TV, telephone, bike, motorbike, or refrigerator, and does not own a car or truck (1/18)</td>
</tr>
<tr>
<td>Housing</td>
<td></td>
</tr>
<tr>
<td><strong>Monetary poverty</strong></td>
<td><strong>Income/Consumption</strong></td>
</tr>
<tr>
<td><strong>Monetary poverty</strong></td>
<td><strong>Income/Consumption</strong></td>
</tr>
<tr>
<td>Income/Consumption</td>
<td>Daily consumption or income is less than US$1.90 per person (1/3)</td>
</tr>
<tr>
<td>Definition of poverty</td>
<td>Households are defined as poor if they are deprived in indicators whose weight adds up to 1/3 or more.</td>
</tr>
<tr>
<td>Poverty headcount in 2015</td>
<td>Households are defined as poor if they are deprived in indicators whose weight adds up to 1/3 or more.</td>
</tr>
<tr>
<td><strong>Poverty headcount in 2015</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Robles Aguilar & Sumner (2020, p. 3)
One of the most striking elements of this comparison is the difference in the numbers of people reported to be living in extreme poverty (identified as the poverty headcount, on the bottom row of the table). Iterations MPI-1a, MPI-1b and MPI-2 all suggest approximately double the numbers of people reported to be living in poverty (that is 1.5 billion people) when compared to the income-based poverty line for 2015 (which was 736 million people). In contrast, the World Bank’s 2018 adjusted MPI-3 actually shows a reduction in the total numbers reported to have been living in extreme poverty. The large difference in the numbers reported by the World Bank’s MPI-3 measure as compared to those reported by the more comprehensive measures is primarily due to MPI-3 not taking account of access to water and sanitation in the same way as the other measures and having the heaviest emphasis on the income-based dimension (Robles Aguilar & Sumner, 2020).

As Table 1 illustrates, any attempts to measure and monitor such large populations of people, living in such a diverse range of countries and locations will be fraught with difficulty and differences, and “the MPI, like any internationally comparable poverty measure, is data constrained and imperfect” (Alkire et al., 2017, p. 232).

Amongst the advantages of this more nuanced understanding of the multidimensionality of poverty are that it can help to “avoid unrealistic assumptions that underlie the monetary approach, particularly about human behaviour, the nature of well-being, and the workings of markets” (Salecker et al., 2020, p. 551). It recognises that people differ, that they want choice and that they have individual preferences (Kuklys & Robeyns, 2004; Chikweche et al., 2012; Hasan et al., 2019). The natural, social, cultural and political environments
in which people live vary from place to place, and the result of all of these factors is that people require different amounts and combinations of resources in order to achieve a particular standard of living (Salecker et al., 2020). Use of more comprehensive measures, such as those included in the MPI, allows for the indicators that represent deprivation to be more readily tailored to the country or region in which poverty is being measured, thus providing a more nuanced measure than a single global poverty line (Lang & Lingnau, 2015; Gordon & Nájera Catalán, 2020).

2.1.6 How many people live in multidimensional poverty?

When considering any efforts to alleviate poverty, we should consider not ‘only’ the 1.3 billion people classed as being multidimensionally poor (Alkire et al., 2021; UN, 2022), but also the one billion people who live on US$2-3 per day, barely above the monetary threshold of extreme poverty (Independent Group of Scientists appointed by the Secretary-General, 2019). This number rises further, to approximately four billion, that is one in every two people in the world, when considering people who have just moved out of extreme poverty but who remain on the cusp of falling back into it, lacking social protection, threatened by economic and environmental crises, or living in countries affected by war and armed conflict (ibid.). Given the number of deprivations they face, these four billion people are often referred to as living at the BoP.

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For detailed reviews of different measures of poverty, the reader may be interested to consult Tsui (2002) and Bourguignon & Chakravarty (2003). For further insight into the income-based measure, the reader is encouraged to consult Ravallion et al. (1991) and Chen and Ravallion (2010). For comprehensive insight into the MPI, the reader is directed to Alkire and Santos (2014), Alkire et al. (2017), Alkire and Kanagaratnam (2021), as well as Robles Aguilar and Sumner (2020). The work of Santos and Villatoro (2018), as well as that of Nájera Catalán and Gordon (2020) is particularly insightful regarding Latin American iterations of the MPI, while Salecker et al. (2020) and Nishimwe-Niyimbanira (2020) provide comprehensive discussions of the differences in application between monetary and multidimensional measures of poverty in Rwanda and South Africa, respectively.
As illustrated in the literature reviewed, the nature of poverty will be just as multidimensional for those living slightly above US$ 1.90 per day as for those living below it. The need, therefore, to design appropriate policies, to develop suitable markets and to provide access to a range of services and goods to those four billion people considered as part of the BoP will form the next section of this review of the literature.

2.2 Base of the economic Pyramid

2.2.1 Development of the BoP concept

Economists have long argued that “market forces and private ownership of productive assets [can] lead to a prosperous society” (Kolk et al., 2014, p. 339). However, the financially least well-off people in the world were not traditionally viewed as potential customers to be targeted by private enterprise and market forces, with scholars, practitioners and policy-makers considering that poor people were best served by government, philanthropic and aid initiatives (Kolk et al., 2014; Hart et al., 2016). This concept was challenged in the late 1990s and early 2000s when scholars made the case that multinational corporations (MNCs) or multinational enterprises (MNEs) could simultaneously target the poorest members of society whilst still making financial profit, thus providing a potential avenue via which to help alleviate global poverty (Prahalad & Lieberthal, 1998; Prahalad & Hammond, 2002; Prahalad & Hart, 2002; Hart & Christensen, 2002; Hammond & Prahalad, 2004; Hart & Sharma, 2004; London & Hart, 2004; Peredo et al., 2018). Their rationale was that “profits [from the BoP could be] driven by volume and capital efficiency instead of by high margins” (Dembek et al., 2020, p.367). At around the same time, de Soto (2000), wrote separately of the entrepreneurial
spirit and potential of poor people, lending further support to the concept that business
could help alleviate poverty.

In relation to the potential for MNCs and MNEs to serve the poorest people in society,
the term “Bottom of the economic Pyramid” (BoP) was coined and remains in widespread
use (e.g. Hart et al., 2016; Agarwal et al., 2017; Mason & Chakrabarti, 2017), or “Base
of the economic Pyramid” (BoP) which is possibly the more common of the two (e.g.
Goyal et al., 2016; Lashitew et al., 2020; López-Morales et al., 2020; London, 2021).
Some authors refer to both (e.g. Kolk et al., 2014). Synonymous with the wide physical
bottom or base of a pyramid, this phrase is meant to indicate that the majority of the
world’s population, approximately half of it, lives in relative poverty.

2.2.2 The size and scale of the BoP
Estimations of the size and scale of this population vary considerably depending on the
thresholds used (Lappeman et al., 2019). For instance, many authors refer to “four billion”
people living at the BoP (e.g. Hart & Christensen, 2002; Hammond & Prahalad, 2004;
Prahalad, 2005; Kistruck et al., 2013; Goyal et al., 2016; Zomorrodi et al., 2019; London,
2021) though there is recognition that the number ranges from four to five billion
(Hammond et al., 2007; Lappeman et al., 2019). Other scholars (e.g. Follman, 2012;
Chikweche, 2013; Borchardt et al., 2020) refer not to the number of people, but to those
living on or below established measures of poverty, which vary from less than US$1/day
to less than US$2/day (e.g. Banerjee & Duflo, 2007) to less than US$2.50/day (Lappeman
et al., 2019). Alternatively, some scholars refer to annual incomes of US$1,500 or less,
or US$2,000 or less, both expressed on a scale that is adjusted for “purchasing power
parity” (PPP) and which is often equated to US$3,000 per annum in local purchasing power (Hammond et al., 2007; Kolk et al., 2014).

Statistics from individual countries are sometimes used to illustrate the large potential customer base and its possible market value, for instance “Brazil’s poorest 25 million households have an annual income of around $73 billion per annum; China’s 286 million lowest-income households have an annual income of about $691 billion; and India’s 171 million poorest households have spending power of about $378 billion.” (Hammond & Prahalad, 2004, p. 32-33). At a global level, these measures are often grouped together to provide the basis for the underlying argument about the approximate size and potential economic market value of this BoP population, for instance “four billion people – with incomes below US$3,000 in local purchasing power – represent a market worth US$5 trillion” (Fitch & Sorensen, 2007, p. 783, citing work by Hammond et al., 2007).

As noted in Section 2.1 on poverty, there are various different ways of understanding and measuring poverty, especially when its complex and multidimensional nature are taken into account, along with the deprivations suffered by people living in poverty. The next subsection illustrates some of the characteristics shared by people living at the BoP, drawing attention to the overlaps between these bodies of literature and the implications for people living in poverty and at the base of the economic pyramid.

2.2.3 Characteristics shared amongst people living at the BoP

Research into people living at the BoP reveals that they share certain characteristics but that there is also considerable variation across the globe. Amongst the shared
characteristics, for instance, most people living at the BoP are not well integrated into the global market economy (Hammond et al., 2007; London & Hart, 2010; Lappeman et al., 2019) with the majority also suffering from a lack of access to bank accounts and other modern financial services (Hammond et al., 2007).

Mainstream market failure is widespread (Kolk et al., 2014; Prabhu et al., 2017) as is resource scarcity which includes lack of access to basic services such as safe water, sanitation, electricity, good quality shelter, nutritionally rich food, and health care (Weidner et al., 2010; Mason & Chakrabarti, 2017; Borchardt et al., 2020). Many people, particularly those living in urban slums, live in homes and on land for which they have no title deeds (Hammond et al., 2007; Anderson et al., 2010).

Many people live in countries with rapid population growth, rely on subsistence livelihoods and/or the informal sector (London & Hart, 2010; Lappeman et al., 2019), as a result of which they have limited opportunities to sell to better established markets (de Soto, 2000; Kistruck et al., 2013), often relying on middlemen (Hammond et al., 2007). For those working the land, or fishing, their reliance upon natural resources makes them particularly vulnerable to changes in the climate (Hammond et al., 2007).

Finally, expenditure on basic goods and services tends to be greater for those living at the BoP than for wealthier customers, because of factors that include greater distances to hospitals, higher transport costs, and “exorbitant fees for loans or transfers of remittances from relatives abroad.” (Hammond et al., 2007, p. 5; Kistruck et al., 2013; Mason & Chakrabarti, 2017). In addition to suffering from resource scarcity and a lack of
integration into the global economy, people living at the BoP tend to suffer from a lack of reliable institutional support (Mair & Marti, 2009; Kistruck & Beamish, 2010; Mason & Chakrabarti, 2017; Borchardt et al., 2020).

BoP populations tend to be characterised as having a “strong sense of community and partnership” (Lappeman et al., 2019, p. 323). Various scholars have identified the importance of social capital, social networks, relationships and interactions within BoP communities, with this extending to group lending, mutual help and shared understandings (London & Hart, 2004; Barki & Parente, 2006).

The importance and adoption of connectivity through mobile phones has also been found to be a relatively common characteristic across BoP communities (Prahalad & Hart, 2004; Zabir et al., 2008, cited in Lappeman et al., 2019). Mobile telephony represents an interesting illustration of the pace of some changes within BoP communities. For instance, in 2007, Hammond et al. report that most people living at the BoP do not own a phone, whereas in 2019, Lappeman et al. note that “the BoP consumer market has already shown a huge increase in mobile communications” (ibid., p. 323). Admittedly, there are differences between ownership of a phone and access to connectivity (e.g. through borrowing of someone else’s phone), and there are differences between phone ownership and mobile phone coverage around the world. However, the rapid adoption of mobile connectivity and growth of the sectors in, for example Africa (Porter et al., 2012) and Asia Pacific (Garía-Ochoa Mayor & Davó, 2016) serves to illustrate that the situation and profile of BoP consumers is dynamic, rather than static.
2.2.4 Individuality amongst people living at the BoP

While sharing certain characteristics, as illustrated above, many scholars have noted that “the BoP market is not one, homogenous, monolithic block” (Chikweche & Fletcher, 2012; Laporte, 2017; Lappeman et al., 2019; Dembek et al., 2019; Singh et al., 2022, p. 398). Research has shown the importance of differentiating between continents, between countries, and within countries (Chikweche et al., 2012; Lappeman et al., 2019).

Systematic reviews (e.g. Kolk et al., 2014; Dembek et al., 2020; López-Morales et al., 2020) have identified demographic differences in terms of the numbers of articles published with South Asia (India in particular) tending to be the most widely researched (Hammond et al., 2007; Gupta & Pirsh, 2015), partly due to its having the largest BoP population in the world (Jaiswal & Gupta, 2015; Singh et al., 2022), while SSA countries and more developed economies have witnessed the least BoP research (Kolk et al., 2014; López-Morales et al., 2020). The Asia-Pacific is estimated to account for 24.3% of the total BoP population, with India accounting for a further 22.2%, China 19.6% and Africa 16.2% (Davies et al., 2017).

Scholars have undertaken research into a number of other variables, including differences between people living at the BoP in rural and urban areas (Ireland, 2008; Anderson et al., 2010; Chikweche et al., 2012), or in conflict zones and areas suffering from lawlessness (Anderson et al., 2010). In seeking to improve understanding of the diversity and heterogeneity within populations living at the BoP, scholars have explored a range of additional factors, often referring to “segmentation” of the BoP population (e.g.
Segmentation by income levels has perhaps been the most common (Dahana et al., 2018) with the widely cited study by Hammond et al. (2007) dividing consumers into six groups, based on annual income. Rangan et al. (2011) also adopted income-based segmentation, noting that households with higher incomes (being situated closer to the middle of the economic pyramid) tend to live in closer proximity to wealthier families, have greater access to financial and health services, have some disposable income with which to buy products and, as a result, are motivated to improve their living standards. In contrast, those living at the very bottom of the pyramid lack access to the most basic facilities, suffer from a dearth of opportunities and, as a result, are less motivated to improve their living standards (ibid).

Family structure and the individual’s role within it has been explored by some researchers (e.g. Viswanathan, 2007; Chikweche & Fletcher, 2012). Findings from this research highlight that men and women have different roles in consumer behaviour within the family, as do working children. They also find that roles are changing and that there appears to be greater consultation between spousal members. In non-rural locations in Zimbabwe, for instance “the pressure of limited income, uncertain product availability and price hyperinflation resulted in spouses making joint purchase decisions and at times speculative purchases.” (Chikweche & Fletcher, 2012, p. 209).
A number of scholars (e.g. Kang, 2014; Hasan et al., 2017; Hasan et al., 2019; Singh et al., 2022) have studied a range of psychological factors that affect BoP consumers’ intentions and decisions about whether to buy and adopt products, often relating this to the Theory of Planned Behaviour (TPB) (ibid.). Barki and Parente (2006, p. 15) found that people living at the BoP “demonstrate a high concern about maintaining their self-respect and being treated with dignity,…[perceive themselves as] second-class citizens,…[and have an] aggravated sense of embarrassment” about being poor. Characteristics such as these have led scholars to identify individuals living at the BoP as “aspirational consumer[s]” (Lappeman et al., 2019, p. 324), who may seek to enhance self-respect and dignity through the purchase of products that go beyond their basic needs (Prahalad & Hammond, 2002; Gupta & Srivastav, 2015), something against which Karnani (2007) cautions. A number of other studies have explored brand awareness and preference among consumers living at the BoP, finding considerable awareness of the association between branded goods and product quality, but also the importance of perceived value as a predictor of intention to purchase (Prahalad & Hart, 2004; Nyanga, 2015; Hasan et al., 2019; Lappeman et al., 2019).

This subsection on individuality among people living at the BoP is perhaps best summarised by the conclusions from a recent survey of 465 Indians living at the BoP. Singh et al. (2022) applied the TPB and concluded that there is “profound heterogeneity in the BoP market…[and our findings] provide evidence for the divergent cognitive and behavioural penchants of the BoP consumers.” (Singh et al., 2022, p. 413). Other researchers have explored approaches adopted by organisations working at and with BoP populations and this will be explored in the next subsection.
2.2.5 Organisations working at the BoP

There appears to have been a shift in the size and type of organisation upon which scholars have focused in the BoP literature. Despite the original focus on MNCs and MNEs within the BoP concept (Peredo et al., 2018), the most recent systematic review finds that only 18% of articles have focused exclusively upon such organisations, whereas over 50% (the majority) focus upon initiatives in which MNCs collaborate with local enterprises and NGOs (Dembek et al., 2020). Similarly, recent articles have shown an increase in coverage of work by non-MNC organisations (ibid.), which may suggest that the original focus upon MNC/MNE-only initiatives is less relevant as the field has developed.

Scholars have discussed a range of business sectors within the BoP literature, including provision of healthcare (Angeli & Jaiswal, 2013), telecommunications (Anderson et al., 2010), clothing such as Habi Footwear (Dembek et al., 2018), production of foodstuffs such as yoghurt produced by Grameen-Danone (Humberg & Braun, 2014), fast moving consumer goods (Decker & Obeng-Dankwah, 2022), entrepreneurship (Cervilla, 2013, cited in López-Morales et al., 2020), and constraint-based innovations (as a rich stream of bottom-up, locally-driven initiatives that contrast with externally-imposed products and technologies) (Agarwal et al., 2017). Others have summarised research from a range of sectors (e.g. Prabhu et al., 2017). It is notable the rather small number of large-scale initiatives that seem to feature in research by multiple authors – Aravind eye care, Cemex, Safaricom MPESA, M-KOPA (for example Müller et al., 2012; Prabhu et al., 2017; Burns, 2018; Gupta et al., 2018; Rastogi, 2018; Kingiri & Fu, 2020), suggesting a paucity of large-scale successes.
Others have sought to reflect on the different size, scope and rationale underlying organisations working at the BoP, primarily differentiating between those conceived in and primarily for the BoP consumer (e.g. grassroots and social innovators) as compared to MNCs and MNEs, classed as outsiders, but with much greater purchasing power and access to technologies and resources (Hart et al., 2016). One such illustration is micro-entrepreneurs. They have been the focus of considerable BoP research (Webb et al., 2009; Webb et al., 2012; Bruton et al., 2012, cited in London et al., 2014) but are inevitably very different in size and scope to MNCs and MNEs.

Reflecting the shift in purely MNC/MNE-focused initiatives, and the reliance of MNCs and MNEs on local partners, several scholars (such as Zomorrodi et al., 2019; Borchardt et al., 2020; Decker & Obeng-Dankwah, 2022) have sought to better understand the interactions between these international corporations and the local or micro-entrepreneurs with whom they often work. For example, Decker & Obeng-Dankwah (2022) find that MNEs that reportedly co-create with Ghanaian micro-entrepreneurs are, in several cases, co-opting the micro-entrepreneurs and their business models. In their research, where the relationship involved sales of fast-moving consumer goods (FMCG) and telecommunications products, the result was a reduction in both the financial and social capital of the micro-entrepreneurs, as well as displacement of existing products with those produced by the MNE. It was found that this model did not benefit the micro-entrepreneurs and also failed to provide any meaningful support. In contrast, where financial products were being traded, the results were more mixed, with micro-entrepreneurs suffering from reduced financial capital, but greater social capital (ibid.). These results suggest that benefits can accrue from MNE-micro-entrepreneur
relationships, but also that some of the early warnings about local product displacement and harmful outcomes (see for example, Karnani, 2007; 2009) should be heeded. Thus, there is a need for detailed understanding of nuanced local contexts and interactions between social and environmental concerns as experienced by citizens, communities, local government, NGOs and others living and working in BoP environments (Anderson et al., 2010; Hart et al., 2016).

2.2.6 Iterations of the BoP concept

As understanding of the BoP concept has improved and in the face of criticisms and shortcomings of the original idea, the approach has been refined by some of the original proponents, and by other scholars. Most recent scholarly articles report three iterations of the BoP approach (Cañeque & Hart, 2015; Dasgupta & Hart, 2017; López-Morales et al., 2020; Dembek et al., 2020) and the continued evolution of the third concept (e.g. Dembek et al., 2020). Borchardt et al. (2020) also refer to a fourth iteration (BoP 4.0) though this does not appear to be a widespread phenomenon.

In the original iteration (attributed to Prahalad & Hammond, 2002) and referred to by some authors as BoP 1.0 (Kolk et al., 2014; London, 2021), the focus was primarily upon “viewing the poor as consumers” (Dembek et al., 2020, p. 366). A number of scholars (e.g. Karnani, 2007, 2009; Martinez & Carbonell, 2007) have been sceptical about the underlying premise of the fortune to be made at the BoP, challenging the notion that MNCs and MNEs can or should generate profit while providing products targeted at people living in poverty. More specifically, there were concerns that the BoP 1.0 concept could encourage people to divert their meagre resources away from essential products to
ones that they neither needed nor could realistically afford (Karnani, 2007; Dembek et al., 2020). There was also concern that local manufacturers and producers of goods would suffer from and be displaced by the competition from predominantly Western-oriented MNCs and MNEs (Newell, 2008; Garrette & Karnani, 2010). In a slightly different vein, Landrum (2007) challenged the business assumptions upon which BoP 1.0 was founded, suggesting that application of Western-informed business practices would not work in BoP markets, the majority of which are located in developing countries.

Building on critiques of this first iteration (e.g. by Karnani, 2009; Simanis & Hart, 2008, 2009), BoP 2.0 was developed, with its greater focus upon the entrepreneurial potential and involvement of people living at the BoP as producers, distributors and suppliers (Dembek et al., 2020). Although BoP 2.0 was conceived to better integrate people living at the BoP as co-producers and co-creators, able to work under the auspices of small local businesses, it, too, raised a number of concerns (Dembek et al., 2020). For instance, Karnani (2007, p. 99) was concerned that inclusion of people living at the BoP as producers and “portray[al] of them as resilient entrepreneurs could result in insufficient emphasis upon the legal, regulatory and social mechanisms that protect them, and overemphasize micro-credit instead of focusing on providing lasting employment opportunities.” Concern over the introduction of unsustainable consumption practices remained in BoP 2.0 as it had in 1.0 (Dembek et al., 2020).

BoP 3.0 (introduced and described by Cañeque & Hart, 2015) is presented as advancing a step further, seeking to integrate environmental concerns into the model, moving from a double bottom line (economic and social) to a triple bottom line (economic, social and
environmental) (Cañeque & Hart, 2015; London, 2016; Dembek et al., 2020). For some authors (e.g. Mason & Chakrabarti, 2017; Dembek et al., 2020), BoP 3.0 remains the most recent, and is still evolving. Those primarily responsible for its development (Cañeque & Hart, 2015) are seeking to move the debate on to incorporate better and more situation-specific understanding of different BoP contexts whilst seeking to address the relative lack of success of the earlier iterations (Dasgupta & Hart, 2015, cited in Dembek et al., 2020).

However, several scholars (Karnani, 2010; Arora & Romijn, 2011; Simanis, 2012; Simanis & Milstein, 2012; Hart et al., 2016; Dembek et al., 2020) have noted the paucity of evidence that BoP approaches (in any of the iterations) have succeeded in long term poverty alleviation through the sustainable generation of profits. This is not to suggest that the approach be discarded, or that there exists no positive examples. Following their extensive review of the literature, Kolk et al. (2014) note the parallel evolution of streams of literature in the fields of social entrepreneurship, and in the field of socially inclusive business. They suggest that there may be merit in applying lessons and practices from these streams of research, as well as that relating to cross-sector partnerships between businesses, NGOs and governments (ibid.) In a similar vein, proposed modifications to BoP 3.0, with its greater focus upon social and environmental considerations, have the potential to improve poverty alleviation outcomes (Yurdakul et al., 2017; Dembek et al., 2020), but also show greater overlap with elements of social entrepreneurship and sustainable business model development.
2.2.7 Summary of first section of literature review

To summarise this section of the literature review for the reader, approximately four billion people live at the BoP (Hammond & Prahalad, 2004; Zomorrodi et al., 2019; London, 2021). Each individual has limited purchasing power, but between them, they have enormous buying power and, therefore, represent a huge potential market (Hammond & Prahalad, 2004; Fitch & Sorensen, 2007). While individuals living at the BoP share a number of common characteristics (Kolk et al., 2014; Lappeman et al., 2019), many of which relate to institutional failures affecting their ways of life, they are extremely heterogeneous and exhibit a wide range of individual traits (Laporte, 2017; Lappeman et al., 2019; Dembek et al., 2020), which seems unsurprising given that there are people living at the BoP in every country in the world.

Various iterations of the BoP concept have emerged (Peredo et al., 2018; Borchardt et al., 2020), each seeking to address shortcomings of previous versions, and each falling short of delivering on the potential first hoped for in the model (Karnani, 2007; Simanis & Hart, 2008). Sceptics of the fortune at the BoP have warned of the dangers of encouraging poor consumers to spend meagre resources on unnecessary goods (Karnani, 2007), of the potential to displace local products with those produced by MNCs/MNEs (Newell, 2008; Garrette & Karnani, 2010), and of the incompatibility between strategies targeting Western markets as compared to emerging markets (Landrum, 2007). The original focus upon MNCs/MNEs as the businesses best able to address poverty at the BoP seems to have been replaced by greater focus upon both their reliance on local partners, and/or the work of smaller organisations in the absence of, or in preference to, MNCs/MNEs (Zomorrodi et al., 2019; Decker & Obeng-Dankwah, 2022).
Most BoP business research has focused upon marketing to and analysis of consumer behaviours (Hasan et al., 2019; Singh et al., 2022), but relatively little has focused upon the long-term customer benefits of BoP approaches (Hart et al., 2016; Dembek et al., 2020). Geographically, over 60% of the research published relates exclusively to Asia, while articles exclusively on African and South-Central American countries respectively comprise 10% and 9% of the rest of the research (Kolk et al., 2014; Davies et al., 2017; Singh et al., 2022). Recent literature has sought to identify ways in which inclusive business may help address poverty at the BoP (e.g. Lashitew et al., 2020 and Derks et al., 2022).

While the literature on poverty and on the BoP identifies the constraints imposed by low levels of income, many articles also highlight the challenges created by lack of access to services, including energy. Lack of access to energy is reported by people living in poverty as a factor that constrains their quality of life (Narayan & Petesch, 2007) and it is a characteristic shared by many people living at the BoP (Weidner et al., 2010; Lappeman et al., 2019; Borchardt et al., 2020). Furthermore, provision of access to such a basic service is unlikely to be classed as an item that Karnani (2007, 2009) would consider to be an unnecessary good on which meagre resources should perhaps not be spent. Despite recognition of the pervasive nature of energy poverty, in 2022, there are over 700 million people who continue to live without access to electricity (United Nations, 2022). Given that the focus of this research is upon provision of access to energy, specifically electricity, for people living at the BoP, it is important that we understand why so many people continue to live without access to it. Energy poverty therefore forms the main focus of Section 2 of this literature review.
2.3 Energy poverty

2.3.1 The importance of access to energy

Access to energy is central to the lives of people the world over (Nussbaumer et al., 2012; IEA, 2021) because it can contribute to meeting basic human needs, supporting social, economic and sustainable development through the advancement of health, education, wellbeing and productivity (WEC, 1999; Birol, 2007; Vezzoli et al., 2018). The significance of lack of access to energy, or energy poverty, is demonstrated by virtue of its having featured in the predecessors to the MPI, including the Unmet Basic Needs assessments conducted in Latin America, as well as in all iterations of the MPI (Alkire & Santos, 2014; Alkire et al., 2017; Robles Aguilar & Sumner, 2020; Nájera Catalán & Gordon, 2020). Furthermore, it features prominently in the BoP literature (for example Weidner et al., 2010; Kistruck et al., 2013; Lappeman et al., 2019; Borchardt et al., 2020; Dembek et al., 2020).

Energy poverty is a global phenomenon, affecting people in the UK (Boardman, 1991; Liddell et al., 2012; Walker et al., 2014; Bayliss et al., 2021), in Europe (Bouzarovski & Petrova, 2015; Bouzarovski et al, 2021; Rodriguez-Alvarez et al., 2021), in Asia (Pachauri et al., 2004; Khandker et al., 2012; Wang et al., 2015; Jiang et al., 2020), in Oceania (Awaworyi al., 2020) in the Americas (Pereira et al., 2011; Mohr, 2018; Pablo et al., 2019) and to a much greater degree in SSA (Nussbaumer et al., 2012; Bensch et al., 2013; Alem & Demeke, 2020). Thus, the following subsections review efforts to define energy poverty, before considering how improved conceptualisations of it have shaped the way we understand it and the measures we can adopt.
2.3.2 Definitional complexities associated with energy poverty

Despite the interest in energy poverty and efforts to improve our ability to measure it, many authors (including Pachauri et al., 2004; Wang et al., 2015; Ogwumike et al., 2016; Day et al., 2016; Sadath et al., 2017) note the lack of an agreed definition, both from within academia and within global bodies such as the United Nations and the World Bank. As those same authors (ibid.) also note, the lack of an agreed definition of energy poverty is perhaps unsurprising given the range of environmental, geographic, social and economic conditions in which people live and which have formed the basis of interest in energy poverty. Sovacool (2012) supports the challenges involved in defining it, stating “As there is no simple definition of poverty, conceptualising ‘energy poverty’ is a somewhat arduous process.” (p.273). Nevertheless, there have been several worthwhile attempts, both by academics and by global institutions to develop usable definitions. For information, an illustrative log of key studies that offer definitions are provided in Table 2.
<table>
<thead>
<tr>
<th>Author &amp; Year</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Economic Forum, 2010 (in Sher et al., 2014)</td>
<td>The lack of access to sustainable modern energy services and products</td>
</tr>
<tr>
<td>U.N. Secretary-General’s Advisory Group on Energy and Climate Change (AGECC), 2010</td>
<td>Level 1. Basic human needs. Electricity for lighting, health, education, communication and community services (50-100kWh per person per year). Modern fuels and technologies for cooking and heating (50-100kgoe of modern fuel or improved biomass cook stove).&lt;br&gt;Level 2. Productive uses. Electricity, modern fuels and other energy services to improve productivity, e.g. Agriculture: water pumping for irrigation, fertilizer, mechanised tilling. Commercial: agricultural processing, cottage industry. Transport: fuel.&lt;br&gt;Level 3. Modern society needs. Modern energy services for many more domestic appliances, increased requirements for cooling and heating (space and water), private transportation (electricity usage is around 2000kWh per person per year).</td>
</tr>
<tr>
<td>Barnes et al., 2011</td>
<td>[The] energy poverty line [is] the threshold point at which energy consumption begins to rise with increases in income</td>
</tr>
<tr>
<td>Day et al., 2016</td>
<td>An inability to realise essential capabilities as a direct or indirect result of insufficient access to affordable, reliable and safe energy services, and taking into account available reasonable alternative means of realising these capabilities</td>
</tr>
<tr>
<td>Asian Development Bank (in Masud et al., 2007 cited in Sovacool et al., 2012)</td>
<td>The absence of sufficient choice in accessing adequate, affordable, reliable, high-quality, safe and environmentally benign energy services to support economic and human development</td>
</tr>
<tr>
<td>United Nations Development Programme (UNDP) (in Wang et al., 2015)</td>
<td>An absence of sufficient choice in accessing adequate, affordable, reliable, quality, safe and environmentally benign energy services</td>
</tr>
<tr>
<td>IEA (in Wang et al., 2015)</td>
<td>Lack of access to clean and commercial fuels, efficient equipment and electricity and a high dependence on traditional biomass which is mostly burned in inefficient and polluting stoves.</td>
</tr>
</tbody>
</table>

Source: Author’s own
In an effort to differentiate between the levels and associated uses of access to energy, the United Nations Secretary-General’s Advisory Group on Energy and Climate Change (2010) developed a schematic diagram, reproduced in Figure 1. This includes examples of the ways in which energy can be used for each level, but also the different energy requirements associated with such uses.

Figure 1. Varying definitions of energy poverty

Source: AGECC, 2010, in Bazilian et al., 2010, p.5

Rather than include a working definition of energy poverty, some authors note key defining features from the literature and subsequently delineate the parameters of energy poverty that are included in their research. For instance:

There is apparently no universally accepted definition of energy poverty. However, popular conceptualizations of energy poverty are usually based on minimum physical levels of basic energy needs, minimum expenditure required, access to modern energy sources and maximum proportion of energy expenditure in relation to total disposable income or total expenditure. (Ogwumike and Ozughalu, 2015, p. 275-276).
Similar approaches are adopted by a number of authors, particularly those whose work focuses upon trying to refine attempts to measure energy poverty, for instance Alem and Demeke (2020), Ozughalu and Ogwumike (2019), Pachauri and Rao (2020), Ye and Kock (2021). Thankfully, lack of definitional agreement has not prevented efforts to improve provision of access to energy, or work to monitor and assess progress towards its global provision.

2.3.3 Conceptualising energy consumption and energy poverty
Reference to energy poverty relates directly to energy consumption. At a household and individual level, people consume or use energy to cook, to provide light, to heat or cool themselves and to power machines (Ozughalu et al., 2019). Sources of energy are sometimes categorised as being traditional or modern. Those sources categorised as traditional include wood, charcoal, animal dung, crop residue and sawdust, while modern ones include electricity, gas and kerosene (Sher et al., 2014). Complementing this categorisation, is reference to the monetary aspects of different energy sources, with traditional ones being labelled as non-commercial and modern ones as commercial (Pachauri et al., 2004). These conceptualisations have informed the ways in which energy poverty has been measured, as illustrated in the next subsection.

2.3.4 Binary measures of energy consumption and/or energy poverty
Some measures of energy poverty have adopted a binary approach, with people classed either as living in, or out of energy poverty. This sort of approach led to the development of, for example, an energy poverty line (or fuel poverty line) (Pachauri et al., 2004; Nussbaumer et al., 2012). These included attempts to quantify basic energy needs in
engineering terms, for instance in relation to the Watts required to power one or more appliances for a given period of time (Revelle, 1976; Goldemberg et al., 1985; Goldemberg, 1990, all cited in Pachauri et al., 2004). Other binary measures adopted an economic approach, linked to the relative share of household expenditure or income spent on energy (e.g. Leach, 1987, cited in Pachauri et al., 2004), or to the level of energy expenditure relative to a pre-existing monetary poverty line (e.g. Foster et al., 2000, cited in Pachauri et al., 2004; Nussbaumer et al., 2012; Alem et al., 2020; Ye et al., 2021). Authors (such as Pachauri & Spreng, 2011; Simcock et al., 2017; Pachauri & Rao, 2020) who have developed, applied and reviewed these measures recognise several imperfections. For instance, early economic measures, though relatively easy to understand by virtue of being binary, tend to be over simplistic (Nussbaumer et al., 2012; Sovacool, 2012). Use of an energy poverty line, for example, places households above, on or below the line, but does not take into account household size, or use of traditional sources of fuel (ibid).

2.3.5 Improved measures of energy consumption and poverty

In seeking to advance our understanding of energy poverty and our ability to accurately measure it, authors have built upon studies by Sen (1999), in approaching access to energy either as part of a capabilities’ framework, or as part of a framework of needs (such as Maslow’s 1943 hierarchy of needs), wherein, the element of choice is central. In assessing energy poverty in developing countries, authors note that households that gain access to more modern sources of energy do not necessarily stop using traditional sources (Sovacool, 2012; Ogwumike et al., 2016; Munro & Bartlett, 2019; Ozugalhu & Ogwumike, 2019; Practical Action, 2019). This may be for several reasons (Ogwumike
et al., 2016), for example unreliability of the modern source especially in the case of grid connection, the modern source(s) only providing a particular type of energy such as light and mobile phone charging but not heat for cooking or staying warm, or preference for the taste of food prepared a certain way (for instance cooked over a fire rather than in a cooking stove) (Pachauri & Spreng, 2011). As a result, it is proposed that the concept of user-informed fuel stacking may be more suitable than the concept of an energy ladder (Masera et al., 2000; Heltberg, 2005).

In the last two decades, authors have developed measures designed with the express purpose of seeking to address the multidimensional nature of energy poverty, including work by Pachauri et al., (2004), and Modi et al., (2005). For example, Sovacool, (2012) examined the relationship between energy access and the MDGs, with specific reference to traditional biomass fuel and revealed a greater understanding of the dire environmental consequences of biomass use. WHO and others (for instance Lam et al., 2012; Jacobson et al., 2013) have studied the health impacts of different energy sources, including kerosene, and the locations and frequencies with which they are used, while others (such as Barnes et al., 2011) have examined the demand-side of energy poverty. Ultimately, these studies have contributed to the development of one of the most widely cited measures, that being the Multidimensional Energy Poverty Index (MEPI) developed by Nussbaumer et al., (2012) and subsequently refined by academics, for example Ogwumike et al., (2016) and institutions, such as the World Bank (2015). Table 3 summarises the energy-related dimensions and variables that are included in the MEPI.
Table 3. Dimensions and variables within the MEPI

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Indicator (weight)</th>
<th>Variable</th>
<th>Deprivation cut-off (poor if...)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooking</td>
<td>Modern cooking fuel (0.2)</td>
<td>Type of cooking fuel</td>
<td>Use any fuel beside electricity, LPG, kerosene, natural gas, or biogas True</td>
</tr>
<tr>
<td></td>
<td>Indoor pollution (0.2)</td>
<td>Food cooked on stove or open fire (no hood/chimney) if using any fuel beside electricity, LPG, natural gas, or biogas</td>
<td></td>
</tr>
<tr>
<td>Lighting</td>
<td>Electricity access (0.2)</td>
<td>Household appliance ownership (0.13)</td>
<td>False</td>
</tr>
<tr>
<td>Services provided by means of household appliances</td>
<td>Has a fridge</td>
<td>False</td>
<td></td>
</tr>
<tr>
<td>Entertainment/education</td>
<td>Entertainment/education appliance ownership (0.13)</td>
<td>Has a radio OR television</td>
<td>False</td>
</tr>
<tr>
<td>Communication</td>
<td>Telecommunication means (0.13)</td>
<td>Has a phone land line OR a mobile phone</td>
<td>False</td>
</tr>
</tbody>
</table>

Source: Nussbaumer et al., (2012, p. 235)

In developing the MEPI, Nussbaumer et al. (2012) built on Sen’s (1999) work on capabilities and deprivations, and the multidimensional poverty approach developed by Alkire and colleagues at the Oxford Poverty and Human Development Initiative (see Section 2.1.4, p. 23). As a result, the MEPI, in much the same vein as the MPI for overall poverty, is composed of a series of dimensions (of which there are five). In the case of the MEPI each dimension represents a basic service that requires energy. The five dimensions (column 1, Table 3) are assessed using six indicators (column 2, Table 3), and “a person is identified as energy poor if the combination of the deprivations faced exceeds a pre-defined threshold.” (Nussbaumer et al., 2012, p. 235).

The MEPI was subsequently expanded by the World Bank to create the Multi-Tier Framework (MTF) for energy access. However, with measures of energy access having initially been criticised for being overly simplistic, there has recently been criticism of the World Bank’s approach as having now become overly complex and a simplified version has instead been proposed (Pachauri et al., 2020).
The purpose of this section of the literature review is not to challenge or to offer alternatives to the many creative and multi-dimensional attempts to measure energy poverty\(^3\), but to illustrate the complexity of the issues and to situate energy poverty within the wider context of multidimensional poverty and the challenges faced by people living at the BoP. It is beneficial for the reader to note the parallels between efforts to measure poverty and efforts to measure energy poverty. Both initially adopted more binary approaches; both initially worked upon the premise that people could be classified as living above or below a line that represented a poverty threshold; both sought to introduce this line to assist in global comparisons; both such binary measures have been shown to be overly simplistic and to fail to capture differences between and within countries and individuals; both have been improved with research that has shown the complexity and multidimensionality of the issues. While these examples of oversimplification of a topic relate specifically to the two attempts to understand and measure types of poverty, parallels are also evident in the review of the BoP literature, in which attempts to characterise and segment people living at the BoP have resulted in greater recognition of the heterogeneity and complexities that exist within such a diverse and large group of people.

2.3.6 Energy poverty at a global scale

While the magnitude of energy poverty in developed countries, such as those in the EU, deserves special attention (Rodriguez-Alvarez et al., 2021) and has received a great deal of extra attention since the onset of the war in Ukraine (Oil & Energy Trends, 2022; Polak & Polakova, 2022; Tastan, 2022), there are many countries lagging far behind in

accessing modern and reliable energy services, such as electricity (IEA, 2021). Therefore, further detail on progress in combating energy poverty as well as the challenges that remain in terms of improving access to energy for the millions of people who currently live without it are summarised in Table 4, illustrating the access to electricity in different regions of the world.

Table 4. Improvements in electricity access over 30 years in major world regions

<table>
<thead>
<tr>
<th>Region</th>
<th>1990</th>
<th>2019</th>
<th>Absolute change</th>
<th>Relative change</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>72.66% (1998)</td>
<td>90.08%</td>
<td>+17.43pp</td>
<td>+24%</td>
</tr>
<tr>
<td>European Union</td>
<td>100%</td>
<td>100%</td>
<td>0pp</td>
<td>0%</td>
</tr>
<tr>
<td>North America</td>
<td>100%</td>
<td>100%</td>
<td>0pp</td>
<td>0%</td>
</tr>
<tr>
<td>OECD members</td>
<td>99.55%</td>
<td>99.99%</td>
<td>+0.44pp</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Latin America &amp; Caribbean</td>
<td>88.48% (1992)</td>
<td>98.42%</td>
<td>+9.94pp</td>
<td>+11%</td>
</tr>
<tr>
<td>East Asia &amp; Pacific</td>
<td>93.34 (2000)</td>
<td>98.13</td>
<td>+4.79pp</td>
<td>+5%</td>
</tr>
<tr>
<td>Middle East &amp; North Africa</td>
<td>91.07% (2000)</td>
<td>97.23%</td>
<td>+6.16pp</td>
<td>+7%</td>
</tr>
<tr>
<td>South Asia</td>
<td>47.03% (1993)</td>
<td>94.40%</td>
<td>+47.37pp</td>
<td>+101%</td>
</tr>
<tr>
<td>Africa Western &amp; Central</td>
<td>32.20% (1993)</td>
<td>51.34%</td>
<td>+19.14pp</td>
<td>+59%</td>
</tr>
<tr>
<td>Africa Eastern &amp; Southern</td>
<td>20.09% (2000)</td>
<td>43.64%</td>
<td>+23.55pp</td>
<td>+117%</td>
</tr>
<tr>
<td>SSA</td>
<td>27.65% (1996)</td>
<td>46.75%</td>
<td>+19.10pp</td>
<td>+69%</td>
</tr>
</tbody>
</table>


The data, provided in 2021 by international agencies involved in monitoring progress towards provision of universal access to electricity over the last 30 years is, in many ways,
encouraging, highlighting that global access to electricity increased by 18% between 1998 and 2019. Substantial progress has been made in several regions, most notably South Asia, as well as Latin America and the Caribbean. SSA has also made progress, for instance showing 69% positive relative change from 1996 to 2019. However, access to electricity remains woefully low, with less than half the population of SSA having access in 2019 (IEA, IRENA, UNSD, World Bank, WHO, 2021).

In recognition of the importance of energy for sustainable development, the United Nations set an explicit energy goal in 2015 (Grimm et al., 2017; IEA, IRENA, UNSD, World Bank, WHO, 2021). This is known as Sustainable Development Goal 7 (SDG7) and is one of 17 SDGs developed by the United Nations and its signatory countries. It seeks to “ensure universal access to affordable, reliable and modern energy services”, by 2030 (IEA, IRENA, UNSD, World Bank, WHO, 2021, p. 1). The rationale for development of this goal was a recognition that “Energy is crucial for achieving almost all of the SDGs, from its role in the eradication of poverty through advancements in health, education, water supply and industrialization, to combating climate change.” (Report of the Secretary-General, 2016).

2.3.7 Sustainable Development Goal 7

Like all the SDGs, SDG 7 comprises an overarching goal, a number of targets, and a number of related indicators (see Table 5). To help track and share information regarding provision of access to energy, the United Nations undertook a detailed evaluation of access levels at the start of the period during which the SDGs were due to run, this being 2015-2030 (ibid.). It provided summaries, in 2015, for each of the six indicators, and
these are periodically updated. An overview of performance against each indicator is provided for five of the six indicators.

Table 5. SDG 7 – Goal, Targets and Indicators

<table>
<thead>
<tr>
<th>GOAL 7: ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target 7.1</strong></td>
</tr>
<tr>
<td>Indicator 7.1.1 Proportion of population with access to electricity</td>
</tr>
<tr>
<td>Indicator 7.1.2 Proportion of population with primary reliance on clean fuels and technology</td>
</tr>
<tr>
<td><strong>Target 7.2</strong></td>
</tr>
<tr>
<td>Indicator 7.2.1 Renewable energy share in the total final energy consumption</td>
</tr>
<tr>
<td><strong>Target 7.3</strong></td>
</tr>
<tr>
<td>Indicator 7.3.1 Energy intensity measured in terms of primary energy and GDP</td>
</tr>
<tr>
<td><strong>Target 7.a</strong></td>
</tr>
<tr>
<td>Indicator 7.a.1 International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems</td>
</tr>
<tr>
<td><strong>Target 7.b</strong></td>
</tr>
<tr>
<td>Indicator 7.b.1 Installed renewable energy-generating capacity in developing countries (in watts per capita)</td>
</tr>
</tbody>
</table>

For indicator 7.1.1, the ‘proportion of population with access to electricity’, it was reported that 1.3 billion people had gained access to electricity between 2010 and 2020. Despite this progress, 733 million people are reportedly still living without access (UN, 2022). Asia has been at the fore of improvements in access to electricity, which had been provided at over twice the pace of demographic growth (UN, 2016). People living in urban areas comprise 80 per cent of whose who gained access since 2010 (ibid.).

For indicator 7.1.2, the ‘proportion of population with primary reliance on clean fuels and technology’, it was reported in 2020 that 69 per cent of the world’s population had access to clean fuels and technologies for cooking, representing an 18 per cent increase since 2000, though with limited progress having been made since 2010. Most progress has been made in highly populated countries, including Brazil, China, India, Indonesia, and Pakistan. It is estimated, in 2020, that 2.4 billion people continue to rely on polluting fuels and technologies for cooking, such as solid fuels and kerosene (UN, 2022). Over 50 per cent of people without access to clean cooking fuels live in Asia, while SSA accounts for 19 of the 20 countries in which the lowest percentage of the population has access. Improvements in access tend to be in urban areas (ibid.).

Regarding indicator 7.2.1, the ‘renewable energy share in the total final energy consumption’, between 2000 and 2012, there had been a 0.7 per cent increase in the share of renewable energy (derived from hydropower, solid and liquid biofuels, wind, the sun, biogas, geothermal and marine sources, and waste) as a proportion of the world’s total final energy consumption (UN, 2022). As of 2012, renewable energy represented 18.1 per cent of total energy consumption. Eastern Asia was responsible for approximately 72
per cent of the increase in modern renewable energy consumption, with hydropower, wind and solar energy technologies being responsible for 73 per cent of the total increase in modern renewable energy between 2010 and 2012 (ibid.). The latest reports show that this figure has dropped slightly, with renewable energy representing 17.7 per cent of total final energy consumption as of 2019, but access to electricity accounts for the highest proportion of renewable energy generation (UN, 2022).

Indicator 7.3.1, regarding energy intensity, is not reported here because of its limited value in relation to this study.

For indicator 7.a.1, ‘international financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems’ were reported to have nearly doubled from US$ 9.9 billion in 2010, to US$18.6 billion in 2016 (UN, 2022). A further increase was reported in 2017, when levels reached US$ 21.4 billion (ibid.). However, international financial flows have since fallen, dropping to US$ 14 billion in 2018, US$ 10.9 billion in 2019, with the five-year trend showing its first decreases since 2008 (UN, 2022).

Regarding indicator 7.b.1, the ‘installed renewable energy-generating capacity in developing countries (in watts per capita)’, there appear to have been fewer reports published. However, while the renewable energy capacity per capita is reported to have increased by 57.6 per cent between 2015 and 2020, the world’s least developed countries and landlocked developing countries are lagging at least 40 years behind other developing countries in terms of their progress against this indicator (UN, 2022).
Further detailed information and analysis is available in the numerous reports available online via the Tracking SDG7 websites, produced by the United Nations, the International Energy Agency, World Health Organisation, World Bank and their associated partner organisations. However, it is clear from the headline figures reported by the United Nations (2016-2022) that while progress is being made against all the indicators, it is not being made at the rate required to meet SDG 7, or its targets, by 2030. Furthermore, some indicators, for example 7.a.1 show a slowing in the pace of progress.

The short subsection on SDG7 above provides information regarding the global energy goal and targets within which to situate the focus of this research, which is specifically upon universal access to electricity, as defined by target 7.1 and indicator 7.1.1. This specific target will now be reviewed in greater detail.

**2.3.8 Access to electricity globally**

Indicator 7.1.1 considers access to electricity and between 2010 and 2020, and the extent to which progress was made towards attainment of this target, with the number of people living without access to electricity estimated to have fallen (UN, 2022). However, there remains a staggering projection that 679 million people will still live without access to electricity in 2030, the target year for universal provision for access to electricity for everyone in the world (ibid.). When this parameter is expanded to incorporate people living with unreliable and weak grid access (i.e. having electricity access for less than 50% of the time) it rises even further to two billion people (Efficiency for Access Coalition, 2019).
We see here a similar trend to that observed in relation to people living in extreme poverty and those living just above the extreme poverty line, namely that a very large number of people live in extreme energy poverty, but more than twice as many live on the cusp of energy poverty, faced with very precarious and unreliable access to electricity. Figure 2 shows the proportion of the population in each country that has access to electricity in 2019, highlighting global disparities in access.

*Figure 2. Proportion of people with access to electricity in 2019*

Traditionally, electricity has been provided by national grid-based systems via which a household secures electricity from a local network which, in turn, is connected to a larger network that is supplied by a series of power-generation plants (Narayan et al., 2020).
Grid extensions continue to prove very popular, with 750 million of the 920 million people that are estimated to have gained access to electricity between 2010 and 2019, having done so via grid extension (IEA, IRENA, UNSD, World Bank, WHO, 2019). In certain circumstances, for example with adequate population density and levels of energy demand, grid extensions may be the most cost effective and economic solution (Szabó et al., 2011; Narayan et al., 2020). However, grid extension is extremely costly, has tended to rely upon government and donor supported programmes (Nygaard et al., 2016), and may not always be the most appropriate solution (Szabó et al., 2011; Narayan et al., 2020). A combination of high investment costs (Haanyika, 2008; Hansen and Xydis, 2020) and relatively low energy tariffs can lead to insufficient revenue and network deterioration, contributing for instance to 82% of SSA utilities reporting net financial losses in 2013 (World Bank IEG, 2014).

In developing countries, rural communities tend to be excluded from grid extension because of higher infrastructure costs, lower energy demands, greater losses associated with projected energy service provision, financial risks, regulatory impediments and capacity limitations associated with public and judicial bodies (Muzenda, 2009; Warnecke & Houndonougbo, 2016; Hansen and Xydis, 2020). As a result, people living in rural locations make up 84% of the global population that still lack access to electricity in 2019 (IEA, IRENA, UNSD, World Bank, WHO, 2021). Figures 3 and 4 illustrate the extent of the impact of the barriers to rural electrification by differentiating between urban and rural electrification trends around the world. Figure 3 shows that global electrification in urban areas is estimated to have improved by 7% rising from 90% in 2001 to 97% in 2019, with the 2019 average across SSA estimated to be 78%. Rural electrification at a
global scale is estimated to have improved by 20% over the same period, going from 61% in 2001 to 81% in 2019 (Figure 4).

Figure 3. Urban electrification from 2001-2019


However, it is in relation to rural electrification that SSA lags furthest behind the rest of the world, with only 25% of the rural population estimated to have access in 2019 (Figure 4). In comparison, Oceania, the next lowest region in terms of rural electrification, stands at 76%.
Figure 4. Rural electrification from 2001-2019


The continental trends for SSA are reflected in Zambia, in which this research is located, and where urban rates of access are circa 80 percent while rural access remains below 20 percent. This makes it a suitable choice of country in which to situate the research. Further detail on Zambia’s national electricity coverage and recent trends in provision of electricity access is therefore provided in the next subsection.

2.3.9 Access to electricity in Zambia

Zambia, the country focus for this research, provides a national-level representation of the trends that appear to be relatively widespread across SSA, as illustrated by Figure 5 in which there are evidently significant disparities between urban and rural provision.
When reviewing how electricity is provided across Zambia, the global and continental trend for grid-based extensions is once again reflected at a national level. Zesco Ltd., the state-owned utility, was formed in 1970 and dominates electricity provision throughout the country, accounting for over 90 per cent of grid-connected capacity (Bayliss & Pollen, 2021). The vast majority of Zambia’s electricity provision comes courtesy of two hydropower plants, both owned by Zesco. As recently as 2015, these accounted for 94 per cent of electricity provision throughout the whole country, but the share of hydropower-generated electricity has since fallen to 80-85 per cent, reflecting the drought in 2015/16 and a general decline in rainfall (Power Africa, 2019; Bayliss & Pollen, 2021), both of which negatively affect hydropower generation. Of the electricity generated by Zesco, 51 per cent supplies the country’s mining sector, 32 per cent the domestic sector, six per cent goes to finance and property, four per cent to manufacturing and two per cent to agriculture, with the remaining five per cent going into other categories (ERB, 2019).
Of the 32 per cent of generated electricity that supplies the domestic sector, the Living Conditions Survey Report (CSO, 2016) states that only four per cent goes to rural households, despite them comprising 57 per cent of Zambia’s population (CSO, 2016). This is reflected in Figure 5 above, showing that electricity access in urban areas has increased from 67 per cent in 2015 (when the Living Conditions Survey was conducted) to 80 per cent in 2019, whereas in rural areas it has only increased from four percent to approximately 17 percent over the same period.

In recognition of the electricity crisis faced in 2015/16 and the overreliance on hydro power, Zambia’s Energy Regulation Board is seeking to diversify the country’s energy portfolio (ERB, 2019; Bayliss and Pollen, 2021). This is illustrated by an increasing focus on fossil-fuel generated electricity provision, renewable energy provision, as well as increasing purchase of electricity from independent power providers (IPPs) (ibid.) though this is still in its infancy (USAID Power Africa, 2019). In 2015, four per cent of Zambia’s energy came from IPPs; by 2019 this had risen to 24 per cent, the majority of which comes from coal, followed by two smaller hydropower sources, one heavy-oil, and two solar-powered systems (ERB, 2019). Bayliss and Pollen (2021) report that most of the financial details for these IPPs are not in the public domain, but they were able to identify some information regarding ownership and financing. The two fossil-fuel based generators are owned by a UK-registered business belonging to a Kenyan billionaire, and a Singapore owned subsidiary of an Indian business conglomerate. The two solar-powered IPPs are part of the World Bank’s Scaling Solar programme and the Government of Zambia owns a 20 per cent stake in each, while the companies themselves are owned by French and Italian companies. While further detail on these ownership structures and the financial
tariff arrangements can be found in Bayliss and Pollen (2021), they conclude that it is the IPPs that stand to benefit the most from these deals, not Zesco and not necessarily the end user of the electricity.

Although nationally a large proportion of the rural electrification budget has been set aside for grid extensions (Hannyika, 2008), as evidenced by recent investment in to electricity generation through heavy oil, coal and smaller hydro-powered plants, there is considerable potential for solar powered electricity generation, as illustrated in Figure 6, produced by SolarGIS as part of the ESMAP and World Bank project to capture solar irradiation values across the country. As further testament to the country’s solar potential, it is being measured and mapped in detail over a five-year period (World Bank, n.d.).
Average solar irradiation is reported to be 5.5 kWh/m²/day, while southern Zambia holds the record for the highest solar irradiation globally, averaging 2,300 kWh/m²/year (Barua et al., 2018). The Zambian government’s increased willingness to consider renewable energy provision has been recognised in its Vision 2030 document, which aims to provide universal access to all Zambians by 2030, as well as its 2004 National Energy Policy.
(Barua et al., 2018), both of which represent important developments for the potential expansion of off-grid electricity provision.

### 2.3.10 Off-grid electricity provision as an alternative to grid-based extensions

While grid extensions were responsible for providing 750 million people with access to electricity between 2010 and 2019, off-grid renewable solutions, particularly solar based technologies, provided access for “approximately 133 million people” (IRENA, 2018, p. 6; GOGLA, 2019; IEA, IRENA, UNSD, World Bank, WHO, 2021). Off-grid refers to systems that are not connected to national grid type infrastructure. Off-grid renewable energy systems include *mini or micro-grids* in which several homes are connected as part of the same network, as well as *standalone household systems* (IRENA, 2017; Narayan et al., 2018).

According to the UN’s Tracking SDG 7 report (2021), the number of people connected to renewable mini-grids (solar, hydro and wind powered) grew from 5 million in 2010 to 11 million in 2019. In the same period, policy frameworks for mini-grids were reported to have developed more quickly than those for grid-based electrification (Lighting Global, GOGLA & ESMAP, 2020) though this is perhaps unsurprising given that grid-based electricity provision has been in existence for much longer and is therefore likely to benefit from policy frameworks that are better established. Among the renewable energy alternatives available are solar, wind, hydro, biomass and geothermal powered mini-grids, which tend to generate 10kW to 10MW (Muhoza & Johnson, 2018; Mwanza & Ulgen, 2020). In order to help achieve SDG7, the International Energy Agency (2017) estimates the need for an additional 350,000 mini grids to be constructed globally by 2030.
However, adoption of mini-grids is not without its challenges (Muhoza & Johnson, 2018; Stritzke & Jain, 2021). In terms of system size and population reach, mini-grids sit somewhere between the large-scale systems described in earlier paragraphs, and the very small-scale household systems known as either pico-solar or solar home systems (Pedersen, 2016; Muhoza & Johnson, 2018).

The number of people connected to off grid solar powered standalone systems (including pico-solar and solar home systems) increased from 85 million in 2016 to 105 million in 2019 (Lighting Global, GOGLA & ESMAP, 2020; IEA, IRENA, UNSD, World Bank, WHO, 2021), representing a much larger number of people in absolute terms than those connected via micro or mini-grids. Off-grid solar home solutions use technologies that are not connected to any grid network. There is no connection to either national grid infrastructure, or to mini/micro-grids. However, the technologies available provide a range of power outputs and accessories, as illustrated in Table 6.
Table 6. Description of range of off-grid solar single home solutions

<table>
<thead>
<tr>
<th>Description &amp; power</th>
<th>Internal components</th>
<th>Possible accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solar portable light, up to 3 Watts</td>
<td>Photovoltaic (PV) panel, internal battery, single lantern (usually LED)</td>
<td>None</td>
</tr>
<tr>
<td>Pico-solar &amp; small Solar Home System (SHS), 5-30 Watts</td>
<td>Single PV panel, internal battery, one or more lights (usually LED)</td>
<td>Additional LED lights, radio, torch, mobile phone chargers and cable</td>
</tr>
<tr>
<td>Medium (30-200W) to Large (over 200W) SHS</td>
<td>One or more PV panel(s), external battery, one or more lights (usually LED)</td>
<td>Additional LED lights, charge controller, multiple appliances including fans &amp; TVs, radio, torch, mobile phone chargers and cable, sometimes an inverter</td>
</tr>
</tbody>
</table>

Source: Based on descriptions\(^4\) provided by Barua et al. 2018

In contrast to grid-based electricity provision which has tended to be managed by government agencies, renewable off-grid electricity solutions have been provided by businesses, social enterprises, non-governmental organisations, as well as government agencies (IRENA, 2016; Nygaard et al., 2016; Warnecke & Houndonougbo, 2016; Muhoza and Johnson, 2018). This demonstrates the relative ease with which such technologies and the resultant provision of access to electricity can be managed by organisations other than government, and is therefore of relevance to organisations interested in providing access to electricity to people living at the BoP. Numerous factors affect the advent of renewable energy technologies and are therefore discussed next.

\(^4\) There are multiple different categorisations of solar home solutions. This reflects, in part, the rapid pace of development of these technologies. [It may be more appropriate to use a different classification, but this will do for now.]
2.3.11 The rise of off-grid renewable energy technologies

Several factors have contributed to the rise of renewable off-grid technologies and, in particular, standalone home systems. One key factor is that the potential of the global market is huge, comprising 759 million people without any access to electricity and more than 1 billion with unreliable access (IEA, IRENA, UNSD, World Bank, WHO, 2021). In addition, the price of oil has risen steadily since the 1990s, with particular highs reached between 2007-2015 (Nygaard et al., 2016), and current energy market volatility having increased since the outbreak of war in Ukraine. As a result of sustained increases, “the price of derived products, such as diesel oil and kerosene, which are widely used for electricity generation and lighting purposes throughout [SSA], has increased accordingly.” (p. 8) In contrast to this volatility, and general increases in the price of oil, solar technology has become more efficient and less expensive to produce (Lighting Global, GOGLA & ESMAP, 2020). This can be illustrated by the increase from 18,000 branded small-scale solar products that were sold in 2009, to nearly four million that were sold in 2016 (Munro et al., 2022). It can be further illustrated by increases in the number of companies working in the branded small-scale solar product market, which grew from 60 in 2010, to more than 330 in 2017 (Lighting Global, 2018).

As the technologies have continued to mature, so too have the business models, for instance with the introduction of Pay-As-You-Go systems in which customers make a smaller initial capital purchase after which they buy electricity as and when they can afford it (Orlandi et al., 2016; Barrie & Cruickshank, 2017). Such systems also allow companies to better understand their customers and to provide suitable financing offers (Lighting Global, 2020). Following the rise in production of solar products has been the
introduction of a global quality assurance scheme (Nygaard et al., 2016), which, combined with greater customer familiarity with the products, have led to an increase in demand for better quality products, particularly at the entry-level (Lighting Global, 2020). Increased global awareness of the importance of renewable energies to contribute to sustainable development and to help combat the negative effects of energy poverty has also led to increased institutional (e.g. UN, World Bank, WHO), academic and business interest in solar power (Warnecke and Houndonougbo, 2016).

The rise in off-grid renewable technologies, and in particular standalone home systems has not, however, all been plain sailing. Initially, growth in financial investment in off-grid renewable electricity generation, technology and reach look set to grow year on year (IRENA, 2016; GOGLA, 2020) and the market volume grew by over 2,000 per cent between 2010 and 2014 (Munro et al., 2022). Furthermore, expansion of this sector was being supported by calls for the introduction and integration of off-grid renewables into national electrification plans, the need for ecosystems to facilitate deployment of off-grid renewables, calls for greater innovation, more flexible business models, and more sustainable service provision (IRENA, 2017). However, the market then contracted, growing by only seven per cent between 2014 and 2018 (Munro et al., 2022), and international investment to developing countries for renewable technologies has since declined for two consecutive years (UN, 2022).

Furthermore, the initial excitement in small-scale solar power that was expressed by solar companies and their impact investors (Clowes et al., 2019) has, for a variety of reasons, been replaced by a more measured response (Munro et al., 2022). Early analysis of the
ecosystems in which these companies operate was too simplistic, failing to take adequate account of the complexity of the markets and the energy poor (Munro & Schiffer, 2019), the challenges posed by ‘generic’ or ‘uncertified’ products that now constitute over 70 percent of products on the market (Grimm & Peters, 2016; Lighting Global, 2020; Trompette & Cholez, forthcoming), delivery constraints linked to poor infrastructure and low population density (Munro & Samarakoon, 2022), the impact on people’s purchasing power of natural disasters such as drought (Dizard, 2019; Kennedy, 2019), and the ramifications of the Covid-19 pandemic on supply chains and purchasing power (Castán et al., 2020; Cross, 2021).

Combined, these factors led to sluggish sales among companies selling the quality-certified solar products, as a result of which many of them were found to have been financially overvalued and unable to repay their equity investments and debt financing (Clowes et al., 2019). Several high-profile companies ceased operations, for instance in 2019, Mobisol filed for insolvency despite having secured US$120 million in equity and debt-financing (Africa Business, 2019; Dizard, 2019; Cross & Neumark, 2021), while Barefoot Power, one of the early entrants and product developers, went into voluntary liquidation in 2018 (Munro et al., 2022).

Worried by these failures and encouraged by their investors (Jacome & Ray, 2018; Cross & Neumark, 2021) many companies have shifted their focus to urban and peri-urban customers, including the middle-class, considered more credit-worthy and from whom profit can more easily be made, rather than the rural poor and those living in extreme energy poverty (Pothering, 2020; Barry & Creti, 2021; Cross & Neumark, 2021; Munro
This trend, fuelled by the financial motives of investor companies, runs the risk of the middle class benefiting from renewable energy innovations that can power televisions, laptops and fridges, while the rural poor are once again left behind, continuing to live in energy poverty despite early promise that such small-scale solar products could help improve access to electricity for those living without it (Clowes et al., 2019; Cross & Neumark, 2021).

Not all companies have gone down this route, however, as illustrated by one social enterprise, Sunny Money, which has not taken out heavy debt-financing and has continued its focus upon reaching those people living in extreme energy poverty, often located in rural areas (SolarAid, 2016, 2021; Munro et al., 2022). It is this unique focus which warrants further investigation. Consequently, this organisation forms the case study focus of this research, in particular its operations in Zambia.

The decision to use a social enterprise as the case study organisation is appropriate given calls in the BoP literature that developments in social entrepreneurship be given consideration for the potential suitability to operate in BoP markets (Kolk et al., 2014) and efforts in BoP 3.0 to better integrate environmental, social and economic concerns (Cañeque & Hart, 2015; London, 2016; Dembek et al., 2020). In order, therefore, to situate Sunny money within the appropriate organisational context, the next section, 2.4, offers a review of the literature on social enterprises and the environments, or ecosystems in which they operate. It begins with a review of the literature regarding social enterprises in Europe and the USA, the two most widely researched geographies in terms of social
enterprise, before exploring social enterprises in SSA, the geographical area in which this case study is located.

2.4 A review of social enterprises in Europe and the USA

2.4.1 The rise of social enterprises

There is evidence of social entrepreneurs dating back to the 19th century and possibly as early as the 11th century (Santos et al., 2015). However, the last three decades have witnessed considerable growth in the visibility of and interest in social enterprises among academics (Dees, 1998; Austin et al., 2006; Dacin et al., 2010; Doherty et al., 2014; Davies & Doherty, 2019), among policy-makers (EU/OECD, 2016; Stephan et al., 2017), in the media (The Guardian, 2014; Forbes, 2019, Financial Times, 2019), and among practitioners (Social Enterprise Scotland, 2021; Social Enterprise Alliance US, 2021; Social Enterprise UK, 2021). Various explanations have been proposed to help explain the emergence and expansion of social enterprises, including failure of market forces and of the state (Spear, 2006; Austin et al., 2006; Defourny & Nyssens, 2008), pressure within non-profits to generate resources in a manner that renders the non-profit organisation less reliant on philanthropy and grants (Dees, 1998), or a perception that adoption of business practices by non-profit organisations is a reflection of society’s belief in market forces and should therefore be seen as progressive (Dart, 2004; Teasedale, 2011).

Despite this interest, there are no universally agreed definitions of social enterprise, social entrepreneurship or the social entrepreneur, but all three terms regularly feature alongside one another in the literature (Doherty, et al., 2014; Littlewood and Holt, 2018). Kerlin (2010) notes that definitions vary by country and by region. Dacin et al., (2010) recorded
at least 37 definitions associated with the three terms social entrepreneurship, social entrepreneur and social enterprise, thereby illustrating the diversity of definitions within the academic literature. This diversity is due in part to the difficulty of defining the two cornerstones of the concept, namely entrepreneurship and social outreach (Rey-Martí et al., 2016). It is also due partly to the application of different theoretical lenses and to the different contexts in which social enterprises have evolved (Defourny & Nyssens, 2006, 2010; Teasdale, 2011).

Notwithstanding, and indeed perhaps because of the lack of definitional agreement, interest in the concepts associated with these terms has grown considerably since the 1990s and there have been several very useful attempts to shed light on these (Defourny and Nyssens, 2006, 2010; Dacin et al., 2010; Schneider et al., 2017).

Several authors note that ‘social entrepreneurship’ as a concept involves the use of partly commercial approaches and innovative solutions to help achieve social and/or environmental goals (Seelos and Mair, 2005; Hartigan, 2006; Thompson and Doherty, 2006). The ‘social entrepreneur’ or collection of entrepreneurs is broadly understood to be the individual(s) who brings to bear new ideas, drive, resourcefulness and creativity to address an existing or newly identified social and/or environmental problem (Boschee and McClurg, 2003; Korosec and Berman, 2006). Finally, the ‘social enterprise’ is the organisational structure in which the individuals operate and whose forms vary (Haugh, 2006; Yunus, 2008; Defourny and Nyssens, 2010).
The European Union (n.d.), which has created expert groups and supports social entrepreneurship across the region, considers that the primary objective of social enterprises is to create social impact rather than to focus on the generation of profits for shareholders. It recognises the huge diversity that exists within social enterprises and notes that many “operate in the form of social cooperatives, some are registered as private companies limited by guarantee, some are mutual, and a lot of them are non-profit-distributing organisations like provident societies, associations, voluntary organisations, charities or foundations.” (European Union, n.d.). For some academics, policy makers and practitioners alike, there is an expectation that the terms will continue to evolve as the sector itself does so (Dacin et al, 2010; Government of Ireland, 2019; Social Enterprise Alliance UK, n.d.). For instance, for the Government of Ireland:

…the definition of social enterprise is evolving nationally and internationally and is likely to continue to do so as social enterprises themselves adapt to new societal challenges. The definition will also evolve as national and local governments and wider society understand more fully the nature of social enterprise and the contribution they make to social and economic development. (Government of Ireland, National Social Enterprise Policy for Ireland, 2019-2022, p.8).

Similarly, in their extensive review of social enterprises, both in theory and in practice, Ridley-Duff and Bull (2016) note the dynamism that is inherent in the process of seeking to define and self-define, as adjustments are made to a changing external environments and to internal questions of identity.

To summarise, there does not seem to be a single, widely accepted definition of social entrepreneurship. This seems unsurprising given both the wide range of organisational
forms, and the widespread recognition of dynamism within social enterprises and the ecosystems in which they operate. That said, most definitional attempts converge around two primary characteristics, these being a) the generation of revenue through some form of trading or commercial activity, and b) the pursuit of social aims (Mair & Marti, 2006; Peattie & Morley, 2008; Doherty et al, 2014; Ridley-Duff and Bull, 2016).

In addition to the convergence around these central characteristics, there is widespread recognition that social enterprises occupy a space that is not public, nor private, nor non-profit (Austin, 2006; Doherty et al., 2014; Ridley-Duff & Bull, 2016). Rather than fitting into a single, recognised organisational type, social enterprises have been classed by several authors as being hybrids, combining most often traits from the private and non-profit sectors, but sometimes also from the public (Austin et al., 2006; Dacin et al., 2010; Battilana et al., 2012; Doherty et al., 2014; Santos et al., 2015; Davies & Doherty, 2019). This concept of hybridity has helped illuminate a multitude of tensions and opportunities with which social enterprises are faced (ibid.). These are summarised in Appendix 1.

2.4.2 Scale and impact of social enterprise

Despite the many challenges and tensions faced by social enterprises, they are credited with making major contributions to economic growth and employment. For instance, a 2015 survey spanning nine European countries and over 1,000 social enterprises reported revenues in excess of €6 billion, more than five million work placement opportunities, as well as the provision of services and products to more than 870 million people (OECD/EU, 2017). In the UK, an estimated 100,000 social enterprises contribute £60 billion to the country’s Gross Domestic Product (Social Enterprise UK, 2019). In The
Netherlands, between 2010 and 2015, total revenues from social enterprises increased from €2 billion to €3.5 billion with 25,000 new social enterprise jobs created in the same period while the country lost 75,000 jobs in other sectors (McKinsey & Company, 2016).

The huge variation in these figures from selected European countries suggests quite different styles of counting and reporting. Indeed, the challenge of accurately measuring the scale and reach of European social enterprises is reflected in the 2020 European Commission report which states “Measuring the size of social enterprises has proved to be a very difficult task. Multiple factors make it almost impossible to provide a uniform and comprehensive picture…at European level.” It goes on to report that “…the number of estimated social enterprises ranges from tens of thousands in Belgium, France, Germany and Italy to a few hundred in Croatia and Cyprus…” (European Commission, 2020). Further analysis reveals that the estimated number of people employed in social enterprises registered within each country ranges from less than 500 in Montenegro to the hundreds of thousands, and in the case of France, over 1 million. The degree of data reliability ranges from very low to very high (ibid.).

Despite the challenges associated with gathering reliable data in a uniform manner from one region (Europe), it is clear that the registered revenue from the social enterprise sector is in the billions of Euros and the numbers of people employed are in the millions, both of which demonstrate very significant reach (McKinsey & Company, 2016; OECD/EU, 2017; Social Enterprise UK, 2019; European Commission, 2020).
2.4.3 *Contextual evolutions*

The contexts in which social enterprises operate and in which they are evolving plays an important part in their development (Austin et al., 2006; Kerlin, 2010; Teasdale, 2011). It is therefore pertinent to consider the evolution of social enterprises in Europe and the USA, being the regions in which they are perhaps the most developed and for which there is a considerable body of literature. Although much of the literature focuses upon the evolution of social enterprises from the 1990s onwards, there are much earlier examples of social entrepreneurship cited in the literature, but associated with an era in which social enterprises did not exist in name, for instance Maria Montessori (Chliova et al., 2020), the reforming industrialist Robert Owens (Co-operative Wales, 2021) and Oxfam’s shops (Dees, 1998; Chliova et al, 2020). The concepts go back a long way, likely much further than these three examples, even if the terminology was different.

The literature relating to the emergence of social enterprises has been addressed in different ways by different authors. Spear (2001) and Defourny and Nyssens (2008, 2010), consider the emergence of social enterprises across Europe and Dees (1998, 2007) the USA. They link the appearance of the terms social enterprise, social entrepreneurship and social entrepreneur to the early 1990s, both in Europe and in the USA, though they note their very different roots. In Europe, Italy is the first country thought to have embarked upon official recognition of social enterprise concepts, with the Italian parliament adopting a law recognising social cooperatives in 1991 (Defourny and Nyssens, 2010; European Commission, 2020). In the USA, 1993 saw the launch of a Social Enterprise Initiative by Harvard Business School (Dees, 1998).
Prior to the adoption of social enterprise-related terms, the provision of services by the third sector can be traced back to a pre-World War II era. Unsurprisingly, post-war, the need grew for initiatives combating poverty, unemployment and homelessness. Post-war, the demand for mutual aid, equality and democracy led to the birth of civil society movements that did not necessarily have roots in the church which had historically provided services to the poor, homeless and unemployed (Defourny and Nyssens, 2010).

Salamon et al., (2004) and Defourny and Nyssens, (2010) link the growth of new forms of third sector activity according to different types of government expenditure. Belgium, France, Germany and Ireland are grouped together in their quest for alternatives to costly government unemployment benefit schemes. As an alternative, they sought schemes that could combine the creation of employment opportunities for those out of work, with a reduction in public expenditure on unemployment benefits. Third sector organisations were actively supported in their development of programmes aimed at integrating unemployed people (ibid.). Denmark, Sweden and Finland – the Nordic countries – have traditionally had some of the highest levels of welfare spending, as well as societies in which responsibilities are more clearly shared between government, the private sector and civil society, as well as a strong tradition of cooperative movements, especially among farmers (Hulgaard, 2004; Stryjan, 2006, cited in Defourny and Nyssens, 2010).

According to Salamon (2004), the UK stands out from other European countries in having a relatively low level of government expenditure and a relatively active voluntary sector. During the welfare reform programmes of the 1990s, the government began to contract the voluntary sector to undertake a variety of social welfare programmes (ibid.). In Italy
and Spain, government expenditure on social welfare was traditionally low, with much greater roles played by families and by the church. In the 20th century this was curtailed, particularly by fascist governments, though both countries have long had strong cooperative movements. In the 1980s, faced with high unemployment and an aging population, more cooperatives sprang up and adopted a range of financing techniques (Defourny & Nyssens, 2010).

The historical trajectories to which Salamon et al (2003), Defourny & Nyssens (2010) and others refer helps explain the rich diversity of organisations that fall under the umbrella term of social enterprises. As noted earlier, the diversity of forms is recognised by the European Union (2017), though it categorises organisations into four primary fields of operation. Work Integration Social Enterprises (WISE) make up the first category, whose primary focus is people with disabilities and/or without work, for whom WISE initiatives provide training and integration programmes. Included in the next category are social enterprises dedicated to the provision of social services, be these in the fields of health and care, well-being, education, or services targeting children, the elderly or other people considered vulnerable or disadvantaged. Social enterprises whose focus is the development of deprived areas, be these rural or urban, in the EU or in other countries, comprise an additional category. The final category includes a wide range of activities including the promotion of sports, art, culture, science, research, recycling and environmental protection (European Union, n.d.).

In seeking to explain the emergence of social enterprises in Europe, the USA and elsewhere, scholars have applied a number of theoretical lenses. Among the most popular
theories are market and state failure theories, resource dependency theory and institutional theory (Teasdale, 2011). According to Teasdale (2011), market failure has been adopted primarily by European scholars, including the widely cited work of Defourny and Nyssens (2006), Pearce (2003), Spear (2001) and Williams (2007), who have used it to explain the emergence of community-enterprises and cooperatives as responses to the absence of markets in some disadvantaged areas. The application of theory regarding state failure has tended to be more widely used by academics in the USA such as Dees (2007) who uses it to explain the rise of social entrepreneurship in the face of social problems that have not been addressed by government (Teasedale, 2011). Dart (2004) has also adopted institutional theory to “explain the marketisation of the non-profit sector…and society’s wider fixation with business ideology and a belief that the market knows best.” (Teasedale, 2011, p. 106), while Eikenberry (2009) uses resource dependency theory to explain that “non-profits…[are] deriving commercial revenue…as a rational solution to reduced government funding [while also facing] increased competition for philanthropic donations.” (Teasedale, 2011, p. 103). Application of these theories is not considered mutually exclusive (ibid.). Kerlin (2006, 2010) is widely cited for her work on the evolution of social enterprises relative to the socioeconomic context of the countries and regions in which they are based. Similarly, practitioners (non-profit, for profit and hybrid) play a significant role in the evolution of their organisational forms regardless of the application of theoretical lenses (Teasdale, 2011)⁵.

⁵ Further information on the use of different theoretical lenses and the areas in which they overlap can be found in Teasdale (2011).
2.4.4 Formal recognition

Various authors and institutions (Defourny and Nyssens, 2008, 2010; European Commission, 2020) note the emergence, following Italy’s new law in 1991, of multiple new legal forms that recognised different and increasingly entrepreneurial approaches that were being adopted by Not-for-Profit organisations. Greece, France, Spain and Portugal opted for models that were more closely linked to cooperative style movements, whereas the UK, Belgium and Italy opted for more open social enterprise models that went beyond the cooperative model (Defourny & Nyssens, 2008, 2010; European Commission, 2020). The development of social enterprise related policies and legal frameworks is represented in the following maps from the EC’s 2020 comparative report.

Figure 7 highlights European countries that either have, or are in the process of developing policy frameworks for social enterprises. It also illustrates that many countries have opted not to develop such policies, though social enterprises are recognised and allowed to operate within those countries. Estonia, Germany, Italy, The Netherlands, Spain and Sweden are among those countries that have opted not to develop frameworks, strategies or action plans (EU, 2020). Additionally, Figure 8 illustrates the range of legal frameworks in which social enterprises operate within Europe. In some cases, governments have chosen to adapt existing laws (the UK and Latvia) or existing regulations (Germany, Hungary, Portugal and Spain).
Figure 7. European countries that have policies for social enterprises

Source: Reproduced from Social enterprises and their ecosystems in Europe | Comparative synthesis report, p. 12
Figure 8. European countries in which social enterprises have a legal form or status

Figure 3. Countries with laws on specific legal forms or statuses for social enterprises

Source: Reproduced from Social enterprises and their ecosystems in Europe | Comparative synthesis report, p. 14
In other cases, countries have either opted to introduce standalone legal status for social enterprises (Finland and Lithuania), or to introduce and/or adjust legal status which categorises them within a broader set of organisations (European Commission, 2020).

In the USA, major expansion of not-for-profit organisations is traced to the 1960s when the federal government launched the Great Society programmes in which investment in education, health, community development and poverty alleviation was channelled through not-for-profits. Following the economic downturn in the 1970s these organisations had to create new sources of revenue, and the 1980s and 1990s is associated with the rise of social enterprises in the USA. A National Gathering of Social Entrepreneurs in 1998 lent further impetus to this movement, and various foundations sprang up to support these movements, most notably Ashoka, Skoll and Schwab, all of which continue to support social entrepreneurship (Dees, 1998; Social Enterprise Alliance USA, n.d.).

Overall, it is evident that these different organisations have charted different routes to becoming social enterprises given the extremely broad range of organisational types included under the social enterprise umbrella – cooperatives; employee-owned firms; charities or not-for-profit organisations that reinvest earned income/trading surpluses into the organisation; for-profit companies that reinvest a portion of their profits into the firm; not-for profit local regeneration initiatives; the privatisation of public services. As most of the literature reviewed thus far has considered European and North American contexts, SSA provides the contextual setting for this thesis, so the review will next consider literature regarding social entrepreneurship in SSA.
2.4.5 Social enterprises in SSA

While there is a significant focus on Europe and the USA within this literature, interest in the potential of social enterprises to help address social and environmental issues extends well beyond these two regions. With links to Harvard Business School, several Latin American countries have shown interest in developing their thinking and concepts as have a number of South Asian economies (Kerlin, 2006; Phillips et al., 2015), and Battilana et al. (2012) uses some examples from Bolivia. The existence and potential of social enterprises in SSA is also gaining increasing media coverage (AllAfrica.com, 2019; The Namibian, 2017), multilateral support (Navarette Moreno & Agapitova, 2017; Richardson et al., 2020), and practitioner attention (SEA Scotland, n.d.). In October 2019, Ethiopia welcomed participants to the Social Enterprise World Forum, the first to be held in Africa since the forum was established in 2008 (AllAfrica.com, 2019).

There is also evidence of increasing academic interest on social entrepreneurship in individual SSA countries, of which the most widely researched is South Africa (Littlewood and Holt, 2018) for which a typology of South African social enterprise models was recently produced (Claeyé, 2016), thereby suggesting a rich stream of evidence. Other articles on individual countries include Ghana (Robson et al., 2008); Nigeria (Ademola et al., 2020); Kenya (Holt & Littlewood, 2018); and Tanzania (Calvo & Morales, 2016). Two key multi-country studies exist for the region, namely the World Bank’s 2017 report on the emergence of social enterprise ecosystems in East and Southern Africa (Navarrete Moreno & Agapitova, 2017) and the 2020 British Council report on social enterprises and their contributions to job creation in SSA (Richardson et al., 2020). However, multi-country studies for SSA are more limited in number than for Europe,
which may go some way to explaining additional frequent references to certain authors, including Holt & Littlewood, (2015); Rivera-Santos et al., (2015); Littlewood & Holt, (2018).

2.4.6 Potential challenges for social enterprises operating in SSA

At a macro level, there are several factors that have the potential to negatively influence the development of social enterprises in SSA countries, in ways that are quite different to European countries and the USA. Firstly, 27 of the 34 countries that fall within the lowest Human Development category are in SSA, whereas the United States of America and all European countries fall within the high or very highest categories (United Nations, 2019). All but 10 of the 45 countries in SSA are still classed as Low Income Developing Countries, with the majority also featuring on the Highly Indebted Poor Countries index, in contrast to Europe and the USA (IMF, 2019). As a result, levels of secondary and tertiary education are very low as is the availability of skilled personnel, while the lack of access to good health care leads to high rates of morbidity, all of which make for a challenging environment in which social enterprises have to try to recruit staff.

Matters of transparency and ease of doing business must also be considered, with the picture a bit more mixed when comparing SSA with Europe. Although 20 of the 36 least transparent countries are located within SSA, the region also plays host to 4 of the 50 most transparent, whose rankings are higher than several European countries (Transparency International, 2021). When it comes to the ease of doing business in a country, 12 of the 20 lowest ranked countries are SSA, but so too are two of the ten most improved countries, namely Nigeria and Togo, whose recent progress is reported to have
been inspired by Kenya and Rwanda respectively (World Bank, 2020). In 2018, Rwanda was ranked 29\textsuperscript{th} out of 190 by the World Bank, though it dropped to 38\textsuperscript{th} in 2019 (Trading Economics, 2020).

Organisations will also consider the average start-up time for a business operating in SSA because, in the bottom 50 countries, it is approximately six times longer than ones in the top 20, and in a low-income economy an entrepreneur seeking to start a business can expect to spend 50\% of per capita income as compared to a mere 4.2\% for a similar process in a high-income economy (World Bank, 2020). Such factors go a long way to explaining why research suggests that latecomer economies, including almost all those in SSA, struggle to compete when seeking to adopt traditional business models (Manning, et al., 2017). There are also several other macro-economic factors that have an important bearing, such as conflict and insecurity, literacy rates and life expectancy (Rivera-Santos et al., 2015).

The majority of people working in SSA are employed in the informal sector, i.e. paying no or limited tax (Williams & Nadin, 2014). Though it is unclear whether a large informal sector would be an advantage or disadvantage for social enterprise development (Rivera-Santos et al., 2015), the larger it is, the more complex is any reporting of registered entrepreneurial activities. In their 2019 Global Economic Prospects report, the World Bank notes that “employment informality in Sub-Saharan Africa remains among the highest in emerging market and developing economies, with nine out of ten workers informally employed, of which six are self-employed.” It goes on to note that the proportion of informality across the continent varies, with West and East Africa having
the highest proportions (World Bank, 2019). This is in contrast to developed economies in which it is estimated that 10-20% of GDP is generated in the informal economy (Schneider and Enste, 2003). In Africa, the Gross Domestic Product contribution of the informal economy is increasing, with comparisons between 2007 and 2013 showing increases in every region (Abid, 2016). The informal sector or informal economy is defined here as “involving monetary transactions not declared to the state for tax and/or benefit purposes when they should be declared but which are legal in all other respects” (European Commission, 2007; Williams, 2006; cited in Williams and Nadin, 2014, p. 34).

Formal institutional voids (Khanna and Palepu, 1997; Parmigiani and Rivera-Santos, 2015), weak contract laws, limited infrastructure, poor access to electricity and water (Kistruck et al., 2011), ambiguity and distrust of legislation (Webb et al., 2013), as well as the high costs associated with legal compliance all add to the difficulty of doing business and to the challenges faced by organisations seeking to do business in SSA.

Moreover, there are also a multitude of natural and environmental conditions which present both challenges and opportunities for SSA (Bloom et al., 1998), as discussed next.

2.4.7 Potential opportunities for social enterprises operating in SSA

Notwithstanding individual country diversity in SSA, the literature also identifies a wide range of strengths and opportunities that are common to many of the countries in the sub-region. For example, if, as the literature suggests, poverty, failures of state and gaps in the market create the conditions in which mutual aid, cooperatives and social entrepreneurship in its broadest and most creative sense can thrive (Austin et al., 2006;
Santos, 2012) then SSA could provide a fertile breeding ground (Rivera-Santos et al., 2015). Indeed, examples of existing social entrepreneurship are identified by Rivera-Santos et al., (2015).

SSA countries have decades of experience of development initiatives that have involved collaboration between a range of actors already identified as operating within the loosely defined social enterprise space, including national and international non-governmental organisations, community based organisations, local community groups, church groups, social enterprises, profit-making businesses, local and national government offices, philanthropic organisations and international outfits such as the United Nations. This breadth of networking and collaborative experience may facilitate the adoption of social enterprise operations in SSA countries (Juselius et al., 2014; Bitzer et al., 2015). It may also facilitate the relevance of hybrid business models and the adoption of hybrid organisations (Holt and Littlewood, 2015; Manning et al., 2017).

Littlewood and Holt (2018) identify a number of other characteristics found in resilient social enterprises as well as some of the strategies they adopt. These include passion, vision and realism; finding meaning through shared values; improvisation, inventiveness and ‘making do’ (Coutu, 2002; Bornstein, 2004, both cited in Littlewood & Holt, 2018). Many of these are traits also identified in the European and American literature (Di Domenico, 2010; Desa & Basu, 2013).

SSA’s population is projected to more than double (from 1 billion to 2.2 billion) by 2050 (World Bank, 2021), and while the average rate of unemployment is 7.3 per cent, a further
38 per cent of people are classed as the “working poor”, earning less than USD 1.90 per day (UN, 2019), with the proportion of young people classed as working poor having increased by 80 per cent since the late 1990s (Richardson et al., 2020). As a result, the British Council projects that 800 million new jobs will need to be created in SSA by 2050, if employment opportunities are to address the plight of the working poor, the unemployed and population growth (Richardson et al., 2020). While challenging, this also creates a huge potential pool of people from which to recruit, and research by the British Council suggests that “78 per cent of social enterprises in SSA actively seek to create jobs, as compared to only 27 per cent of profit-first businesses.” (Richardson et al., 2020, p. 15).

Creation of supportive ecosystems in which social enterprises can emerge, develop and thrive requires the development of policies and regulation, the provision of support, access to resources and help with monitoring, as well as greater public awareness, and it is because of the relative absence of these in SSA that the World Bank commissioned a report on east and southern Africa (Navarette Moreno & Agapitova, 2017). The report specifically focuses upon social enterprises whose activities target people living on less than USD 1.90 per day in 2015, which was the World Bank’s monetary poverty line when the research first started (Navarette Moreno & Agapitova, 2017). As illustrated in Figure 9, the report considers country performance against a number of Millennium Development Goals⁶ and uses attainment against each target to illustrate the shortcomings of efforts by public, private and non-profit actors to date, and to show the potential

⁶ The Millennium Development Goals (MDGs) preceded the Sustainable Development Goals (SDGs). They ran from 2000-2015. Many of the MDG targets were not met, as a result of which the SDGs were introduced as an improved and updated set of goals and targets.
opportunities for social enterprises (Navarette Moreno & Agapitova, 2017). It goes on to state that the reach of non-profit organisations, in these cases primarily Non-Governmental Organisations, has been limited by access to grants and sponsorship, and that, while the formal business sector has provided access to services, it prioritises delivery to high- and middle-income people (ibid.).
Figure 9. National performance against selected MDGs (2015)

![Graph showing Maternal mortality ratio (maternal deaths per 100,000 live births) for Kenya, Malawi, Rwanda, South Africa, Tanzania, Uganda, and Zambia.](image)

![Graph showing Proportion of population using an improved sanitation facility (percent) for Kenya, Malawi, Rwanda, South Africa, Tanzania, Uganda, and Zambia.](image)

![Graph showing Access to electricity (percent of population), 2012 (not MDG target) for Kenya, Malawi, Rwanda, South Africa, Tanzania, Uganda, and Zambia.](image)

Source: Reproduced (in part) from Navarette Moreno & Agapitova, (2017)

Figure 10 summarises the relative state of the social enterprise sector in terms of activity, as well as providing a short description of the key areas in which social enterprises are active in each country. The findings reveal that in five of the seven countries (Kenya, Malawi, Tanzania, Uganda and Zambia), faith-based organisations are the most active, focusing primarily on health care (Navarette Moreno & Agapitova, 2017).
Kenya #1: Many active SEs, particularly faith-based, supporting education & health. As a regional hub for businesses & regional organisations (e.g. UN), it has produced many innovative businesses, NGOs and SEs, with models being taken to scale in other countries.


South Africa #2: Predominantly “home-grown” & vibrant SE community. Focus on education, health & energy.

Rwanda (low): Small, expatriate dominated SEs in tourism & agriculture, plus some Rwandan IT start-ups.

Uganda #3: Expanding, with faith-based SEs focused on health & education plus novel energy business models.

Tanzania (low): Small sector, of limited scale. Faith-based focus on health sector. Recent creation of SE incubators & hubs.


Source: Adapted from Navarette Moreno & Agapitova, (2017)
In Rwanda, expatriates have dominated the establishment of social enterprises, while South Africans have taken charge in their own country, and Kenya appears to have benefitted from its position as a regional hub for business and international institutions, leading to it having the most active social enterprise sector with South Africa and Uganda in second and third places, respectively (Navarette-Moreno & Agapitova, 2017). The social enterprise sector in the four other countries is described as being at a “low” or “early stage” of development (ibid. p. 19).

For each of the seven countries assessed in their study, Navarette Moreno & Agapitova (2017) evaluate the business ecosystem in which the social enterprises are operating, noting that “interconnected, interdependent networks of individuals and organisations [influence the] enterprise environment that determine whether or not a business will succeed.” (p. 25). The evaluation of the seven countries is based upon dimensions that have been identified as critical by the European Commission, GIZ, Okapi and Deloitte Consulting, and are summarised in Table 7.
Table 7. Components of a mature & supportive SE ecosystem

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Element</th>
<th>Situation in a mature state</th>
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</thead>
<tbody>
<tr>
<td>Policy and Regulation</td>
<td>Policy Strategy</td>
<td>Government recognizes and promotes the special role of SEs. Sector-specific policies promote not only the private sector, but also specifically SE participation in service delivery. These policies are well-implemented. SEs benefit from legal incentives, such as tax waivers, VAT waived for key purchases in service delivery, and preferential public procurement from SEs. Governments are generally open to collaboration with the private sector, which is expressed in a well-implemented public-private partnership (PPP) policy and formal channels for public-private dialogue.</td>
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<td></td>
<td>Regulation</td>
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<td></td>
<td>Public-Private Collaboration</td>
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<tr>
<td>Financing Solutions</td>
<td>Grant Funding</td>
<td>SEs have access to various grants that support their activities, from government, donors, foundations, and private company corporate social responsibility (CSR) departments.</td>
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<tr>
<td></td>
<td>Commercial Credit</td>
<td>SEs have access to commercial credit at reasonable interest rates. Many impact investors provide funds for different ranges of capital needed. There is a mature multi-finance institution industry that provides affordable credit.</td>
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<td></td>
<td>Consumer Finance</td>
<td>SE customers have formal and informal finance options to afford the services. These options can be in the form of government programs or collaboration with microfinance institutions (MFIs). Informally, consumer finance exists through village savings and loans.</td>
</tr>
<tr>
<td>Infrastructure and Human Capital</td>
<td>Infrastructure</td>
<td>Infrastructure is not only well developed in both urban and rural areas, but also affordable for the whole population. Innovative solutions such as mobile payments prevail and SEs are encouraged, not obstructed, in using the infrastructure at hand. The overall skill level of the population provides a sufficient pool of skilled labor. The education system nurtures an entrepreneurial mindset and prepares interested youth for a future in the SE sector. The sector upholds a positive image in society, and working for a SE is a desirable occupation. Salaries can compete with NGOs and the public and private sector.</td>
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<td>Human Capital</td>
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<tr>
<td>Information and Networks</td>
<td>Capacity Building</td>
<td>Dedicated organizations provide capacity building to SEs for relevant technologies as well as management. Some of these activities may be incubators seeking to develop and support SEs through advice, mentoring, and capital.</td>
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<td></td>
<td>Research and Data</td>
<td>The government and other organizations collect relevant data about low-income consumers and markets and publish it online. There is an active local research community dedicated to SEs and related topics.</td>
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<td></td>
<td>Coordination and Advocacy</td>
<td>A national SE organization (or several) coordinates activities and advocates successfully for SE interests in general, and in service delivery sectors. SE issues are successfully integrated in mainstream business organizations.</td>
</tr>
</tbody>
</table>

Source: Reproduced from Navarette Moreno & Agapitova (2017, p.26)
In Table 8, performance of the UK’s social enterprise sector is assessed against these same parameters, to provide a useful benchmark from a country that is considered to have a supportive ecosystem.

Table 8. UK SE ecosystem as a benchmark of maturity

<table>
<thead>
<tr>
<th>Dimension</th>
<th>History of support in the United Kingdom</th>
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<tbody>
<tr>
<td>Policy and Regulation</td>
<td>• The government has provided continuous support to the SE sector since 1997.</td>
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<td>• In 2004, the government created a special legal form.</td>
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<td>• In 2013, the government passed the Social Value Act. It requires public bodies to consider choosing providers based on social value created.</td>
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<td>• In 2014, the government introduced SE tax relief.</td>
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<td>Financing Solutions</td>
<td>• The UK has a dynamic and fast growing social investment market with an established base of social finance intermediaries that provide the main funding for the SE sector.</td>
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<td>• Still, SEs in the United Kingdom report that funding remains the main barrier to start-up, roll-out, and scaling phases.</td>
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<tr>
<td>Infrastructure and Capacity</td>
<td>• The government creates and enables support institutions that facilitate access to funding and information about SEs, e.g., Big Society Capital.</td>
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<td>• Social entrepreneurship has gained a high standing, with many ventures self-identifying regardless of whether they fit more narrow definitions of an SE. The sector attracts skilled professionals.</td>
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<td>Information and Networks</td>
<td>• A large number of networks and organizations support SEs.</td>
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<td>• SE UK is one such network that runs campaigns, lobbies for the SE sector and provides extensive information on SEs in the United Kingdom.</td>
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Source: Reproduced from Navarette Moreno & Agapitova (2017, p.27)

Table 9 summarises the seven countries assessed by Navarette Moreno & Agapitova (2017) relative to the same parameters.
Table 9. State of SE ecosystems in seven SSA countries

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<tr>
<th></th>
<th>Kenya</th>
<th>Malawi</th>
<th>Rwanda</th>
<th>South Africa</th>
<th>Tanzania</th>
<th>Uganda</th>
<th>Zambia</th>
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<td><strong>Policy and Regulation</strong></td>
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<td>Grant Funding</td>
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<td>Commercial Funding</td>
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<td>Consumer Finance</td>
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<td><strong>Infrastructure and Human Capital</strong></td>
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<td>Skills</td>
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<td><strong>Information and Networks</strong></td>
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<td>Capacity Building</td>
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<td>Research and Data</td>
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<td>Coordination and Advocacy</td>
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Source: Reproduced from Navarette Moreno & Agapitova (2017, p.28)
In a similar vein to the work undertaken by the European Commission (2017), each of the seven countries in this survey of east and southern Africa, is assessed by the status afforded to social enterprises in terms of policy recognition and legal regulation (Navarette Moreno & Agapitova, 2017). The findings are summarised in Table 10.

Table 10. SE policy and regulation status

<table>
<thead>
<tr>
<th>Country</th>
<th>SE policy strategy</th>
<th>SE legal regulation</th>
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<tr>
<td>Kenya</td>
<td>Government is open to private sector &amp; recognises role of small &amp; medium enterprises but there exists only limited recognition of SEs. However, legislation that is relevant to SEs exists in several policy areas, including IT, start-ups &amp; accelerator programmes.</td>
<td>In absence of legal SE form, SEs register as NGOs or companies. Tax exemptions exist for NGOs, country has reputation for creating an enabling environment and has progressed in terms of ease of doing business. Public Benefit Organisation status (similar to South Africa) is under development, but stalled.</td>
</tr>
<tr>
<td>Malawi</td>
<td>Policies that recognise SEs do not exist. Government is open to private sector, but lacks capacity.</td>
<td>In absence of legal SE form, SEs register as NGOs or companies. NGO tax exemptions exist, but ease of doing business is low &amp; difficult for foreign &amp; Malawian entrepreneurs.</td>
</tr>
<tr>
<td>Rwanda</td>
<td>No SE-specific policies exist. Government is open to private sector &amp; civil society, but latter is dominated by foreign NGOs &amp; ones focused on human rights.</td>
<td>In absence of legal SE form, SEs register as NGOs &amp; may, in cases, undertake commercial activities. Ease of doing business has improved but new business law does not apply to SEs &amp; NGOs face barriers.</td>
</tr>
<tr>
<td>South Africa</td>
<td>Government recognition of role of SEs but lack of common understanding of SEs. Government open to private sector.</td>
<td>SEs can register as Non-Profit Company, be granted Public Benefit Organisation status &amp; receive tax-free donations &amp; grants. Hybrid business models are allowed &amp; ease of doing business is good with no minimum capital required.</td>
</tr>
</tbody>
</table>
Tanzania
No SE-specific policies exist. Price-control & state-owned enterprises signify heavy government control of economy & limited interaction with private sector. In absence of legal SE form, SEs register as NGOs & may generate income in some circumstances. Ease of doing business is low.

Uganda
Policies that recognise SEs do not exist. Government is open to private sector engagement but wary of privatisation. Although legal SE form does not exist, hybrid forms are permitted & e.g. NGOs with enterprise component. Tax exemptions exist for several organisation types that qualify as SE. Ease of doing business is low.

Zambia
No SE-specific policies exist. Government against private sector involvement in provision of services to poor Zambians. In absence of legal SE form, SEs register as NGOs or companies. Tax exemptions exist for 3-5 years, VAT is waived on some solar products but inconsistently applied, and ease of doing business has deteriorated.

Source: Adapted from Navarette Moreno & Agapitova (2017)

Social enterprise scholars in Europe and the USA note the importance of financial resources for the success of social enterprises (Dees, 1998; Austin et al., 2006; Doherty et al., 2014; Davies & Doherty, 2019). In their assessment of social enterprise in east and southern Africa, Navarette Moreno & Agapitova (2017) note that grant funding makes up the majority of social enterprise funding, representing nearly 30% of social enterprise income. Use of personal funds and informal debt from family and friends makes up the second largest proportion of social enterprise income, averaging approximately 22% of income. User fees and subsidies jointly represent the next highest income source, at approximately 8% each. Bank loans, equity from impact investors, crowd-funding,
incubator funds, conventional equity, and angel investors each comprise less than 5% of income for the social enterprises interviewed (ibid.).

Additionally, Navarette Moreno & Agapitova (2017) find that, despite being the largest overall contributor of income, the availability of grant funding varies considerably by country. SEs in Kenya, Tanzania and Uganda are able to access and be considered eligible for a range of grants, while in South Africa it is public bodies that tend to provide grants for specific projects. SEs in Malawi and Zambia, however, are much more limited in the availability of grants for which they are eligible, and public grants are limited to registered NGOs. In all seven countries, the majority of grants have only three-year life cycles, and often tend to be allocated to high-profile social enterprises with international backing (ibid.).

With the exception of South Africa where commercial interest rates are considered “reasonable” and are tailored to the needs of micro, small and medium enterprises, commercial bank interest rates in all six of the other countries are high (e.g. 40% in Malawi) or very high, difficult to access and in some cases (e.g. Tanzania) are accompanied by strict collateral requirements. Microfinance institutions can provide an alternative to commercial banks, but with the exception of Kenya and South Africa, the interest rates for microfinance loans are even higher than for commercial banks, reported to be 60% in Malawi (Navarette Moreno & Agapitova, 2017).

The availability of consumer finance, which can assist people on low incomes to access services and products that would otherwise be beyond their reach, is limited. Whereas in
a mature environment people on low incomes would be able to call upon access credit through microfinance institutions, informal savings and credit institutions, these are not so readily available in the more immature environments assessed in this report (Navarette Moreno & Agapitova, 2017). Microfinance institutions tend not to lend to individuals for personal consumption, while privately owned microfinance institutions which would lend, have interest rates that vary from 60-120%, and government funding is rarely available for consumers in these seven countries. Low-income consumers are therefore reliant upon informal savings and credit groups, of which the most common type is known as a Rotating Savings and Credit Group (ROSCA). Of the seven countries surveyed, these are found most commonly in Zambia and Kenya, and may be the only source of consumer finance for the poorest households (ibid.). Given the relative lack of options for low-income consumers to access credit, several social enterprises are piloting their own forms of micro-finance and/or making use of Pay as You Go schemes, in order to lower the upfront capital purchase.

The above review concludes that in SSA as in Europe, USA and every other region of the world, the hybrid nature of social enterprises create tensions and opportunities that require creative and innovative use of business models. As all organisations operate according to an organisational model, framework, architecture, or theory of change, it is essential to examine the models used by social enterprises. Sahlman (1996, cited in Austin, 2006) refers to application of the People, Context, Deal and Opportunity model as being suitable for social enterprises, combining elements of both the theory of change and organisational model. However, many scholars (including Seelos & Mair, 2005; Robinson, 2006; Boyd, 2009; Doherty et al., 2014), associate social enterprises with having business models,
reflecting their hybrid nature as “organisations seeking business solutions to social problems” (Thompson & Doherty, 2006, p. 362). For the purposes of this research, business models represent a suitable mechanism via which to describe the ways in which social enterprises function. Therefore, the next section provides a review of the literature on business models and sustainable business models as well as innovations within both types. This is relevant not only given the social enterprise literature and research context, but also given the calls made by scholars of the BoP (such as Kolk et al., 2014; Yukadul et al., 2017; Dembek et al., 2020), that socially inclusive business practices should be considered for their potential to target people living at the BoP.

2.5 Business Models

2.5.1 Defining business models

Business models (BMs) as a concept are not new, with Foss & Saebi (2017) citing Bellman et al (1957) to illustrate that the concept has been in existence for decades (see also Cook, 1968). However, it is during the dotcom era of the 1990s that BMs really gained traction as they were used to efficiently communicate new and complicated ideas to potential investors (Zott et al., 2011; Demil et al., 2015). Thereafter, the BM concept was expanded and developed as a practical tool, one considered an essential ingredient for a successful company (Chesbrough and Rosenbloom, 2002; Teece, 2010; Osterwalder & Pigneur, 2010). At its most simple, a BM is a way of explaining how a venture of any kind does its core business, but as seen from Table 11, various definitions are proposed that provide insight into business models and the evolution of research into them.
Table 11. Selected definitions of the concept of a business model

<table>
<thead>
<tr>
<th>Author</th>
<th>Definition</th>
<th>Observation</th>
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<tbody>
<tr>
<td>Timmers, 1998</td>
<td>“an architecture for the product, service and information flows, including a description of the various business actors and their roles; a description of the potential benefits for the various business actors; a description of the sources of revenue”</td>
<td>Focus on structure and the ways in which the actors within it create and benefit from the benefits created</td>
</tr>
<tr>
<td>Chesbrough &amp; Rosenbloom, 2002, p.532</td>
<td>[A business model is] “the heuristic logic that connects technical potential with the realization of economic value”</td>
<td>Reference to value(s) is limited to economic only.</td>
</tr>
<tr>
<td>Richardson, 2008, p.138</td>
<td>“The three major components of the [business model] framework – the value proposition, the value creation and delivery system, and value capture – reflect the strategic thinking about value.”</td>
<td>Clear articulation of three types of value.</td>
</tr>
<tr>
<td>Teece, 2010, p.179</td>
<td>“A business model articulates the logic, the data and other evidence that support a value proposition for the customer, and a viable structure of revenues and costs for enterprise delivering that value”</td>
<td>Two explicit types of value articulated. Clear differentiation between customer and enterprise.</td>
</tr>
</tbody>
</table>

Source: Adapted from Foss & Saebi (2017), supplemental online material, and Geissdoerfer et al., (2018), p.404
All of the definitions, with the exception of Timmers (1998), focus upon value, more explicitly the creation, communication, delivery and capture of value. In seeking to develop more precise and workable definitions of a business model, Schaltegger et al., (2016) specify five characteristics of the business model concept. These tend to include: *value creation* (how is the business organized to create value?); *value proposition* (what does the business offer its customer base?); *value creation infrastructure* or *value delivery* (what are the resources and infrastructure that the business has at its disposal?); *value creation conditions* (under what circumstances is value created?); and *value capture* (what value is retained by the business?). Some scholars (for example Rayna & Striukova, 2016) refer not to value creation conditions, but instead to *value communication*.

*Value creation* is a fundamental component of any business model. In order to demonstrate successful value creation, a business model must demonstrate the ways in which products and services become valuable, and how that value can be captured and shared (Zott & Amit, 2002; Chesbrough, 2007; Abdelkafi et al. 2013). To create value, a business must combine its core skills and resources (Rayna & Striukova, 2016). Value creation is further enhanced by the development of complementary assets, including alliances with other businesses, a strong customer base, the creation and maintenance of a good reputation, and development of a reliable governance framework (Teece, 1986; Rayna & Striukova, 2016). *Value proposition* stipulates which goods or services are to be offered to the customer (the market) and the price at which those goods or services will be made available (the pricing strategy) (Chesbrough, 2010; Teece, 2010, 2011). Whereas, *value delivery* relates to the manner in which the value that has been created and proposed is delivered to the market, which may or may not be segmented, and which
makes use of one or more distribution channels (Osterwalder & Pigneur, 2010; Abdelkafi et al., 2013; Holm et al., 2013).

*Value capture* articulates the ways in which the business generates profits from the value that it has created and proposed to the market. As such, this includes revenue generation, costs incurred, as well as resource allocation within the business (Chesbrough, 2007; Holm et al., 2013; Rayna & Striukova, 2016). Finally, the *value communication* element of a business model relates to the manner in which information about the goods or services is shared with, and explained to, the market (customers) (Abdelkafi et al., 2013). In communicating to and with customers, businesses may seek to tell a story about the product(s), the philosophy behind its creation, and/or provide some personal insight into the members of the business team, thus enabling an emotional connection to be made (Rayna & Striukova, 2016). This has become increasingly important with the rise of social media (ibid.).

For the purposes of this research, and in agreement with Foss & Saebi (2017), most definitions are broadly consistent with Teece (2010 p.179), in that a “business model articulates the logic, the data and other evidence that support a value proposition for the customer, and a viable structure of revenues and costs for enterprise delivering that value”.

The interactions between the different components of the business model have been brought together in the form of a canvas, more specifically, the business model canvas (Osterwalder & Pigneur, 2010; Osterwalder et al., 2014). By presenting the different
components of a business model in canvas form, Figure 11 illustrates how practitioners are able to visualise the ways in which all the elements interact.

Figure 11. A blank version of the Business Model Canvas

Source: Osterwalder & Pigneur (2010, p. 18)

While business models have traditionally been associated with commercial enterprises seeking to create primarily economic value, they have also provided the basis for the development of more socially and environmentally sustainable business models, as discussed in the following subsection.

2.5.2 Sustainable Business Models

Several authors (Chesbrough and Rosenbloom, 2002; Magretta, 2002; Teece, 2010) note that interest in sustainable business models started to take off in the late 1990s, with increasing interest shown in the last decade (Goni et al., 2017; Comin et al., 2020; Ferreira
et al., 2022). Faced with increasingly dire projections about human-made problems, including pollution, resource overuse, population growth and widespread poverty, there have been many and consistent calls for businesses to adopt more sustainable approaches (for example Hart, 2004; Moore et al., 2012; Evans et al., 2017; Comin et al., 2020). The concept of sustainable business models has therefore emerged, encouraging businesses to adopt approaches that are less damaging to the environment and to society (Stubbs & Cocklin, 2008). This has generated academic interest (Geissdoerfer et al., 2018), with authors (such as Schaltegger et al., 2012; Abdelkafi and Tauscher, 2016; Upward & Jones, 2016; Evans et al., 2017) including explicit reference to two broad sets of additional values, namely social or stakeholder, and environmental or ecological (see Table 12). These newer values tend to be added to the traditional business model focus upon economic or shareholder value.
## Table 12. Selected definitions of the concept of sustainable business model

<table>
<thead>
<tr>
<th>Author</th>
<th>Definition</th>
<th>Observation</th>
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</thead>
<tbody>
<tr>
<td>Schaltegger et al., 2012, p.112</td>
<td>[Sustainable business models] “create customer and social value by integrating social, environmental, and business activities”</td>
<td>Emphasis on activities being more sustainable, with addition of social value but not environmental.</td>
</tr>
<tr>
<td>Abdelkafi and Tauscher, 2016, p.75</td>
<td>[Sustainable business models] “incorporate sustainability as an integral part of the company’s value proposition and value creation logic. As such, [they] provide value to the customer and to the natural environment and/or society.”</td>
<td>Specific reference to all three types of value. Sustainability values are incorporated rather than given greater importance.</td>
</tr>
<tr>
<td>Boons and Lüdeke-Freund, 2013, p.13</td>
<td>“The value proposition provides measurable ecological and/or social value in concert with economic value […]”</td>
<td>Specific reference to all three types of value and implicit equality and harmony of values.</td>
</tr>
<tr>
<td>Evans et al., 2017, p.5ff</td>
<td>“2. Sustainable business models require a system of sustainable value flows among multiple stakeholders including the natural environment and society as primary stakeholders. […]”</td>
<td>Specific reference to sustainability values, which are given greater importance than economic. Economic value is referenced in wider set of propositions from which this quote is lifted.</td>
</tr>
</tbody>
</table>

Source: Adapted from Geissdoerfer et al., (2018), p.405

In other words, sustainable business models (SBMs) create value for the environment, for society and for the economy – a triple bottom line (Hart et al., 2003; Stubbs & Cocklin, 2008; Schaltegger et al., 2012; Bocken et al., 2014; Lüdeke-Freund et al., 2018; Morioka
et al., 2017; Stubbs, 2019). The relevance of SBMs and their inclusion of social and/or environmental value creation becomes apparent when considering the literature on poverty (Section 2.1, pp. 19-31) and on the BoP (Section 2.2, pp. 31-45). It ties in directly with the recommendation that not only social enterprises but also socially inclusive businesses be considered for their potential suitability in providing services and goods to people living at the BoP (Kolk et al., 2014; Dembek et al., 2020).

However, the move from a primarily commercial focused business model to one that seeks to create social and/or environmental value is not without its challenges, as demonstrated by this review of the social enterprise literature (see Section 2.4, pp. 76-106). This is because tensions can arise when organisations become hybrids, seeking to create two or three types of value, these being societal, environmental and economic. In order to transition away from purely economically focused value creation, and to succeed as hybrids, organisations need to adapt and innovate within their business models. Thus, subsection 2.5.3 reviews the literature on innovations within business models and on innovations aimed at increasing the social and/or environmental value creation, also known as sustainable business model innovations.

2.5.3 Business model innovation (BMI)

Organisations operate in dynamic contexts and changing environments (De Silva et al., 2021). These changes in the operating environment may arise as a result of market conditions, competition, or new technologies, but require organisations to adapt their business models (Berends et al., 2016), adjusting them and innovating in order to remain competitive (Foss & Saebi, 2017). Changes, or adjustments made by the organisation may
also require reconfiguration of the ways in value is created, captured or delivered (Chesbrough, 2010; Mezger, 2014).

According to the Organisation for Economic Cooperation and Development (OECD), innovation can be defined as “the implementation of a new or significantly improved product (that is, a physical good or service), a process, a new marketing method, or a new organisational method in business practices, workplace organisation, or external relations” (OECD, 2005, p. 46). This definition reflects increased awareness among organisations (public, private and third sector) that technological innovation alone is insufficient to face the challenges of the future (Pot et al., 2017).

Innovation is not restricted in time or place. It may occur at the point of conception, during the research and development phase for a new product, during production, or in the marketplace (Atkinson, 2013). A range of factors can affect it, including the participation of employees, labour relations and personnel policies (Pot et al., 2017), the availability and skillset of human capital (van Uden et al., 2014; Pot et al., 2017), the size and maturity of an organisation (Zakic et al., 2008), the skills and resources available within an organisation, as well as interactions and collaborations with other, external organisations (Egbetokun, 2016; Pot et al., 2017). As a result, and in addition to existing recognition of technological innovation, several new terms have been coined. These include “innovative workplaces,…social innovation in the workplace, knowledge-based capital,…employee-driven innovation and workplace innovation.” (Pot et al., 2017, p. 2).
In the last 20 years, there has been considerable research into BMI (Schneider & Spieth, 2013; Spieth et al., 2014; Foss & Saebi, 2017; De Silva et al., 2021; Schneckenberg et al., 2022). In their review, Foss & Saebi (2017) differentiate between four streams of research within the BMI literature. The first of these relates to the manner in which BMI is conceptualised and defined (for instance Teece, 2010; Amit & Zott, 2012) and the components within the existing business model that may present opportunities for innovation (Amit & Zott, 2012). The second considers BMI as a process for organisational change, identifying phases in the process (e.g. Giotra & Netessine, 2013, 2014), taking into account organisational capabilities (e.g. Demil & Lecocq, 2010; Achtenhagen et al., 2013), as well as the need to test and trial different approaches with a view to creating opportunities to learn (e.g. Moingeon & Lehmann-Ortega, 2010). The third identifies a body of literature that focuses upon the outcomes or results of BMI. Included within this are examples from particular industries or of specific products (e.g. Abdelkafi et al., 2013; Holm et al., 2013; Matzler et al., 2013). The fourth and final stream of BMI research considers the implications of BMI on organisational performance (for instance Zott & Amit, 2007, 2008; Cucculelli & Bettinelli, 2015). As Foss and Saebi (2017) note, the literature on BMI has expanded considerably, but continues to lack “conceptual clarification, theoretical models, and cumulative empirical work” (ibid., p. 222).

While recognising both shortcomings and potential gaps in the BMI literature, for the purposes of this research, the key point that business model innovation refers to changes in one or more dimensions of an existing business model is acknowledged. To this end,
Foss and Saebi (2017, p. 201) define it as “designed, novel, nontrivial changes to the key elements of a firm’s business model and/or the architecture linking these elements.”

Sustainable business model innovation (SBMI) only makes its first appearance in 2012. This is perhaps surprising given firstly, that global awareness of environmental degradation and widening social inequalities had been recognised much earlier, for instance during the Club of Rome meeting in 1972 (Hardjono and Klein, 2004), the Cocoyoc meeting in Mexico in 1974, and the three-year consultation process in the early 1980s that led to the publication of the Bruntland Commission’s report for the World Commission on Environment and Development in 1987 (Pezzoli, 1997), and secondly, that targets aimed at addressing environmental degradation and social inequalities had been included in the United Nations Millennium Development Goals (United Nations, 2015), the timescale for which was 2000-2015. This may suggest that although the concept of sustainability was already quite widespread, its association with business model innovation was not yet pervasive.

Building on Foss & Saebi’s (2017) review of BMI, Geissdoerfer et al (2018) differentiate between BMI and SBMI, whereas other scholars such as Bocken et al (2014) do not separate the two in quite the same way, referring instead to business model innovation for sustainability (BMI4S). As the selected definitions in Table 13 illustrate, both SBMI and BMI4S share many features.
<table>
<thead>
<tr>
<th>Author</th>
<th>Definition</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boons and Lüdeke-Freund, 2013, p. 13</td>
<td>“SBMI is understood as the adaptation of the business model to overcome barriers within the company and its environment to market sustainable process, product, or service innovations”</td>
<td>Recognition of existence of internal barriers, of need for adaptations, and of areas of business in which innovations may occur. However, less emphasis on extent of adaptations than Bocken et al (2014).</td>
</tr>
<tr>
<td>Bocken et al., 2014, p. 44</td>
<td>[BMI4S are] “innovations that create significant positive and/or significantly reduced negative impacts for the environment and/or society, through changes in the way the organisation and its value-network create, deliver value and capture value (i.e. economic value) or change their value propositions”</td>
<td>Focus is on the organisation having to make changes, as well as emphasis placed on the degrees of impact required, twice described as significant and making explicit mention of negative impacts.</td>
</tr>
<tr>
<td>Geissdoerfer et al., 2016, p. 1220</td>
<td>“Sustainable business innovation processes specifically aim at incorporating sustainable value and a pro-active management of a broad range of stakeholders into the business model”</td>
<td>Process oriented definition in which organisation seems to retain control.</td>
</tr>
<tr>
<td>Schaltegger et al., 2016, p. 3</td>
<td>SBMI describes the creation of “modified and completely new business models [that] can help develop integrative and competitive solutions by either radically reducing negative and/or creating positive external effects for the natural environment and society”</td>
<td>Similar to Bocken et al (2014) emphasis is placed on “radical” extent of changes to be made, but implies that by integrating such changes, BMs will remain competitive</td>
</tr>
</tbody>
</table>

Source: Adapted from Geissdoerfer et al (2018) p. 407
While recognising that definitions will continue to be developed and proposed, for the purposes of this research, the one developed by Schaltegger et al (2016, p. 3) captures the key elements of SBMI, namely that it describes the creation of “modified and completely new business models [that] can help develop integrative and competitive solutions by either radically reducing negative and/or creating positive external effects for the natural environment and society.”

2.5.4 Classification of SBMs

As SBMs often seek to create value in three dimensions – environment, society and economy (Boons & Lüdeke-Freund, 2013; Bocken et al., 2014; Geissdoerfer et al., 2016; Schaltegger et al., 2016; Morioka et al., 2017), this masks an extremely diverse set of SBMs which makes classification difficult. Challenges in the classification of SBMs echo similar difficulties identified in the literature regarding the classification of social enterprises (subsection 2.4.1, pp. 76-79). However, as with the social enterprise literature, there have been attempts to differentiate between SBMs.

Although still a nascent field of research (Massa et al., 2017), classification of SBMs has been attempted with a view to improving theoretical and practical understanding. Bocken et al., (2014) build on earlier work by Boons and Lüdeke-Freund (2013) to develop eight archetypes of sustainable business model which are categorised under three higher order groupings – technological, social and organisational. Ritala et al., (2018) have since proposed expansion of these to nine archetypes and adjusted the three higher order groupings, suggesting instead the terms environmental, social and economical. Based on an extensive review of the literature, Bocken et al., (2014) use 45 examples to illustrate
the eight archetypes they propose, these being: Maximise material and energy efficiency, Create value from waste, Substitute with renewables and natural processes, Deliver functionality rather than ownership, Adopt a stewardship role, Encourage sufficiency, Repurpose for society/environment, and Develop scale up options. Ritala et al., (2018) introduce one new archetype, being Inclusive value creation, and propose renaming the Create value from waste to Closing resource loops. In their earlier conceptualisation, Stubbs and Cocklin (2008) propose ideal types of SBM, while Dohrmann et al., (2015) also classify SBMs by type. More recently, Lüdeke-Freund et al., (2018) build on earlier typologies and propose a taxonomy of 45 SBM patterns, aimed at facilitating sustainability-oriented innovation.

From a practitioner perspective, the World Business Council for Sustainable Development (WBCSD)\(^7\) proposes a structure similar to that used by Bocken et al (2014), Bocken & Geradts (2020) and Ritala et al (2018) with six broad sustainability headings, which, in turn, are supported by 35 sub-groups relating to specific programmes and projects in which their members are involved. The resulting, six overarching groups are Circular Economy, Cities and Mobility, Climate and Energy, Food and Nature, People, and Redefining Value.

Although useful, these and other approaches in the SBM literature (e.g. exploration of SBMI in large multinational corporations, Bocken & Geradts, 2020) seem to focus

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\(^7\) The WBCSD was established in 1995, linked closely to the 1992 Rio Earth Summit. It offers a range of functions and has a network of 200 members around the world, many of which are household names in Europe and North America. The geographic split of members is that 46% are based in Europe, 23% in North America, 14% in Asia, 10% in Japan, 3% in Latin America, 2% in the Middle East and 1% in each of Africa & Australasia [https://www.wbcsd.org/Overview/Our-members](https://www.wbcsd.org/Overview/Our-members)
primarily on the perspective of economically motivated organisations and their quests to adopt more sustainable practices (Teece, 2010; Boons & Lüdeke-Freund, 2013; Wirtz et al., 2016; Davies & Doherty, 2019). Some authors, (see for example, Ritala et al., 2018) look specifically at firms listed on the Standard and Poor 500 index of American firms. These are the 500 largest firms in the USA, therefore being unrepresentative of the hundreds of thousands of smaller organisations around the world. The WBCSD, while more global in representation than the S&P 500, comprises nearly 200 companies, representing a combined wealth of over US$1.3 trillion. Although these are all important companies that have the capacity to achieve scale in their operations, they would not seem to be representative of the many SMEs working in the field of SBM and SBMI. Instead, they appear to be more closely aligned with the MNC/MNE that features in early iterations of the BoP concept, but whose success as sole operators seems to have been limited within BoP contexts.

2.5.5 Resources to facilitate transition towards SBM

In addition to the challenges of categorisation of SBMs, authors also refer to the relative paucity of resources available to help businesses identify ways of innovating towards greater sustainability (e.g. Joyce and Paquin, 2016; Evans et al., 2017). Greater availability of such resources would not only be useful for businesses, but might also aid categorisation and the measurement of business efforts aimed at the integration of more sustainable practices. A number of resources albeit limited, do exist and several academics and practitioners alike have sought to develop tools to help businesses adopt more sustainable practices. For instance, when attempting to build a sustainability focused measure, Hart (1995) incorporated a series of environmental targets to create the
Natural Resources Based View (NRBV), which builds on the widely utilised Resource Based View (RBV) of business. The NRBV included measures aimed at preventing pollution, improving business stewardship of products, and a company focused drive for sustainable development (Hart, 1995). It is interesting to note that this work was developed in the mid-1990s when literature on business models was only just gaining traction, and when there was relatively limited literature on SBMs. Hart, however, was one of the initial creators of the concept of the fortune at the BoP, along with Prahalad, Hammond and London, and it is therefore perhaps unsurprising that his work on the NRBV should feature here.

The NRBV model was later refined to separate the sustainable development component into one focused upon clean technology and the other focused upon the poorest members of society (Hart & Dowell, 2010). Using a number of qualitative case studies drawn from Haiti, Tate and Bals (2018) build on the original RBV and Hart’s NRBV to create a Social Resource Based View (SRBV), which incorporates two new capabilities, namely a mission-driven approach and stakeholder management. These are incorporated into their SRBV which builds upon Hart’s (1995) and Hart and Dowell’s (2010) framework, seeking to create a mechanism via which to measure environmental/ecological, social/societal and economic/financial objectives. These three dimensions are often referred to as the Triple Bottom Line (a term widely attributed to Elkington, 1998).

Rather than the RBV, Hubbard (2009) builds upon the Balanced Scorecard (BSC), proposed by Kaplan and Norton (1992, 1996), to develop the Sustainable Balanced Scorecard (SBSC). The BSC itself reflects a shift away from earlier shareholder theory
models to a model based upon stakeholder theory. The premise for development of the SBSC is that companies are overwhelmed by the range of Codes of Practice and Standards to which they could sign up in response to calls for more responsible and/or sustainable business, as a result of which they need something more accessible and easier to adopt (Hubbard, 2009). Hubbard (2009) uses three of the most popular initiatives (proposed by the United Nations affiliated organisations, the World Economic Forum and the Global Reporting Initiative) as well as academic work by Figge et al., (2002) to illustrate the wide range of sustainability focused issues upon which business could choose to report. As a result, Hubbard (2009) proposes the SBSC because it builds on an existing system (the BSC) with which organisations are considered familiar and comfortable.

With a view to facilitating widespread adoption of more sustainability focused measures, the NRBV (Hart, 1995; Hart and Dowell, 2010), SRBV (Tate and Balls, 2018) and SBSC (Hubbard, 2009) all seek to adapt existing business-oriented models to accommodate the broader ecological and social components necessary for sustainable development. In other words, all three models extend widely-utilised business-oriented logic to include components driven by sustainable development and/or driven by the creation of a Triple Bottom Line. Several of these approaches were pulled together and/or arose as a result of the European Corporate Sustainability Framework (ECSF) (Hardjono and Klein, 2004).

A number of other resources also exist. For instance, building on the widely used Business Model Canvas (BMC) developed by Osterwalder and Pigneur (2010) and the concept of the triple bottom line (or People, Planet, Profit), Joyce and Paquin (2016) proposed the triple layered business model canvas. This adopts the same framework or structure as
Osterwalder and Pigneur’s (2010) Business Model Canvas, but applies two additional canvases, one being environmental and the other being social. There has been some criticism that to create three separate canvases is to miss the point of a holistic SBM (e.g. Boons & Lüdeke-Freund, 2013; Davies & Doherty, 2019). Research in the field of supply chain management has adopted approaches exploring how supply chains can be improved by tackling environmental and/or social issues either as secondary considerations to economic considerations, or as equals (Gao and Bansal, 2013). A Value Mapping Tool (VMT) has been developed to encourage discussion between practitioners about sustainable value as perceived by multiple stakeholders (Bocken et al., 2013), while Franca et al (2017) have combined the Framework for Strategic Sustainable Development (FSSD) (Broman et al., 2017) with the BMC (Osterwalder & Pigneur, 2010). More recently, building on a review of the literature and the concept of discussion between practitioners and academics, the Sustainable Value Exchange Matrix (SVEM) has been developed (Morioka et al., 2017). As illustrated, there have been a variety of attempts made to develop tools that could be used by business, but also relevant is the extent of use and/or adaptation of these tools by businesses.

2.5.6 Rates of progress towards SBMs

Of relevance to early iterations of the BoP concept, much of the literature on SBMI seems to focus on large corporations, MNCs/MNEs (for example Pal & Gander, 2018; Ritala et al., 2018; Bocken et al., 2020). Some of the interest in these corporations stems from their perceived capacity to take to scale sustainability solutions (Bocken et al., 2014), again, in a similar vein to the concepts espoused in BoP 1.0. However, some of it also stems from the notion that BMI is key if MNCs/MNEs are to remain competitive (Baden-Fuller &
Morgan, 2010; Zott et al., 2011; Wirtz et al., 2016), and that senior executives have realised that there are benefits to incorporation of social and environmental factors into the BMI process, thus nudging it towards SBMI or BMI4S (Stubbs & Cocklin, 2008; Bocken & Geradts, 2020). Benefits may be quite synonymous with traditional concepts of business, such as the creation of new streams of revenue, or savings that can be made on existing costs (Schaltegger et al., 2012; Bocken et al., 2014). However, they may also be more nebulous (Bocken & Geradts, 2020), enhancing organisational reputation (Homburg et al., 2013), improving organisational resilience (Buliga et al., 2016), and/or creating advantage by attending to the concerns of stakeholders and legislators (Schaltegger et al., 2012).

Some of the relevant literature on large corporations seems also to stem from the challenges they face in adjusting their operations to become more sustainable (Hockerts & Wüstenhagen, 2010, 2018; Schaltegger et al., 2016), and thus their willingness to innovate towards greater SBM (Banerjee, 2008; Ritala et al., 2018), which is perhaps more akin to the critique of BoP 1.0 and the resultant attempts to address this in iterations 2.0 and 3.0 of the BoP concept. MNCs/MNEs have been found to take a reactive approach to efforts to address sustainability, for instance responding to pressure from stakeholders (Hart, 1995, Carroll, 1999), or dealing with corporate scandals (Kolk, 2016). They have been found to be much slower to change than smaller sustainability-oriented ventures that are more socially oriented (Aguilera et al., 2007), investing in more sustainable practices only when the financial benefits outweigh the costs of change (Winter, 2003; Hart & Dowell, 2011). However, given their size and reach, there remains continued interest in
the potential for MNCs to help address social and environmental challenges through their SBMs (for example Ritala et al., 2018; Bocken & Geradts, 2020).

Many reasons are put forward for the slow pace of change in large corporations or MNCs (see Table 14). Other scholars propose slightly different terms to describe the slow pace of change, for instance institutional inertia (Boons, 2009; Campbell, 2007; Loorbach & Wijsma, 2013), and the lack of commitment to sustainable development and organisational justice (Banerjee, 2008). As Schaltegger et al (2011) note, incumbent corporations tend only to react when confronted by new entrants that transform markets with more sustainable products, services or technologies. Several authors also point out the challenges facing MNCs when dealing in the global marketplace, including supply chain challenges, the inconsistencies of national policies, shortages in availability of skilled labour, erratic IT provision and poor infrastructure (Escobar & Vredenburg, 2011; Lacy & Hayward, 2011; Parmigiani & Rivera-Santos, 2015), and the risk of SBMIs being imitated by others (Schaltegger et al., 2016; Bocken & Geradts, 2020).
<table>
<thead>
<tr>
<th>Challenges</th>
<th>Authors</th>
<th>Clarification of challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Triple bottom line</strong>&lt;br&gt;The co-creation of profits, social and environmental benefits and the balance among them are challenging for moving towards SBMs.</td>
<td>Hart and Milstein, 2003; Stubbs and Cocklin, 2008; Schaltegger et al., 2012</td>
<td>Revenues (economic value) may have to decrease for environmental and social values to increase. There may be further trade-offs between environmental and social value creation.</td>
</tr>
<tr>
<td><strong>Mind-set</strong>&lt;br&gt;The business rules, guidelines, behavioural norms and performance metrics prevail in the mind-set of firms and inhibit the introduction of new business models.</td>
<td>Yu and Hang, 2010; Boons and Lüdeke-Freund, 2013</td>
<td>Traditional, shareholder business constructs do not favour investment in models that generate less revenue.</td>
</tr>
<tr>
<td><strong>Resources</strong>&lt;br&gt;Reluctance to allocate resources to business model innovation and reconfigure resources and processes for new business models.</td>
<td>Björkdahl and Holmén, 2013; Chesbrough, 2010; Zott et al., 2011</td>
<td>Businesses seeking to become more sustainable will need to dedicate resources to innovate. The innovations proposed may subsequently require allocation of additional resources.</td>
</tr>
<tr>
<td><strong>Technology innovation</strong>&lt;br&gt;Integrating technology innovation, e.g. clean technology, with business model innovation is multidimensional and complex.</td>
<td>Hart and Milstein, 2003; Yu and Hang, 2010; Zott et al., 2011</td>
<td>Well-functioning business units may need to be reconfigured to accommodate SBMI. The reconfiguration may be more difficult than the existing model.</td>
</tr>
<tr>
<td><strong>External relationships</strong>&lt;br&gt;Engaging in extensive interaction with external stakeholders and business environment requires extra efforts.</td>
<td>Stubbs and Cocklin, 2008; Boons and Lüdeke-Freund, 2013</td>
<td>Introduction of good SBMI requires consultation with multiple stakeholders to ensure their views are heard. This is resource-intensive. Additionally, consultation with the wider business environment, e.g. supply chain partners, is time consuming and their values may not be consistent with your SBMI.</td>
</tr>
<tr>
<td><strong>Business modelling methods and tools</strong>&lt;br&gt;Existing business modelling methods and tools, e.g. Osterwalder and Pigneur (2010) and Johnson et al. (2008), are few and rarely sustainability driven.</td>
<td>Björkdahl and Holmén, 2013; Girotra and Netessine, 2013</td>
<td>There are limited examples of good practice that can help a business seeking to introduce workable SBMI.</td>
</tr>
</tbody>
</table>

Source: Adapted from Evans et al (2017, p. 599)
The majority of these challenges are also faced by small and medium businesses, by NGOs and by social enterprises seeking to operate in global markets. Indeed, it could be argued that they face greater challenges than MNCs but without having the political and economic clout available to MNCs. The supposed agility, responsiveness, flexibility and adaptability of smaller social ventures should not excuse the relative lethargy of MNCs or “large cap corporations” (Ritala et al., 2018). Rather, as Banerjee (2008) and others note, there is a fundamental difference in the respective raison d’être, as a result of which social or environmental considerations more readily trump economic considerations.

The challenges noted by several authors and summarised by Evans et al (2017) in Table 14 illustrate the diversity of internal and external forces that make businesses reluctant to adopt more sustainable business models. The slow pace of change in adoption of more sustainable business practices relates directly to these challenges and several authors refer to a staged-approach that organisations adopt with regard to SBMI (Stubbs & Cocklin, 2008; Adams et al., 2016; Schaltegger et al., 2016). These stages are visually represented in figures 12 and 13, developed by Adams et al (2016).
As Figure 13 illustrates, Adams et al., (2016) refine their initial model and propose a final version. However, it is their initial model (Figure 12) that bears most similarities with the
stages identified by Schaltegger et al., (2016), which are described as “defensive, accommodative and proactive”. Both these models capture some of the psychological changes through which a business often goes, and tie in with the observation that businesses can view sustainability and the reporting of their performance of it in a rather negative and reactive manner, seeing it as a compliance obligation, a cost upon which to incur the least expense, or just an opportunity to gain some competitive advantage (Hart, 1995; Hubbard, 2009).

More radical views also exist. For instance, Pezzoli (1997), Mebratu (1998) and Richardson (2004), all highlight the fundamental flaws with trying to adapt business as usual to be more sustainable. So long as SBMI or BMI4S is only about incremental change, progress will be too slow, and several researchers have sought to fundamentally shift the conceptual base, moving it away from an economic-based view that seeks to reduce unsustainable practices (Pagell and Shevchenko, 2014) to one that considers the economic drivers as subservient to the social drivers, which in turn are considered subservient to environmental drivers (Griggs, 2013; Milne and Gray, 2013; Montabon et al., 2016). In other words, if we are aiming for truly sustainable business models, this body of literature considers inadequate those economically driven models which seek only to reduce environmentally damaging and societally neglectful practices. This provides the basis of the Ecologically Dominant logic in which the literature moves away from a triple bottom line and win-win situation to one in which trade-offs are recognised, but ecological and societal considerations always trump purely economic ones (Montabon et al., 2016; Griggs, 2013). Table 15 presents a comparison of sustainability logics, as
developed by Montabon et al., (2016) and seeks explicitly to differentiate the more radical Ecologically Dominant logic from the majority of existing sustainability logics.

Table 15. Comparison of sustainability logics

<table>
<thead>
<tr>
<th>Relationship among environmental, social, and economic.</th>
<th>Current Sustainability Logic</th>
<th>Ecologically Dominant Logic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship among environmental, social, and economic.</td>
<td>All are equal—efforts that create shared value or which are less unsustainable are acceptable.</td>
<td>The three are nested. Need to satisfy environmental, then social prior to economic.</td>
</tr>
<tr>
<td>Time horizon</td>
<td>Short</td>
<td>Long term</td>
</tr>
<tr>
<td>Practical reality</td>
<td>Satisfies customers’ expectations while doing least amount of harm.</td>
<td>Does no harm while satisfying customers’ expectations</td>
</tr>
<tr>
<td>Outcome</td>
<td>Organized irresponsibility/tragedy of the commons</td>
<td>Integrated sustainable supply chains</td>
</tr>
<tr>
<td>Cognition—managers</td>
<td>“If it’s not profitable you don’t do it”</td>
<td>“If it harms the environment or society you don’t do it”</td>
</tr>
<tr>
<td>Cognition—researchers</td>
<td>Does it pay to be green? Looking for win/win outcomes Efficiency (gross domestic product)</td>
<td>How to be profitable while doing no harm Conservation Well-being (gross domestic happiness)</td>
</tr>
</tbody>
</table>

Source: Reproduced from Montabon et al., 2016, Vol. 52, No. 2, p.16

Rather than adopt a specific model upon which to build, Montabon et al., (2016) go on to develop six propositions that differentiate the Ecologically Dominant logic from the Sustainability logic. In a similar vein, Evans et al., (2017) acknowledge the lack of clarity and agreement regarding business models and sustainable business models. As a result of this and the dearth of empirical research in these fields (Stubbs and Cocklin, 2008; Schaltegger et al., 2012) Evans et al (2017) go on to develop five propositions to help
create a theoretical foundation to enable businesses to progressively innovate towards becoming sustainable. In reflecting on the ‘tools’ and ‘measures’ designed to support businesses to transition towards greater sustainability, it is important to note that authors have adopted different and sometimes quite circular approaches, with Hubbard (2009) having introduced the SBSC to overcome the perceived excess of codes of practice and their proposition-like statements, whereas Montabon et al. (2016) and Evans et al. (2017) develop propositions rather than seeking to adapt existing business performance measurement systems.

While there have been recent efforts to develop tools and measures to support progress towards more sustainable business models, these have predominantly been based on existing economically-driven models. There remains, therefore, a theoretical opportunity for greater integration between SBM theory and social enterprise theory, and vice versa.

### 2.6 Gaps identified

A number of gaps are identified in the literature reviewed thus far. In the first instance, despite significant progress having been made in our understanding of poverty and the multidimensionality of its nature, enterprises continue to adopt overly general approaches in their targeting of people living at the BoP, despite the literature having identified widespread heterogeneity (Lappeman et al., 2019; Singh et al., 2022). This is illustrated by the mixed successes of enterprises seeking to improve access to energy through provision of solar lights in SSA, as a result of which several are shifting their focus towards wealthier segments of society and/or have gone into liquidation (Clowes et al., 2019; Munro, 2020; Cross & Neumark, 2021; Groenewoudt & Romijn, 2022). In
addition, despite 20 years having elapsed since the conceptualisation of the fortune to be made at the BoP, there appears to be a lack of long-term success in approaches adopted by MNCs and MNEs (Hart et al., 2016), as well as recognition of the need to further refine the latest iteration of the BoP concept, in which greater emphasis is being placed upon social and environmental value creation and the contributions of smaller organisations and agents (Cañeque & Hart, 2015; Zomorrodi et al., 2019; Decker & Obeng-Dankwah, 2020; Dembek et al., 2020). With regard to social enterprises, this broad umbrella term captures a vast array of organisations and approaches (Government of Ireland, 2019; European Commission, 2020), in much the same way as the breadth of commercial organisations considered to be adopting more SBMs (Bocken et al., 2014; Massa et al., 2017). Inclusion of such a wide range of organisational types makes classification and the provision of useful tools difficult (Hubbard, 2009; Evans et al., 2017). Furthermore, both types of organisation face barriers, internal and external, that can hinder successful adoption of SBMIs aimed at rendering them more environmentally, socially and economically sustainable. Empirical data from SSA is reported to be lacking across all the bodies of literature, for example in the BoP literature (Davies et al., 2017; López-Moraless et al., 2020; Singh et al., 2022), in the social enterprise literature (Navarette-Moreno & Agapitova, 2017; Littlewood & Holt, 2018), and in the business and management literature (Kolk et al., 2014; Kolk & Rivera-Santos, 2018).

In responding to this theoretical opportunity and drawing on the literature reviewed thus far, the next section, proposes and describes an evolving conceptual model that has emerged from the gaps identified in the literature reviewed thus far. It begins by explaining the choice of theoretical lens, before moving into a discussion of recent
research that integrates literature regarding social hybrids with BMI and SBMI. It concludes by highlighting parallels in the various bodies of literature reviewed, and identifying a gap in which to situate the current research, whose explicit focus is upon provision of access to energy for people living at the BoP.

2.7 Evolving conceptual model

2.7.1 Choice of theoretical lens

In approaching this research, a number of theoretical lenses were considered for their potential suitability, and the rationale for considering (and ultimately rejecting) these is now discussed.

Market failure and State failure theories have been widely used to explain the emergence of social enterprises across Europe (e.g. Spear, 2001; Pearce, 2003; Defourny & Nyssens, 2006; Williams, 2007). Adoption of such theories could have been made regarding failures (primarily by the State) in relation to the provision of electricity in SSA and in Zambia (e.g. Haanyika, 2008; CSO, 2016; ERB, 2019) as well as recognition of the insufficiencies in provision of access to electricity around the world (UN, 2022). However, to adopt such a theory would run the risk of failing to make a novel and worthwhile contribution (Tracy, 2010).

Adoption of resource dependency theory was also considered with the significance of resource acquisition featuring prominently in many scholarly works regarding social enterprises, the challenges they face in acquiring resources, and the novel strategies that they adopt (e.g. Dart, 2004; Di Domenico et al., 2010; Battilana et al., 2012; Doherty et
al., 2014; Navarette-Moreno & Agapitova, 2017; Davies & Doherty, 2019). However, resource acquisition represents only one component of an organisation’s business model and to limit the focus of this thesis to resource acquisition would run the risk of missing the wider organisational purpose and its focus upon poverty alleviation and working with people living at the BoP.

The concept of ecosystems could also have been considered given that there is reference to them in the business literature (e.g. Demil et al., 2018) in relation to people living at the BoP (e.g. Martí & Mair, 2009; Kistruck & Beamish, 2010; Parmigiani & Rivera-Santos, 2015), and in the limited number of multi-country studies of social enterprises in SSA (e.g. Navarette-Moreno & Agapitova, 2017). However, despite the concept of ecosystems gaining increasing significance, recent reviews suggest it “seems to be used without clear definition or sound theoretical backing” (e.g. Tsujimoto et al., 2018). Furthermore, the purpose of this research is to conduct longitudinal and empirical research into an organisation whose work is relatively unique and for which there is a paucity of similar studies (Kolk & Littlewood, 2018). The aim, therefore, is to gain insight into the organisation itself rather than the many actors operating within its wider ecosystem. An attempt to analyse the wider ecosystem in which it operates would make for a relevant complementary study.

Ultimately, the BMI lens was selected for several reasons. Understanding and use of business models is widespread in both academia and practice (Osterwalder & Pigneur, 2010), in the literature about commercial enterprises (e.g. Timmers, 1998; Chesbrough &
Rosenbloom, 2002; Teece, 2010) and in that which relates to social enterprises (e.g. Battilana & Lee, 2014; Santos et al., 2015). As such, this provides a strong base upon which to advance current knowledge and contribute to academic and practitioner literature.

Additionally, although Foss and Saebi (2017) note that the BMI literature continues to lack conceptual clarification and theoretical models, the definition they propose, namely that BMIs are “designed, novel, nontrivial changes to the key elements of a firm’s business model and/or the architecture linking these elements” (ibid., p. 201) provides adequate scope to explore innovations across an entire business model. There is also recognition that innovation occurs in social enterprises (Austin et al., 2006; Mair & Martí, 2006), in private for-profit companies (e.g. Bocken et al., 2013), and in other non-profit organisations (Arond et al., 2019) and there is a call for innovative business models to be proposed in order to help alleviate energy poverty (ARENA, 2017), rendering this a suitable, contemporary lens both for the type of organisation and the specific sector.

Considerable interest in the overlaps and tensions inherent in hybrid organisations are also evident in contemporary scholarly articles, whether they relate to commercially-driven companies seeking to adopt more sustainable business models, or social enterprises seeking to become more economically stable (for example Grassl, 2012; Lans et al., 2014; Lüdeke-Freund et al., 2017; Margiono et al., 2018; Davies & Chambers, 2018; Davies & Doherty, 2019). Finally, this research is largely exploratory and descriptive in nature (Yin, 2018), and use of a canvas as broad as a business model allows
for findings and innovations to be located in different parts of the model. It is also hoped that this will also facilitate the capture of real-world case study richness (Gephart, 2004; Siggelkow, 2007).

2.7.2 Overlaps between social enterprise and SBM literature

There is an interesting overlap between the social enterprise literature and the sustainable business model literature. In both instances, the overlap largely culminates in the identification of a similar gap, i.e. the adoption (successful or not) of BMI for hybrid organisations striving to be environmentally, socially and economically sustainable, but from slightly different perspectives (for example Hart & Dowell, 2011; Bocken et al., 2016; Evans et al., 2017; Massa et al., 2017; Teece, 2018; Davies & Chamber, 2018; Davies & Doherty, 2019; Pieroni et al., 2019; Bocken & Geradts, 2020). In the business literature, the starting point seems to be primarily economically value-driven with a focus on transitioning to more SBM (Bocken et al., 2016; Davies & Chambers, 2018), while from a social enterprise perspective, it seems to be primarily motivated by social and/or environmental values and an emphasis on hybridity and hybrid organising (Battilana & Lee, 2014; Ebrahim et al., 2014; Margiono et al., 2018). Both bodies of literature have in common a recognition that there is a lack of agreed standards, codes and measures via which to monitor and assess performance. Furthermore, all hybrid organisations are heavily influenced by the external environments, or ecosystems, in which they operate (Navarette-Moreno & Agapitova, 2017) and these vary considerably around the globe.

Building on the concept of hybridity and the tensions inherent in the management of hybrid organisations, several authors have begun to explore the business models or
strategies that social enterprises have or might adopt (Battilana et al., 2012; Battilana & Lee, 2014; Santos et al., 2015) while recognising that the majority of business model literature has focused upon economically-motivated organisations rather than social enterprises (Margiono et al., 2018; Davies & Chambers, 2018; Davies & Doherty, 2019). Though still a relatively nascent field of research (Lüdeke-Freund et al., 2017; Margiono et al., 2018), there is recognition of the overlaps between sustainability-focused entrepreneurs and social enterprises, and the tensions inherent in both types of hybrid organisation (Schaltegger & Wagner, 2011; Grassl, 2012; Lans et al., 2014; Davies & Chambers, 2018). Consequently, this chapter concludes by proposing an evolving conceptual model (Figure 15, p. 150), whereby demonstrating ways in which the literature on hybridity, business models and poverty converges while continuing to evolve, because as Davies & Chambers (2018) note “there is a great deal more to learn in this domain.” (p. 385).

2.7.3 Typologies proposed for hybrid organisations

Advancing the literature on hybridity and the use of SBMs, Ebrahim et al (2014) develop two categories, these being “integrated hybrids” and “differentiated hybrids” (p. 83). In the former, beneficiaries and customers are usually one and the same, for instance low-income customers who are served by microfinance organisations. By offering a microfinance loan, the organisation enables customers to invest in activities that are intended to provide social and economic value to the customer. Ebrahim et al (2014) provide a further illustration of an “integrated hybrid” that sells affordable eye-glasses through a network of local partners and low-income female entrepreneurs (micro-franchisees). In this example, the customers who buy the affordable glasses are also the
primary beneficiaries. In contrast, a “differentiated hybrid” creates a separation between its commercial and its social activities. This is illustrated by an organisation that creates social value by delivering mobile education services to children living on the streets. These social activities are financed thanks to commercial revenue generated through delivery of corporate training programmes. The paying customers are therefore distinct from the beneficiaries of the social work (ibid.). These two types of hybridity need not necessarily be exclusive, for instance, it may be that some organisations incorporate elements of both integration and differentiation in their business models.

Ebrahim et al (2014) further develop this work by exploring the governance arrangements relating to integrated and differentiated hybrids, as well as reviewing the relative strengths and weaknesses of the different legal forms that have been introduced in the UK and the USA with a view to supporting hybrid organisations.

Santos et al (2015), develop a typology of four “social business hybrids”, these being “market hybrids, blending hybrids, bridging hybrids and coupling hybrids” (Santos et al., 2015, p. 45). For each hybrid, they offer examples of organisation types, as well as ranking the risk of mission drift, providing an assessment of the likelihood of achieving financial sustainability, and offering advice on the role of the board and the main areas upon which monitoring should be focused (see Table 16). Of the four types identified, “market hybrids” are considered to be most closely aligned to purely commercial models, benefiting as they do from clients and beneficiaries being one and the same, and the model requiring little in the way of additional support, even where micro-franchisees or agents are involved. As such, this model is considered be most likely to succeed financially, and
least likely to lead to mission drift. It is also the model recommended for investor support (ibid.).

Table 16. Typology of Social Business Hybrids

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Clients = Beneficiaries</th>
<th>Clients ≠ Beneficiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic Value Spillovers</td>
<td><strong>MARKET HYBRID</strong> Examples: BOP initiatives for access to basic services (energy, health)</td>
<td><strong>BRIDGING HYBRID</strong> Examples: integrated business model with job matching for people with disabilities</td>
</tr>
<tr>
<td></td>
<td><strong>Risk of Mission Drift:</strong> Low</td>
<td><strong>Risk of Mission Drift:</strong> Intermediate (lower risk for more integrated models)</td>
</tr>
<tr>
<td></td>
<td><strong>Financial Sustainability:</strong> Easy</td>
<td><strong>Financial Sustainability:</strong> Moderately Difficult</td>
</tr>
<tr>
<td></td>
<td><strong>BLENDING HYBRID</strong> Examples: Microfinance, integration models that require regular support or change of behavior for value to be created</td>
<td></td>
</tr>
<tr>
<td>Contingent Value Spillovers</td>
<td><strong>Risk of Mission Drift:</strong> Intermediate</td>
<td><strong>Risk of Mission Drift:</strong> High</td>
</tr>
<tr>
<td></td>
<td><strong>Financial Sustainability:</strong> Moderately Difficult</td>
<td><strong>Financial Sustainability:</strong> Difficult</td>
</tr>
</tbody>
</table>

Source: Santos et al (2015, p. 46)

Of particular interest are the two dimensions that they introduce and from which they develop their four typologies. Dimension one is their articulation of types of value spillover, which they consider to fall traditionally beyond the area of interest of a commercial enterprise. Santos et al (2015) identify two types of value spillover, these being “automatic value spillover” and “contingent value spillover” (Santos et al., 2015, p. 45), both of which they consider not only to be of interest to social enterprises, but a “fundamental concept for understanding the role of social business hybrids in society” (p. 41). Their example of automatic value spillover is illustrated through the sale of a solar
light to a family in Rwanda. For a commercial enterprise, they argue that it is only the sale of the light and the economic value it creates that would be of interest. In contrast, for a social business or enterprise, there is a considerable additional value proposition that comes from the Rwandan family no longer burning a dangerous kerosene lamp which emits black Carbon, is a fire hazard, creates breathing difficulties and requires money for regular purchase of the kerosene, all of which are fundamental to the raison d’être of the social enterprise. What is unclear is whether this is primarily a presentational issue. In other words, whether the solar light is sold by the commercial or the social enterprise, surely the family that buys the light will still benefit from reduced emissions of black Carbon while also lowering the risk of fire. A key difference may arise if the socially oriented business or enterprise provides additional training and information about the risks associated with kerosene, which the commercial enterprise might not.

Santos et al (2015) go on to argue that the work of some social enterprises creates contingent rather than automatic value spillover, and that this form requires greater management and therefore incurs greater cost. This is illustrated with the example of microfinance institutions, whose “contingent value spillover” is only realised if the microfinance loan is used for constructive purposes, such as schooling, home renovations, or to help start a business, as compared to being diverted towards alcohol or gambling. In order to achieve this “contingent value spillover”, it is argued that the social enterprise needs to undertake training and mentoring activities for the borrower of the microfinance loan (ibid.). Santos et al (2015) do not suggest that one or other type of value spillover is preferable, but in their four typologies of hybrid social businesses, it is those with contingent value spillover that they consider to be more difficult to manage in terms of
hybrid tensions and financial sustainability. Their second dimension relates to potential obstacles between the clients and their ability to pay for, or access the product(s). Product price, geographic remoteness and unwillingness to pay because of perceived lack of value are some of the key barriers identified for people on low incomes. Potential solutions include innovations that reduce the cost of the end product, the use of franchise models to help access remote areas, and the bundling together of products perceived as less-desirable (e.g. mosquito nets) with ones perceived as more valuable (e.g. lights that work off renewable energy) (Santos et al., 2015).

Margiono et al (2017) also propose a typology of four “social venture business model configurations” (p. 636). They combine Resource Dependency Theory with literature on public administration, and focus their typology (Figure 14) on the combination of four characteristics that they consider central to social ventures, these being “mission to create public/social value, private ownership logic, public or private funding, and public or private control.” (p. 633). In keeping with the literature on tensions within hybrid organisations, each configuration is discussed in terms of its perceived legitimacy, its ability to control transaction costs, and the types of clients or beneficiaries that may be served (ibid.). With regard to beneficiary type and reach, Margiono et al (2017) suggest that those organisations with the highest proportion of public funding and control may have the greatest capacity to reach people on very low incomes, but also have the least capacity to generate commercial profit or to be considered legitimate in market terms. Failure of such organisations, for instance in relation to provision of access to electricity for people living in energy poverty, could be considered synonymous with failures of the State and thus equate to justification for emergence of social enterprises (Defourny &
Nyssens, 2010; Teasedale, 2011) and/or for the involvement of the church, as seen in several countries in SSA (Navarette-Moreno & Agapitova, 2017).

*Figure 14 Identification of BM configurations for social ventures.*

In contrast, Margiono et al (2017) identify organisations that comprise a majority of both private funding and control, and whose operations are focused on efficiency and low transaction costs may be most able to generate commercial revenue and secure market legitimacy, but as a result may not be in a position to reach very low-income households and may also suffer from lower levels of support from the public. This is consistent with some of the challenges identified in the SBM literature (for example Schlategger et al., 2012; Bocken & Geradts, 2020). Organisations that combine a private funding with public control, and that seek to adopt innovative ways of delivering value to their customers fall...
between both the configurations described earlier. This configuration, described as “Type and design II” may retain legitimacy in the eyes of the public, while also offering novelty in terms of business model, by implication potentially helping achieve market legitimacy (Margiono et al., 2018, p. 639). However, this configuration, while having the potential to reach people on low and very low incomes is considered less likely to be able to generate profit. This could be considered to reflect some, but not all of the challenges associated with social enterprises and the tensions inherent in their hybrid organising, for instance access to public and private funding (Mair & Marti, 2006; Doherty et al., 2014) and the risk of mission drift when working at the intersection between public and private (Pache & Santos, 2010; Battilana et al., 2012; Doherty et al., 2014). However, neither public nor market legitimacy are guaranteed in such configurations (Dart, 2004; Pache & Santos, 2013) and public legitimacy should not be taken for granted in countries and contexts in which little is known about such organising (Battilana et al., 2012; Doherty et al., 2014). Scant attention is paid to the fourth type of organisation because of perceptions that it would be highly inefficient (ibid.).

In terms of typologies, there is greatest similarity between the approaches offered by Ebrahim et al (2014) and Santos et al (2015), with both distinguishing between those “integrated hybrids” whose customers are also their primary target beneficiaries, and “differentiated hybrids” whose customers are not their primary beneficiaries (Ebrahim et al., 2014, p. 83). In their scholarly works, Santos et al (2015) and Margiono et al (2017) both discuss types of resource acquisition. However, where the former appear to focus upon impact investors, as well as use of loans and bonds, venture philanthropists and social impact bonds, the latter place considerably less emphasis upon such sources
(though reference is made to social investors), focusing instead upon commercial revenue from sales, as well as access to national and international government grants. Despite their differences, they are both resource acquisition strategies, which could potentially be used to complement one another. The next sub-section outlines a number of other strategies that hybrid organisations may use to help manage some of the tensions associated with their business models.

2.7.4 Strategies adopted by hybrid organisations

In addition to the adoption of legally recognised organisational forms to which reference has already been made (for example Battilana et al., 2012; Ebrahim et al., 2014; Battilana & Lee, 2014), scholars have explored several other strategies adopted by social and/or sustainable entrepreneurs. For instance, in terms of personnel management, Battilana et al (2012) describe the recruitment and training of graduates into a newly established Bolivian commercial microfinance organisation, Caja de Ahorro y Prestamo. This approach was adopted in response to the challenges faced by another, older Bolivian microfinance institution, BancoSol, which had recruited employees from both social and commercial backgrounds to meet the increasing demand for microfinance loans. However, the clash of cultures had led to resentment within the BancoSol team. Battilana et al (2012) report that BancoSol ultimately adopted an approach similar to the one introduced by Caja de Ahorro y Prestamo, in which recent graduates with no prior work experience were recruited in order to avoid the clash of cultures that arose because of professional tendencies and biases that people develop when working in a particular type of organisation.
The importance of networking and partnership development is also reported upon by some authors, who note the potential of franchising (Dees et al., 2004; Tracey & Jarvis, 2007) and micro-franchising (Ebrahim et al., 2014; Santos et al., 2015) to help achieve scale and reach. Santos et al (2015) suggest that use of micro-franchisees (or agents) is one of the most suitable ways of rendering a social business hybrid model financially sustainable because the micro-franchisees require no, or only little additional support, in contrast, for instance to Work Integration Social Enterprises in which considerable additional support is deemed necessary. While this may be true, SSA’s low levels of literacy, identified earlier by Navarette-Moreno & Agapitova (2017) suggest a potentially more complex situation.

More informally, the sharing of ideas between agencies is proposed as a strategy worthy of adoption (SEA, 2021; Lyon & Fernandez, 2012, cited in Davies & Doherty, 2019). This may, potentially, be easier in countries in which social enterprises are relatively widespread, established and numerous.

Davies & Chambers (2018) explore ten sustainable entrepreneurs (which, in contrast to social enterprises tend to be more profit-oriented) and their use of BMI to help manage tensions associated with hybridity, while Davies & Doherty (2019) conduct a longitudinal study of Cafédirect and the highs and lows of its efforts to create a successful hybrid business model. Of particular interest are the BMI challenges and strategies adopted by the ten sustainable enterprises reviewed by Davies & Chambers (2018). The value proposition was problematic for all ten organisations, primarily because their sustainable products or services were identified as being more expensive than those of competitor
organisations, by virtue of the relatively lower focus on sustainability amongst competitors. Value creation and delivery proved challenging because, in terms of supply and distribution chains, it was time-consuming to deal with independent retailers but ethically problematic to deal with larger retailers. Finally, the creation and capture of economic value whilst delivering a sustainable business model was the most challenging for the organisations, though it is suggested that this should not affect those organisations deemed to be integrated hybrids, but could affect those deemed to be differentiated hybrids (ibid.). In terms of the strategies adopted to address value proposition, these include efforts to clearly communicate the ethical, social and environmental benefits/values afforded to a customer through their purchase of a product or service, as well as a strategy of targeting customers with the capacity to pay more for a product or service that has such attributes. Exclusivity strategies with retail partners were also adopted. In terms of value creation and delivery, the strategy of networking with like-minded partners to provide integrated support (at scale, potentially) is adopted. So too, is the ring-fencing of important sustainability values even when organisations have had to take out bank loans in order to expand (a strategy they had sought to avoid). In terms of value capture, there is an interesting strategic example, which is to slow the scale and pace of organisational ambition and reach. An alternative strategy relates to linking commercial success in a developed economy to supporting sustainability-oriented initiatives in developing economies, for instance using profits from the sale of condoms to fund work regarding HIV/AIDS (Davies & Chambers, 2018). This last strategy is not dissimilar to the differentiated hybrid approach proposed by Ebrahim et al (2014). These challenges and associated strategies are interesting and provide further insight into the BMIs adopted by hybrid sustainable enterprises. However, all ten organisations are based
in developed economies in Western Europe, thus calling into question the transferability in quite different cultures and less developed economies.

There is a relative lack of empirical evidence regarding the evolution of social and sustainable enterprises after they enter the marketplace (Belz & Binder, 2017; Geissdoerfer et al., 2018; Baldassare et al., 2020) and there is a lot to learn from the exploration of SBMI in organisations that seek to capture environmental, social and economic values (Davies & Doherty, 2019). Furthermore, there are even fewer case studies from SSA (Holt & Littlewood, 2015; Navarette Moreno & Agapitova, 2017; Kolk & Rivera-Santos, 2018).

This research has identified a number of gaps in the literature. In the first instance, while challenges associated with the creation of supportive ecosystems in SSA are recognised (Navarette-Moreno & Agapitova, 2017; Richardson et al., 2020) relatively little is known about the implications of operating in those ecosystems from the perspective of hybrid social enterprises. Additionally, while adoption by social business hybrids of micro-franchisee models is attractive in many situations, including in some parts of SSA (Santos et al., 2015), there is a risk in assuming that such BMs are equally relevant across 46 different SSA countries. This is evident in the literature on poverty, whether globally (Nájera Catalán & Gordon, 2020; Salecker et al., 2020), at the BoP (e.g. Lappeman et al., 2019; Dembek et al., 2020), or in relation to energy (e.g. Nussbaumer et al., 2012; Clowes et al., 2019) which clearly demonstrates the heterogeneity that exists between and within countries, and at a more local level. As such, each ecosystem will vary, as will the opportunities available to people living at the BoP. Furthermore, traditional approaches
to working with and characterising people living at the BoP have failed to adequately provide for the element of choice (Hasan et al., 2017; Singh et al., 2022) that many people who do not live at the BoP take for granted. Genuinely social enterprises and socially-oriented businesses should, therefore, seek to better understand and cater to the desires, as well as the basic needs, of people living at the BoP.

In addition, some of the early promise seen in the expansion of companies producing and distributing small solar-powered products appears to bear the hallmarks of mission drift, with the financial priorities of investors trumping the SDG7 target to provide universal access to clean and affordable energy to everyone (Jacome & Ray, 2018; Cross & Neumark, 2021; Groenewoudt & Romijn, 2022). If we are to hope to provide such universal access, whether for energy, or for other basic services, it is important to reflect on ways in which such mission drift might be avoided. Finally, while recent research has sought to integrate literature from the social and sustainable enterprise fields with that from the BMI field, it has tended to focus upon organisations based in developed economies (e.g. Davies & Chambers, 2018). As such, there is scope to contribute to efforts to integrate BMI with hybrid organising, by extending empirical case study research to developing economies and to situations in which the globally-agreed sustainability objectives are to ramp up efforts to reach scale as opposed, for instance, to adopting slower growth strategies.

This research contributes to these gaps by undertaking a longitudinal study of a social enterprise that has sought to adopt multiple innovations in its drive for a sustainable business model that operates in SSA. Thus, Figure 15, seeks to represent the evolution of
trends in the poverty literature and the literature on social enterprises, SBMI and hybrid organising. It demonstrates, for instance, how the literature on business models has evolved to better take account of environmental and social value creation. Furthermore, it demonstrates the emergence of social enterprises, as a societal response to perceived gaps in the provision of services by the State and the market. It also illustrates how our understanding, conceptualisation and measurement of different types of poverty has begun to improve, leading to a more nuanced focus on poverty in different contexts. These bodies of literature will all continue to evolve, as will approaches designed to target provision of services and goods to people living at the BoP. However, as illustrated by some of the literature on sustainable businesses in Europe and investor-backed enterprises in SSA (Davies & Chambers, 2018; Jacome & Ray, 2018; Cross & Neumark, 2021; Groenewoudt & Romijn, 2022), it is economically more viable to target one’s products at wealthier segments of society living in more densely populated areas. As a result, there is a risk that SBMs evolve to meet economic and environmental demands while excluding those members of society least able to access and/or afford basic services. With regard to the particular context of SDG7 and this research, the result could reinforce structural injustices (Kumar et al., 2019; Sovacool et al., 2019; Groenewoudt & Romijn, 2022) insofar as those people living in greatest energy poverty end up remaining in energy poverty, while those already benefiting from some (albeit unreliable) access to electricity benefit further from having access to supplementary renewable products. The evolving conceptual model presented in Figure 15 seeks to capture continued development of these bodies of literature and forms the basis of a critical exploration into the social enterprise activities of Sunny Money.
Basic, binary measures situate someone above, below, the line associated with relative monetary means. There is a tendency to underestimate numbers.

Adaptation of multidimensional measures to more accurately reflect the multidimensionality of poverty within a particular setting. This understanding allows for more accurate measures of poverty, such as weight and interactions.

Improved understanding of multidimensionality and heterogeneity within households as well as between households, and in the market place.

Adoption usually leads to increases in poverty count.

Recognition of differences within households as well as between households, and in the market place.

Precarity of existence and potential to fall from poverty into extreme poverty as a result of personal circumstances but also in light of multitude of external factors.

Basic items can quickly become luxury items.

Urban, peri-urban middle class

Urban, peri-urban poor

Remote, rural, poor

SBMs in response to calls for social & environmental value creation.

Advent of Social Enterprises in response to failures of State & market.

Challenges of remaining economically viable and fulfilling social & environmental objectives - mission drift for Social Enterprises.

SBMs & BSMs as key activities in remaining competitive & improving sustainability.

Hybrid organizing to try to juggle competing demands of creating environmental, social and economic value

Recognition of diversity and heterogeneity within households, through weight and interacting factors.

Improved understanding of customer input and price awareness, and desire for choice, rather than "one size fits all".

BMI & SBMI as key activities in remaining competitive & improving sustainability.

Commercially driven BMs

Remapping of multidimensional poverty to more accurately reflect the regional, national or local context in which the study is situated.

Improved understanding of multidimensionality and heterogeneity within households, through weight and interacting factors.
Represented by the arrow that rises from left to right is a theme that emerges consistently across the literature on poverty, BoP and energy poverty, namely that our understanding, conceptualisation and measurement of every type of poverty has proved more complex than initially thought. As a result, binary measures (bottom leftmost circle), while useful for providing a quick snapshot, seem consistently to underestimate the numbers of people living in whichever type of poverty. Furthermore, by virtue of their binary design, they fail to account for interactions between different types of poverty, and for differences between and within households. Even the more nuanced measures, such as the MPI for poverty, and the MEPI for energy poverty, (iterations of both being represented by circles moving up the arrow) require adjustment to more accurately capture regional or national contexts. Both binary and multidimensional measures can, if taken at face value, run the risk of failing to account for the heterogeneity found amongst individuals living in poverty. Finally, the top right of the arrow represents both the brand awareness and desire for product and service choice expressed by people living in poverty, as well as the precariousness of their existence which may lead them to fall back into more extreme types of poverty and/or to be unable to afford items that may quickly become luxury in terms of affordability.

Evolutions in both the business and the social enterprise literature are represented in the second arrow, rising from the bottom right corner in an upward left trajectory. The top side of the arrow illustrates the transitioning from purely economic value creation BMs, to ones that incorporate social and environmental value creation (SBMs), and the innovations that are required to accompany each of these transitions. On the underside of the arrow, the emergence of social enterprises is captured, in response to a variety of
factors, as are the demands associated with trying to remain economically viable while creating social and environmental value. Just beneath the head of the arrow is identified the overlap between these two bodies of literature with the result being one of hybrid organisations.

Between these two arrows – the one representing our improved understanding of the heterogeneity within and challenges facing people living in poverty, and the other culminating in the challenges of hybrid organising – sit representations of different levels of poverty, perceived primarily from the perspective of delivery cost, i.e. those people being characterised as remote, rural poor living in areas of low population density incurring higher delivery costs per capita than those being urban or peri-urban.

2.8 Summary
This chapter set the scene by giving an introduction to poverty, its multidimensionality and the ways we measure it. This provided the basis for a review of the literature regarding people living at the BoP, where a lack of access to energy was identified as a constraint and deprivation in both these bodies of literature. The role of off-grid renewable energy technologies was next presented, as a more affordable alternative to grid-based electricity provision, and the highs and lows of development of such technologies and associated investments was also presented. The second section of the chapter reviewed the literature regarding social enterprises as well as sustainable business models, and innovations adopted by both types of organisation. The penultimate section of the chapter discussed and defended the choice of theoretical lens adopted for this research, before identifying overlaps and gaps between social enterprise and the sustainable business literature and
utilising these as the premise from which to develop a conceptual framework. Next, Chapter 3 presents the adopted methodological framework for this research.
CHAPTER 3

METHODOLOGICAL APPROACHES

3.0 Introduction

This chapter seeks to present, explain and justify the methodological approaches that have been used in conducting the research. There are six sections to this chapter. It begins with a description of the research philosophical position and research design, thereafter it moves to the methodology, before discussing the specific methods used. Ethical considerations are discussed next, before a section on data coding and analysis, and analytic generalisability. The chapter concludes with a summary.

3.1 Research Philosophy

Social scientists, including business and management scholars, are able to draw upon two broad modes of inquiry or research traditions, these being quantitative and qualitative (Goertz & Mahoney, 2012; Yin, 2016; Gerring, 2017). Within the social sciences, discussions between these two traditions have existed for decades with scholars (such as Guba & Lincoln, 1994; King et al., 1994 cited in Goertz & Mahoney, 2012; Mahoney & Goertz, 2006; Goertz & Mahoney, 2012; Barnham, 2015; Gerring, 2017; Kuehn & Rohlfing, 2022) continuing to debate their relative strengths, weaknesses, similarities and differences. Many of the debates appear to revolve around the belief system or worldview espoused by the researcher(s) (Yin, 2016; Gerring, 2017) which informs the selection of the mode of inquiry, that being either quantitative or qualitative.
The worldview or belief system held by the researcher is synonymous with the ‘research philosophy’ whose formation may helpfully be broken down into four areas, or topics, each of which is informed by a range of contrasting, and sometimes competing perspectives (Yin, 2016). Concerning the first area, this encompasses the researcher’s beliefs about the nature and existence of reality, contrasting, at one end of the spectrum, a singular and objective reality with multiple and subjective ones at the other (Yin, 2016). The second includes different perspectives on the nature of power and status between people, believing either that research is value-free and devoid of power asymmetries, or that it is value-bound and that explicit efforts must be made to overcome inequalities in power, influence and control between, for example, researchers and research participants (Sluka & Robben, 2007, cited in Yin, 2016; Gerring, 2017). The third area upon which research philosophies tend to differ is in the distinction between research that is bound neither by time nor context, with that which is bound by both, illustrated by differences between laws that do apply in the physical sciences with those that cannot readily be applied in the context of, for example, human emotions such as love (Lincoln & Guba, 1985; Yin, 2016). Finally, research philosophies diverge in their beliefs about causal relationships, that is “whether causes and effects are readily discernible” (Yin, 2016, p. 21). At one extreme, is the belief that all effects must be preceded by causes, while at the other is the belief that “everything influences everything else…and that interaction has no directionality [and] no need to produce that particular outcome.” (Lincoln & Guba, 1985, p. 151, original emphasis; Yin, 2016). Different paradigms or worldviews have arisen as a result of researchers’ beliefs about these four areas, or topics, with positivism and constructivism forming the two opposite ends of the spectrum of beliefs (Yin, 2016). Positivism is associated with a “single reality, value-free research, search for time- and
context-free findings, and primacy of cause-effect investigations” while constructivism is associated with “multiple realities, value-bound research, limit to time- and context-specific findings, and irrelevance of cause-effect investigations” (ibid. p. 22).

According to Guba & Lincoln (1994), a paradigm or research philosophy “may be viewed as a set of basic beliefs…It represents a worldview that defines, for its holder, the nature of the “world”, the individual’s place in it, and the range of possible relationships to that world and its parts…” (p. 107). Paradigms, worldviews, or philosophies do not exist in isolation, but rather coexist alongside one another, and their holders exhibit greater or lesser degrees of opposition to alternative philosophies (Collier, 1994; Mahoney & Goertz, 2006). Further, as a field of research develops, it can be “characterized not by increasing convergence upon an accepted body of knowledge but by a growing divergence in research perspectives and approaches…[with] intense competition between rival paradigms prevail[ing]” (Astley, 1985, p. 497). For some scholars (see for example, Beck, 2006; Schrodt, 2006, both cited in Mahoney & Goertz, 2006) the differences are comparable to the belief in different religions, or the “worship of alternative gods” (ibid., p. 227). Other scholars, (see for example, Ragin, 1987; King et al., 1994; Mahoney and Goertz, 2006; Teddlie and Tashakkori, 2009; Goertz and Mahoney, 2012; and Gerring 2017) appear to have made attempts to reconcile some of the differences and/or to have proposed mixed or multi-method modes of inquiry. Guba & Lincoln (1994) assert that, whatever disagreements there may be between philosophical opinions, or paradigms, they are all constructs of the human mind, that no paradigm is “open to proof in any conventional sense” (p. 108) and that each is a representation of the most informed view of its holder. A shift in an existing paradigm, or increasing acceptance of a new paradigm
does not disprove the validity of its predecessors but “simply provide[s] an alternative view of the scientist’s relevant universe” (Kuhn, 1970; Astley, 1985, p. 498). Applying this to the individual, Collier (1994) contends that each and every individual has and thinks according to a philosophy that is informed by the social group(s) to which s/he belongs, whether s/he is unconscious or critically aware of their philosophy or worldview. He goes on to quote Gramsci (1971) who intimates that it is preferable to determine “consciously and critically one’s own conception of the world…[to] choose one’s own sphere of activity, [and to] take an active part in the creation of the world, refusing to accept passively and supinely from outside the moulding of one’s personality” (Gramsci, 1971, cited in Collier, 1994, p. 17).

To summarise for the reader, a number of paradigms that represent forms of inquiry which differ from the positivist “received view that has dominated the formal discourse in the physical and social sciences for some 400 years”, Guba and Lincoln (1994, pp. 108-109) note evolutions in the ontological, epistemological and methodological positions that are adopted by proponents of each of the paradigms of inquiry (see Table 17).
Table 17. “Basic Beliefs (Metaphysics) of Alternative Inquiry Paradigms”

<table>
<thead>
<tr>
<th>Item</th>
<th>Positivism</th>
<th>Postpositivism</th>
<th>Critical Theory et al.</th>
<th>Constructivism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ontology</td>
<td>naive realism—“real” reality but apprehendable</td>
<td>critical realism—“real” reality but only imperfectly and probabilistically apprehendable</td>
<td>historical realism—virtual reality shaped by social, political, cultural, economic, ethnic, and gender values; crystallized over time</td>
<td>relativism—local and specific constructed realities</td>
</tr>
<tr>
<td>Epistemology</td>
<td>dualist/objectivist; findings true</td>
<td>modified dualist/objectivist; critical tradition/community; findings probably true</td>
<td>transactional/subjectivist; value-mediated findings</td>
<td>transactional/subjectivist; created findings</td>
</tr>
<tr>
<td>Methodology</td>
<td>experimental/manipulative; verification of hypotheses; chiefly quantitative methods</td>
<td>modified experimental/manipulative; critical multiplicity; falsification of hypotheses; may include qualitative methods</td>
<td>dialogic/dialectical</td>
<td>hermeneutical/dialectical</td>
</tr>
</tbody>
</table>

Source: Guba & Lincoln (1994, p. 109)

Due to criticisms around the subjectivity of Guba and Lincoln’s (1994) proposed grouping of paradigms, Gephart (2004) builds on his earlier work (1999) and that of Guba and Lincoln (1994) and Lincoln and Guba (2000), to summarise three paradigms that are frequently used in management research, these being positivism/post positivism, interpretive research and critical post modernism (see Table 18).
In reflecting on how best to approach this research, consideration was given to both quantitative and qualitative options, as well as the “distinctive, perhaps even incommensurable” (Gerring, 2017, p. 15) views espoused at each end of the spectrum. As noted, quantitative research has dominated the physical and social sciences for decades (Guba & Lincoln, 1994; Gerring, 2017) and continues to be popular, often associated with providing “hard”, “factual” data (Barnham, 2015, p.837), “objective” and “real science” (Hesse-Biber & Leavy, 2004, p. 4) whose “results are significant at $p < 0.05$” (Siggelkow, 2007, p.20) and whose aim is to identify “assertions of enduring value that are context-free” (Lincoln & Guba, 1985, p. 110). In contrast, qualitative approaches were historically associated with adjectives such as “subjective” (Barnham, 2017, p.837), “weak, …interpretive, …[and] less scientific” Hesse-Biber & Leavy, 2004, p. 4). More recently, however, qualitative research has become much more widely accepted and recognised as a legitimate, rich and diverse form of inquiry (Eisenhardt, 1989; Guba & Lincoln, 1994; Hesse-Biber & Leavy, 2004; Siggelkow, 2007; Bansal & Corley, 2011; Yin 2016),

Table 18. “Research Traditions”

<table>
<thead>
<tr>
<th>Tradition</th>
<th>Positivism and Postpositivism</th>
<th>Interpretive Research</th>
<th>Critical Postmodernism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assumptions about reality</td>
<td>Reality: Objective reality that can be understood by mirror of science: definitive/probabilistic</td>
<td>Relativism: Local intersubjective realities composed from subjective and objective meanings represented with concepts of actors</td>
<td>Historical realism: Material/symbolic reality shaped by values and crystallizes over time</td>
</tr>
<tr>
<td>Goal</td>
<td>Discover truth</td>
<td>Describe meanings, understanding</td>
<td>Uncover hidden interests and contradictions: critiques, transformation, and emancipation</td>
</tr>
<tr>
<td>Tasks</td>
<td>Undertake explanation and control of variables: discern verified hypotheses or nonverified hypotheses</td>
<td>Produce descriptions of members’ meanings and definitions of situation: understand reality construction</td>
<td>Develop structural or historical insights that reveal contradictions and allow emancipation, spaces for silenced voices</td>
</tr>
<tr>
<td>Unit of analysis</td>
<td>Variable</td>
<td>Verbal or nonverbal action</td>
<td>Contradictions, critical incidents, signs and symbols</td>
</tr>
<tr>
<td>Methods focus</td>
<td>Uncover facts, compare these to hypotheses or propositions</td>
<td>Recover and understand situated meanings, systematic divergences in meaning</td>
<td>Understand historical evolution of meanings, material practices, contradictions, inequalities</td>
</tr>
</tbody>
</table>

* This table is based on Gephart (1998), Guba and Lincoln (1994), and Lincoln and Guba (2000).

Source: Gephart (2004, p. 456)
actively encouraged by leading journals such as the Academy of Management Journal (Eisenhardt & Graebner, 2007; Bansal & Corley, 2011).

Thus, the adoption of a positivist paradigm, with its traditional focus upon quantitative research techniques was deemed inappropriate for this research. The existence of a single, comprehensible reality that would allow the research to identify an immutable state of affairs (Guba & Lincoln, 1994) is at odds with the literature reviewed in Chapter 3, and the multiple experiences faced by the individuals and organisations that will inform this research. A postpositivist view, which holds that reality can only be known “probabilistically” and focuses upon “falsification” of theories, rather than verification (Gephart, 2004, p.456) was also rejected. Although quantitative and qualitative methods are applied to postpositivism, it, like positivism, assumes “an objective world external to the mind that is mirrored by scientific data and theories.” (ibid). The literature reviewed in Chapter 3 did not readily lend itself to this view and therefore, a purely interpretivist perspective was also rejected. While there is appeal in the relativist stance that interpretivists adopt, and the result that people understand and react to an objective world in different ways, the purpose of this research is not to describe “how different meanings held by different persons or groups sustain a sense of truth” (ibid). Elements of critical postmodernism also held appeal, for instance its focus upon uncovering “relations of dominance and subjugation…and its [efforts] to transform the social order and allow emancipation from unwanted structures of domination…and [its] historical realist assumption that the construction of reality is shaped by social, political and economic values” (ibid). As the context for this research is premised on the lack of access to electricity, particularly for people living in multidimensional energy poverty,
consideration was also given to the adoption of a transformative worldview, or paradigm, given its focus on the “enhancement of social justice, [the] furtherance of human rights, and respect for cultural norms” (Mertens, 2010, p. 470).

Ultimately, a worldview informed by pragmatism (Morgan, 2007; Yin, 2016) was considered most appropriate. This was primarily because, “[with the exception of] positivism, the paradigms discussed are all still in formative stages; …no final agreements have been reached even among their proponents about their definitions, meanings or implications.” (p. 109). Pragmatism falls in a middle ground thus allowing for “multiple perspectives” to be used (Tashakkori & Creswell, 2008, p. 30, cited in Yin, 2016) and “enabling research to proceed and to be completed-independent of trying to settle the potentially incompatible differences between the two extreme paradigms [of positivism and constructivism]” (Yin, 2016, p. 23; Johnson & Onwuegbuzie, 2007; Morgan, 2007).

Furthermore, a pragmatist-informed approach was considered suitable given the relatively long-term relationship that the researcher has had with the organisation selected for this case study, and as Yin (2016) notes, “the study might be part of a long-term affair” (p. 24).

3.2 Research methodology

In terms of research methodology, purely quantitative approaches, while suitable for testing hypotheses are better suited to positivist paradigms (Guba & Lincoln, 1994; Gephart, 2004). Quantitative techniques tend to seek to establish causal relationships from which the researcher can formulate generalisations about the ways that variables
interact with one another under given conditions (Roberts, 2014). This is neatly summarised by Gephart (2004, p. 455) who states that “[q]uantitative, positivist research, in contrast [to qualitative research], imposes scientific meanings on members to explain a singular, presumed-to-be true reality that non-scientists may not appreciate.” As the literature review in Chapter 3 demonstrates, however, there exists no conceptual framework against which this study can be tested and no “singular, presumed-to-be true reality” (ibid). Furthermore, the literature (for example, see Margiono et al., 2018; Davies & Chambers, 2018) that seeks to integrate hybrid social/sustainable enterprises with business model innovations is only nascent, and tends to draw most of its examples from developed economies (exceptions include Battilana et al., 2012; Ebrahim et al., 2014; Santos et al., 2015). In contrast, the locus of this study is predominantly SSA, for which there is not only a paucity of empirical research (Littlewood & Holt, 2018; Kolk & Rivera-Santos, 2018), but also a wide and diverse range of societies and cultures whose lived experiences are very different to those of the researcher. It is on these grounds that a purely quantitative approach was deemed unsuitable for this study and therefore rejected.

In contrast to quantitative research, qualitative approaches are recognised as being particularly useful in trying to uncover and give voice to the “emic” (or insider) views held by people (Guba & Lincoln, 1994; Gioia et al., 2013; Roberts, 2014). Furthermore, qualitative research seeks to understand people in their everyday world, to represent and take seriously the views they express, to recognise and pay attention to the complexities of the contexts in which they live and work, to be open to the application of new or existing concepts that may help explain social behaviour, and to be open to and
acknowledge multiple sources of evidence that may enrich one’s understanding of the context (Gioia et al., 2013; Yin, 2016). Qualitative approaches lend themselves to inductive research, seeking to explore and describe phenomena, looking to develop theory rather than test it (Eisenhardt, 1989; Eisenhardt & Graebner, 2007). Given the relative paucity of existing literature relating to the focus of this thesis, a qualitative mode of inquiry was deemed suitable.

Undertaking qualitative research is difficult and challenging (Gephart, 2004; Yin, 2018). As Tracy (2010, p.837) notes “the proliferation of concepts for qualitative excellence undeniably illustrates the creative complexity of the qualitative methodological landscape…[and the] vast array of criteria can bewilder those new to the field”. However, the value of qualitative research is widely recognised, as illustrated by the awarding of the Academy of Management Journal for Best Article to qualitative papers in 1989, 1990 and 1991 (Gephart, 2004) and again in 2005 (Eisenhardt & Graebner, 2007).

Many authors note the value of combining qualitative and quantitative sources of data (Eisenhardt, 1989; Tracy, 2010; Yin, 2014, 2018). Such use of multiple sources of evidence is often associated with researchers’ desire to demonstrate credibility in their work (Tracy, 2010) and to enhance substantiation (Eisenhardt, 1989). Further, integration of quantitative data with qualitative evidence “can keep researchers from being carried away by vivid, but false, impressions in qualitative data, and it can bolster findings when it corroborates those findings from qualitative evidence.” (Eisenhardt, 1989, p. 538). At this point, it is worth clarifying the type of data source/source of evidence sometimes included under the term “quantitative”. In her review of inductive case study research,
Eisenhardt (1989, pp. 534-535) notes that “the evidence may be qualitative (e.g., words), quantitative (e.g., numbers), or both.” She goes on to summarise types of evidence that have been used by well-respected scholars, which include “archives, …observation… [and] questionnaires” (ibid.). Tracy (2010, p. 841) refers to “data sources”, while Yin (2018, pp. 111-112) refers to “sources of evidence”. With regard to the proposed research, a wide variety of sources of evidence were used. These will be referred to as sources of evidence or supplementary material, but the term “quantitative” sources of evidence will not be used, to avoid any potential confusion.

In order to determine the most appropriate type of research method, consideration was given to the research question, *What do sustainable business model innovations that have been adopted by socially-driven enterprises look like and do they adequately serve the poorest members of society in SSA?* As Yin (2018) notes, there are many research methods available for the collection and analysis of empirical evidence. These include experiments, surveys, archival analyses, histories and case studies (ibid.). Furthermore, “every research method can be used [to conduct] exploratory, descriptive and explanatory studies.” (Yin, 2018, p.8). The boundaries between these different research methods are not necessarily clear cut, but it is important to try to select the research method that is best suited to the research questions being addressed (Eisenhardt, 1989; Yin, 2018). Pursuing this line, it is considered important to explain why certain research methods were rejected in favour of the one(s) selected (ibid).

With regard to this thesis, the aim is not to explore, describe or explain how access to electricity might benefit economically poor rural Zambians. Such a study might benefit
from the use of surveys or experiments, and while this would certainly constitute an interesting topic of research, much has been written about the benefits of access to electricity in general terms (e.g. WEC, 1999; Birol, 2007; Vezzoli et al., 2018) as well as in more specific terms, for example, in relation to the potential to improve indoor air quality and reduce black Carbon emissions from the burning of kerosene lamps for light (e.g. Lam et al., 2012; Jacobson et al., 2013). The result of such studies could potentially be less interesting in terms of advancing knowledge and understanding (Bartunek et al., 2006; Tracy, 2010). However, there are elements of archival analysis that would seem suitable and indeed form part of the research method adopted. As illustrated later in this section and in Chapter 4, examination of archives or historical records, shows, for instance, numbers of rural Zambians that have gained access to electricity in the period of study. However, given the low levels of access still being reported, such an approach can only comprise one element of the research method if the research question is to be answered in a more comprehensive manner. Furthermore, there are many behavioural events and contextual phenomena at play, over which the researcher has no control (Yin, 2018). This leads to the consideration of case studies. As a research method, “case studies are preferred when the relevant behaviours still cannot be manipulated and when the desire is to study some contemporary event or set of events” (Yin, 2018, p. 12). Elements of this description about the suitability of case studies apply directly to the context in which this research is situated. For instance, it is not possible to manipulate the behaviour of economically poor rural Zambians any more than it is to manipulate the behaviour of government departments tasked with providing access to electricity. Nor is it appropriate to tackle this research from anything but a contemporary perspective, given that provision of access to electricity is a challenging endeavour that is underway; that is woefully
incomplete; and that remains subject to many variables. Reflecting upon the various methods available, a case study approach is deemed to offer the most appropriate fit, and is therefore critiqued and justified in greater detail below.

In terms of defining the case study as a research method, Eisenhardt (1989, p.534) refers to it being “a research strategy which focuses on understanding the dynamics present within single settings.” This is later expanded upon by Yin (2018, p. 15) who adopts a two-part definition:

1. A case study is an empirical method that
   • investigates a contemporary phenomenon (the “case”) in depth and within its real-world context, especially when
   • the boundaries between phenomenon and context may not be clearly evident.

2. A case study
   • copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result
   • benefits from the prior development of theoretical propositions to guide, design, data collection, and analysis, and as another result
   • relies on multiple sources of evidence, with data needing to converge in a triangulating fashion.

Having defended its suitability as a research method for the current research study, it is important to further consider both the purpose of the case study, and the potential variations in case studies as a research method.

With regard to the purpose of this case study, it seeks to explore a relatively under-researched topic, and also to describe the “how” and “why” of some of the business model innovations that have already been developed in an underexplored research area (Eisenhardt & Graebner, 2007). It does not, however, seek to explain a phenomenon that
is complete. Its purpose is therefore not explanatory, but is situated somewhere between exploratory and descriptive (Yin, 2018).

With regard to potential variations in case studies as a research method, the approach can include single as well as multiple case studies, and key authors (e.g. Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Yin, 1994, 2018) refer to examples of both types. Yin (2018, pp.47-48) specifically refers to four basic designs for case study research, these being “single-case (holistic)…, single-case (embedded)…, multiple-case (holistic)…, and multiple-case (embedded) designs.” as illustrated in Figure 16, and advises the researcher to decide prior to data collection, whether the research is going to be single-case or multiple-case (ibid.).
During the early stages of this research, the potential to adopt a multiple-case study approach (Yin, 2018) was considered. The use of multiple cases enables comparisons that cannot be achieved with single cases, facilitates an “appropriate level of abstraction…[and] also enable[s] broader exploration of research questions and theoretical elaboration.” (Eisenhardt & Graebner, 2007, p.27). Indeed, the adoption of multiple cases for this research could have involved efforts to interview and survey a number of different businesses operating within the renewable energy sector in Zambia, or even in other countries in East and Southern African. However, this option was discarded for two practical reasons (Yin, 2016; Braun & Clarke, 2021). One being issues
of cost and access and secondly, the researcher’s particular interest was in organisations focusing on the provision of access to electricity for economically impoverished rural Zambians. Other organisations operating within this field in Zambia were primarily focused on larger urban centres with a higher population density and wealthier potential clients, or were very different in size and focus. For example, Total, the petroleum company, was using its fuel stations as a base from which to sell similar products and which was able to distribute products to these stations via its regular journeys. While indicative of an interesting business model and one worthy of research as it may well occur in other countries, the difference in size, scope and focus did not lend itself to a like-for-like comparison.

An embedded single-case study design (Yin, 2018) was also briefly considered. This could have involved conducting research with the same organisation’s operations in Malawi and in Uganda, the two other countries in which the adopted case study enterprise was operating within at that time. However, this was discarded for two reasons, the first being similar issues of cost, and the second being that the programme in Uganda was going through some internal restructuring and it was not deemed situationally ethical (Tracy, 2010), sensitive (Yin, 2016), or pragmatic (Braun & Clarke, 2021) to seek to impose external research under such circumstances.

Finally, a holistic single-case study approach (Yin, 2018) was selected. As noted, this also partly reflected issues of affordability, the latter being made easier by virtue of the researcher’s potential to extend other university work in Zambia to accommodate this research. It also reflected the potential to conduct a more genuinely longitudinal single-
case study, this being one of the “five rationales for single-case designs” (Yin, 2018 pp. 49 & 51), considered particularly important in understanding “the underlying dynamics of phenomena that play out over time” (Siggelkow, 2007, p. 22), and in helping to “mitigate retrospective sensemaking and impression management” (Eisenhardt & Graebner, 2007, p. 28). The researcher had lived and worked in Zambia for three years, and had spent two of those years working for the adopted case study enterprise, thus affording a more longitudinal use of evidence, and attending to Mintzberg (1979, p.583) who asks “What, for example, is wrong with samples of one?” if they help to provide more valid data. Eisenhardt & Graebner (2007) note that single cases can “somewhat surprisingly…enable the creation of more complicated theories than multiple cases” while Siggelkow (2007, p. 21) asserts that case study research can be important in providing “motivation, inspiration, and illustration.” One other point that may be worthy of note is that in selecting the case study organisation, this single-case could be considered to benefit from being both unusual and revelatory, two of the other rationales which Yin (2018) considers to justify such single-case studies. Furthermore, as Munro et al (2022) note, there are very few organisations focused specifically on the provision of access to electricity for the rural poor in SSA, as many renewable energy companies have adopted a more commercially-driven approach. In referring to the specific as opposed to any random selection of a case study organisation, Siggelkow (2007, p.20) notes “it is often desirable to choose a particular organisation precisely because it is very special in the sense of allowing one to gain certain insights that other organisations would not be able to provide.” Moreover, longitudinal single case studies, as adopted for this research, continue to be considered valuable within management and organisational research. For example, the work by Mantere et al. (2012) and Raynard et al. (2020) illustrated by their
recent publications in the Academy of Management Journal, and because “they can capture organisational change processes” (Bansal & Corley, 2011, p. 235).

Further justification for the use of case studies as a research method is provided by Bartunek et al. (2006), Davis (1971, cited in Bartunek et al., 2006), Gephart (2004), Siggelkow (2007). In arguing for “interesting” scholarly work, Davis (1971, cited in Bartunek et al., 2006) suggests that readers become engaged when research challenges parts of the assumptions that they have made, but not all of them. Siggelkow (2007) illustrates this by referring to the use of case study research to challenge and, on occasion, falsify theories. Furthermore, he suggests there is considerably greater appeal through the use of case studies that are grounded in reality, while Bartunek et al. (2006) note that learning is improved through the production of “interesting” research materials. Furthermore, “rich case data enables…inspiration for new ideas.” (Siggelkow, 2007, p.21).

This section has sought to explain and justify the choice of research methodology. The next section outlines the approaches taken in conducting the single-case study.

3.3 Research methods

3.3.1 Case study approach

As might be expected given Tracy’s (2010) observation about the complexity of undertaking purely qualitative research, case study research (and its potential to combine qualitative and quantitative approaches) is considered “one of the most challenging of all social science endeavours” (Yin, 2018, p. 3) with “scholars believ[ing] good qualitative
research is more difficult and time consuming to create than good quantitative research.” (Gephart, 2004, p.461). Furthermore, there is no universally agreed way of conducting case study research (or as Mintzberg calls it “direct” research, 1979, p. 581). However, key principles and approaches have been developed by Eisenhardt (1989) and Yin (1984, 2018), both of which are widely cited in the literature. Furthermore, while Tracy (2010, p.837) refers specifically to qualitative research, her “eight ‘big-tent’ criteria” seem pertinent to the combination of quantitative and qualitative research. Therefore, this research methodology has sought, where appropriate, to follow the steps outlined in Eisenhardt’s (1989, p.533) “process of building theory from case study research” (Table 19) as well as adhere to the “big-tent” ideas proposed by Tracy (2010, p.837) as illustrated in Table 20.
<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Getting Started</td>
<td>Definition of research question</td>
<td>Focuses efforts</td>
</tr>
<tr>
<td></td>
<td>Possibly a priori constructs</td>
<td>Provides better grounding of construct measures</td>
</tr>
<tr>
<td>Selecting Cases</td>
<td>Neither theory nor hypotheses</td>
<td>Retains theoretical flexibility</td>
</tr>
<tr>
<td></td>
<td>Specified population</td>
<td>Constrains extraneous variation and sharpens external validity</td>
</tr>
<tr>
<td></td>
<td>Theoretical, not random, sampling</td>
<td>Focuses efforts on theoretically useful cases—i.e., those that replicate or extend theory by filling conceptual categories</td>
</tr>
<tr>
<td>Crafting Instruments and Protocols</td>
<td>Multiple data collection methods</td>
<td>Strengthens grounding of theory by triangulation of evidence</td>
</tr>
<tr>
<td></td>
<td>Qualitative and quantitative data combined</td>
<td>Synergistic view of evidence</td>
</tr>
<tr>
<td></td>
<td>Multiple investigators</td>
<td>Fosters divergent perspectives and strengthens grounding</td>
</tr>
<tr>
<td>Entering the Field</td>
<td>Overlap data collection and analysis, including field notes</td>
<td>Speeds analyses and reveals helpful adjustments to data collection</td>
</tr>
<tr>
<td></td>
<td>Flexible and opportunistic data collection methods</td>
<td>Allows investigators to take advantage of emergent themes and unique case features</td>
</tr>
<tr>
<td>Analyzing Data</td>
<td>Within-case analysis</td>
<td>Gains familiarity with data and preliminary theory generation</td>
</tr>
<tr>
<td></td>
<td>Cross-case pattern search using divergent techniques</td>
<td>Forces investigators to look beyond initial impressions and see evidence through multiple lenses</td>
</tr>
<tr>
<td>Shaping Hypotheses</td>
<td>Iterative tabulation of evidence for each construct</td>
<td>Sharpens construct definition, validity, and measurability</td>
</tr>
<tr>
<td></td>
<td>Replication, not sampling, logic across cases</td>
<td>Confirms, extends, and sharpens theory</td>
</tr>
<tr>
<td></td>
<td>Search evidence for &quot;why&quot; behind relationships</td>
<td>Builds internal validity</td>
</tr>
<tr>
<td>Entolding Literature</td>
<td>Comparison with conflicting literature</td>
<td>Builds internal validity, raises theoretical level, and sharpens construct definitions</td>
</tr>
<tr>
<td></td>
<td>Comparison with similar literature</td>
<td>Sharpens generalizability, improves construct definition, and raises theoretical level</td>
</tr>
<tr>
<td>Reaching Closure</td>
<td>Theoretical saturation when possible</td>
<td>Ends process when marginal improvement becomes small</td>
</tr>
</tbody>
</table>

This research asks What do sustainable business model innovations that have been adopted by socially-driven enterprises look like and do they adequately serve the poorest members of society in SSA? In so doing, it fulfils the first step in Eisenhardt’s (1989, p.533) “Process of Building Theory from Case Study Research” and Yin’s (2018) call for case study research design to identify the case study’s questions.

In dealing with this “significant…and timely societal…event” this topic can also be considered to have “strong moral overtones” and therefore qualify as “worthy” (Tracy,
2010, p. 840) and as having “practical implications…that address a subject that is very relevant to the real world” (Bartunek et al., 2006). In order to fulfil the research aim, a case study approach is employed. Use of case studies as an approach to research helps in “understanding the dynamics present within single settings” (Eisenhardt, 1989, p. 534) and as illustrated in section 3.2 above, consideration was given to selection of the case study, fulfilling the second step in Eisenhardt’s (1989) process.

Case studies have been used in several pieces of research exploring social enterprises in SSA (e.g. Calvo & Morales, 2016; Littlewood & Holt, 2018; Navarette-Moreno & Agapitova, 2017) and specifically in the household renewable energy sector (e.g. Muhoza & Johnson, 2018; Gray et al., 2018). As such, use of a case study approach was considered appropriate because of its potential to facilitate comparison of empirical findings between this and other relevant studies. Eisenhardt (1989, p. 544) refers to the importance of “enfolding literature” in good case study research. In a similar vein, Tracy (2010, p. 848) refers to the need to “attentively interconnect [with the] literature reviewed” while Yin (2018) suggests that a review of the relevant literature serves both to demonstrate the researcher’s mastery of the topic and to underpin the importance of the research case study. Furthermore, case study approaches align with the philosophical view that “the organisational world is socially constructed…and that the people constructing their organisational realities know what they are trying to do” and are able to articulate it (Gioia et al., 2013, p. 3).

While case study research has sometimes suffered from questions of legitimacy and credibility (Gioia, 2020), when undertaken rigorously, lessons from case studies can be
transferred and applied to different contexts (Eisenhardt, 1989; Gioia et al., 2013; Guba & Lincoln, 1985, cited in Gioia, 2020; Yin, 2016) and help in building theory (Eisenhardt, 1989; Eisenhardt & Graebner, 2007. It is in this vein that a case study approach has been adopted. It is also worth noting that while this research employs a single case study organisation, the social enterprise in question works across several countries in SSA and is registered in the UK, thus having the potential to provide transferable insight into a number of contexts and ecosystems. Further, the use of the case study provides an important opportunity to illustrate a conceptual contribution, because “by seeing a concrete example of every construct that is employed in a conceptual argument, the reader has a much easier time imagining how the conceptual argument might actually be applied to one or more empirical settings.” (Siggelkow, 2007, p. 22).

3.3.2 Inductive process

Deductive approaches tend to be suited to the testing of a particular theory or hypothesis (Roberts, 2014). Given the relative paucity of research exploring business model innovation by hybrid social enterprises (Davies & Chambers, 2018) and the under-studied SSA context in terms of business and management literature (Kolk & Rivera-Santos, 2018), this study takes an inductive approach to the research, helping to provide “deep and rich theoretical descriptions of the contexts in which organisational phenomena occur” (Eisenhardt & Graebner, 2007; Tracy, 2010; Gioia et al., 2013, p. 16) and allowing for new practical and theoretical insights to be unearthed, with a view to making contributions to the relative lack of existing knowledge.
3.3.3 Getting access and building trust

Yin (2014, 2016) and Tracy (2010) explain the importance of engendering a sense of trust through one’s research, not just through the research design, but also with regard to being open and systematic in describing the ways in which the study was undertaken, the challenges encountered, selections made, and decisions taken. Yin (2014) also notes that a “study might be part of a long-term affair” (p. 24) between the researcher and the subject of research. This applies to the current study, with the researcher having first encountered the case study organisation in 2011/2, in Zambia. Mintzberg (1979), Guba & Lincoln (1985), Siggelkow (2007) and Yin (2018) all recognise the value of sustained periods of engagement with the case study enterprise. While not falling within the actual timeframe in which this research was carried out, the researcher worked as a part time consultant and mentor (up to eight days per month) for Sunny Money Zambia between 2012 and 2014, while living in the country. Upon leaving Zambia to return and live in the UK, the researcher continued to visit Southern Africa for ongoing consultancy work with organisations other than Sunny Money Zambia. When involving a trip to Zambia, these consultancies provided two opportunities for informal visits (as illustrated by the email in Figure 17) to Sunny Money in Lusaka, the capital city. Once the consultancy projects were completed, occasional communication with Sunny Money was maintained via email.

Figure 17. Example of email exchange during non-solar visits to Zambia

----- Forwarded message -----  
From: XXX <XXX@sunnymoney.org>  
To: "mjysnell@XXX" <mjysnell@XXX>  
Sent: Monday, 5 October 2015 at 06:22:26 BST  
Subject: Re: Meeting

Hi Matt
Yeah not great re the rugby!

Yes 10ish is fine, will see you soon.

Best wishes
Alex

On 5 October 2015 at 06:46, Matthew Snell <XXX> wrote:

Hi Alex,

Great to see you despite the poor Rugby result. Hope rest of weekend good.

I think we'll come to you on Monday if that's still ok. Inevitable juggling of meetings, but planning to be with you around 10ish if all goes to plan.

See you soon,

Matt

Sent from my iPhone

--

XXX

Operations Director

SunnyMoney Zambia

Source: Author’s personal email correspondence

Despite changes to staff in Sunny Money Zambia, the researcher’s period of employment as a part-time consultant to the organisation, as well as subsequent informal visits resulted in unfiltered access to the case study organisation. This was particularly true with regard to access to information about Sunny Money Zambia, in contrast to its programmes in other countries.

Once the part time doctoral research began in earnest, the researcher was able to contact the new Chief Executive Officer (CEO), responsible not just for Zambia but for the whole organisation. The new CEO had taken up post after a sabbatical, away from Sunny
Money, that had lasted just over one year. Prior to undertaking this sabbatical, he had been Managing Director of the case study enterprise, reporting to a CEO who had since resigned. Although the new CEO and I (in my capacity as researcher) were not particularly familiar with one another, having had little cause to work together between 2012 and 2014, we were familiar with one another’s names and prior involvement with the organisation. This familiarity helped create trust and gain access. It also helped exchanges to be undertaken in a relaxed and conversational manner. However, the flip side of this extended relationship with the organisation is the potential for researcher bias that may arise as a result of having professional relations with some of the people working for Sunny Money. The researcher was very aware of this and made efforts to guard against it by triangulating data from multiple sources, as illustrated in the discussion regarding data collection and triangulation. These efforts also demonstrate “sincerity” as called for by Tracy (2010, p.840).

3.3.4 Primary data collection

In-depth, semi structured interviews are at the heart of inductive, qualitative research and good inductive investigation is informant led (Gioia et al., 2013). For the purposes of this research, key informants were selected on the basis of access and willingness to participate. The number of participants was not determined in advance of the research. While some authors (such as Fugard & Potts, 2015) have proposed methods for determining, a priori, participant sample size, others (such as Byrne, 2015; Braun & Clarke, 2016, Saunders et al., 2017; Sim et al., 2018, Low, 2019) have argued that this is neither necessary, nor appropriate given factors such as methodology, resource constraints, and ontological and epistemological considerations. Others, including Morse
(2000) and Malterud et al. (2016, p. 1754) suggest that factors including the research question(s), the topic, the quality of the data, the design of the study and “information power” all affect the choice of participant sample size, and that a pragmatic approach should be adopted in relation to sample size. Of relevance to this research, Morse (2000, p. 4) observes that “longitudinal…studies…produce more data than the single interview per participant design…and such factors [should be considered] when estimating participant size.”

Permission to conduct the research (using both primary and secondary data sources) was first obtained from the Chief Executive and the team in Sunny Money Zambia. Once granted, interview planning and access to interviewees was arranged by email (or phone when in Zambia) prior to any interviews being conducted. In keeping with the inductive approach selected for this research, open-ended, semi-structured interviews were considered the most appropriate in order “to obtain both retrospective and real-time accounts” from the people involved in the topic of interest (Gioia et al., 2013, p. 19). To mitigate against any potential biases associated with interviews, “numerous and highly knowledgeable informants who view the focal phenomena from diverse perspectives…[and] include[d] organisational actors from different hierarchical levels, functional areas, groups, and geographies” (Eisenhardt & Graebner, 2007, p.28) were selected. This approach is considered important in limiting the likelihood of “retrospective sensemaking and/or impression management” as it is considered unlikely that such a variety of informants would adopt the same position (ibid).
Throughout the research, particularly during interviews and fieldwork, but also during phone calls and in email exchanges, a great deal of attention was paid to building and nurturing relationships, engendering trust, “personal demeanour, …portraying your authentic self”, demonstrating respect for the research participants and in the field setting (Amabile et al., 2001; Tracy, 2010; Yin, 2016, p. 125-126). This approach, the existing relationship with the case study organisation, and the willingness of the staff to share experiences may have helped to create an environment in which the researcher was granted access to considerable amounts of supplementary evidence, which is described in detail in section 3.3.5.

Before travelling to undertake any of the research, suggested questions, length of interview, information sheet and participant consent forms were all discussed with the research supervisor and approved by the University of Huddersfield’s research ethics committee thus attending to calls for “procedural ethics” in good case study research (Tracy, 2010, p.847; Yin, 2018). These forms are all included in Appendix 2. It was not deemed necessary to translate these into Nyanja because all interviews bar one, were conducted in English and the research design did not include discussions with end-users of the products, for many of whom English would not have been suitable. Table 21 provides a summary of the completed interviews, including the organisational position of the people interviewed, the location in which they were interviewed, as well as the duration of the interview.
Table 21. Summary of participants, duration & location of in-depth interviews

<table>
<thead>
<tr>
<th>Position in organisation and location</th>
<th>Code</th>
<th>No. of interviews</th>
<th>Duration of interviews</th>
<th>Face to face or phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Executive Officer, Italy</td>
<td>AA</td>
<td>One</td>
<td>5 hours 91 pages</td>
<td>Face to Face</td>
</tr>
<tr>
<td>Operations Director, Zambia</td>
<td>BB</td>
<td>Four</td>
<td>1h 1 min. 1h 16 mins. 0h 22 mins. 0h 33 mins. 42 pages</td>
<td>Face to Face</td>
</tr>
<tr>
<td>Business Coordinator, Zambia</td>
<td>CC</td>
<td>Two</td>
<td>0h 18 mins. 0h 22 mins. 12 pages</td>
<td>Face to Face</td>
</tr>
<tr>
<td>Administrator, Zambia and Agent Coordinator, Zambia (interviewed together)</td>
<td>DD and EE</td>
<td>One</td>
<td>0h 37 mins. 12 pages</td>
<td>Face to Face</td>
</tr>
<tr>
<td>Agents 1-6, Zambia</td>
<td>FF</td>
<td>One Focus Group</td>
<td>1h 37 mins. 21 pages</td>
<td>Face to Face</td>
</tr>
<tr>
<td>Agent 7, Livingstone, Zambia</td>
<td>FF</td>
<td>One</td>
<td>1h 13 mins. 19 pages</td>
<td>Face to Face</td>
</tr>
</tbody>
</table>

As illustrated in Table 21, most of the semi-structured interviews were conducted in Zambia, more specifically in Lusaka. A particularly in-depth and uninterrupted interview was conducted over two consecutive days in Rome, Italy, when the CEO was living there and the researcher secured funds to travel for the interview. Given the length of the interview, it was conducted in two locations, both in the CEO’s home and in a café. This allowed for follow-up questions and some reflection in between interviews. The uninterrupted nature of the interview also provided an important opportunity to discuss some of the history of the case study enterprise, as the new CEO was one of the two original members of staff, and therefore a source of institutional knowledge.
With regard to the other interviews, one of the agents was interviewed closer to his home, and during a trip to another city that the researcher undertook as part of other university work. Senior staff in Zambia were interviewed more than once, on different days, in Lusaka. This enabled them to manage operations that were underway at the same time as the research, and also provided an opportunity for the researcher and the interviewee to reflect on the interviews and revisit certain aspects for clarification or expansion at later dates. Such an approach is consistent with the longitudinal nature of the research and provided opportunities to explore and discuss field realities over a sustained period.

All interviews were conducted in English with the exception of one Focus Group Discussion and one individual discussion with one of the interviewees from the Focus Group. In this instance, translation from English to Nyanja and back again was used to facilitate communication for one of six agents who was less confident speaking in English. Two female Zambian members of staff participated in the Focus Group Discussion and one of them sat in on the individual interview. Both Zambian ladies were familiar to the participants of the Focus Group Discussion because, outside of the research, their roles involved them dealing with the agents’ requests for products. The Focus Group Discussion and separate, shorter individual interviews were conducted in the office, or outside, in the shade of a tree at Sunny Money’s offices or garden in Lusaka. It had initially been intended that agents would be interviewed individually, however this did not prove possible given time constraints faced by the participants. The original interview guide was therefore utilised (see Appendix 2), but the questions and discussion held as a focus group, with translation when required.
The interviews were also conducted in a familiar environment, being held at the offices of Sunny Money, a location with which the agents were all familiar given their previous visits on multiple occasions to buy lights from the office. Expenses incurred by the agents in travelling to the office were covered by the researcher, as were the lunch and drinks that were provided. This helped to create an informal environment in which to exchange information. All agents were given opportunities to respond to each question, or comment as the discussion unfolded. Selection of the agents was done in consultation with the Sunny Money team on the basis of their availability and relative proximity to Lusaka. It would not have been practical, reasonable or affordable to request that agents from distant Zambian locations travel for many hours to attend the meeting.

3.3.5 Supplementary evidence gathering

In addition to the semi-structured interviews that were audio recorded and transcribed, the researcher was also able to gather a wide range of supplementary evidence, which is considered important in conducting in-depth, inductive qualitative research and assisting with triangulation of findings (Eisenhardt, 1989; Tracy, 2010; Yin, 2016; Braun & Clarke, 2021). Triangulation of such sources is common practice within case study research, and is advocated by some of the most widely cited authors (e.g. Mintzberg, 1979; Eisenhardt, 1989; Yin, 1984, 2018).

First among these, was participant observation (Amabile et al., 2001; Gephart, 2004; Yin, 2016), through which the researcher participated in many informal discussions with a wide range of staff and occasional customers visiting the office. These included coffee breaks and lunches taken with staff, as well as informal observation of staff briefing
sessions. Observations and ideas were jotted down and kept as field notes to be consulted later (see examples in Appendix 3). In management and organisational research, the use of such participant observation and recording via field notes continues to be adopted in longitudinal single case study research (Mantere et al., 2012; Raynard et al., 2020).

Several dozen email exchanges took place with senior members of staff. Some of these concerned simple logistics, arranging convenient times to meet; others, were requests for information that the interviewees had agreed to share; others still, were follow-up questions when the researcher sought to clarify a particular point, for example in relation to interpretation of information contained in annual reports, or where anecdotal evidence needed to be cross-checked. The majority of emails were exchanged between 2018 and 2021.

Direct observation was undertaken prior to the start of the research, when working part time for Sunny Money between 2012 and 2014, and again during research that was conducted in Zambia in 2017 and 2018 (see Timeline in Table 22, p. 187). Mintzberg (1979, pp. 586-588) describes the importance of “getting out into the field, into real organisations…measuring things that really happen in organisations, as they experience them.” Although it is worth noting that there is “no magic amount of time [one should spend] in the field…[or] between fieldwork,…[nor] number of interviews…[and] pages of fieldnotes” that the researcher should generate, the combination of all these contributes to the generation of “rich rigour” in qualitative research (Tracy, 2010, p.841), which this case study has sought to provide.
The visits to Sunny Money Zambia in 2017 and 2018 were made possible courtesy of international trips that were undertaken in support of other university research work, outside of this research. Once the primary purpose of these university work trips was complete, the researcher was able to remain in Zambia for a few extra days, during which there were opportunities to directly observe Sunny Money staff, for instance: unloading deliveries of solar lights; carefully packing and storing lights in lockable shipping containers; ensuring proper records were kept; packing up vehicles and arranging the logistics and staff preparations for travel to distant locations as part of sales to schools; checking (and complaining!) about the condition of the vehicles; testing lights and associated products (for example, USB phone charging sockets) to assess quality in a consignment; subjecting the lights to long periods of charge; and trying to repair apparent faults when lights had been brought back to the office. During these periods, detailed observations and field notes were recorded. Table 22 provides a summary of key periods of physical interaction with the case study enterprise.
Table 22. Timeline of research and interactions with the case-study enterprise

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 2012 – June 2014</td>
<td>Consultant, two days per week, Sunny Money Zambia. This was prior to my taking up a role at University of Huddersfield.</td>
</tr>
<tr>
<td>October 2015</td>
<td>Visit to Sunny Money Zambia, having joined University of Huddersfield the same month, and travelling to Zambia for other university-related work</td>
</tr>
<tr>
<td>March 2016</td>
<td>Visit to Sunny Money Zambia after extending university related work in Zambia</td>
</tr>
<tr>
<td>September 2016</td>
<td>Attendance at a Sunny Money event in London and meeting with then CEO</td>
</tr>
<tr>
<td>November 2017</td>
<td>New CEO appointed</td>
</tr>
<tr>
<td>January 2018</td>
<td>Visit to Sunny Money Zambia after extending university related work in Zambia</td>
</tr>
<tr>
<td>February 2018</td>
<td>Visit to Rome, to interview new CEO, returning from sabbatical</td>
</tr>
<tr>
<td>September 2019</td>
<td>Visit to Sunny Money Zambia after extending university related work in Zambia</td>
</tr>
</tbody>
</table>

Opportunities also existed for participation in the physical handling of the products, more specifically the solar lights, separate PV panels, a variety of USB charging cables and ports. All products were inspected and seen in operation, from the cheapest entry level lights to the most expensive Solar Home Systems that Sunny Money Zambia kept in stock. Such observations were conducted during the research visits as well as during the time spent living in Zambia, when the researcher needed to become familiar with the products prior to negotiating sales to partner organisations, and provided opportunities “to be there long enough to be able to understand what is going on” (Mintzberg, 1979, p.587). While not the primary purpose of the research visits, this familiarity with the
products over an extended period of five years enabled a more rigorous observation and understanding of how products were developing. Of course, no physical tests of product quality were conducted as part of such observations, as that was and still is assured by Sunny Money’s staff, and at the pan-African scale by the World Bank supported team at Lighting Africa⁸.

When permission for the research was granted by the CEO, this extended to the sharing of financial data, as well as records of the sales made in each of the countries in which Sunny Money was operating. Access to financial records was provided in three ways. Detailed data in the form of Excel spreadsheets, PowerPoint presentations, and Word documents were provided by senior managers from Sunny Money Zambia. This included whatever backdated information they had available. Four other Sunny Money programmes could not be visited within the confines of this research, either because of researcher resource constraints (in the case of Malawi), or because the programmes had ceased and the offices had closed prior to the commencement of the research (e.g. Kenya and Tanzania), or were in the process of being passed on to another organisation (e.g. Uganda). For those countries, the CEO and Finance Director kindly provided access to historical records. They also provided continuous access (via the organisation’s online system) to current sales records for both Malawi and Zambia.

Additionally, a number of other internal reports were shared. In the first instance, these include summary end of year (EOY) reports, which were shared most consistently by the

⁸ Lighting Africa is funded by the World Bank and is an initiative that aims to catalyse the off-grid modern energy market in Africa. Within its mandate is a quality assurance scheme, now renamed Verasol. It assures the quality of a huge range of pico-solar lights, Solar Home Systems and other such technologies. Lighting Africa (n.d.)
Zambia programme (Appendix 4). Each EOY graphically summarises total sales by route to market, by product type, by month, as well as annual profit and loss margins. Additional detail is provided for each route to market. Other internal reports include example spreadsheets showing faults by product type, by month, by fault percentage and by route to market (Appendix 5). Others still include sample orders of shipping containers and the numbers and types of lights included in each container. This type of report shows landed costs (once the product has reached Sunny Money’s storage location) by product type as well as forecast profit according to the price for which the product is intended to be sold, thus providing insight into the projections that the case study enterprise has made, and facilitating understanding of its financial planning.

With regard to Sunny Money’s work with micro-franchisees, which they term “agents”, several specific reports were provided. This includes a 2017/18 and 2020/21 agent spreadsheet, including contact details, numbers of lights sold per agent, the year the agent registered with Sunny Money, and so on. (A sample is included in Appendix 6) with contact details removed. Sample agent-specific price lists were also shared. These show staggered pricing strategies, which Sunny Money call “tiers”. In 2017/18, for instance, four tiers are offered to agents, each affording the agent an increasing level of discount on the normal retail price, depending on how many lights the agent buys in a single order. An example is included in Appendix 7. Excerpts from Sunny Money’s 2018 agent training manual is also provided and shows the information that is given to agents, a list of advice, a list of do’s and don’ts as well as the Sunny Money contact details and guarantees in terms of repair or replacement, subject to faulty goods (Appendix 8).
Various additional sources of evidence were gathered, all publicly available. Some were obtained from Sunny Money’s website, for instance the 2020/21 Annual Report, articles relating to its supporter base (both public and private), and access to its impact calculator. A number of Sunny Money’s promotional and explanatory videos were accessed through the website and also on You Tube. With the exception of the 2020/21 report which was accessed via Sunny Money’s website, all other audited Annual Reports and Financial Statements were accessed via the UK government’s Charities Commission website. This enabled access to accounts going back to 2014/15. Attempts to access earlier versions of audited accounts were unsuccessful. Reference to Sunny Money was also found in a number of publications, such as Navarette-Moreno and Agapitova (2017) and their analysis of social enterprise ecosystems in selected countries in East and Southern Africa.

As per recommendations for using multiple sources of data (Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Tracy, 2010; Yin 2018), Table 23 gives details of key supplementary evidence consulted during the holistic single-case study, and provides an overview of the ways in which these documents contributed to the development of themes and theory (Eisenhardt & Graebner, 2007). It is also worth noting that supplementary evidence was being gathered and reviewed during and in between field visits. This allowed for simultaneous and recursive consultation of primary and supplementary (or secondary) sources, a practice supported in the literature (see for example, Mintzberg, 1979; Eisenhardt, 1989, Eisenhardt & Graebner, 2007; Siggelkow, 2007; Tracy, 2010; Braun & Clarke, 2012, 2021; Yin, 2018).
Table 23. Supplementary sources consulted

<table>
<thead>
<tr>
<th>Document type</th>
<th>Length &amp; format</th>
<th>Source</th>
<th>Contents</th>
<th>Ways in which documents have been utilised (with some providing insight to multiple elements of the case study enterprise and its work)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Report &amp; Financial Statement 2017-18</td>
<td>37 pages, PDF</td>
<td>UK Charities Commission</td>
<td>Directors’ &amp; Trustees’ Report, Auditors’ Report, Statement of Financial Activities, Balance Sheets</td>
<td>Triangulation and corroboration of financial information provided by Finance Director as well the archival (Excel) and current online (GoogleDrive) financial accounts.</td>
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<tr>
<td></td>
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<td>Triangulation of information re: provision of opensource material to other organisations.</td>
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<td></td>
<td>Triangulation of focus on poorest households as organisational mission.</td>
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<tr>
<td>Document type</td>
<td>Length &amp; format</td>
<td>Source</td>
<td>Contents</td>
<td>Ways in which documents have been utilised (with some providing insight to multiple elements of the case study enterprise and its work)</td>
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<tr>
<td>Zambia, 2012-13</td>
<td></td>
<td>Accountants</td>
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<tr>
<td>Financial Statements, SolarAid Ltd.</td>
<td>27 pages, PDF</td>
<td>AMO Certified Public</td>
<td>Directors’ Responsibilities and Approval, Auditors’ Report, Directors’ Report, Statement of Financial Position, Statement of Cash Flows, Detailed income Statement for SolarAid Ltd. Zambia</td>
<td>Triangulation with archival sales and financial records (Excel) and contemporary (GoogleDrive). Confirmation of organisational status and compliance with national legislation, taxation, etc.</td>
</tr>
<tr>
<td>Zambia, 2013-14</td>
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<td>Accountants</td>
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<tr>
<td>Zambia, 2014-15 (initial draft)</td>
<td></td>
<td>Accountants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zambia, 2015-16</td>
<td></td>
<td>Accountants</td>
<td></td>
<td></td>
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<tr>
<td>Document type</td>
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<tr>
<td>Financial Statements, SolarAid Ltd.</td>
<td>25 pages, PDF</td>
<td>UHY-AMO Certified Public</td>
<td>Directors’ Responsibilities and Approval, Auditors’ Report, Directors’ Report, Statement of Financial Position, Statement of Cash Flows, Detailed income Statement for SolarAid Ltd. Zambia</td>
<td>Ways in which documents have been utilised (with some providing insight to multiple elements of the case study enterprise and its work)</td>
</tr>
<tr>
<td>Zambia, 2016-17 (Third Draft with Tax)</td>
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<td>Public Accountants</td>
<td></td>
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<tr>
<td>Name of Zones by Province</td>
<td>Multiple pages, Excel</td>
<td>Sunny Money Zambia</td>
<td>List of all zones, provinces, key schools and key contacts in each zone</td>
<td>Triangulation with national maps and plans for coverage of different areas.</td>
</tr>
<tr>
<td>Zambia Country Report, 2014</td>
<td>10 pages, PDF</td>
<td>Sunny Money Zambia</td>
<td>High level overview and plan</td>
<td>Confirmation of focus on poorest households.</td>
</tr>
<tr>
<td>Plan Zambia, 2012, draft internal document</td>
<td>3 sheets, Excel</td>
<td>Sunny Money Zambia</td>
<td>Estimated number of sales, timescales, staffing and revenue from early pico solar sales</td>
<td>Evidence of different routes to market, including schools, agents, companies and NGOs.</td>
</tr>
<tr>
<td>Keynote for Trustees</td>
<td>42 pages, PDF</td>
<td>Sunny Money Zambia</td>
<td>PDF report and proposal outline for trustees of a potential funding organisation</td>
<td>Evidence of plans submitted to try to secure grant funding for further expansion.</td>
</tr>
<tr>
<td>Lighting up Eastern Zambia</td>
<td>26 pages, PDF</td>
<td>Sunny Money Zambia</td>
<td>PDF report and proposal outline for trustees of a potential funding organisation</td>
<td></td>
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<tr>
<td>Map – photo of operational locations</td>
<td>1 page, JPEG</td>
<td>Sunny Money Zambia</td>
<td>Circled areas around key towns and provinces in which SM Zambia operating</td>
<td></td>
</tr>
<tr>
<td>End of Year Report, 2014-15</td>
<td>35 pages, PowerPoint</td>
<td>Sunny Money Zambia</td>
<td>Sales analysis and figures for the whole year</td>
<td>Triangulation of sales and income figures.</td>
</tr>
<tr>
<td>Document type</td>
<td>Length &amp; format</td>
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<td>Ways in which documents have been utilised</td>
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<tr>
<td>End of Year Report, 2015-16</td>
<td>24 pages, PowerPoint</td>
<td>Sunny Money Zambia</td>
<td>Sales analysis and figures for the whole year</td>
<td>Evidence of different routes to market, including schools, agents, companies and NGOs.</td>
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<tr>
<td>Sales spreadsheets for years 2012-13 to 2019-20</td>
<td>Multiple sheets, Excel files</td>
<td>Sunny Money Zambia</td>
<td>Sales figures for each financial year</td>
<td>Analysis and creation of sales records, overview of income, highs and lows for all years since sales began and records were held.</td>
</tr>
<tr>
<td>Online ‘live’ financial spreadsheets – Google documents</td>
<td>Google docs, Multiple sheets</td>
<td>SolarAid and Sunny Money organisation wide</td>
<td>Sales figures for each financial year from 2015/16 onwards. These are live sheets that are updated by the organisation’s finance office in London with information provided by the finance teams operating in SSA.</td>
<td>Triangulation with sales data available for more recent accounts.</td>
</tr>
<tr>
<td>Historic financial reports, internally referred to as MUT, spanning 2011-12 to 2014-15</td>
<td>Excel, Multiple sheets</td>
<td>SolarAid and Sunny Money organisation wide</td>
<td>Sales figures for each financial year from 2011/12 to 2015/16 when the organisation started using online systems. These provide historical sales data for each country in which the organisation has operated. These earlier records show sales of large scale solar installations as well as the onset of pico-solar sales.</td>
<td>Comparison of country performance with that of other country programmes.</td>
</tr>
<tr>
<td>Historic financial summaries 2008-12</td>
<td>Excel, Multiple sheets</td>
<td>SolarAid and Sunny Money organisation wide</td>
<td>Sales figures for each financial year from 2008-09 to 2011/12 when the organisation provided monthly reports. These provide historical sales data for each country in which the organisation has operated. These early records show sales of large scale solar installations as well as the onset of pico-solar sales.</td>
<td>Corroboration of country programme and organisation-wide highs and lows reported in interviews with senior staff.</td>
</tr>
<tr>
<td>Monthly Update Reports, 2011-12</td>
<td>Multiple pages, Excel</td>
<td>Sunny Money Zambia</td>
<td>Detail on sales targets, sales achieved, locations, dates for each month of the year. Summary narrative report also included.</td>
<td>Corroboration of approximate timescales for pivotal moments, as provided in interviews.</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Document type</th>
<th>Length &amp; format</th>
<th>Source</th>
<th>Contents</th>
<th>Ways in which documents have been utilised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly Update Reports, 2008-2015</td>
<td>Multiple Excel and Word documents</td>
<td>SolarAid and Sunny Money organisation wide</td>
<td>Historical records for all country programmes</td>
<td>Evidence specific to largest and quickest expansion that led to one of key pivotal moments in organisational history – shift from macro to micro installations.</td>
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<tr>
<td>SolarAid / Sunny Money Mafia Island visit report, November 2011</td>
<td>16 pages, PDF</td>
<td>SolarAid</td>
<td>Detailed report on research visit to Mafia Island</td>
<td>Contextual information to corroborate sentiments expressed in interviews, comparing Zambia with Tanzania programme.</td>
</tr>
<tr>
<td>SolarAid / Sunny Money Mafia Island Executive Summary</td>
<td>5 pages, PDF</td>
<td>SolarAid</td>
<td>Overview, campaign techniques, usage opinions expressed by Tanzanians surveyed, changes to kerosene lamps</td>
<td></td>
</tr>
<tr>
<td>Sunny Money Zambia price list and range, June 2016</td>
<td>1 page, PDF</td>
<td>Sunny Money Zambia</td>
<td>Single page document, targeted at agents and other retailers of Sunny Money lights. Page shows a photo of each light, from most basic pico solar to most advanced Solar Home System, with a short description of key features. This is accompanied by five price columns, including basic retail price, and four tiered (discounted) prices depending on the number of lights bought.</td>
<td>Corroboration of reports, website and interview data confirming range of offers made available to agents and members of the public.</td>
</tr>
<tr>
<td>Sunny Money Zambia price list and range, August 2016</td>
<td>1 page, PDF</td>
<td>Sunny Money Zambia</td>
<td>Single page document, targeted at agents and other retailers of Sunny Money lights. Page shows a photo of each light, from most basic pico solar to most advanced Solar Home System, with a short description of key features. This is accompanied by five price columns, including basic retail price, and four tiered (discounted) prices depending on the number of lights bought.</td>
<td>Corroboration of range of physical products sold by the organisation.</td>
</tr>
<tr>
<td>Document type</td>
<td>Length &amp; format</td>
<td>Source</td>
<td>Contents</td>
<td>Ways in which documents have been utilised</td>
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</tr>
<tr>
<td>Sunny Money Zambia price list and range, October 2017</td>
<td>1 page, PDF</td>
<td>Sunny Money Zambia</td>
<td>Single page document, targeted at agents and other retailers of Sunny Money lights. Page shows a photo of each light, from most basic pico solar to most advanced Solar Home System, with a short description of key features. This is accompanied by five price columns, including basic retail price, and four tiered (discounted) prices depending on the number of lights bought.</td>
<td>Visualisation and corroboration of changing prices and products. Corroboration of pricing strategies changing over the course of multiple years.</td>
</tr>
<tr>
<td>Pricing Strategy, 2012</td>
<td>Multiple sheets, Excel</td>
<td>Sunny Money Zambia</td>
<td>Pricing for different pico-solar and Solar Home Systems, landed costs, transport costs, potential savings for different levels of purchase</td>
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<tr>
<td>Market Update, 2016, The Power of Ten</td>
<td>14 pages, PDF</td>
<td>SolarAid</td>
<td>10-year review of general trends in global investment in renewable energies, and SolarAid’s and Sunny Money’s developments</td>
<td>Contextual information in which to situate the organisation’s development alongside that of wider sectoral developments.</td>
</tr>
<tr>
<td>Agent Spreadsheet, November 2021</td>
<td>Multiple pages, Excel</td>
<td>Sunny Money Zambia</td>
<td>Extensive internal file showing over 180 registered agents with which the organisation has worked from 2013-14 to 2021. Contact details, profession and location information are all recorded, as are the number of lights bought from Sunny Money Zambia for resale.</td>
<td>Corroboration of extent of support provided to agents, duration and type of support. Evidence of large numbers of agents and large variation in numbers and frequency of products bought.</td>
</tr>
<tr>
<td>Sunny Money Agent Training Manual</td>
<td>PowerPoint, 14 pages</td>
<td>Sunny Money Zambia</td>
<td>Overview of Sunny Money, summary of lights with photos and key characteristics, marketing and merchandise, ways of creating a cash flow</td>
<td>Evidence of ‘rationale’ for segmenting agents into super and normal status.</td>
</tr>
<tr>
<td>Zambia, Follow up: Agents. Research findings. 2016</td>
<td>14 pages, PDF</td>
<td>Sunny Money Zambia</td>
<td>Summary report based on interviews with and data analysis from discussion with agents in Zambia. Includes information on pricing, barriers to purchase, faults, main customer profile, profiles</td>
<td>Corroboration of types and frequency of faults, by product, by profile, etc.</td>
</tr>
<tr>
<td>Document type</td>
<td>Length &amp; format</td>
<td>Source</td>
<td>Contents</td>
<td>Ways in which documents have been utilised</td>
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<tr>
<td>Zambia, Research findings. Focus group discussions with students. May 2015</td>
<td>13 pages, PDF</td>
<td>Sunny Money Zambia</td>
<td>Internal document. Focus group discussions with 118 students from eight schools in Mumbwa, Zambia. Includes profiles of schools, main barriers to study, perceptions of different types of lighting, family members at home, types of study environment in the home.</td>
<td>Evidence of grant funding.</td>
</tr>
<tr>
<td>Sunny Money Schools internal note, May 2012</td>
<td>2 pages, Word document</td>
<td>Sunny Money Zambia</td>
<td>Internal briefing note on discussions with headteachers and school partners in Chipata, Zambia. Focus is upon messaging around the lights, branding, warranty, incentives, faults &amp; repairs, benefits of partnering with Sunny Money.</td>
<td>Evidence of types of marketing strategy and focus upon value creation for customers.</td>
</tr>
<tr>
<td>Container Order, 2017</td>
<td>Excel, multiple sheets</td>
<td>Sunny Money Zambia</td>
<td>Multiple tabs showing how much Sunny Money pays for its lights, their landed costs in Zambia, onward projected sale prices, projected profits.</td>
<td>Evidence of range of international costs incurred, associated price implications, and organisational attempts to deal with different elements of international supply chain. Corroboration of points made during interviews, relating to some of the operational challenges faced by the organisation.</td>
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<tr>
<td>Fault summary, 2018</td>
<td>Excel, multiple sheets</td>
<td>Sunny Money Zambia</td>
<td>Multiple tabs showing faults reported per product, some dating back as far as 2014 and running to 2018. Each product is individually reported and given a running total of faults as a percentage of cumulative lights sold.</td>
<td>Triangulation of fault information and evidence of organisational tracking of same. This corroborates information provided from the interviews and during field visits and observations.</td>
</tr>
<tr>
<td>Document type</td>
<td>Length &amp; format</td>
<td>Source</td>
<td>Contents</td>
<td>Ways in which documents have been utilised</td>
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<tr>
<td>DFID Country Programme Evaluation report, 2008</td>
<td>124 pages, PDF</td>
<td>DFID</td>
<td>Evaluation report of DFID’s support to various programmes in Zambia, with some interesting background information</td>
<td>Evidence of grant funding and post-grant evaluation reports.</td>
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<td></td>
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<td></td>
<td>Contextual information into which to situate the organisation’s work in Zambia.</td>
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<tr>
<td>Evidence of Impact report, September 2015</td>
<td>47 pages, PDF</td>
<td>SolarAid and Sunny Money</td>
<td>Draft report submitted to DFID</td>
<td>Independent evidence of evaluation, to corroborate some of the points made in the interviews.</td>
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<tr>
<td>Power Situation in Zambia &amp; Mitigation Measures</td>
<td>18 pages, PowerPoint presentation</td>
<td>Director, Department of Energy, Zambia</td>
<td>PowerPoint presentation outlining key issues in Zambia’s energy section and potential measures to address them.</td>
<td>Contextual information relating to Zambia programme and state of energy provision nationally. Corroboration of claims made in interviews and found in academic articles.</td>
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<tr>
<td>ZESCO presentation to the ZNFU, 2015</td>
<td>16 pages, PowerPoint</td>
<td>Acting Managing Director</td>
<td>Presentation of projected outputs per power source and location</td>
<td></td>
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<tr>
<td>SolarAid Impact Calculator, updated 2016</td>
<td>Multiple sheets, Excel</td>
<td>SolarAid</td>
<td>Multiple sheets explaining and illustrating impact calculator for use by the whole organisation</td>
<td>Publicly available sources of information, highlighting the organisation’s work, and managed by the organisation.</td>
</tr>
<tr>
<td>SolarAid website</td>
<td>Multiple pages</td>
<td>SolarAid and Sunny Money</td>
<td>Pages include organisational history, current news stories, archived stories, links to internal and independent research, fundraising initiatives, an online impact calculator, links to Sunny Money, and many more.</td>
<td>Source of evidence and links to independent, academic research, e.g. monitoring of indoor air quality and emissions of Black Carbon.</td>
</tr>
<tr>
<td>Sunny Money website</td>
<td>Multiple pages</td>
<td>SolarAid and Sunny Money</td>
<td>Pages include organisational history, current news stories, list of partner organisations, information on how to become a partner, links to the solar lights offered, links to SolarAid.</td>
<td>Corroboration of interview data about the manner in which impact is calculated, and public access to this information.</td>
</tr>
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<td></td>
<td>Access to evidence about public forms of fundraising, range of grants (public and private),</td>
</tr>
<tr>
<td>Document type</td>
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<td><strong>Ways in which documents have been utilised</strong> (with some providing insight to multiple elements of the case study enterprise and its work)</td>
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<td>to corroborate other sources of evidence and interview data.</td>
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3.3.6 Triangulation of sources of evidence

Triangulation is an important component of good research and the use of more than one respondent and multiple sources of data (including direct observation, field notes, reports, archives, physical artefacts, photographs and financial records) helps increase the credibility of the research (Tracy, 2010), minimise potential bias (Yin, 2016) and substantiate constructs (Eisenhardt, 1989). While semi-structured interviews are at the heart of inductive, qualitative research (Gioia et al., 2013) and good inductive investigation is informant led (ibid.), Yin (2014) specifically recommends trying to verify or triangulate a finding in at least three ways. In conducting this research, several sources of information were gathered, over an extended period. The relevant sources and the findings to which they relate are presented under section 3.5 on coding and analysis. In most cases, at least three sources were used to triangulate a finding, whether through repeat identification by multiple interviewees, use of reports, email correspondence, field notes, or supplementary evidence. However, in limited instances there was just one source of evidence for a particular finding. In each of these instances, the single source was the CEO of the organisation and the subjectivity of that opinion is noted and the point caveated. As Yin (2014) recommends, however, in those instances in which a single participant’s views are recorded, it is advisable, where possible, to seek to confirm her/his views on at least two different occasions to ensure correct representation by the researcher. Where feasible, this was done, as interviews were conducted over two days and in different settings and this is hopefully reflected in some of the single source quotes. Some topics, however, may not have been revisited because, at the time that the interviews were conducted, it was not recognised that the issue would feature as a prominent finding. Where this is the case, it is also reported in the relevant findings.
3.4 Ethical considerations

Despite the messiness that can seem to arise in qualitative research (Eisenhardt, 1989), it is important to clearly articulate when and how research was conducted, and the ways in which data was reconciled with emerging theory (Parse, 2014). Protection of the human subject is critical and is best achieved through adoption of ethically informed research principles (Orb et al., 2001; Eysenbach & Till, 2001). To this end, the research was conducted in accordance with the six principles of ethical research, as provided by the Economic and Social Research Council, these being that:

- research should aim to maximise benefit for individuals and society and minimise risk and harm
- the rights and dignity of individuals and groups should be respected
- wherever possible, participation should be voluntary and appropriately informed
- research should be conducted with integrity and transparency
- lines of responsibility and accountability should be clearly defined
- independence of research should be maintained and where conflicts of interest cannot be avoided they should be made explicit. (ESRC, 2021)

Furthermore, in keeping with the research ethics principles set out in Huddersfield Business School’s Ethics Policy, the research was conducted in such a way as to comply with statutory requirements in the UK and in Zambia, did not endanger the health or well-being of those participating in or conducting the research, respected the dignity of all subjects who participated in the research, was undertaken in an impartial and independent manner, and will ensure that any conclusions are appropriately and sensitively published (Huddersfield Business School, 2021). The researcher has agreed to be bound to and abide by the “Code of Ethics of the University of Huddersfield”, as part of which participants in the research have been informed of their rights and the steps involved should they have any concerns regarding their participation in the study. In the recording of responses,
participants’ names have been withheld but positions within, or associations with the organisation have been included. Coded references are used to facilitate presentation of quotes attributed to each person. The planned research activities, interview questions and field visits were given ethical approval and can be found in Appendix 2.

3.5 Data analysis and coding

With agreement from the interviewees, all interviews were recorded using handheld audio recorders, and field notes were taken during discussions. The use of audio recording in this way ensures a more accurate and verifiable account of the interview, facilitates the taking of notes and helps avoid the limitations of interviewer memory (Bryman & Bell, 2012). With interviews conducted face to face, use of recording devices also allowed for a more natural flow of conversation, with the interviewer and interviewee able to listen and respond to body language, gestures and other non-verbal cues (Denscombe, 2007). Upon returning to the UK, interviews were transcribed, both by the researcher and by a paid transcriber, employed and approved by the University of Huddersfield.

With the majority of the data gathered in the form of audio-recordings and transcripts of semi-structured interviews, field notes, and emails, a first phase of familiarisation was undertaken. In seeking to follow Braun and Clarke’s (2012, 2021) guidance for conducting inductive, reflexive thematic analysis and to ensure rigour in the approach (Gioia et al., 2013), this involved replaying of audio recordings and re-reading of transcripts, initially without making any further notes, in an effort to become familiar with the discussions and the contexts in which they were conducted. Field notes and sketches developed during the interviews were also revisited.
It is important at this point to emphasise that the focus in this research is upon “reflexive” thematic analysis, as opposed to “codebook” or “coding reliability” thematic analysis (Braun & Clarke, 2019, 2021, p. 207). The latter two, favoured by researchers seeking to demonstrate data saturation, tend to involve creation of “an initial codebook…for data analysis, including brief and full definitions of codes, guidance on when to, and not to, apply the code, and quotations from the data that provide illustrative examples of the code.” (ibid.) Reflexive, inductive thematic analysis, in contrast, involves “open, fluid, organic, and recursive coding…in which codes are never finally fixed [but] can evolve, expand, contract, be renamed, split…, collapsed together…, and even be abandoned” (ibid.) This choice of reflexive thematic analysis reflects the researcher’s rejection of a positivist, quantitative worldview, which would more readily embrace the use of pre-determined codes and coding reliability (Braun & Clarke, 2019, 2021). Instead, reflexive thematic analysis has been “expressly developed…as an approach embedded within, and reflecting the values and sensibility of, a qualitative paradigm” (Braun & Clarke, 2021, p. 209) and is thus, considered more appropriate for the current research.

To aid understanding about the differences between codes, categories (both first and second order) and themes, an explanation of the generation of each is now provided.

Codes, for this researcher, “capture analytic observations” and usually represent a single aspect or idea identified in the research, often by an interview participant, or one or more sources of supplementary evidence (Braun & Clarke, 2021, p. 208). Examples include reference to the need to recruit the “right people” or use of the term “NGO” to describe the organisation. Braun and Clarke (2012, 2019, 2021) refer solely to codes, whereas
Gioia et al. (2012, p. 20) refer to a “myriad of informant terms, codes and categories [which] emerge early in the process” and which may be reported as “first-order (informant-centred) [as compared to] second-order (theory-centred)” Gioia (2020, p. 23). In this research, “codes” were generated for “first order categories”, and can thus be considered equivalent in the mind of this researcher, in that they represented a single idea, aspect, or “facet” (Braun & Clarke, 2021, p. 208).

Second-order analysis (Gioia et al., 2013, p. 20) was undertaken by the researcher in order to create second-order categories. Gioia et al. (2012), refer to the creation of such second-order categories as being “in the theoretical realm” and defend the researcher’s creation of these as justified on the grounds “that we treat ourselves as knowledgeable agents who can and must think at multiple levels” (p. 20, original emphasis).

At this point, it is worth noting that there is a slight discrepancy with reference to use of the term “theme”, but similar in relation to the concept of a resultant and “multifaceted” shape (Gioia, 2020, p. 23; Braun & Clarke, 2021, p. 208). Braun and Clarke (2012, 2021, p. 208) develop themes (“multi-faceted crystals”) from codes and suggest that themes “often reflect patterns at both a broader, and more ‘abstracted’ level than codes”, whereas Gioia et al. (2012) and Gioia (2020) seem to associate second-order categories with the simultaneous creation of second-order themes, which they then investigate to determine “whether it is possible to distil the emergent 2nd-order themes even further into 2nd-order “aggregate dimensions.” (Gioia et al., 2013, p. 20). In both cases, the result is the creation of a ‘multi-faceted’ shape, “crystal” or “view”. For the purposes of this research, the codes, or first-order categories, were grouped into second-order categories.
To build on the earlier example, reference to the term “NGO” was consistently linked (by the interview participants, and thereafter by the researcher) to codes/first-order categories such as “trade not aid”, “social enterprise” and “wholly-owned structure”. These all represented elements of the organisation’s journey towards its current status, and had informed decisions about the legal status and structures that were retained, or rejected, depending on the circumstance. As a result, a second-order category was created, in this case called “Legal structure”. However, this second-order category was not, in the opinion of this researcher a full “theme”. Rather, given the contexts in which it was discussed, it represented one component of the wider discussions that were ultimately allocated to a full “theme” (in this instance called management of multiple ecosystems, see Figure 23, p. 217 in this chapter). Thus, following Gioia et al.’s (2012) methodology, in which multiple second-order categories were created, which through an iterative and recursive process, led to the development of more substantial “themes”, which Gioia et al. (2012, p. 20) refer to as the more distilled “aggregate dimensions”. Other scholars refer to these “aggregate dimensions” as being “chapters in a broader story” (Braun & Clarke, 2021, p. 210) in which the themes and associated chapters have meaning in relation to one another (Sim et al., 2018).

Having sought to clarify differences in the terms code, first- and second-order categories, themes and aggregate dimensions, the following paragraphs describe the creation of the codes.

In the second phase of analysis, transcripts were explored in depth and a series of initial codes generated. This was done for each dataset, starting with the earliest, longest, most
in-depth and uninterrupted of the interviews (i.e. the one conducted with the organisation’s CEO). A total of 67 codes were created and sections (both short and long) of transcript were linked to each code, using NVivo. Where relevant, sections of transcript were linked to more than one code. This seemed particularly appropriate given the nature of the discussion and the interviewee’s tendency to reflect widely. This phase involved a lot of movement back and forth between notes, transcripts, and audio recordings, which is in keeping with good practice in inductive, reflexive thematic analysis (Braun & Clarke, 2012, 2021; Gioia et al., 2013).

Returning to the semi-structured interviews and in keeping with Gioia et al (2012) and Braun and Clarke (2012, 2019, 2021), the initial coding, or “first order analysis” sought to “adhere faithfully to informant terms, [with] little attempt to distil categories” (Gioia et al., 2013, p. 20) but several did use language that was familiar to the interviewees while also being more generic in nature, for example, “funding” and “staff” and which provided succinct forms of “shorthand” as per Braun and Clarke (2012). Emphasis was placed upon analysis of the semi-structured interviews as the basis for the initial categorisation, or first-order analysis, as these interviews are the core of inductive, qualitative research (Gioia et al., 2013). Sections of interview transcript were linked to each of the 67 categories. In some cases, a section of transcript was linked to more than one category, which seemed appropriate given that some interviewees had a tendency to reflect widely and to refer back to earlier points they had made, and because certain points proved relevant to multiple codes (e.g. the client base). By linking sections of transcript to the different categories, certain themes became thicker and others thinner (Braun & Clarke, 2012; Tracy, 2010; Yin, 2016).
Building on these initial transcript-linked codes, Nvivo 2020/21 software was used to create various iterations of mind maps, and an illustration of one such map is provided in Appendix 9, while Figures 18-22 provide more detailed views of sections of the same sample mind map. Large printed versions of mind maps, developed both using Nvivo and drawn by hand, helped ensure that the multiple observations were recorded, provided a base upon which subsequent ideas could be annotated or linked, and helped to explore and make sense of the large amount of data and possible themes. As per Braun and Clarke (2012), considerable time and effort was spent iteratively, identifying possible themes and then reviewing and questioning them, “going back and forth between data and theory” (Siggelkow, 2007, p. 22).
Figure 18. Exploded view of section of illustrative mind map showing ‘organisational challenges’
Figure 19. Exploded view of section of illustrative mind map showing ‘innovation life cycle’
Figure 20. Exploded view of section of illustrative mind map showing ‘routes to market’
Figure 21. Exploded view of section of illustrative mind map showing ‘social innovation’
Figure 22. Exploded view of section of illustrative mind map showing ‘technological innovation’

Source: Author’s – illustrative mind map produced using Nvivo 2020/21 software
Creation of the above, illustrative, and other mind maps helped to see links between different themes. As per phase four of Braun and Clarke’s (2012) guidance on undertaking thematic analysis, it assisted in disentangling different elements of the interviews, some of which relate quite clearly to the research question, while others may either be or seem less directly relevant to the research question but provide rich contextual information into which the research can be situated.

After the mind map stage, it proved important and helpful to step back from the semi-structured interviews and associated mind maps. Field notes from the discussions were revisited and an organisational timeline produced, in which pivotal moments identified by the interviewees were recorded.

At this stage it also proved helpful to spend a period of time sorting through the sales information that had been made available. This proved relatively quick and easy for 2019/20 onwards, as the spreadsheets were online and easy to comprehend. For the preceding years (2011 to 2015 in particular), this proved more time consuming as data was organised in different ways and had been organised by staff who no longer worked for the organisation. Where questions arose regarding historical data that was either inconsistent or only partially complete, additional information was sought from the Finance Director, or from the overseas team in the Zambia office. This was a very worthwhile exercise as it helped to develop a clear and complete set of sales records against which events, pivotal moments and decisions could be plotted and comprehended, by country and by year. It assisted not only in corroborating and triangulating accounts of sales performance from the semi-structured interviews, but importantly provided a
clarity of illustration about key stages in the organisational life cycle as a result of which some of the points raised in the semi-structured interviews were more clearly understood by the researcher.

This approach can be described as “within-case analysis…[for which] there is no standard format”, but which may include use of “narrative description…longitudinal graphs tracking revenue…[and] tabular displays” (Eisenhardt, 1989, pp.539-540). In order to avoid arriving at false or premature conclusions, it is further advised that “within-case analysis…is coupled with cross-case search for patterns…[which] involves constant comparison between data and constructs” (ibid.). This can be illustrated in Figure 22, an early version of one of the mind maps, in which macro and pico-solar innovations were initially categorised as separate codes under a second-order category labelled as technological innovations. However, through “constant comparison between data and constructs” (Eisenhardt, 1989, pp.539-540), employing analysis of key moments in the organisation’s history, review of sales data, as well as vision statements and internal reports, it became apparent that the move from macro to pico solar was not primarily a technological innovation, but part of a strategic shift in which the organisation was seeking to deliver greater, more socially oriented value for its customers – an innovation aimed at improved social value creation.

As a result of this recursive approach and deep engagement with the multiple sources of data in an “open, organic, flexible and recursive” fashion, sixteen second-order categories were created (Braun & Clarke, 2021, pp. 207-211).
Review and analyses of the Annual Reports and Financial Statements from 2014/15 to 2020/21 also provided a rich source of information, particularly with regard to organisational form and structure, but also with regard to the nature of different sources of funding, and to the activities that were underway in given years. Finally, these reports, coupled with stories from websites and written statements by the Chairperson, provided insight into future strategies that had started to take shape after the research visits to Zambia and Italy had finished. While not being the central focus of the research, they help provide insight into the continued evolution of the organisation, and as such were categorised as a separate theme and are reported in the findings.

This movement back and forth between transcriptions of participants’ interviews, archival sales data, internal end of year reports, training manuals, emails, fieldnotes, sketches and other forms of documentation was undertaken in simultaneous fashion and this is widely recognised as being acceptable practice (e.g. Lincoln & Guba, 1985; Eisenhardt, 1989; Tracy, 2010; Gioia et al., 2013; Sim et al., 2018; Braun & Clarke, 2019, 2021) that can assist with “crystallisation” (Tracy, 2010, pp. 843-844) and triangulation of multiple sources of evidence (Eisenhardt, 1989; Tracy, 2010; Yin, 2018).

Three overarching themes were ultimately identified, as a result of the first-order coding and second-order analysis of multiple semi-structured interviews and the Focus Group Discussion, the annotated mind maps, and the triangulation using multiple additional sources of evidence, including direct observation, field notes, emails, historical and contemporary sales records, publicly available documents, internal documents, as well as
websites. These three themes are captured in Figures 23 to 25, with accompanying sources of evidence identified.
Figure 23. Theme One – Management of Multiple Ecosystems

<table>
<thead>
<tr>
<th>Sources of evidence</th>
<th>First order categories</th>
<th>Second order</th>
<th>Overall Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-structured interviews, multiple people Multiple Annual Reports &amp; Financial Statements</td>
<td>NGO-established Soc Ent Trade not Aid – we’ve always believed in trade? UK &amp; African registrations include charity &amp; company Wholly-owned structure</td>
<td>Legal structure</td>
<td>Management of multiple ecosystems</td>
</tr>
<tr>
<td>Multiple Annual Reports &amp; Financial Statements Sales data – historical &amp; current Website &amp; news stories Emails</td>
<td>Multiple revenue streams – commercial, restricted, donations Changes in revenue proportions Revenues generated by different countries</td>
<td>Revenue streams</td>
<td></td>
</tr>
<tr>
<td>Semi-structured interviews, multiple people</td>
<td>If you got the right people We’ve really struggled to recruit</td>
<td>Labour market</td>
<td></td>
</tr>
<tr>
<td>Semi-structured interviews, multiple people</td>
<td>Worrying about the phone call – accident Vehicles get stuck DSA costs are high</td>
<td>Infrastructure constraints</td>
<td></td>
</tr>
<tr>
<td>Single Annual Report &amp; Financial Statements Emails, multiple people</td>
<td>Zambia – retrospective tax applied Malawi – it’s being fought Some companies factor in tax, just in case</td>
<td>Inconsistent taxation</td>
<td></td>
</tr>
<tr>
<td>Semi-structured interview, single individual</td>
<td>Corruption – external Corruption – internal We know how to deal with it</td>
<td>Corruption</td>
<td></td>
</tr>
<tr>
<td>Semi-structured interviews, multiple people</td>
<td>Subsistence farmers What about the last mile? FRA were late to pay</td>
<td>Seasonality &amp; Income precarity</td>
<td></td>
</tr>
<tr>
<td>Online exchange rates Emails, multiple people</td>
<td>Currency fluctuations – Zambia &amp; Malawi UK underwriting</td>
<td>Unstable currencies</td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s own theme
**Figure 24. Theme Two – Innovating to Deliver Social Value**

<table>
<thead>
<tr>
<th>Sources of evidence</th>
<th>First order categories</th>
<th>Second order</th>
<th>Overall Theme</th>
</tr>
</thead>
</table>
| Semi-structured interviews, single individual (2012-14)                              | Moving away from old tech & lead acid batteries  
Community-centred  
Chinese pico products                                                            | From macro to pico                                                              |                                     |
| Semi-structured interviews, multiple people  
Website  
Multiple Annual Reports & Financial Statements  
Emails  
Internal documents - Zambia                                                          | Last mile, last mile, last mile  
Kerosene & the Big Harry Audacious Goal (BHAG)  
Socially driven  
RDM Agents (active & inactive), Schools, Partners – NGO & corporate  
Cost Benefit Analysis                                                                | Socially driven mission                                                        |                                     |
| Semi-structured interviews, single individual                                         | “There was nothing”  
Local assembly units  
Appearance of Chinese pico products  
SM100 development                                                                      | Technological developments to enable the mission                                      |                                     |
| Semi-structured interviews, single individual                                         | Not turning back on community approach  
MoU with MoE  
Closing assembly units  
Mafia Island                                                                                  | Achieving scale, reaching the last mile                                            |                                     |
| Semi-structured interviews, single individual                                         | We were so excited  
Becoming overstretched  
Survival                                                                                  | Over-committed                                                                   |                                     |
| Online exchange rates  
Emails, multiple people  
Semi-structured interviews, multiple people  
Secondary data                                                                       | Currency fluctuations - business  
Currency fluctuations - client  
UK underwriting  
Is it really different?  
Lower, but strong sales  
Population density, Teacher salaries  
Tensions, Managerial priorities, Changes at the top                              | Sub-continental diversity                                                          |                                     |

Source: Author’s own theme
**Figure 25. Theme Three – Future Strategies**

<table>
<thead>
<tr>
<th>Sources of evidence</th>
<th>First order categories</th>
<th>Second order</th>
<th>Overall Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-structured interview, single individual</td>
<td>From MDG to SDG7</td>
<td>Evolving social mission</td>
<td>Future strategies</td>
</tr>
<tr>
<td>Field notes &amp; informal discussions</td>
<td>Leaving the last mile behind as the sector matures</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Picking up the mantle – a sort of mission revitalisation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recognition of own limitations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Reports &amp; Financial Statements from 2018/19 to 2020/21</td>
<td>Going open source</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emails</td>
<td>Supporting others to replicate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Website &amp; news stories</td>
<td>Responding to shortcomings in national ecosystems</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Piloting new models</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Responding to Covid-19</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seeking national coverage</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Developing new partners</td>
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</tbody>
</table>

Source: Author’s own theme
In keeping with recommendations by Braun and Clarke (2021), the next section presents the conceptualisation of data saturation applied in the current research. This is related to the ontological and epistemological assumptions upon which this research is based. As outlined in section 3.1, pp. 154-161, this research is premised upon adoption of a pragmatist-informed worldview, supported by a qualitative, inductive, case study research methodology (Eisenhardt, 1989; Yin, 2018), and the application of reflexive thematic analysis (Braun & Clarke, 2012, 2021). It rejects positivist and postpositivist notions of a single, time and value-free reality that can be confirmed through verification or falsification of theories (Gephart, 2004; Yin, 2018). As such, the codes, categories and themes proposed in this research are not hidden, waiting to be discovered amongst the “participants’ accounts” (Sim et al., 2018, p. 624). Nor can the themes identified be attributed to a single individual research participant (Byrne, 2015). Instead, they reflect the depth of engagement that the researcher has with the data and his interpretation of that data (Sim et al., 2018; Braun & Clarke, 2021).

Furthermore, given that reflexive thematic analysis has been designed and developed to be “organic, ...recursive”, and to create “meaning...at the intersection of the data and the researcher’s contextual and theoretically embedded interpretative practices” (Braun & Clarke, 2021, pp. 209-210), it is not realistic to aim for data saturation. New meanings, more refined analysis, or alternative “themes” can always be generated or constructed (Sim et al., 2018; Low, 2019; Braun & Clarke, 2021). This does not mean that the concept of achieving some form of saturation should be abandoned, but rather that a more pragmatic approach might be appropriate (Low, 2019). This is demonstrated, in part, by one of the three overall themes that have been identified, namely Theme One –
Management of Multiple Ecosystems (Figure 23, p. 217). Much of the literature reviewed in Chapter 3 highlighted challenges relating to contextual evolutions (Austin et al., 2006; Kerlin, 2010), formal recognition of social enterprises (Defourny & Nyssens, 2008), challenges within the labour market (Battilana et al., 2012; Rivera-Santos et al., 2015), infrastructure (Kistruck et al., 2011), inconsistent taxation, unstable currencies and ease of doing business (Webb et al., 2013; World Bank, 2020), and transparency and corruption (Transparency International, 2021). Some scholars refer directly to the term ecosystem (e.g., Navarette-Moreno & Agapitova, 2017). Analysis of the primary and supplementary data made available to this researcher demonstrated a consistency with much of the extant literature and this literature was “enfolded” (Eisenhardt, 1989, pp. 544-545) and “attentively interconnect[ed]” (Tracy, 2010, p. 848) within the naming and creation of this particular theme.

In contrast, Theme Two – Innovating to Deliver Social Value, (Figure 24, p. 218), is perhaps more akin to the telling of the organisation’s “story” (Sim et al., 2018; Low, 2019; Braun & Clarke, 2021), situated within an attempt to shed light through “rich longitudinal research [on the] dynamics of phenomena that play out over time” (Siggelkow, 2007, p. 22). It has sought to enfold the literature around sustainability (Hart, 1995; Montabon et al., 2016; Evans et al., 2017; Tate & Balls, 2018), around innovations that can be classed as technological, social, environmental and organisational (Boons & Lüdeke-Freund, 2013; Bocken et al., 2014; Ritala et al., 2018), as well as literature that is pertinent to SSA (Holt & Littlewood, 2015; Santos et al., 2015; Kolk & Rivera-Santos, 2018). However, this theme feels like it has more “meaning” (Braun & Clarke, 2021, p. 209), is more unique and particularistic (Yin, 2016) to the organisation, and seeks
specifically to avoid the risk of superficiality (Morse, 1997, cited in Braun & Clarke, 2021).

Theme Three – *Future Strategies*, (Figure 25, p. 219) seeks to reflect the real world (Bartunek et al., 2006) and its dynamic systems and processes (Mintzberg, 1979; Siggelkow, 2007). As illustrated by the longitudinal study of this single-case organisation, it does not stand still, or cease to innovate and create. It is constantly evolving and adapting. It has developed plans for the future, some of which are underway, while others are still being refined and funding sought for their operationalisation. But the plans do exist and they are evidence of organisational reflection and learning. They also provide further evidence of the importance of rich longitudinal research. Because these are mostly strategies for the future, and because of constraints imposed upon the researcher’s timeframe, there was limited scope to undertake research into them. It was therefore felt that they deserved a theme of their own, one that might provide opportunities for future research, but which would at least provide evidence of dynamic processes in the real world.

What this section on research methodology has sought to demonstrate is transparency and integrity in the way the qualitative research has been conducted (O’Reilly et al., 2013; Roy et al., 2015), the richness of the data sources used (Weick, 2007; Tracy, 2010), the attempts at crystallisation and triangulation of and between sources (Eisenhardt, 1989; Tracy, 2010; Yin 2018), as well as honesty and transparency (Tracy, 2010) in the recognition that other researchers might have arrived at alternative analyses but that the codes and themes created by this researcher aim to tell a coherent, persuasive and
compelling story (Bartunek et al., 2006; Siggelkow, 2007; Sim et al., 2018; Low, 2019; Braun & Clarke, 2021).

Finally, the research methodology adopted may facilitate the potential for analytic generalisations (Eisenhardt, 1989; Tracy, 2010; Yin, 2016, 2018). While recognising that analytic generalisability might be difficult given that “qualitative research is pluralistic…and arises from studying specific situations and people” (Yin, 2016, p.102), scholars have shown that single-case studies can achieve significant generalisability (e.g. Allison & Zelikow, 1971, 1999, cited in Yin, 2016), and that analytic generalisability and transferability can be achieved “when readers feel as though the story of the research overlaps with their own situation” (Tracy, 2010, p. 845).

In undertaking this research, the aim was to make contributions to the development of theory, rather than testing theory (Eisenhardt & Graebner, 2007; Nicholson et al., 2018). The research is based on the longitudinal study of a single case. There are many advocates of such research, including Mintzberg (1979), Gephart (2004), Siggelkow (2007) and Yin (2018). When seeking to build theory from cases, which automatically implies an element of generalisability, Eisenhardt & Graebner (2007, p. 29) call for empirical evidence to be clearly presented and note that “in a single-case study [this] is readily addressed by simply presenting a relatively complete rendering of the story within the text”, something which has been attempted in this methodology chapter and is further developed in the Findings discussed in Chapter 4. Tracy (2010, p. 845) suggests research can achieve generalisability if it has “aesthetic merit” and cites Bochner (2000, p. 271) who calls for the story to move the “heart and belly [as well as the] head”. While this thesis does not
claim to achieve such an elevated level of aesthetic merit, it is hoped that the story and mission of the case study organisation will be considered by readers as a worthy and significant topic that is of contemporary, real-world relevance (Gephart, 2004; Bartunek et al., 2006; Tracy, 2010), thus enhancing its transferability. Throughout the methodology, effort has been made to adhere to the eight steps outlined in Eisenhardt’s (1989) process for building theory from case study research, as well as to the eight “big tent” criteria that Tracy (2010) proposes as constituents of excellent qualitative research. It is hoped that honesty and transparency in the approach to the creation of codes and themes will help readers to decide which elements they agree with, and which they might do differently, if faced with similar opportunities.

In identifying three themes (Braun & Clarke, 2012, 2021), or “aggregate dimensions” (Gioia et al., 2013, p. 21) the aim has been to try to capture and present the results of the inductive research in a logical manner. Given the inductive and interpretive nature of this study, there would certainly be alternative ways of recording and presenting the information.

3.6 Summary
This chapter offered an overview of the selection of a pragmatist paradigm, which was supported by an inductive approach to a longitudinal, qualitative single-case study. The choice of a longitudinal single-case study approach was justified by virtue of its comparability to other research in this field and its relevance where there is a paucity of empirical data. The use of multiple sources of evidence to triangulate possible findings, to provide credibility and to guard against researcher bias was explained, as were the
times and locations in which the research was conducted. Application of reflexive thematic analysis was explained in terms of representing the interviewees’ perspectives along with the use of and cross-referencing with multiple additional sources of evidence, which ultimately led to the conceptualisation of three key themes. Chapter 4 presents the Findings and Discussion of the research.
CHAPTER 4:

FINDINGS & DISCUSSION

4.0 Introduction

In this chapter, the findings of the research are presented and discussed. The chapter opens with an overview of the case context which aims to situate, for the reader, the organisation whose work forms the basis of this longitudinal case study research. Included within this is presentation of findings that stem predominantly from the use of secondary data, before findings from the primary data are presented. Next, the findings from the secondary and primary data are discussed in detail, before concluding the chapter with a summary.

4.1 Case context and supplementary data

This section comprises four parts, beginning with the organisation’s history, before moving on to present its legal structure, the range of products that it sells, and finally its management of different sources of revenue. This provides a basis from which to better understand subsequent references to organisational form and legal entities, as well as attending to elements of Research Objective One, which focuses upon the provision of an insightful and longitudinal analysis. Most of the information provided in this case context section is based upon use of supplementary data, as detailed in Table 23, pp. 191-199, including the case study enterprise’s website, its annual reports, the researcher’s field notes, as well as documents shared during field visits and in email exchanges with staff.
Sunny Money is the social enterprise upon which this longitudinal case study research is based. It operates in the renewable off-grid energy sector in various countries across SSA, and its social mission/objective is to develop sustainable electricity service provision for the poorest members of society, living at the BoP. In SSA, Sunny Money currently operates in Malawi and Zambia, and continues to provide support to a smaller programme in Senegal. In the recent past, it also operated in Kenya, Tanzania and Uganda. Beginning in 2008, it was one of the first organisations to introduce and distribute individual pico-solar lights, pico-solar lights with mobile phone charging capability, and Solar Home Systems (SHS) in SSA. Its focus is upon the provision of these products as safe, clean, and affordable forms of lighting for people who are the most difficult to reach, partly by virtue of living in remote areas and partly because of their very precarious and very low levels of income.

4.1.1 How it all began

Solar Century was a UK-based commercial company, operating in the renewable solar energy sector. As part of its corporate social responsibility, it established both a charity and a company limited by guarantee in 1999 (Figure 26), with a view to extending some of its expertise and profits to charitable work in SSA. The charity and company limited by guarantee were originally registered as Solar Century Global Community Trust, but this was changed to SolarAid in 2006 (ibid.).
In 2008, SolarAid established a trading arm, officially known as Sunny Money Global (Figure 27), but it is more commonly referred to by the shorter name “Sunny Money”. Sunny Money Global owns and controls Sunny Money in a number of African countries.

SolarAid, the overarching charity and company limited by guarantee, secures funding for the organisation’s operations in the UK and in SSA (Figure 28). The name SolarAid therefore features prominently in the section relating to legal structure, both in the UK and in SSA, but the names SolarAid and Sunny Money are, in certain circumstances, used interchangeably.
4.1.2 Legal structure

Since its establishment in 2006, SolarAid has operated in multiple countries. It established headquarters in London, in the UK and has retained a presence there, from where it manages the majority of its fundraising and financial management operations. This is also the seat for the global board of trustees. As indicated in Figure 29, taken from the organisation’s most recent audited accounts, the organisation, SolarAid, is registered as a charitable company in the UK.
Figure 29. Independent auditors’ statement confirming SolarAid’s registration as a charitable company in the UK

INDEPENDENT AUDITOR’S REPORT TO THE MEMBERS OF SOLARAID

OPINION

We have audited the financial statements of SolarAid (the charitable company) and its subsidiaries (the group) for the year ended 31st March 2021 which comprise consolidated statement of financial activities, consolidated and charity only balance sheets, consolidated statement of cash flows and notes to the financial statements, including significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including Financial Reporting Standard 102 The Financial Reporting Standard applicable in the UK and Republic of Ireland (United Kingdom Generally Accepted Accounting Practice).

In our opinion the financial statements:
• give a true and fair view of the state of the group’s and the charitable company’s affairs as at 31st March 2021 and of the group’s income and expenditure, for the year then ended;
• have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice;
• have been prepared in accordance with the requirements of the Companies Act 2006 and the Charities Act 2011.

Source: Annual Report and Financial Statements, 1st April 2020 to 31st March 2021, p. 37

There are several active subsidiaries, one in the UK and two overseas. In the UK, the social enterprise arm known as SunnyMoney Global UK Ltd is wholly owned by SolarAid. The same applies to the company limited by guarantee which it has established in Zambia (SolarAid Zambia Ltd) and to the unincorporated Non-Governmental Organisation that it has registered in Malawi (known as SolarAid Malawi). Among the dormant subsidiaries, the two SunnyMoney entities in Kenya and Tanzania are 99% owned by SunnyMoney Global UK Ltd and 1% owned by SolarAid (Figure 30). From these audited accounts, it is also apparent that the legal structure of the organisation combines a use of charity status with company status, but does not currently make use of
the UK’s Community Interest Company (CIC) option (Battilana et al., 2012; Battilana & Lee, 2014; EU/OECD, 2016; UK BEIS, 2017).

Figure 30. Independent auditors’ statement highlighting SolarAid’s overseas group entities and their consolidated statuses

NOTES TO THE CONSOLIDATED ACCOUNTS

18 OVERSEAS GROUP ENTITIES
To comply with local overseas legislation, SolarAid has established a number of legal entities that are fully controlled by SolarAid and their accounts are therefore consolidated within the accounts of SolarAid. These organisations are listed in Note 19 below and a summary of the financial performance and position is included on Page 30 of the Annual Report.

19 CONSOL I DATION
The Charity’s subsidiary companies listed below have been consolidated into the SolarAid accounts in accordance with the Charities’ SORP 2015.

The active subsidiaries are:
- SunnyMoney Global UK Ltd (Registered in England and Wales, CRN 7788918) - 100% owned by SolarAid
- SolarAid Zambia Ltd (Company Limited by Guarantee, registered in Zambia, CRN 75087) - ownership through 100% control by SolarAid
- SolarAid Malawi (Unincorporated NGO, registered in Malawi, NGO C391/2008) - ownership through 100% control by SolarAid

The dormant subsidiaries are:
- SolarAid Malawi Ltd (Company registered in Malawi, CRN 9144) - 100% owned by SolarAid Malawi
- SunnyMoney Kenya Ltd (Company registered in Kenya, CPR/2012/70931) - 99% owned by SunnyMoney Global UK Ltd & 1% owned by SolarAid
- SunnyMoney Tanzania Ltd (Company registered in Tanzania, CRN 67879) - 100% owned by SunnyMoney Global UK Ltd
- SolarAid Tanzania Ltd (Company Limited by Guarantee, CRN 67958) - ownership through control
- SolarAid Kenya (Unincorporated NGO) - ownership through control

Source: Annual Report and Financial Statements, 1st April 2020 to 31st March 2021, p. 57

As a registered charity, SolarAid is not liable for tax on activities in the UK, and is legally justified in reclaiming gift aid on voluntary income received in the UK (Figure 31).
Figure 31. Independent auditors’ statement confirming SolarAid’s tax liabilities and gift aid eligibility in the UK, and liabilities overseas

NOTES TO THE CONSOLIDATED ACCOUNTS

16 IRRECOVERABLE VAT
Irrecoverable VAT is charged against the category of resources expended for which it was incurred.

17 TAXATION

THE CHARITY
The Charity is a registered charity in England and Wales and, therefore, is not liable for Income Tax or Corporation Tax on income derived from its charitable activities, as it falls within the various exemptions available to registered charities. Tax recovered from voluntary income received under gift aid is recognised when the related income is receivable and is allocated to the income category to which the income relates.

THE SUBSIDIARY ENTITIES
The subsidiary entities are fully liable to relevant corporate, income and capital taxes in their respective territories on profits derived from trading activities:

<table>
<thead>
<tr>
<th>Subsidiary</th>
<th>Place of residence for tax purposes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SunnyMoney Kenya Ltd</td>
<td>Kenya</td>
</tr>
<tr>
<td>SolarAid Kenya</td>
<td>Kenya</td>
</tr>
<tr>
<td>SolarAid Malawi Ltd</td>
<td>Malawi</td>
</tr>
<tr>
<td>SolarAid Malawi</td>
<td>Malawi</td>
</tr>
<tr>
<td>SolarAid Tanzania Ltd</td>
<td>Tanzania</td>
</tr>
<tr>
<td>SunnyMoney Tanzania Ltd*</td>
<td>Tanzania</td>
</tr>
<tr>
<td>SunnyMoney Global Ltd</td>
<td>UK</td>
</tr>
<tr>
<td>SolarAid Zambia Ltd</td>
<td>Zambia</td>
</tr>
</tbody>
</table>

*Previously known as DLight Design East Africa Ltd

Source: Annual Report and Financial Statements, 1st April 2020 to 31st March 2021, p. 47

Figure 31 also demonstrates that in order to comply with legislation that applies in each of the overseas countries in which it operates, SolarAid has set up and registered a number of legal subsidiary entities, all of which are controlled by the UK registered charity, thus enabling it to produce consolidated accounts. These subsidiary entities are registered as being fully liable to the taxation schemes applicable in each respective country.
4.1.3 Products sold by Sunny Money

It has carefully selected the range of products it offers, all of which have several things in common. They are all solar powered, generate electricity via photovoltaic (PV) solar panels, emit light using Light Emitting Diodes (LEDs), have at least one on/off switch, have at least one light, and all comply with international quality certification and assurance standards\(^9\) to which Sunny Money and several other organisations have signed up. The smallest lights in their range (Figure 32) can be considered as entry level and within the small-scale solar PV market, they are classed as pico-solar, or solar lanterns (Nygaard et al., 2016; Orlandi et al., 2016; Cross & Neumark, 2019).

Figure 32. Pico solar lights offered by Sunny Money. Cheapest (left) to most expensive (right)

Sources: Images left to right, SM100 (Sunny Money, 2021), S3 (dLight, 2021), Pico Plus (Green Light Planet, 2021), Lumn L190 (Omnivoltaic, 2021)

One step up from the entry level lights but still in the pico-solar category are single lights that have an inbuilt USB charger and cable that can be used to recharge mobile phones.

\(^9\) The World Bank established a programme called Lighting Africa, which provides the main quality assurance standards: [Quality Assurance - Lighting Africa](#)
Next up in the range of products are SHS (Figure 33). Sunny Money only offers small SHS, which usually contain two to four independent lights with cables and switches that allow them to be installed and operated independently in different rooms. Sales of pico-solar lights represent over 80% of the products that Sunny Money sells, with demand far outstripping SHS.

*Figure 33. Solar Home Systems offered by Sunny Money*

Sources: Images left to right, Home 60 (Green Light Planet, 2021), Lumn M400 (Omnivoltaic, 2021), D180 (dLight, 2021)

Customers buy most of the products that Sunny Money sells in an upfront, capital payment. Thereafter, the product (whether pico or SHS) is wholly owned by the client. Sunny Money includes an after-sales service and each product comes with the contact details of the Sunny Money office, where staff can answer product queries by phone. If a product is found to be faulty, Sunny Money will repair or replace it, so long as it has not been damaged by the client, is still in warranty and is returned to the organisation. In addition to upfront, capital purchase, Sunny Money offers customers a Pay As You Go (PAYG) option for some of its products. This system has become very popular with many
other providers of solar lights (GOGLA, 2020; Ockwell et al., 2019; Munro & Samarakoon, 2022). It enables the customer to make a smaller initial payment, which is followed by additional payments whenever the customer wants the product to emit light. There are several ways in which such systems work (GOGLA, 2018; Adwek et al., 2020; Munro et al., 2022), but these will not be discussed in detail because most of the lights bought by Sunny Money’s customers are bought outright.

Sunny Money only sells products which are “branded” or have been “quality-verified” by the Lighting Global Quality Standards, renamed Verasol (Alstone & Jacobson, 2018; GOGLA, 2018). Their products are sold in schools, by agents and super-agents, as well as via partnerships with a variety of other organisations. Sunny Money does not sell any solar products that are “non-quality-verified”, sometimes referred to as “uncertified”, non-affiliated”, but also called “generic” (Rateau & Jaglin, 2021; Munro et al., 2022). International organisations have tried to measure the share of the market represented by “generic” products, but this has proved difficult because the lights and the organisations that sell them are often unregistered. However, they are reported to have achieved considerable market penetration, which is estimated to have increased from 50 per cent to 72 per cent within the last decade (Lighting Global, 2016, 2020), and in some cases have penetrated into rural areas more deeply than the “branded” products (Munro & Bartlett, 2020; Barry & Creti, 2020).

4.1.4 Managing multiple revenue streams

Examination of the audited accounts, the website and annual reports reveals that the organisation has, for the seven years for which information is available, drawn upon a
combination of resources in terms of securing its income. This is in keeping with much of the literature regarding hybrid social enterprises (Battilana et al., 2012; Doherty et al., 2014; Margiono et al., 2018; Davies & Doherty, 2019) and their need to juggle multiple sources of revenue, as well as to access these sources in order to survive in competitive markets.

Each year, SolarAid manages income that includes commercial revenue, unrestricted donations, as well as restricted income. Commercial revenue is generated through the sale of lights to clients in each of the overseas subsidiaries. Restricted grant income is that to which conditions are applied. It is usually provided as a result of a competitive application process in which the organisation has had to show how it intends to utilise the funds for which it is applying, and is further accompanied by conditions that set out minimum and maximum terms in relation to for example, activity costs, staff salaries, overheads and duration of grant monies. Restricted funding is, in almost all cases, accompanied by strict reporting requirements, both financial and narrative, as well as strict requirements in terms of monitoring, evaluation and learning. In contrast, unrestricted donations usually have no conditions that bind their use and expenditure. They tend to be provided by a strong supporter base of individuals, as well as a limited number of philanthropists or companies. As a result, unrestricted donations may usually be used at the discretion of the organisation subject to compliance with any national laws. Table 24 presents income (in Great British Pounds) by year and by type. It also shows the percentage equivalents. To make for easier reading, the same data is presented graphically, in Figure 34.
Table 24. SolarAid – Income type by year and as a percentage. Staff numbers included to give a sense of operational scale

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</thead>
<tbody>
<tr>
<td>Donations</td>
<td>745,703</td>
<td>878,082</td>
<td>466,271</td>
<td>484,385</td>
<td>624,807</td>
<td>581,944</td>
<td>785,955</td>
</tr>
<tr>
<td>Pro bono legal advice</td>
<td>75,896</td>
<td>45,391</td>
<td>50,167</td>
<td>41,329</td>
<td>21,211</td>
<td>31,747</td>
<td>7,924</td>
</tr>
<tr>
<td>Donations subtotal</td>
<td>821,599</td>
<td>923,473</td>
<td>516,438</td>
<td>525,714</td>
<td>646,018</td>
<td>613,691</td>
<td>793,879</td>
</tr>
<tr>
<td>Activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Programme grants (restricted)</td>
<td>1,686,946</td>
<td>397,265</td>
<td>720,284</td>
<td>330,691</td>
<td>992,049</td>
<td>1,205,208</td>
<td>525,960</td>
</tr>
<tr>
<td>Income from sales</td>
<td>3,654,481</td>
<td>1,214,080</td>
<td>592,794</td>
<td>561,498</td>
<td>606,274</td>
<td>706,329</td>
<td>408,714</td>
</tr>
<tr>
<td>Other Income + investments</td>
<td>28,969</td>
<td>28,991</td>
<td>1,188</td>
<td>6,385</td>
<td>14,096</td>
<td>21,288</td>
<td>529</td>
</tr>
<tr>
<td>Charitable activities subtotal</td>
<td>5,370,396</td>
<td>1,640,336</td>
<td>1,314,266</td>
<td>898,574</td>
<td>1,612,419</td>
<td>1,932,825</td>
<td>935,203</td>
</tr>
<tr>
<td>TOTAL INCOME</td>
<td>6,191,995</td>
<td>2,563,809</td>
<td>1,830,704</td>
<td>1,424,288</td>
<td>2,258,437</td>
<td>2,546,516</td>
<td>1,729,082</td>
</tr>
</tbody>
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</tr>
</thead>
<tbody>
<tr>
<td>Donations</td>
<td>13%</td>
<td>36%</td>
<td>28%</td>
<td>37%</td>
<td>29%</td>
<td>24%</td>
<td>46%</td>
</tr>
<tr>
<td>Grants (restricted)</td>
<td>27%</td>
<td>15%</td>
<td>39%</td>
<td>23%</td>
<td>44%</td>
<td>47%</td>
<td>30%</td>
</tr>
<tr>
<td>Commercial revenue</td>
<td>59%</td>
<td>47%</td>
<td>32%</td>
<td>39%</td>
<td>27%</td>
<td>28%</td>
<td>24%</td>
</tr>
<tr>
<td>Other</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
</tr>
</tbody>
</table>

| STAFF                                       | 107     | 76      | 41      | 40      | 41      | 43      | 47      |

Source: Compiled from SolarAid Annual Reports and Financial Statements, available via Charities Commission.
Table 24 and Figure 34 both illustrate that, since the reduction in commercial revenue associated with the closures of the Tanzanian and Kenyan operations, there has been a general increase in the relative proportion of income that is made up of restricted grants and unrestricted donations. For the last five years, combined income from restricted and unrestricted sources has represented between 60-76% of total income whereas it represented 41% at the time of peak commercial operations. It is worth noting that while grant income comprised a smaller proportion of total income in 2014/15, its monetary value was still greater than in any of the subsequent years. Figure 29 shows total income by year, as well as illustrating income sources relative to the total.

*Figure 34. SolarAid – total income and revenue stream in actual monetary terms and by year*

Source: Author’s own graph. Income streams & figures taken from audited accounts from UK government’s Charities Commission. Donations figure adjusted to reflect unrestricted contribution from SolarCentury in 2019/20.
In 2015/16, both Tanzania and Kenya programmes were closed (as discussed later in this chapter, see Section 4.2.2.6, pp. 292-297). While closure of these programmes might, at first glance seem surprising, the organisation experienced financial pressures. As of 2020/21, SolarAid had also closed a struggling programme in Uganda, and had reduced its primary operations to only two countries, these being Malawi and Zambia, though it continues to support work in Senegal. Figure 35 uses the same data but, in using a stacked bar chart, more clearly illustrates the changes in the proportions of each income source.

*Figure 35. SolarAid – revenue streams as proportion (%) of total income and by year*

Source: Author’s own graph. Income streams & figures taken from audited accounts from UK government’s Charities Commission. Donations figure adjusted to reflect unrestricted contribution from SolarCentury in 2019/20.

In Figure 35, it is worth noting that although the proportion (%) of commercial revenue went up slightly in 2017/18, this reflects the lower total income secured that year rather than a particularly strong set of sales. Examination of the detailed numbers in Figure 35
reveals that 2017/18 witnessed the second lowest year of commercial revenue set against the lowest total income.

Looking beyond commercial revenue to restricted grants, Table 25 shows that SolarAid secured restricted income from a total of six to eight foundations, trusts and/or corporations per annum between 2016/17 and 2020/21.

Table 25. Donations (primarily restricted) as per audited accounts

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<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Founding company</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SolarCentury (unrestricted)</td>
<td>446,750</td>
<td>124,344</td>
<td>-</td>
<td>528,527</td>
<td>921,514</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>SolarCentury subtotal</td>
<td>446,750</td>
<td>124,344</td>
<td>-</td>
<td>-</td>
<td>528,527</td>
<td>921,514</td>
<td>-</td>
</tr>
<tr>
<td>Grants (restricted)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IFCG</td>
<td>-</td>
<td>76,915</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FCDO/DFID</td>
<td>467,338</td>
<td>126,965</td>
<td>200,059</td>
<td>112,326</td>
<td>232,467</td>
<td>57,208</td>
<td></td>
</tr>
<tr>
<td>Individual Major Donors</td>
<td>75,207</td>
<td>14,224</td>
<td>114,022</td>
<td>77,264</td>
<td>75,163</td>
<td>162,450</td>
<td></td>
</tr>
<tr>
<td>Swedish Postcode Lottery</td>
<td>-</td>
<td>257,040</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Allian &amp; Nesta Trust</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>CLASP - global LEAP</td>
<td>-</td>
<td>72,442</td>
<td>76,026</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signify Foundation</td>
<td>-</td>
<td>31,591</td>
<td>95,943</td>
<td>39,237</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDC</td>
<td>-</td>
<td>-</td>
<td>21,239</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other-country specific</td>
<td>2,371</td>
<td>2,449</td>
<td>66,935</td>
<td>32,246</td>
<td>54,970</td>
<td>49,802</td>
<td>5,564</td>
</tr>
<tr>
<td>Mitsubishi</td>
<td>25,000</td>
<td>40,000</td>
<td>40,000</td>
<td>40,000</td>
<td>38,620</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Honnold Foundation</td>
<td>20,982</td>
<td>30,711</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Google - research</td>
<td>379,830</td>
<td>40,228</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Next Energy Foundation</td>
<td>-</td>
<td>11,000</td>
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<tr>
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<td>-</td>
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<td>Rotary</td>
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<td>Daey Ouens Fund</td>
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<td>Frederick Mulder</td>
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<td>Ashden</td>
<td>5,000</td>
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<td>REEEP</td>
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<td></td>
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<td>Global BrightLight Foundation</td>
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<td>Subtotal grants</td>
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<td>269,922</td>
<td>720,284</td>
<td>330,691</td>
<td>463,522</td>
<td>238,187</td>
<td>525,960</td>
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</table>

Source: Author’s own table. Income streams & figures taken from audited accounts from UK government’s Charities Commission
During the organisation’s last peak year, 2014/15, it had secured 14 such donations, including a very large research grant from Google and a large, restricted programme grant from the UK government’s Department for International Development (DFID) (now known as the Foreign and Commonwealth Development Office, FCDO). A reduction in the organisation’s operations, when it ceased operations in Tanzania and Kenya, seems to have coincided temporally with a reduction in the number and total value of restricted funds that it secured.

In spite of potential investor caution which may have arisen when SolarAid closed its largest programmes in Tanzania and Kenya in 2015, it has demonstrated successful management of some of its donor partnerships, for instance securing funding from Mitsubishi for five of the seven years, and from Signify Foundation for the last three consecutive years. With the exception of 2019-20, it has also secured large donations from individuals though these are all anonymised.

Table 25 also shows that one fairly regular donor has provided mostly large donations for four of the last seven years. This is SolarCentury, the UK based commercial company that was responsible for establishing SolarAid. The funding it has provided is almost entirely unrestricted (i.e. can be used at the discretion of the organisation), and represented 5% of the annual profits of SolarCentury. The founder and director of the company was Chairman of the board of SolarAid for many years and continued to hold a seat on the board of trustees until February 2021.
According to SolarAid’s website (Wood and Ollvid, 2021), SolarCentury was acquired by Statkraft in 2021, the largest renewable energy producer in Europe, and one of the leading European solar developers following its acquisition of SolarCentury (ibid.). Figures 36 and 37 illustrate press releases from SolarAid and Statkraft respectively and suggest that SolarAid has been careful to cultivate a good relationship with Statkraft which has led to a commitment that the latter will provide £2 million of donations over three years, beginning in 2021.
Figure 36. SolarAid website press release regarding significant continued corporate partnership

PRESS RELEASE

- Stakraft intends to support SolarAid with donations totalling £2m over three years.
- 548 million people are living without electricity in sub-Saharan Africa, impacting their ability to learn, work and feel safe after dark.
- For the first time since 2013 the number of people who do not have access to electricity in sub-Saharan Africa is predicted to increase due to the impacts of Covid-19.
- The IEA has forecasted that we are at risk of not reaching the 7th UN Sustainable Development Goal to ensure access to affordable reliable sustainable and modern energy for all", and UN Secretary General Antonio Guterres has recently called on stakeholders to ramp up action towards SDG 7.

Today, SolarAid and Stakraft will announce a strategic partnership to tackle poverty and climate change. Stakraft intends to support the charity with donations totalling £2m to be paid over three years. There are 548 million people living without electricity in sub-Saharan Africa, impacting their ability to learn, work and feel safe after dark.

SolarAid’s ambition is to use clean, safe, and simple solar lighting to combat poverty and climate change so that no home, school or clinic in Africa is left in the dark by 2030.

Stakraft is Europe’s largest renewable energy producer and the company has become a leading developer in the European solar market with the acquisition of Solarcentury in November 2020. Solarcentury founded SolarAid in 2006 and Stakraft will now continue the relationship.

Through the partnership with SolarAid, Stakraft will support progress to reach the 7th UN Sustainable Development Goal (SDG) to 'ensure access to affordable, reliable, sustainable and modern energy for all'. For the first time since 2013 the number of people who do not have access to electricity in sub-Saharan Africa is predicted to increase and could reach as many as 530 million if economic recovery slows, and action is not taken.

The donations from Stakraft will increase access to solar light and power for families and communities currently dependent on expensive, dangerous, and toxic lighting sources such as candles, and kerosene. Solar lighting saves money, reduces carbon emissions and allows people to safely work, study and socialise after sunset.

Access to power is essential for rural health clinics across Africa. Stakraft’s partnership with SolarAid will also fund solar power access for clinics that currently operate without access to reliable electricity. Power for fridges, equipment and lighting is essential to care, and solar power ensures that healthcare staff will not have to carry out life threatening procedures in the dark. Care can be administered safely, and drugs - including vaccines for Covid-19 - can be kept at the right temperature.

Stakraft’s donations will be used to fight poverty and climate change as SolarAid works to ensure that every home, school and clinic in Africa has access to clean, safe, solar lighting and power by 2030.

Christian Rymning-Tonnesen, CEO of Stakraft, says: “548 million people live without the benefit of electricity in sub-Saharan Africa. Solar power is a simple and cost-effective solution for those who have no choice but to rely on expensive and toxic kerosene or dangerous candles. We are delighted to be working with a charity with such a critical mission. This partnership was sparked with the acquisition of Solarcentury in 2020, and we are happy to work with SolarAid to help ensure access to modern energy for all.”

John Keane, CEO of SolarAid, says: “We’re delighted that our long and successful partnership will continue now that Solarcentury has merged into Stakraft. While grid electrification is not going to reach most of rural sub-Saharan Africa in our lifetimes, the solar light revolution is taking place right now, helping light up millions of homes which would otherwise be kept in the dark. Together we can end the darkness.”

Figure 37. Statkraft press release regarding partnership with SolarAid

Statkraft partners with SolarAid to tackle climate change and energy poverty

01 JUL 2021

Statkraft and SolarAid have announced a strategic partnership to tackle poverty and climate change. Statkraft intends to support the charity with donations totalling £2m to be paid over three years. There are 548 million people living without electricity in sub-Saharan Africa, impacting their ability to learn, work and feel safe after dark.

#News  #Corporate Responsibility

Through the partnership with SolarAid, Statkraft will support progress to reach the 7th UN Sustainable Development Goal (SDG) to “ensure access to affordable, reliable, sustainable and modern energy for all”. For the first time since 2013 the number of people who do not have access to electricity in sub-Saharan Africa is predicted to increase and could reach as many as 630 million if economic recovery slows, and action is not taken.

Image credit: SolarAid

Source: Statkraft newsroom, 2021.

Figure 38 illustrates the prominent position that is afforded to the logos of a number of corporate partners on Sunny Money’s website.
Figure 38. List of corporate partners with logos and hyperlinks to each corporate website

Source: SolarAid website. Corporate partnerships | SolarAid (solar-aid.org)

Figure 39 demonstrates creative use of quotes from corporate staff whose organisation’s have supported Sunny Money.

Figure 39. Quotes from commercial partners – publicly available on website of SolarAid

“SolarAid is a fantastic organisation with a sustainable and scalable solution that is improving the lives of over 10 million people living in rural Africa. SolarAid offers a future free from the shackles of costly, polluting and dangerous kerosene but they need help to keep momentum going. If you want to help create a cleaner future, I urge you to support SolarAid today.”

SUSANNAH WOOD, VP PUBLIC AFFAIRS, STATKRAFT

“We were looking for a way to combine business, design and social good. Partnering with SolarAid was an easy decision - we'd seen SolarAid's work before and loved the impact they have, and we share similar values. Supporting them is a win-win - for us it builds tangible purpose into our brand and makes a compelling story that captures people's imaginations. We know that looking good is one thing – but doing good is so much more important.”

BIRD, FOUNDER AND CEO OF BIRD SUNGLASSES

Source: SolarAid website. Corporate partnerships | SolarAid (solar-aid.org)
Moving away from corporate sponsors, Figure 40 is an example of a news story regarding an individual who has committed to raise funds for the organisation. As Lehner & Nicholls (2014) note, volunteer supporters of this kind can be very important in terms of the funds (and profile) that they can help raise.

Figure 40. Current news story of a personal fundraising endeavour

FROM COVID-19 TO RACING TO END THE DARKNESS

30th DECEMBER 2021

Ricardo Cordiero de Sousa is the type of guy who misses his own graduation to run marathons for a charity. He suffered badly from Covid-19 in July, but soon after recovery, he decided that he would take on a challenge to run one marathon every month to fundraise for SolarAid. He's dedicated to getting clean solar light to rural communities in sub-Saharan Africa and to help End the Darkness.

Growing up in Madeira, Ricardo knew at a young age that he wanted to do something to make the world a better place, both for people and for the planet.

At 18, he moved to the Netherlands to study Economics and achieved a Masters in Social Business Sustainability. Today, he works as the Sustainability Officer at COUNT Energy Trading. His company decided to choose SolarAid as their Carbon Offsetting partner after Ricardo had put forward the suggestion. But he still wants to do more. This is the idea of ‘Race to End the Darkness’ came to life.

Source: SolarAid website, latest news. From Covid-19 to racing to End the Darkness | SolarAid (solar-aid.org)
Following the secondary data-based findings relating to Sunny Money’s creation, its legal structure in the UK and in SSA, as well its management of a variety of sources of income, the next section reveals the thematic findings from the primary data collection.

4.2 Primary data

Supported where appropriate with secondary data, thematic analysis of the following findings are presented. The first theme relates to the ecosystem in which Sunny Money operates. Next, the evolution of the business model and innovations within it are presented as a second theme and divided into those that are predominantly product-related (4.2.2) and those whose focus is more process-oriented (4.2.3). The final theme reveals planned future-facing innovations (4.2.4), which have yet to be implemented but for which the foundations have been laid.

4.2.1 Ecosystem-related factors

As identified in the literature regarding social enterprises (for example Kerlin, 2010; Defourny & Nyssens, 2010; Santos et al., 2015; Navarette-Moreno & Agapitova, 2017), and in the BoP literature (for instance Hammond et al., 2007; Martí & Mair, 2009; Kistruck & Beamish, 2010; Kolk et al., 2014; Borchardt et al., 2020), there is a wide range of external factors that are often referred to as forming part of the ecosystem, or environment, in which an organisation operates. Control over, or the ability to significantly alter external factors is beyond the scope of any single commercial business or social enterprise (Gradl & Jenkins, 2011; Navarette-Moreno & Agapitova, 2017), but awareness of these factors, and the ability to deal with and adapt to them is essential. This
section, therefore, begins with findings regarding labour markets, before moving on to infrastructure, currency fluctuations, taxation, the seasonality and precarity of customer income, corruption, and a final section on the competition posed by “generic” solar products that have not been “quality-certified”.

4.2.1.1 Challenging labour markets

Many SSA countries suffer with relatively low levels of educational attainment (UN HDR, 2021). Furthermore, employment opportunities in the formal economy can be relatively limited, resulting in a lack of opportunities for the workforce to develop skills that can facilitate the smooth running of organisations. As the following quotes illustrate, this has had a direct bearing on the ease of operations for SolarAid/Sunny Money’s programmes.

“Well first of all, start with recruitment, getting the right people. And if you’re a small social enterprise or a small charity you’ve gotta get the right people at the beginning, otherwise it’s a disaster.” (AA)

“...we don’t have anybody else\(^\text{10}\) who deals with the corporate partners but the two of us. We’ve tried, [to recruit] sales managers on multiple occasions, we had like three of them and none of them had really passed their probation period... They had targets and none of them came close to hitting any targets. We had a guy who was here for six months and didn’t make a sale. So, it’s sort of, fallen

\(^{10}\) Between 2011-2014, I was employed in Zambia on a part-time consultancy contract to mentor two Operations Directors, as well as fulfilling the function of a Business Development Manager. Since that time, the team have repeatedly struggled to fill the role of a Business Development Manager.
back on AB and I to keep the corporate partners alive as much as possible and it’s... Yeah, it’s been quite difficult.” (CC)

During the days spent interviewing the most senior member of staff, several operational challenges faced by the African country programmes were mentioned, as outlined in the remainder of this section. Upon reviewing these challenges, the following day, in keeping with good practice as identified by Yin (2018), I asked that these be ranked in terms of significance. There was no doubt about the single most important factor:

“I mean the biggest one is just getting the right people, recruitment. Cos if you’ve got that then everything else seems to fall into place.” (AA)

These findings are consistent with the literature, for example Rivera-Santos et al. (2015) and Navarette Moreno & Agapitova (2017), which suggests that the lack of a skilled workforce can hamper operations. As the preceding quote from CC illustrates, a shortage of skilled personnel can result not only in additional work for the senior management, but also in loss of potential earnings with ramifications on the wider operations. The corporate partners to which CC refers are those organisations to which SolarAid/Sunny Money Zambia sells lights in bulk. This is a relatively cost-efficient sales route for the organisation and profit made from this route can be invested back into some of the more expensive but socially-oriented operations. However, without the staff to build and secure these partnerships, the more socially-oriented operations may also suffer.
The relative paucity of skilled staff extends well beyond Sunny Money’s contracted staff, to agents in the field, and ultimately to the clients themselves. Consistent with the BoP literature (for example Hammond et al., 2007; Kolk et al., 2014; Lappeman et al., 2019) educational attainment is very low, particularly in BoP settings in which the clients and many of the agents live, resulting in people not having been taught a wide range of basic skills as illustrated by the following quote:

“...we’ve got these agents but some of them don’t necessarily know how to put a budget together or a small cash flow...” (BB)

Agents, of which Sunny Money Zambia has over 185 active and more than 1,000 registered, often lack formal skills and/or may have had limited access to quality education. This makes it very difficult for them to operate efficiently. Time, expertise and additional resources are required in order to bring them to the necessary levels of basic business operation. Even then, there is a risk that the training is not fully understood or applied.

4.2.1.2 Infrastructure constraints and population density

Road conditions, particularly in rural areas, are poor in many countries in SSA including those in which SolarAid/Sunny Money operates. Zambians living in rural areas are served by poor roads and associated infrastructure, are dispersed across a wide geographic area, and have very low population density (4 ppkm²) (Hannyika, 2008; CSO, 2016), as a result of which travel costs are much higher. Some areas can become almost inaccessible during the rainy season(s) as the following quotes support:
“...through schools ... it’s the most expensive in terms of DSA, so daily [subsistence] allowance for the teams, [and] in terms of vehicle costs, fuel costs.”

(BB)

“Some places are really remote. Even our transportation, sometimes when it rains it’s difficult to get to some of these places.” (DD and EE)

“So ..., you know, obviously we exist for the last mile as we say and, you know, going out to rural areas ... and all that, [it’s] expensive, hard to reach.” (AA)

Not only do bad roads present a significant cost in terms of vehicle repair and maintenance, they also present a risk in terms of health and safety:

“...you know, with the schools’ programme as well, you have staff going back and forth. You have the risk of accidents, injury, illness, just because of the travel of it.” (CC)

“When my teams are out, you know, I ... worry that I might get a phone call from a police officer saying, oh, we’ve got your overturned vehicle here.” (BB)

There are no banks or ATMs in most rural villages. Although mobile money (i.e. cash transfers made using mobile phones) is gaining ground in some countries in SSA, it is far from being uniform (Bisaga et al., 2017; Andresson-Manjang & Ngahvi, 2021), as
illustrated by the proportions of the adult populations found to be using mobile money in Kenya and Nigeria, which, in 2016, were 80 per cent and one per cent, respectively (Lepoutre & Oguntoy, 2018). AA notes below that many still have very limited access to it in the countries in which Sunny Money operates, meaning that staff deal entirely in cash transactions with rural smallholder farmers and others living at the BoP.

“And then if you’re trying to develop a social enterprise where there’s exchange of cash, then you’ve got, you know, cash in the field. And at one point where we were selling so many lights in Tanzania we were like ok, we’ve got a significant amount of money now.” (AA)

Having staff in the field dealing with large amounts of cash presents a security risk and increases the likelihood of corruption. As a result, the organisation introduced new measures designed to deal with the challenge, as illustrated by the following quote:

“So, we’d have, kind of, strict protocols as to at the end of each day, you know, getting to the bank before it closes and making submissions and all that, minimising the risk of theft and stuff like that and putting our teams at risk with all that cash moving around.” (AA)

These measures, while designed to decrease the likelihood of theft, corruption, and insecurity, incur trade-offs associated with reduced selling time and increased travel and fuel costs for staff that are required to leave rural villages and return to towns with functioning banks in which they can deposit the cash.
The Chief Executive also notes the additional challenges presented by poor infrastructure which can also have quite significant ramifications beyond individual country borders. SolarAid/Sunny Money has operated in three landlocked countries, these being Malawi, Uganda and Zambia. It buys solar lights by the container-load which are then shipped from China to Africa by ship. Once the products have docked and cleared customs, overland transport (lorries) is used to bring the products across the large transboundary distances at subcontinental level. This can be quite difficult to manage, as illustrated by the following example:

“So, we had a product coming in from China which [was] going to Zambia, landlocked, so it was coming through... Dar Es Salaam [a major coastal port] and then across Tanzania into Zambia, but then the... customs staff all went on strike in Zambia because they said there was too much corruption on the Tanzanian side and so then our stock sits in the container... for a few weeks. And then you have stock outs” (AA)

Delays such as these, caused by strikes across and between customs officials, can lead to significant delays in the organisation’s ability to provide lights to its customers, be they individuals, or partners.

“...and that’s one example, but there’s all sorts of other examples.” (AA)

As the CEO notes, the delays due to the customs officers’ strikes represent but one example of the type of delay that can be created when working with a global supply chain
and trying to ensure timely delivery of products in countries whose infrastructure is
generally less advanced than in developed economies. Delays of several days or weeks
can be critical where the customer base has a very seasonal and precarious income
(section 4.2.1.4) and where there is competition from “generic” products made available
by competitors (Bensch, 2018; Lighting Global, 2020; Trompette & Cholez,
forthcoming).

4.2.1.3 Weak and volatile currencies

Weak currencies can create difficult operating environments, but currency volatility can
be even more challenging to manage. Zambia has experienced significant currency
volatility in the years that Sunny Money has been operating there, as illustrated by the
currency fluctuation graph (Figure 41).
Figure 41. Ten-year currency fluctuation in Zambia – Zambian Kwacha to Great British Pound

Source: XE.com, retrieved 6\textsuperscript{th} January, 2022
The following quote from the Country Director also supports the impact of a weak and volatile currency on the company itself, which was buying in hard currencies and selling in weak and unpredictable currencies, thus making forecasting more difficult and increasing the likelihood of making mistakes and incurring financial losses:

So, one day the dollar would ... equal 9 Kwacha, a week later you’d almost be up at nearly 14, 16. So trying to run a company...where you’re buying at one rate and then you’re selling at a completely different rate is chaos...So, with the fluctuations...we had ...to try and manage our ... cash flow and that meant ... changing prices increasing ...” (BB)

However, the challenges associated with weak and volatile currencies affect not only the organisation, but also its customers and its partners, for example:

“...cos everything went through the roof. Fuel prices went up, living allowances, living costs went up, everything. You know, a loaf of bread, say, maybe went from the equivalent of 50p all the way up to a £1, so everything doubled...” (BB)

When the price of basic goods such as food increases, money available for non-essential goods, such as solar lanterns, may be deprioritised. Similarly, transport costs, for individuals, for the organisation and for its agents, all increase with the increases in the cost of fuel, meaning lower profit margins unless prices are increased, which in turn would reduce the likelihood of the most energy poor people being able to afford the product. Currency volatility and weakness is not necessarily short lived as illustrated by
the preceding quote. While an organisation may be able to contend with certain aspects of sustained currency weakness, for instance renegotiating prices with suppliers and contractors, the impacts can be very dramatic on the income and purchasing power for people living in energy poverty, thus affecting overall sales, as well as slowing progress towards attainment of SDG 7.

The following quote neatly illustrates the interconnections between primary export commodities, such as copper, and hard and weak currencies:

“…obviously all linked to copper prices as well. So ..., like, Zambia’s main export... is copper. And if the Chinese aren’t buying it then we have no hard currency in this country. And if you are looking at a country that has no hard currency then nobody will necessarily want to bother with you and that’s why the Kwacha was basically worth peanuts. It was useless.” (BB)

The purpose of highlighting this finding is not to discuss overreliance on single export commodities, but to illustrate the extent and global scale of some of the external factors that can affect the ecosystems in which organisations operate, and their powerlessness to influence them in any way.

Currency fluctuations present significant challenges for anyone running a business that involves a global supply chain and international currency exchange. However, as the following quote illustrates, they also present a very significant challenge at the point of sale, particularly if income from subsistence crops remains the same, while the costs of
other goods increases. If the relative cost of a particular non-essential product such as a pico-solar light doubles, it then becomes more of a luxury item for customers living at the BoP, especially when cheaper alternatives exist, e.g. fire wood.

*And you’re still relying on subsistence rural farmers who are ... receiving about the same money for their crops, you know.* (BB)

### 4.2.1.4 Seasonality and income precarity

Income is precarious and erratic for many people living in remote, rural SSA, the majority of whom are smallholder farmers (Navarette-Moreno and Agapitova, 2017). Widespread poverty means that people have very little buffer in their disposable household income, but there are times of year when people tend to have more income at their disposal. Sunny Money has learned to map and predict the seasonality of sales:

“But again, seasonality and when people have money is so up and down...that it’s not necessarily... You can predict it looking at our sales to a degree and you can say ok, well in July and September they’re gonna have money so we would predict we would have more sales then.” (BB)

“You know, there’s certain periods of the year where there’s more money available in the markets in which we’re operating, and so you’ve got to try and get your products to land in advance of that, and there’s windows basically, so there’s seasons, you know, more plentiful seasons. It’s not...like...there’s lots of money available with lots of salaried workers, it’s seasonal.” (AA)
However, even sales during this relatively limited window are not guaranteed, as it takes very little to tip smallholder farmers into situations of greater poverty. Lack of, or erratic rainfall, delays in payment by key agencies (e.g. the Zambian Food Reserves Agency for maize that is grown throughout the country), currency volatility, funeral costs, school equipment and other expenses can relatively quickly tip people already living in multidimensional poverty into severe multidimensional poverty. Occurrences such as these can make the difference between a light being affordable, versus it being just out of reach:

“But then it, sort of, you know, goes about with, you know, lack of rainfall and everything else cos you’re dealing with subsistence farmers, really.” (BB)

“... in the rural areas, one has to think first food, then second to think of school for ka children, then has to think about the family, and that makes it very different [compared to urban areas]...This year it has become a challenge, first and foremost because of the [lack of] rains.” (FF)

These two quotes illustrate the direct importance of rainfall for a subsistence farmer’s productivity. The less rain, the greater the likelihood of crop failure, and the more limited is the likelihood of surplus crop production. In addition, over reliance on a single government-subsidised crop, such as maize in Zambia, leaves farmers at the discretion of the government in terms of input subsidies, product demand, purchase price, and payment time, as the following quotes illustrate:
“This last year, 2017, farming didn’t really bring in much of an income for them [the farmers]…because the government reduced the price at which they going to buy maize.” (EE)

“…it takes quite a while for them [farmers] to get their money from the FRA [Food Reserves Agency]” (DD)

Finally, the multitude of external factors affecting subsistence farmers and others who live at the BoP, have a direct impact on the ability of the organisation’s agents to secure payment from their customers, in turn affecting the organisation itself, as illustrated:

“You know people, they are peasant farmers. They don’t really cultivate kind of commercial [crops]. They just get something little for themselves to keep them going. So, what it is, to get the products on cash, to them it’s a very big problem. So, …I am forced to give them the products, and then maybe we wait, maybe for two months before they can actually finish paying.” (FF).

There is also the challenge of trying to time seasonality within global supply chains to seasonal fluctuations in customer demand and ability to pay, especially in the face of the impacts of weak and volatile currencies:

“So, with the fluctuations… everything went through the roof…and you’re still relying on subsistence rural farmers who are ... receiving about the same money for their crops, you know.” (BB)
The majority of the quality-certified products bought and distributed by Sunny Money are made in China. As the following quote illustrates, the organisation therefore needs to not only ensure that it manages its in-country stocks, but also its orders from China:

“But then there’s a whole range of potential delays that can happen along the way. [For example] Chinese New Year...China kind of closes for six weeks...so you need to pre-plan...cos otherwise you might get stock outs.” (AA)

Such challenges are not unique to Sunny Money, but illustrate some of the logistical factors requiring careful consideration.

Earlier quotes have illustrated that poor and erratic rainfall, delayed government payments, and weak or volatile currency fluctuations all increase the likelihood of subsistence farmers being pushed further into poverty. The following quote, however, helps illustrate the extreme seasonality of income even when additional external factors are not compounding people’s lives and pushing them further into poverty.

“But then ... there’s certain periods of the year where there’s more money available in the markets in which we’re operating, so you’ve got to try and get your products to land in advance of that. And so, you’ve gotta, kind of, match all that up.” (AA)

The final sentence of the previous quote summarises the challenge of trying to carefully manage the range of factors, some external to the country, others that may directly relate
to the country and its people. As a small-medium social enterprise, Sunny Money and others like it will not have the luxury of being able to write off goods that they fail to sell, or that they fail to get to land in time for peak seasonal income.

4.2.1.5 Inconsistent application of taxation

As noted by Navarette Moreno & Agapitova (2017), the overseas countries in which SolarAid/Sunny Money operates are meant to apply tax exemptions for certain solar and other renewable energy products. As the following quote from Sunny Money’s Chief Executive illustrates, application of tax exemptions has been inconsistent in several of the countries in which Sunny Money currently operates, as well as those in which it used to operate.

“Malawi – yes, we have been hit with tax which focused on entry level lights...calling them, out of the blue, luxury items. This led to a big tax bill and significant delays in accessing stock as we tried to fight our corner. It is something we are still working on... It’s been quite common to have uncertainty in Kenya and Tanzania....some companies basically price in tax, just in case they get hit.”

(AA.)

Unlike in Malawi, where Sunny Money continues to try to fight the reclassification of solar lights and the associated tax bills, the team in Zambia were unsuccessful in their efforts to fight adjustments and associated backdated taxes (Figure 42).
Figure 42. Excerpt from email correspondence with senior manager in Zambia re: retrospective application of duties

That answer would be nothing. So, ZRA decided to do back taxes on the solar companies as they said we all imported illegally, even though the lights were inspected and approved. So we had to pay about K2,100,000 from those few years. We tried to negotiate with them, as we would never be able to claim the vat back, or the duty as the lights had been sold, a long time ago.

Source: Personal correspondence by email, dated 3rd January, 2022

Figure 42 also illustrates that the act of reimbursing backdated taxes is a cost that the organisation itself must cover as there is no way in which it can hope to recoup any of it from its customers because, in the Zambian example, the lights were sold two years earlier to people living in remote rural areas, who have since used the lights for many months and a large proportion of whom live in multidimensional poverty (CSO, 2016).

Figure 43 relates to the same issue and shows how the backdated taxes were paid and accounted for by SolarAid, the parent charity.

Figure 43. Independent auditors’ explaining the financial performance of SolarAid’s subsidiaries, excerpt focused specifically on Zambia

SolarAid Zambia has a closing reserves deficit of £116,952 which has arisen due to a claim in taxes and duties on the reclassification of solar products by the Zambia Government from the 2017/18 financial year as well as currency fluctuations. Despite the net deficit SolarAid Zambia is considered a going concern due to SolarAid’s pledge to continue to support and fund its work.

Source: Annual Report & Financial Statement, 1st April 2019 to 31st March 2020, p. 20

Both figures 42 and 43 relate to the inconsistent and retrospective application of import duties and taxes on solar lights that were imported and sold in 2017/18. At the time of
import, the products were inspected by the relevant Zambian government entity, the Zambian Revenue Authority (ZRA), and approved as being compliant and therefore eligible for tax exemption. However, the ZRA reversed its decision in 2019/20 and the Zambian entity, SolarAid Zambia Ltd., had to pay ZMW 2,100,000 which equated to over £91,000 at the exchange rate at that time. To put this sum in context, SolarAid Zambia’s sales revenue target for 2019/20, was ZMW 6,837,575\textsuperscript{11} from the projected sale of 30,524 lights. The Zambian subsidiary exceeded the sales target in terms of numbers of lights, selling 33,231, and generated ZMW 6,281,054 in revenue, achieving 92% of their sales revenue target that year. The backdated tax therefore amounted to 33% of their annual sales revenue for the financial year in question. SolarAid UK was able to cover this amount as per the note in the consolidated accounts (Figure 43).

To add import duties and taxes onto the price of entry-level pico-solar lights would prevent a large portion of the organisation’s client base from being able to afford the lights. An alternative, which might be to set aside enough money to cover potential taxation for each country in which the organisation operates would require significant financial reserves that could not, as a result, be put toward alternative uses such as programme expansion, staff training, or research and development. It must therefore be the responsibility of the board and senior management to decide what proportion of income should be held in reserve to cover such potential occurrences. To make this more complex, it would seem that retrospective application of such taxation can occur at any time and in relation to any year, leaving the organisation trying to determine whether

\textsuperscript{11} This figure is taken from the online shared sales volume spreadsheet, managed by SolarAid UK, and to which access has been granted.
retrospective tax might be applied to lights sold last year, the year before, or even earlier, and therefore uncertain how much money to set aside.

4.2.1.6 Corruption in SSA

Corruption is a problem for organisations operating anywhere, but potentially more so in countries in which poverty, low and irregular wages are widespread. Furthermore, there are many ways in which the temptation of corruption can be put in people’s way, and which require careful management. The presence, for instance, of large amounts of cash in the field presents not only a security risk, as discussed earlier, but introduces the potential for internal and external corruption. Furthermore, opportunities for corruption are not limited to cash sales in remote rural locations, but can, for instance, arise at the point of import, where customs and other officials may interact with staff and seek to strike a bargain, or to create difficulties for staff members. Instances such as these require careful and creative management, and understanding of the context in which one is working, as well as guidance and clear policy formulation:

“And… you’ve got [significant amounts of] cash in the field…and also, the risk of temptation as well... And certain staff have been put in situations where they’re...asked for bribes and stuff... in terms of... importing products that could be... potential for bribery. But we’ve been operating in these markets long enough to know what’s going on. So, we’ve had...policies in place to protect staff from that,...give guidance on... external corruption.” (AA)
There is also potential for internal corruption, requiring its own set of policies and procedures, including ones aimed at reducing the risk of temptation, as well as protecting whistle-blowers, as the following quote illustrates:

“But internally as well there’s been corruption. So, in Uganda we’ve had issues, we had issues in Kenya, tiny bit in Tanzania over the years but not as big as you might think, given the scale of our operation there.” (AA)

Although the above quotes come from a single member of staff, the Chief Executive, it illustrates that Sunny Money has had to deal with issues of corruption in several countries. Moreover, the organisation has learned how and when to anticipate instances of corruption, but situations are dynamic, and pressures on people and their families change with time, as a result of which temptations continue to arise.

Reflexive thematic analysis revealed the preceding subsections regarding shortages of skills and education within Zambia’s labour markets, the challenges associated with poor infrastructure, currency fluctuations and their ramifications on the case study enterprise as well as on BoP customers, the inconsistent application of taxation by government, the seasonality and precarity of customer income, as well as instances in which corruption has been encountered, both within the case study enterprise and from those with which it works. In many ways, the thematic analysis has revealed findings that could apply to any social enterprise operating in such locations in Zambia, but providing different types of good or service. Product-specific findings were also revealed in the thematic analysis, however, and are presented in the next subsection.
4.2.1.7 Competition from “generic” lights

As noted in the case-context, (see Section 4.1, p. 226), there are many pico-solar and SHS products on the market which have not been “quality-verified” by Verasol. These are gaining in market share (Lighting Global, 2020) and represent a challenge for any organisation that sells only “quality-verified” or “branded” products because they tend to be cheaper, have recently been found to have good geographic penetration (Munro & Bartlett, 2020; Barry & Creti, 2020), can be of equal quality (Bensch, 2018; Trompette & Cholez, forthcoming), and are sometimes counterfeit (Lighting Global, 2016, 2020; Munro et al., 2022).

Sunny Money has encountered “generic” products in Zambia. Staff made informal reference to them during field observations, and the competition that they posed was discussed with the Country Director. It was difficult to gauge the level of competition created by “generic” products, but there was an awareness that the copycat products were becoming increasingly convincing in style, particularly for the entry-level pico-solar lights. During verbal discussion and email exchanges (figures 44 and 45) with the Country Director it was hoped that photographs and/or physical samples could be found, but this was not possible, as the following two excerpts illustrate:
The above section identifies a number of external and intersecting challenges identified by Sunny Money staff during primary data collection. These include labour market challenges, infrastructure constraints, weak and volatile currencies, income seasonality and precarity, inconsistent application of tax exemptions, corruption, and competition from generic products. These categories all relate to Theme One (Chapter 3, Fig. 23, p. 217) and complement those presented from supplementary sources. In the next section, findings relating to Theme Two (Chapter 3, Fig. 24, p. 218) are presented.

4.2.2 BMI as a means to alleviate energy poverty

Theme Two opens with a presentation of the organisation’s vision and mission, as well as recent changes to the latter. There follows a historical perspective on the organisation’s
early business model, from its establishment in 2006/7 until 2011/12. This may be described as the macro-solar era. The pico-solar era is introduced next and while it represents a significant change in business model from the macro era, it was phased in from 2008. The pico era has since dominated and the findings are separated into product development and service delivery phases. A final section of Theme Two considers tensions associated with the business model innovations.

4.2.2.1 Socially-driven Business Model

SolarAid was set up to fight climate change and poverty (SolarAid, 2022) and during its early years, this was achieved through a more traditional Non-Governmental Organisation business model, in which aid was provided courtesy of donors’ restricted grants, primarily. Its vision (ibid.) is also quoted by the Chief Executive and echoed by CC:

“…its vision was to create a world where everyone has access to clean, renewable energy.” (AA)

In translating ‘everyone’ into a tangible and focused segment of society, Sunny Money decided to focus on getting lights to people living in “remote rural communities” (SolarAid website, n.d.), therefore, among the least likely to have access to electricity delivered via a grid network. People living in remote rural areas are also less likely to live in proximity to shops from which to buy solar lights and are regularly described as living at the last mile, as the following quotes from CC and AA demonstrate:
“Our goal is to get to the last mile people” (CC) “Cos this was, you know, it was socially driven. So, it was like we have to go to those last mile areas, we have to build it that way...So...frankly, you know, ... we exist for the last mile.” (AA)

The focus of this vision and mission is consistent with the BoP literature regarding people living in rural areas (see Anderson et al., 2010; Chikweche et al., 2012) and the literature regarding rural populations with the least access to electricity (see for example Haanyika, 2008; Ockwell et al., 2019).

Taking this vision one step further, eradication of the kerosene lamp from SSA was the mission and Big Hairy Audacious Goal (BHAG) that both SolarAid and Sunny Money set themselves in 2010/11:

“And then its mission was to eradicate the kerosene light from Africa. The BHAG became, let’s put a time limit on it and let’s do it by the end of the decade, 2020. So, it was in a way easy to say in 2011, but we knew it wasn’t easy to say because it was supposed to be almost impossible, and so we put a time limit on it.” (AA)

“Well our old BHAG you know, our goal, was to eradicate the kerosene lantern by, like, 2020.” (CC)

“...our...mission was to eradicate the kerosene lamp by 2020.” (BB)
Seeking to eradicate the use of the kerosene lamp was a tangible way of moving towards the goal of providing clean, renewable and safe energy for everyone and is consistent with the rationale espoused by other early entrants to the pico-solar sector (Kher & Street, 2013; Cross, 2013). This is because kerosene, compared to the other rudimentary forms of lighting (firewood, dung, grass, candles and torches) upon which people rely, is perceived to have the worst combination of negative consequences, affecting respiratory health, burning a fossil fuel with high emissions of black Carbon, and representing a fire hazard (Lam et al., 2012; Jacobson et al., 2013; SolarAid website, 2013). Eradication of the kerosene lamp remains a goal, but the organisation’s mission has since been updated to “light up every home, school and clinic in Africa by the end of the decade [2030], using safe, clean, solar power.” (SolarAid Annual Report, 2020/21, p. 1; SolarAid website, n.d.)

### 4.2.2.2 Macro-solar – a more traditional NGO business model?

Analysis of the organisation’s sales records, field notes, and discussion with senior staff reveal that at the time of its establishment in 2007/8 until early 2012, SolarAid/Sunny Money, focused upon what is internally referred to as “macro-installations” or “macro-installs”, as illustrated by the following quotes:

“The Macro Solar was basically installations of solar systems on schools, clinics, community infrastructure, you know, such as a community centre or something.”  

(AA)

“So, we’d get fifteen, twenty-Watt panels and we would put that on top of a roof in a school, which allowed the kids to, basically, to have extra study time. And it
also allowed for women’s groups, maybe, to do extra reading classes in the evening. So, activities to continue on, basically, after dark.” (BB)

These were medium-sized systems, physically situated on a rural communal facility, such as a school, health centre or community centre. In each case, a macro-installation connected several large photovoltaic panels to lead-acid batteries, a technology that is now considered outdated:

“…we were doing expensive [macro] installations using, I guess, old solar technology and, you know, the old lead acid batteries and all this.” (AA)

Once complete, the intention was that each community would put in place a sustainability fund to which community members contributed and from which money could be withdrawn when repairs were required. During its first five years, SolarAid installed 416 such systems in Malawi, Kenya, Tanzania and Zambia. The rationale behind these systems was that each community could use its system for night classes, entertainment, better healthcare, to support small businesses, etc. Of these 416 systems, 16 were 100% financed by donors in the form of restricted grants:

“Heavily subsidised… Well originally it was a hundred percent donated…when we started in 2007/8, we got charitable funds to…run our macro solar programme.” (AA)
The remaining 400 were 90% financed by restricted grants from donors and 10% financed by community-raised funds:

“It [funding] became easier if we were doing [macro] installations on clinics ‘cos that was directly impacting health, so we did get support from US Aid, match funding and stuff…” (AA)

“And whereas, what was happening at that period was the Micro Solar or Pico Solar world was taking off, only these were getting much more efficient… So, [we said] let’s stop doing these old systems that are probably gonna fail and are too expensive to maintain and all of that, let’s stop… And so, we stopped that…” (AA)

SolarAid completed the last of these macro-installations in 2012, after fulfilling the last donor contract. This type of installation was ceased for several reasons, including high installation and maintenance costs, a realisation of the lack of impact in the homestead, difficulties returning home in the dark from the community building, the extraordinary success that the organisation was having with pico-solar sales which suggested much greater customer demand, and broader progress in solar technology, for example a move away from lead-acid batteries.

Figure 46 situates this early period in the organisation’s history within the context of its 15-year existence. This also provides the basis upon which to situate subsequent innovations and periods in the organisation’s lifecycle.
Figure 46. Timeline of key moments

Historical Timeline – SolarAid & Sunny Money

Key moments in 15 years since creation

**SolarAid created**
- Solar Century – £35,000 donation
- Malawi – first macro-solar installation on a rural school

**Sunny Money created**
- Sunny Money is established as a Social Enterprise arm of SolarAid
- Sunny Money begins production & sale of micro-solar products in Kenya & Malawi
- African made products sold in the 100s via agents & entrepreneurs

**Pico expansion**
- Sales of Chinese pico-solar products soar from 50,000/yr to over 600,000/yr
- >55% of sales in Tanzania, 30% in Kenya, 4-8% in Zambia & Malawi
- Last macro-solar installation to fulfil donor contract

**Smaller & reinventing**
- Annual sales drop to 40-63,000/yr. Main operations Malawi & Zambia, as Uganda struggles.

**Macro-solar**
- Uganda, Tanzania & Zambia programmes open
- Macro-solar on 400 rural schools, health clinics & community centres between 2007/8-2012
- Macro-solar model – community resource, 90% donor funded model

**Pico-solar boom**
- Manufacturing company iLight approaches Sunny Money Tanzania to sell excess Chinese pico-solar lights. 3,000 lights sold in 1 week
- Pivotal moment & Sunny Money begins its major shift in business model; moving away from macro to pico & buying Chinese lights

**Financial over-exposure**
- Uganda programme opens
- Targets of 1 million pico/yr not met
- Financial over-exposure & stock at sea leads to closure of Tanzania programme. CEO & T. mgr leave.
- Kenya programme merged buy-out in 2016 but struggles

Source: Author produced, sourced from in-depth interviews, discussions with senior staff and analysis of financial records
4.2.2.3 The pico years

The decision to phase out macro-solar installations was informed partly by the rise of pico-solar technologies and general advances in photovoltaic systems, as illustrated:

“What was happening at that period was the Micro Solar or Pico Solar world was taking off, only these were getting much more efficient... So, [we said] let’s stop doing these old [macro] systems. And so, we stopped.” (AA)

However, it was also influenced by the organisation’s early success with pico-solar sales, which proved very popular in Tanzania, but which also addressed the realisation by staff that macro-solar installations did not provide access to electricity in the home:

“However, we then had a change of events which was ... [the] island case study in Tanzania when we quickly realised that, basically, it’s all very well having a panel on the school but then what happens when the kids go home. They’re still using candles, kerosene and paraffin, etc. So, were we actually having much of an impact? Yes ok, we were helping kids do their homework but then they were still walking home in the dark, doing their chores in the dark and not able to do any extra studies at home.” (BB)

Although the first of these two quotes (from the Chief Executive) could be construed as suggesting that the macro-solar-driven traditional-NGO business model ceased quite abruptly as Sunny Money embraced the emergence of pico solar products, the reality seems to have been slightly more gradual in that it honoured existing commitments to
complete macro-solar installations, that last of which was installed in 2012. Thematic analysis of key moments in Sunny Money’s existence suggests that it operated a series of overlapping rather than distinctly independent phases, some product focused and some focused upon service delivery. In Figure 46, these phases are broadly associated with the years 2008 – 2014 and the three boxes entitled Sunny Money created, Pico-solar boom, Pico expansion. In order to more easily differentiate between product and service-delivery innovations, the two are now presented separately, beginning with the product focus.

4.2.2.4 Product-oriented pico-solar BMIs

Since embracing pico-solar products, Sunny Money has demonstrated four different product-related BMIs. The first of these coincides with the move from macro to pico and was a period during which pico-solar products were being manufactured and assembled by Sunny Money entrepreneurs in SSA. This was quickly replaced by a second innovation in which the sale of Chinese products replaced those made in Africa. A third period of innovation was Sunny Money’s influence on product design by commercial companies. In the fourth and final phase, Sunny Money sought to re-enter the product manufacturing space itself. Further detail on all four product related BMIs is now provided.

To move towards a vision in which safe, solar powered lights were to be made available to everyone (SolarAid website, n.d.) products needed to be developed. At the time that SolarAid was first established and installing macro-solar systems on community structures, there were very few affordable, safe solar products aimed at the individual low-income household in developing countries. However, photovoltaic panels and
rechargeable batteries were on the market. This explains why the early years included some very basic experimentation, as the following quotes help illustrate.

“So, the small solar radio players and phone chargers and then lights… I started…my own projects of making [and selling] small, sort of, solutions because they didn’t exist…And then actually, you know, just learning by doing…back in 2007, [when I joined SolarAid] we kind of started doing more of that, you know, more of doing…and getting that experience under our belt a little bit. [We] established factory units in Kenya and Malawi, not really so much in Zambia, tiny bit in Tanzania.” (AA)

Local manufacturing and assembly units, employing approximately 20 people and training many more, were established to experiment with and produce these solar powered lights, radios and other products. These manufacturing units ran for one-two years, primarily in Kenya and Malawi. Local entrepreneurs and artisans made the products on site, cutting up sheets of silicone to make photovoltaic panels which were then combined with rechargeable batteries and connected to radios or lights (Figure 47).

Figure 47. Image of solar panel, rechargeable batteries and radio made in Kenya

Source: BBC News, 2004
By 2008/9 the organisation realised that it could neither match the price nor the quality of pico-solar lights that were being made in China and appearing on the international market. As a result, it decided to cease production in its African manufacture and assembly units, to focus instead upon the business end of the pico-solar market. This was not an easy decision for an organisation that was seeking to create local manufacturing opportunities as well as seeking to provide safe and affordable alternatives to kerosene lamps:

“...around June 2008, we started to see the beginnings of Chinese manufactured Pico Solar products. They didn’t exist before basically. And very quickly [we] said, you know what, we like the fact that we’re manufacturing locally, but these other products being made in China, have the potential to be much cheaper, mass produced, high quality.” (AA)

Despite the decision having been taken, orders had been placed and people had commitments, so the manufacturing work was phased out over a number of months:

“Yeah, it was, it was June 2009 where we closed down the factory in Kenya... the other teams...like Malawi, they continued manufacturing for another say six months. It was like, you can’t just stop overnight, they had things, commitments. But that was a moment where we just stopped manufacturing.” (AA)

Although the decision to close African manufacturing operations was not taken lightly, there was an organisational sense that entrepreneurs previously involved in manufacture
could be redirected to distribute the Chinese-made lights, and that this would support development of the market, as illustrated by the following quotes:

“So, it was like kind of, closing down our manufacturing operations…but continuing the other side of it which was trying to get the entrepreneurs moving…what we can actually do is focus on the distribution of these and getting the market moving.” (AA)

An interesting extension of Sunny Money’s decision to move away from manufacturing its own lights in favour of selling those being made in China, is the influence that it was able to exert on Chinese products. This seems to have been possible because of its presence in SSA markets, which enabled it to field test the products. The following quote illustrates the nascent state of the market, as well as the relatively high-profile position that Sunny Money occupied within it. In terms of product innovation, it may be quite rare for an organisation with such limited financial resources to find itself able to inform design innovation, yet this is something that Sunny Money seemed consistently to do as a result of its presence on the ground and its rigorous field-testing procedures.

“One of the leading companies, Green Light Planet12, at that time weren’t making an entry level light. ... They were saying...we want more of your market, we wanna be your biggest customer. And we’re like, well make an entry level light then. And then they made an entry level light which was their Eco, I can remember it.” (AA)

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12 Green Light Planet: [Home - Sun King Solar Lights - Greenlight Planet Inc. Sun King](http://example.com)
The first part of this quote (above) suggests that one of the three leading manufacturers of branded solar products was paying serious attention to Sunny Money’s advice and knowledge of the customer base. The following quote shows that Sunny Money was not only considering the customer base but also the relative costs of each type of light, given the length of the global supply chain, and the costs of receiving a container load of goods:

“And I remember seeing it [the Eco] for the first time going, it looks nice, it’s lovely but it’s a separate power [source/PV panel], how many do you get in a container – 12,000 pallets. Well, we get 33,000 S213 [lights] and I was like... So, we did end up trialling it a little bit in Tanzania.” (AA)

Although Sunny Money did trial the Eco in Tanzania, it is clear from the quote above that it would have had to retail at a higher price, given that the organisation would have to incur nearly three containers to provide the same number of products as the Eco’s main rival, namely the S2.

“But now they [Greenlight Planet] have the perfect light, it’s the Pico, right. It’s a bit like an S2 but upgraded and they built that because they realised... The reason they didn’t do it in the first place is cos their CEO is basically an engineer and he didn’t like the idea of putting batteries under the sun, he’s been convinced obviously since.” (AA)

13 The S2 and S1 pico-solar lights were among the first, pico-solar lights on the market, made by the company dLight: [d.light | Solar Home Systems Outdoor & Solar Lanterns (dlight.com)]
This final part of the quote shows that Greenlight Planet did eventually make a light that was a real and direct competitor for the S2.

It was not possible during this research to determine whether or not Greenlight Planet had adjusted its product design as a result of feedback from Sunny Money. Indeed, even if it were possible to discuss this with Greenlight Planet’s CEO, he might recall events somewhat differently. However, while recognising that designs may have been altered regardless of their input, Sunny Money’s CEO suspects that their experience in the field and their knowledge of the customer base may have influenced the early pico-solar product design, as the following illustrates:

And the fact is, would they have been innovating, trying to make that light if it wasn’t for us? ‘Cos dLight had made one, but they weren’t selling huge volumes, we were the ones driving their sales in that particular segment. So, it’s kind of interesting when I think about the impact we potentially had on innovation in that sector just in that space, it’s hard to know. It probably would have happened anyway but …” (AA)

The second part of this quote (below), in referring to “all the stuff that’s happening”, relates to the diversity of higher end products that are now being offered on the market and how this was used to situate the most basic, entry-level lights within this wider context, suggesting that Sunny Money’s wider impact, if indeed it existed, was at the entry level, rather than higher-end products because it was not targeting that market, and
indeed it was still only nascent (for example Clowes et al., 2019; Orlandi et al., 2019; Barry & Creti, 2021).

“And the other thing to say, I mean I look at the market and I look at all the stuff that’s happening. When we were selling the S1 and the S2 we were selling most of the lights in the sector. So, we kind of built the market for entry level lights on that basis.” (AA)

One caveat worth mentioning is that the quotes and historical perspective have all been provided by one person, the Chief Executive. This is because that person is the only remaining member of staff who worked for the organisation at that time. The lack of corroboration is recognised as being problematic. However, reference to the early days in the organisation’s journey seems relevant given that the organisation is only 15 years old, and these early years provide insight into the relative infancy of pico-solar products. Furthermore, Sunny Money’s apparent standing as one of the world’s leading distributors of pico-solar lights at that time, and being one of the few organisations participating in the early off-grid lighting conferences convened by the World Bank is widely acknowledged in the literature (for instance, Lighting Africa, 2010; Keane, 2014; Leggett, 2019; Harper, 2021; Munro et al., 2022). As such, it is not implausible that global manufacturers could have been seeking to win it over and secure exclusivity rights.

Having ceased assembly in Africa of solar products in favour of buying in pico-solar lights produced in China, Sunny Money spent the next few years refining various distribution models, which are presented in the next subsection and align with the Pico-
solar boom and Pico expansion boxes in Figure 46 (p. 274). However, in 2015/16 it embarked upon a new partnership to try to develop a very low cost pico-solar light. This was because they felt, and continued to feel as the following quote from 2018 illustrates, that many new household solar products were being designed for wealthier individuals and that the poorest households are being left behind, unable to afford the more expensive products.

“A lot of the private companies in our space are, you know, doing great things and it’s fantastic…and at the off-grid forum…two weeks ago in Hong Kong…most of these companies are showcasing new [solar] television…but how many were saying…we’ve cracked the solution to the lower segment of the population? I moderated a session on too poor, too remote, too insecure, and it was recognising that there’s a large part of the market that is not gonna be reached properly. And so that’s what need to innovate around. So, innovation is back!” (AA)

In partnership with a Chinese company, Sunny Money began development of the SM100, with a target retail price of US$5. It was anticipated that this would appeal to customers who were struggling to afford the dLight S2, which was the cheapest on the market at that time, retailing at US$7-10 (given Free On Board costs in China were US$4.95). According to email correspondence with the Chief Executive in 2021, it was further anticipated that such a competitively priced light would help agents sell greater volumes, and help Sunny Money achieve a more profitable margin per light. The manufacturer, a Chinese company called Yingli, also operated on an “open book basis”, as a result of which Sunny Money felt they were getting the best deal available at that time. Finally,
the SM100 was named after Sunny Money. This was part of Sunny Money’s desire to become a trusted brand in the pico-solar manufacturing world.

This initiative, however, was fraught with difficulties from the outset. According to the same email correspondence with the Chief Executive in 2021, it took three years for the process to be completed and the light brought to market. There were delays in prototyping and in development of the light. This period coincided with Sunny Money being in a difficult financial situation and having little room to support development and roll-out of the light. As a result, by the time the SM100 came on to the market, other manufacturers had developed similarly priced lights, such as the dLight A2. As a result, the relative affordability advantage had been lost and uptake was limited.

In a further twist, Yingli parted from the department that was responsible for the SM100. People employed in the department set up a private company and continued to manufacture the SM100. It was, however, plagued with quality issues.

Sunny Money has since scaled back its sales of the light, but is in discussions with the company about other work. The light continues to be manufactured and there is some expectation that it will soon be sold, but a Non-Disclosure Agreement prevents further discussion regarding this.

By email, the Chief Executive of Sunny Money also expressed that, the SM100 “would have sold millions if it had existed 3 years earlier.” There is no way of verifying this, but the 2019/20 and 2020/21 end of year sales reports for Sunny Money Zambia show that
sales of the SM100 and similarly priced entry-level lights (namely the dLight A1 and A2) represented 53% and 62% of all solar lights sold by Sunny Money Zambia in those two years, suggesting significant demand. Figure 48 shows the SM100 alongside the A2.

*Figure 48. Comparison of the SM100 with the A2*

Source: Left, SM100 (Sunny Money, 2012). Right, dLight A2 (dLight website)

To date, there have been no further attempts by to Sunny Money to participate in product manufacture related BMIs. However, this should be caveated with the lack of knowledge regarding the contents of the Non-Disclosure Agreement between Sunny Money and Yingli.

The next section examines the ways in which the organisation achieved scale across the different countries, which further supported this focus on pico-solar products. This is followed by a section relating to a major scaling back (see Section 4.2.2.6, pp. 292-297) before a section focused on process-oriented innovations (see Section 4.2.3, pp. 297-325).

*4.2.2.5 Achieving scale*

In phasing out its macro-installations (many of which were on schools) and its local assembly units, Sunny Money did two things. It strengthened the educational link and
began to sell the early Chinese-made pico-solar lights through schools and agreements with ministries of education:

“...we said look, let’s not turn our backs on community infrastructure and schools and clinics, but let’s just see if we can find another way of doing it using small pico solar systems...”

Given that these products were only just entering the market and that BoP populations tend not to be served by mainstream markets (Hammond et al., 2007; Lappeman et al., 2019), it began by taking sample products to rural schools and surrounding areas, to make people aware of the existence of these new products:

“So, a lot of it [the work] was showing products in rural communities for the first time and saying look, this exists.” (AA)

It also worked with some of the entrepreneurs from the local assembly units to encourage them to become agents, as well as recruiting other agents as the following quotes illustrate:

“...it was like...closing down the manufacturing operations but continuing the other side of it which was to get the entrepreneurs moving [as agents]. We always thought that there must be a local agent of some sort selling these lights or products. What’s the best way of recruiting agents? And so, we used to call them
micro franchisees and we’d...segment a geographical area and say like ok, this is your group of villages.” (AA)

However, in the early years, the organisation was still phasing out macro-solar and piloting pico-solar. Sales of pico-solar products did not really take off until a major campaign on Mafia Island, off the coast of Tanzania:

“...in 2010...we did this trial with dLight on the Mafia Island’s schools’ campaign. And it was at that point, once we hit that, and we’d never seen 3,000 light sales in a week basically, and we thought let’s do more of that and less of everything else. And so that’s when we really focussed, but we were still innovating on that concept...The thing is when... you think about how excited we were about selling two to three thousand lights in five days in one island, you know. From that you can gather we were probably selling hundreds of lights rather than thousands of lights before that.” (AA)

As a result of the success of this campaign, Sunny Money took the decision to focus on a particular model and sought to expand rapidly, as illustrated in Figure 49, with the most explosive sales seen in Tanzania (shown by the yellow column) and in Kenya (shown in light blue).
The following quote illustrates the dynamism that was present in the model that was being used to sell the lights. The model was being refined and improved at the same time as lights were being sold, and lessons learned. Compared to early iterations of the sale of pico-solar products, this appears to have been due to an incremental innovation, or change in the model, rather than a transformative one.

“And we just said look, forget everything, let’s focus on last mile distribution and let’s do … school’s campaigns, get momentum moving and then it was … the model was, kind of, morphing in our minds and let’s get agents to serve those markets.” (AA)
However, the surge in the number of products being sold was transformative for the organisation, as illustrated below:

“You know, we sold 900,000 lights in Tanzania, about half a million in Kenya. And right now [late 2018], I know it’s about 200,000 in Malawi and 200,000 in Zambia...there was a point in time where we were selling fifty to seventy thousand lights a month...and we were having stock-outs as in we couldn’t sell lights fast enough...” (AA)

The pace of these sales coincides with the boom period for quality-certified pico-solar (Munro et al., 2022) and it is understandable, given the extreme success of this approach, that Sunny Money should elect to replicate this model in all the countries in which it operated:

“But it was in a two to three-year period where we sold a huge amount of lights through our school’s campaigns. And then agents in Tanzania and Kenya... so, we started really hitting on our model and replicating it, and so we were like ok, well that’s working.” (AA)

Sales by country and the cumulative total are plotted by graph in Figure 50 and lend visual impact to the organisation’s excitement and sense of having secured a model that they wanted to replicate.
Tables 26 and 27, which have assisted in the creation of Figures 49 and 50, reveal that in 2009/10, when Sunny Money first started selling pico-solar lights, it sold approximately 1,000 per country except in Malawi where sales were three times higher, at just over 3,300. (The Uganda programme did not exist at this time.)
Table 26. Pico-solar sales figures by country and financial year (April-March)

<table>
<thead>
<tr>
<th>Country</th>
<th>FY09/10</th>
<th>FY10/11</th>
<th>FY11/12</th>
<th>FY12/13</th>
<th>FY13/14</th>
<th>FY14/15</th>
<th>FY15/16</th>
<th>FY16/17</th>
<th>FY17/18</th>
<th>FY18/19</th>
<th>FY19/20</th>
<th>FY20/21</th>
<th>FY21/22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uganda</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>5,960</td>
<td>32,920</td>
<td>13,973</td>
<td>16,075</td>
<td>796</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Malawi</td>
<td>3,304</td>
<td>3,755</td>
<td>7,298</td>
<td>12,998</td>
<td>29,819</td>
<td>62,484</td>
<td>38,194</td>
<td>41,611</td>
<td>26,763</td>
<td>21,503</td>
<td>30,123</td>
<td>25,171</td>
<td>11,262</td>
</tr>
<tr>
<td>Zambia</td>
<td>1,022</td>
<td>1,102</td>
<td>7,039</td>
<td>26,275</td>
<td>53,933</td>
<td>52,930</td>
<td>40,236</td>
<td>17,184</td>
<td>19,331</td>
<td>18,742</td>
<td>33,231</td>
<td>17,336</td>
<td>15,093</td>
</tr>
<tr>
<td>Tanzania</td>
<td>1,106</td>
<td>4,862</td>
<td>27,115</td>
<td>202,563</td>
<td>343,684</td>
<td>304,398</td>
<td>20,989</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Kenya</td>
<td>922</td>
<td>1,910</td>
<td>10,359</td>
<td>96,462</td>
<td>183,599</td>
<td>179,047</td>
<td>41,027</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TOTALS</td>
<td>6,354</td>
<td>11,629</td>
<td>51,811</td>
<td>338,298</td>
<td>611,035</td>
<td>604,819</td>
<td>173,366</td>
<td>72,768</td>
<td>62,169</td>
<td>41,041</td>
<td>63,354</td>
<td>42,507</td>
<td>26,355</td>
</tr>
</tbody>
</table>

Source: Author’s compilation using monthly sales data provided by Sunny Money

All four country programmes posted year-on-year growth, ranging from 8% in the second year in Zambia, to 14% in Malawi, 107% in Kenya, and 340% in the same year in Tanzania (Table 26).

Table 27. Pico-solar growth factors, year on year, by country and by financial year

<table>
<thead>
<tr>
<th>% growth</th>
<th>FY09/10</th>
<th>FY10/11</th>
<th>FY11/12</th>
<th>FY12/13</th>
<th>FY13/14</th>
<th>FY14/15</th>
<th>FY15/16</th>
<th>FY16/17</th>
<th>FY17/18</th>
<th>FY18/19</th>
<th>FY19/20</th>
<th>FY20/21</th>
<th>FY21/22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uganda</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>452%</td>
<td>-58%</td>
<td>15%</td>
<td>-95%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Malawi</td>
<td>14%</td>
<td>94%</td>
<td>78%</td>
<td>129%</td>
<td>110%</td>
<td>-39%</td>
<td>9%</td>
<td>-36%</td>
<td>-20%</td>
<td>40%</td>
<td>-16%</td>
<td>-55%</td>
<td></td>
</tr>
<tr>
<td>Zambia</td>
<td>8%</td>
<td>539%</td>
<td>273%</td>
<td>105%</td>
<td>-2%</td>
<td>-24%</td>
<td>-57%</td>
<td>12%</td>
<td>-3%</td>
<td>77%</td>
<td>-48%</td>
<td>-13%</td>
<td></td>
</tr>
<tr>
<td>Tanzania</td>
<td>340%</td>
<td>458%</td>
<td>647%</td>
<td>70%</td>
<td>-11%</td>
<td>-93%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Kenya</td>
<td>107%</td>
<td>442%</td>
<td>831%</td>
<td>90%</td>
<td>-2%</td>
<td>-77%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s compilation using monthly sales data provided by Sunny Money
All four programmes continued to grow for four years, to April 2014. Zambia more than doubled its sales each year, reaching a peak growth (in terms of percentage change) in 2011/12. It continued to more than double its sales, but the pace of growth slowed thereafter. Kenya and Tanzania continued to show very high growth, increasing by between 442% and 831% year-on-year for the next two years. Although Malawi’s sales were a little lower, they grew by between 78% and 129% year-on-year. These early sales figures suggest that the products, which were largely appearing in a virgin market, appealed to Sunny Money’s clients.

4.2.2.6 Scaling back
As illustrated in figures 49 and 50, and tables 26 and 27, the organisation appears to have overcommitted itself. This is supported by the following quote from the Chief Executive:

“But we became overstretched as an organisation... All of a sudden, you’re managing a much bigger beast...it also meant the focus of Solar Aid and Sunny Money was on financial crisis, rather than on innovation...And you know, one of the next steps in this interesting model was all about survival.”  (AA)

Within a two-year period (2011/12 to 2012/13), Sunny Money went from selling 50,000 lights per year to selling in excess of 600,000 lights per year which it sustained for two consecutive years (2013/14 and 2014/15). In the following 1.5-2 years, it closed its largest programme, lost the manager of its largest programme, lost its then Chief Executive, saw its managing director go on sabbatical, and was on the cusp of having its second-largest
programme bought out. It was also back selling less than 75,000 lights per year, while trying to remain financially afloat, a finding confirmed by Munro et al (2022).

It is implied in the following explanation that the organisation seems to have been inadequately prepared for the very rapid rate of expansion despite having set itself a very ambitious target to sell one million lights in one year.

“Well [what led to the closure of the Tanzania programme] was... basically because we were going for a million light sales [and] Tanzania, [had] a lot of...responsibility to hit that figure...I just felt incensed because I was like, we’re going from 600 [thousand], which is a ridiculously high number of sales [and] which was the first in the sector to 900 [thousand], which we knew was massively ambitious, and then to push us another 100,000...but we didn’t know the trouble it was gonna get us into.” (AA)

This illustrates the ambition within the organisation, led by the board. Although it is not stated explicitly, such an achievement would make for good marketing, and help cement the organisation as a leader in the sector. It appears clear from the quote, however, that the scale of ambition did create some internal tensions, even if its consequences had not been foreseen.

In the follow-on quote (below), the implications of trying to scale-up are made clear, with the organisation’s finances already committed to products that have been dispatched from suppliers in China but not yet sold. While Sunny Money appeared to be benefitting from
favourable terms provided by the manufacturers, the products still needed to be sold and the suppliers paid:

“... we placed...large orders for solar lights...we had lots of containers on the water from China...so, we had a lot [of] money... pledged...to the supplier. And we had vacant terms where we wouldn’t even [have] had to pay anything up front, it was just basically all after [it] arrived or after say, sixty days. So, we... started seeing this ticking timebomb. And so, that’s when the financial crisis...hit us and we just...had to sell lights, but we were under a lot of financial pressure to survive and we realised that...” (AA)

As a result of being overstretched, it was decided to close the largest, and hitherto most successful programme in terms of numbers of lights sold, and to devise an exit strategy with a view to enabling continued sale and distribution of pico-solar lights in Tanzania:

“Well I mean the board ultimately made the decision to not continue in Tanzania. They felt that if we continued to try and offer it there it was too expensive for us and in order, almost, to save the rest of the organisation it felt, you know, let’s close down Tanzania...And so what we did is, we worked with a local company called ARTI who we licensed the Sunny Money name to and the brand. And we gave them all of our...agents and contacts and...relationships...with the schools...so they could then serve and potentially build on what we’d done.” (AA)
The reality of the exit from Tanzania, compounded perhaps by the speed with which decisions were taken, is that the handover to the local organisation (ARTI) was not as successful as was hoped:

“But it wasn’t as elegant as what it could have been, and...the organisation wasn’t prepared for an exit strategy and so it was done too quickly in a way. Ideally you would have said, you know what, this might happen and then at that point either we’re gonna do this and lead in that market in a different form, or we’re gonna exit and here are the different people we’re gonna work with. But, you know, this was all happening relatively quickly and so we ended up closing our operations and essentially handed them over to a local company...”  (AA)

Sunny Money also ceased operations in Kenya, though this was reportedly done via a management buy-out:

“And then... Kenya closed...while I was on sabbatical. But as I understand it, I think it was a management buyer from the Kenyan team who said, you know what...we think that we can run this social enterprise now... and so we’ll no longer need support from Solar Aid. So, in a way, that was a fantastic objective and it got a little bit of investment, but it didn’t work out. Very competitive market and... I don’t know all the reasons...but it didn’t last.”  (AA)

While the figures used in tables 26 and 27, as well as figures 49 and 50 are taken from the organisation’s monthly spreadsheets provided by the Finance Director, it is important
to make clear that the remaining quotes are all attributed to the current Chief Executive, as the only remaining member of staff who was working for Sunny Money during the period under review. However, research by other scholars, including Munro et al (2022) attests to the precipitous drop in the number of sales. Three different sources therefore triangulate these findings. The wording in the audited accounts understandably provides limited detail, as per Figure 51.

Figure 51. Excerpt from 2015/16 audited accounts

Group Restructuring Update
As a result of the market developments and increased commercial competition in some maturing markets in Africa, the Trustees reported last year that they had put in train a restructuring programme to reduce the central operating costs of the charity and SunnyMoney Global. Much of that restructuring took place during the year under review.

The Trustees can now report that they are seeing the benefit of those changes in an improved cash flow for the Group. They thank both continuing staff and those who have left the group for their hard work and commitment during a challenging period of change.

Source: Audited accounts 2015/16 accessed via UK Charities Commission website

In the 2018/19 audited accounts, a more positive description has been used and may accurately reflect organisational learning from this period, as illustrated in Figure 52.
Thus far, the focus has been upon product related innovations and influence, as well as showcasing findings related to total sales, by country and by year. In the next section, the findings regarding process-oriented innovations are presented.

4.2.3 Process-oriented BMIs to achieve scale and reach the last mile

4.2.3.1 Innovating the distribution model

In order to sell the volumes of quality-verified lights (see Section 4.1.3, pp. 233-235), the highest in the pico-solar sector according to the Chief Executive (see also Lighting Africa, 2013; Alstone et al., 2016), Sunny Money had to have in place an innovative business model. This was comprised of three routes to market. The first being to target schools and then secondly, agents (or micro-franchisees), as illustrated by the following quote. A third
route, sales to partner organisations, was also adopted in Zambia and continues to play an important role there.

“...it was in a two to three-year period where we sold a huge amount of lights through our schools’ campaigns. And then agents in Tanzania and Kenya...we really started hitting on our model and replicating it...and we were selling fifty to seventy thousand lights a month.” (AA)

In order for the schools’ programmes to be so effective, the Sunny Money subsidiaries needed permission to sell to schools. According to interviews with senior staff, Sunny Money developed Memoranda of Understanding with the ministries of education, allowing them to operate in schools throughout the country. Sale of the entry level pico-solar lights was made easier by virtue of them being marketed as “a study light” according to the Chief Executive. Schools were approached in regional clusters and meetings held with the teachers. The following quote demonstrates the beginnings of the pico-solar product sales in Zambia, as the organisation moved away from its macro-solar installations, while retaining the all-important links through schools and the agreement with the Ministry of Education:

“And we started off, basically, being able to sell within schools...we started in Eastern Province [Zambia], our first port of call Chipata...and we grouped together all of the schools and had headteacher meetings and they almost became a bit like your first agent effectively.” (BB)
The next quote explains the process used by the team in Zambia, and draws attention to some of the alternative and widely used sources of light with which pico-solar was competing, thus reminding the reader of the absence of electricity in the vast majority of these homes:

“So, we would go and educate [people] on how a [pico-]solar works, the importance of solar, why you should be using solar over, say, candles and kerosene, …the health dangers…all of that...[and] your real key factors, money saving.” (BB)

Once the benefits had been explained, samples and printed promotional material were left with school teachers in their capacity as early agents, allowing them to try to stimulate interest within and around the school community:

“And we would leave them with the demonstration light and some marketing materials.  And they would then really go into their community including, obviously, their school and promote the use of solar.  They would speak about, you know, what Sunny Money was, how we worked, how we operated.” (BB)

A short time later, Sunny Money would return to the same area and school, but bring with it a van full of lights to sell. At that time, the teachers were incentivised for their work in promoting the lights:
“...about two or three weeks later we would come back and do our first delivery of lights. So that head teacher would collect orders for us on our behalf. He would have a small incentive.” (BB)

People’s scepticism towards the lights is illustrated in the next quote, which further reinforces the novelty of these products as well as the need for persistence in trying to reach this BoP market:

“The first delivery would always be a bit slack and a bit crap, actually, you know. People would be like, oh, why should we use this and what’s the point of the solar light, I’ve used candles, my parents used candles my grandparents, my grandmother used candles, why? Who are you to tell me that I should use this light? But once you’ve done that first delivery and you’ve got a couple of people using them, even ten in a community, the floodgates usually open and we always found that deliveries two, three, four, maybe even five or six would always be much better and the orders would steadily rise.” (BB)

In concluding her explanation, the Country Director demonstrates that the model that had been piloted in other countries appeared also to work in Zambia, and that the team therefore began to increase their geographic coverage. The following quote also demonstrates that sales at that time were strong enough for the country programme to cover its own costs through commercially-generated revenue, without requiring much, or any financial support from SolarAid’s UK headquarters:
“So, the schools campaign really took off and so after we had done Eastern Province we went to down to Southern Province and things, you know, we really hit... We were on a good run. You know, we had money coming in, we were able to cover costs ourselves. We weren’t really having to rely too much on Solar Aid sending us money at all.” (BB)

In addition to the schools’ programmes, Sunny Money also works with agents in all of its SSA subsidiaries, many of whom were initially teachers or members of their families:

“We do schools and do agent training...” (CC)

“Ultimately in Kenya we started... turning head teachers into agents or their families...the agents’ work is potentially,... it’s more like normal retail... If you’ve got a chance of getting something sustainable it’d be through that route...Getting as many lights out there essentially, getting market share, building a brand and then building agents is just kind of really going for it that way.” (AA)

“...you look at our agents and a lot of [them] are teachers or former headteachers...[and] you have a lot of agents who are just Zambians [not teachers] who...sell our lights.” (BB)

Anybody could become an agent, not just teachers, as the following quote from a rural pastor, also well-known within rural communities, illustrates:
“I started on a very small note, maybe with 10 pieces of lights. Then I took them to the outstations. Basically, I’ve got about 10 communities that I’m running at the moment...when I took these lights, just for the sake of sampling and advertising, people liked them...because I had used them myself for some time, I was pretty [confident] of what I’m talking about. So, then people got interested.”

(FF)

Sunny Money keeps a list of its agent contact details allowing them to maintain regular contact:

“So DD and EE [staff members]...would be given a list of the new agents and shops and say hey, let’s make sure we call them once or twice this month, see how their sales are going” (CC)

According to email correspondence with the Operations Director in Zambia, as of December 2021, Sunny Money Zambia had 188 active agents on its spreadsheet of over 1,000 agents. However, the numbers “are very fluid and the figures change a lot”. In order to help retain agents, none of whom have formal contracts with Sunny Money, there have been initiatives to support them with sustained training:

“We run an agent programme. So, we have spent the last 18 months training our agents...[because] we quickly realised...some of them don’t know how to put a budget together or a small cash flow and they’re buying solar lights, selling them...”(BB)
This illustrates some of the basic skills that agents were identified as lacking, which is understandable given the low levels of education nationally. In the following quote, some of the reasons are identified for which agents do not reinvest revenue generated from the sale of lights.

“...then just, sort of, drinking away the profits or using it for maybe, to pay the school fees [or other similar non-commercial expenses] but not reinvesting some of it back into solar...They're buying once a year and then never to be seen again.” (BB)

While “drinking away the profits” may be a subjective viewpoint, and does not constitute a particularly constructive use of revenue generated, there is a wider point to which this discussion was alluding, which relates to the many demands facing agents who live and work within the BoP. It is also worth noting that at this stage in Sunny Money’s model, the agents are not limited primarily to teachers, as per the initial model, but to a much wider segment of society. In the next section of the explanation, Sunny Money demonstrates one way in which it has sought to both address this issue, and create a partnership with an organisation that has already built a trusting relationship with farmers in the communities in which it works:

“How do we make them more regular? So, we partnered with XXX [a Zambian agricultural services provider] and we have been training some of their farmers to be agents for us which ticks boxes for them cos it means...that their farmers
have an income all year round rather than just having money when they sell their crops.” (BB)

It is also worth noting in the quote above that partnerships such as these are designed to both help improve the skillsets and reliability of agents, while also providing opportunities to generate income throughout the year, when, for instance, there is less revenue being generated from the sale of crops.

The following point, made by the CEO, highlights an important lesson that appears to have been learned. Working with agents, while most closely aligned with the “market” and “sustainable retail”, is not as quick and easy a process as it might at first have seemed:

“...at the centre [SolarAid/Sunny Money in the UK] we were thinking yeah, it is gonna be the same thing it's just gonna be... It’s gonna take us time to get there, you know.” (AA)

As the quote below demonstrates, analysis of the sales made by different agents reveals that some of the most successful agents have their own shop(s) through which they sell a wide range of products, including solar lights.

“...we’ve noticed the agents in the shops are actually our big money makers.” (CC)
Agents running successful shops tend to have more capital and several of them have become super-agents:

“‘Now they became a super-agent because basically because they were able to buy the lights upfront. So, what he allows is that our agents are able to go to him and buy, say, one light or two lights.’ (BB)

“...the super-agent [in Malawi] has to basically be somebody with a shop, basically someone with capital.” (AA)

With more working capital these super agents are able to buy larger quantities of lights from Sunny Money, thus benefitting from better discounts and making for easier transactions for Sunny Money to handle. The super-agents sell to other agents in their vicinity, who in turn sell to the end-user or client.

In addition to selling lights through schools and agents, the following illustrates that Sunny Money Zambia piloted a new and third route to market starting in 2012/13, which it has since continued¹⁴.

“Third route to market,...partners. XXX [an international agricultural company]...and then NGOs, XXX, they buy a lot...Health Ministry from Chipata, buying a whole pile of lights, so it completely depends...[other names listed]...” (BB)

¹⁴ I was the consultant recruited to scope the market and build relations.
This third route to market was focused upon the development of partnerships with commercial enterprises, non-governmental organisations, other social enterprises and church groups. The idea was to try to generate greater profit margins on each light sold, the rationale being that the money from the better profit margin could be reinvested into more expensive activities, the main one being the schools’ programme. Such an approach was also intended to help the organisation achieve scale in a shorter period of time.

A cost-benefit analysis for each programme or route to market was pulled together with the country team. It suggested that the schools’ programme would break even after the sale of 50,000 lights, whereas the partner programme would break even after the sale of 11,500 lights, and agents with approximately 10,000 sales.

With regard to the partner programme, analysis of the country’s main employment sector showed that agriculture and mining were two of the largest employers. Other potential buyers of lights were businesses that worked at night (e.g. security companies) in urban areas. Supermarkets were also targeted given that the capital city often suffered power cuts, and that people living in the capital would buy gifts to take to family living in rural areas. Social enterprises and NGOs working in rural areas were also approached. Lights were successfully sold in bulk to large agricultural companies, to mines, to supermarkets, to NGOs and to social enterprises. A few were sold to one church and one large, night security company but they generally seemed less interested. Some of the more successful partnerships have been those in which Sunny Money has sold the lights to another social enterprise that specialises in supporting smallholder farmers to improve crop productivity, and is able to supply credit terms, as the following quote illustrates:
“So XXX [an international social enterprise]... has bought 3,500 lights from us. And they were able to get those lights to the farmers and sell them like that (clicks fingers) because they're giving them money [through loans], they're giving them stuff on credit [as part of their own programme of support]. They've infiltrated the market...” (CC)

Development of these partnerships is time-consuming but is considered a worthwhile investment of time and resources:

“you look at the corporate partners [a term into which NGOs are often thrown], though it is a lot of time just to get one order, but when you get that order it's usually a pretty big order...like XXX [international NGO] where they got 6,000 lights, or 4,000 lights. It took [us] probably three months to secure that order but when we did it was a huge order with huge rewards.” (CC)

According to Sunny Money Zambia’s end of year report for 2019/20, sales through schools and through agents accounted for 20% and 21% of annual sales, respectively. Sales direct from the office accounted for 9%, while those sold to NGOs, social enterprises, commercial businesses and other partner organisations accounted for 50%. In terms of profit margin, sales direct from the office generate the highest profit margin, but represent the smallest in number and are not the focus of the organisation’s work. This ratio has changed over time and, according to the incumbent Country Director, the relative significance of sales to partner organisations has increased substantially since the
Covid-19 pandemic. The increased, post-pandemic importance of sales to partner organisations is somewhat ironic given the misgivings that some staff have aired about the different routes to market, and which are discussed in the next subsection. It appears desirable to have established multiple routes to market that can help support social enterprises in times of crisis, especially ones for which no plans had been made, and whose impacts had not been foreseen (in this case, Covid-19).

4.2.3.2 Misgivings about certain BMIs

Despite the relative economic strengths and weaknesses of the different routes to market, the following quotes illustrate staff preferences in terms of different social and economic impacts, and tie back to the mission-related tensions that can often feature in social enterprises (Battilana et al., 2012; Doherty et al., 2014). The following quote demonstrates that, for some staff, there was scepticism regarding the extent to which sales through partners actually reaches people living at the BoP:

“So, [sale of lights through] some of the corporate [partners] may be getting to the last mile, but ... I don’t think it is...” (CC)

In contrast, there is a perception that sales made via schools and agents do reach the intended BoP customer, as illustrated:

“I think if you looked at the social side of things where you’re gonna have, say, the biggest impact it would be more on your agents and schools” (BB)
“Your agents are the ones ...getting to people who have no possibility of having these lights any other way. So, [that]’s where I feel like our social responsibility is. Like, one of the things that Sunny Money set out to do was to get to the end user that everybody else is missing and our agents are doing that...” (CC)

As shown in the next quote, Sunny Money is largely unable to keep track of the people to whom agents and super-agents are selling, thus posing a challenge for customer profiling. However, this suggests that sales through partner organisations, an alternative route to market considered less likely to reach the BoP, is not necessarily any more or less likely to be reaching the BoP than sales via agents.

“The problem is we can’t really follow [the agents] that closely...So, you have an agent or let’s say a shop... who buys 20,000 lights at a time. And he has 7 different little shops and he sells them to smaller agents. Well he’s not gonna be able to keep track of who, what agent he’s selling to and what end user that agent’s gone to... So,... from us selling to a shop, if you go to three more people before it finally hits the end user. So, one of the things we are having problems with is seeing who that end user is.” (CC)

The majority of staff, especially the more senior ones, demonstrate the organisation’s prioritisation of social value creation over economic value creation, a feature that staff appear to consider is encapsulated by the schools’ programme:
“...the reason we’ve kept the schools programme, even though it’s not overly profitable or it’s losing money is because those are the people we set out to target...So, [schools] are the ones that we keep giving to and keep supporting because those are the ones that we started this programme for...From a business perspective, yes [the schools programme] costs me the most. From a social and environmental, no. On a business side, if you look at my costs and you look at the ones put through schools it’s always gonna be the most...” (BB)

There is a more nuanced interpretation regarding the social value created by sales that are made by agents in the following quote, some of whom are considered more commercially minded, while others appear to be thought of as being more socially-orientated:

“Whereas agents, you can see the difference between the socially minded ones and the entrepreneurs... you almost want a combination of both... You want the ones who would do it ... because they feel that ... solar lights are great and socially everyone should be lit up by solar light. And then you have the ones who are ..., oh great, hang on, if I sell however many of these there’s my kids school fees done.” (BB)

“Some of the agents, like the ones working for [named agricultural extension social enterprise], they are socially minded” (DD & EE)

The more commercial aspect of sales through agents also appeals to some staff more than the schools programme, though this did not appear to be a widely held view:
“So, I think it would be more effective [for Sunny Money] to have an agents’ programme than a schools’ programme...also, we are into empowerment, and the agents are empowered...” (DD & EE)

Finally, the following quotes show that sales to some partner organisations are also recognised for their social value creation:

*It’s a very mixed bag...Sales to some partners, e.g. [a named health social enterprise], have a direct social impact. The lights are sold by community health workers as part of their overall community support.” (BB)*

*“XXX [an international social enterprise]...get[s] those lights to the [subsistence] farmers.” (CC)*

Overall, it is clear that there is recognition and understanding that each of these routes to market has a different combination of social and economic costs with which it is associated. Within the Zambia team, some people seem to favour the more economic value creation, but overall, it is the creation of social value that seems to dominate and remains the driving force among senior staff in the Zambia programme and at the level of the CEO. Sales of lights to school children are definitely considered to be reaching the ‘last mile’ and to have a supposed educational benefit. Sales through agents and partner organisations are more complex and nuanced. However, it was striking how little mention was made of the environmental aspect of the organisation’s work, despite the products
being based upon renewable energy. Some information does exist, however, and is presented in the next section.

4.2.3.3 Creating social and environmental value

The majority of discussions with Sunny Money staff tend to revolve around reaching the poorest members of society and focus, therefore, upon the social components of their business model and mission. However, this seems largely to be a result of staff and organisational appreciation of the implicit environmental benefits of the solar lights, which this section now illustrates. Figure 53 illustrates a fictitious donation of £20 via the impact calculator that is on SolarAid’s website (SolarAid website, n.d.). It explicitly states the environmental impact in terms of tonnes of Carbon Dioxide emissions saved.

*Figure 53. SolarAid’s online impact calculator*

<table>
<thead>
<tr>
<th>A DONATION OF £20 WOULD RESULT IN...</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 solar lights, help SolarAid reach 27 people, save families £796, give children 5,029 hours of extra study time, decrease CO2 emissions by 5.3 tonnes and allow 13 people to live healthier lives.</td>
</tr>
</tbody>
</table>

Source: SolarAid website, (n.d.)

This perceived environmental impact is also supported by the following quotes, the first of which explicitly demonstrates the dual social and environmental value creation, while
the second makes direct reference to the impact calculator and the environmental credentials of the products:

“So, the more lights you get out the more impact you’re having, on a social side and on an environmental side.” (BB)

“Like, you can use our impact calculator, you know, the one that...shows you the impact of one solar light sale or it could show you the impact of a donation of £5,000. So, that can show you how much CO₂ you’ve averted, how much money you’ve saved that family, how many hours of reading you’re giving a child etc.” (BB)

In addition to demonstrating the environmental impact of a donation by an individual, the website’s homepage reports the tonnes of Carbon Dioxide that the organisation has stopped from being emitted, as shown in Figure 54.
Figure 54. Impact of SolarAid / Sunny Money’s work

![Image of impact of SolarAid / Sunny Money’s work]

Source: SolarAid website, (n.d.) Retrieved 22/01/2022

Archived news stories, such as the excerpts in figures 55 and 56, also report the environmental attributes of the solar lights.

Figure 55. Contribution of solar lights to the UN SDGs, particularly SDG13

Each solar light sold eradicates the use of a kerosene lamp, which emit on average 370kg of CO2 and equivalent in the form of black carbon, each year – the top two climate warmers. Solar lights drive low-carbon development and pave the way for a clean energy revolution. Across Africa, millions of families are lighting the way to a brighter, more sustainable future.

SolarAid are joining Action2015 and calling for global leaders to take strong action to achieve the Global Goals.

Source: SolarAid website archive, (24th September, 2015)
These issues have been highlighted in a recent study: **Household light makes global heat: high black carbon emissions from kerosene wick lamps.**

The lead author of the study, Nicholas Lam stated: "**Getting rid of kerosene lamps may seem like a small inconsequential step to take, but when considering the collective impact of hundreds of millions of households, it’s a simple move that affects the planet**". What’s more, black carbon particles only stay in the atmosphere for a short period of time meaning that eradicating the kerosene lamp would be a hard and fast way to mitigate climate change. While this would obviously not halt climate change in its tracks, it would certainly play a part in the solution.

**Black carbon particles stay in the atmosphere for only a short period of time. Eradicating the kerosene lamp is a hard and fast way to mitigate climate change.**

As another author of the report, Kirk R. Smith, says: "**There are no magic bullets that will solve all of our greenhouse gas problems, but replacing kerosene lamps is a low-hanging fruit. We don’t have many examples of that in the climate world.**" Smith was awarded the Nobel Peace prize in 2007 for his work on climate change.

Source: SolarAid website archive, (10th July, 2013)

These excerpts report the findings of research conducted by Bond et al (2013) and by Lam et al (2013), with SolarAid’s website providing hyperlinks to the relevant press releases from UC Berkeley and from the National Institute of Environmental Health Sciences. Further archived stories relating to the costs of kerosene relate specifically to international subsidies and include links to an article from The Guardian (Figure 57), from the International Monetary Fund and from the United Nations Environment Programme.
Despite recognition of the environmental benefits of renewable energy and the solar products that it sells, Sunny Money is also aware that these products cause some environmental damage, and that further research is required. This is discussed in section 4.2.4 (pp. 325-334) as it is more future-facing work in which the organisation is now participating.

Moving to the next subsection, the research also found that the organisation has encountered and, perhaps inadvertently created a number of tensions as it has evolved and sought to innovate, these are discussed in the next section.

4.2.3.4 BMI tensions

Despite the apparent success of the process-oriented BMIs that helped Sunny Money achieve scale across its four major programmes, namely Kenya, Malawi, Tanzania and Zambia, there have been tensions associated with their roll-out. To begin, it is worth comparing sales figures between the different countries, as these seem to lie at the heart
of some of the tensions. Figures 58 and 59 use the same data as figures 49 and 50 (pp. 288 and 290), derived from tables 26 and 27 (p. 291). However, in figures 58 and 59, the sales are divided into two geographically different regions, Figure 58 showing Kenya and Tanzania, while Figure 59 shows Malawi and Zambia. Each of these figures presents sales volumes by country and by year and the same scale is used on the y-axis for ease of comparison.

*Figure 58. Pico-solar sales for Kenya & Tanzania*
The extraordinary pace of growth in Tanzania is quite clear, followed closely by Kenya. By comparison, both Zambia and Malawi seem much weaker. However, as illustrated earlier in Tables 26 and 27 (p. 291), both latter countries also improved year-on-year with Malawi growing consistently for five years and Zambia for four consecutive years. Zambia posted growth of between 8% and 539%, while Malawi posted growth of between 14% and 129%. During this period, Zambia is anecdotally reported as being the only country that was actually self-sustaining economically, due in part to its combination of sales via agents and partners, as well as schools. Tanzania and Kenya, despite much larger sales and generation of most commercial revenue, were only occasionally able to cover
operating costs and therefore required more support in terms of restricted and unrestricted, non-commercial funds. Despite numerous attempts, it was not possible to obtain financial data to corroborate this, but an email from the Chief Executive provides some insight (Figure 60).

*Figure 60. Confirmation of non-commercial funding for Tanzania and Kenya*

Tanzania - we got funds from the Daey Owens Fund to roll out our schools campaign there - so this really helped us scale things up. We def had months where sales covered costs. But it was an expensive operation.

Kenya - Some core costs were covered (Management/office - by grants which also helped us run our installation programmes for schools and clinics. I am sure we got some SunnyMoney funding too to help us scale distribution - but I also think we dipped into core funds quite a bit (plus working capital) to help us scale and use revenues to help keep things moving.

Source. Email from Chief Executive, dated 10/01/2022.

Given the success of the business model that focused on schools and agents in Tanzania and Kenya, it was anticipated that similar pace of growth and scale of reach would be achieved in the other countries, as illustrated by the Operations Director in Zambia.

*So ..., we were like well, ... ok we’re not gonna make huge promises but if it’s worked in Kenya and Tanzania, of course, it’s going to work in Zambia, Malawi and Uganda. I’m not saying that it hasn’t worked in Zambia, but we are behind on our targets that were originally set. (BB)*

Unsurprisingly, the slower pace of growth in Malawi and Zambia was recognised, and Zambia seems to have come under greater scrutiny than Malawi, as the following quotes illustrate.
“…there was this internal…discussion…we recognise Zambia’s different. How different is it? How much of it is our team thinking it’s different versus it is different?” (AA)

This quote from the CEO seems to suggest that, at least at first, there was a feeling among senior managers that the perceived differences might not actually be all that great. The follow-on quote supports this impression, as the team in Kenya appear also to have had misgivings about replication of the model that was developed in Tanzania, and which subsequently appears to have worked in Kenya:

“But I think that’s a natural tension … when you’ve got a new model here and it’s been successful in two countries … And we’d already seen … in Kenya where … their Op’s Director … was not massively enthusiastic immediately, until suddenly [they] got the wind in their sails and when they started achieving really good results. They’re suddenly like yeah yeah yeah, it’s good.” (AA)

Between 2012 and 2014, prior to this research, there was a similar feeling held by the Operations Director at that time and with whom I worked at Sunny Money Zambia. Despite this being the period during which the Zambia team posted its most significant growth, going from circa 7,000 sales per year to just over 50,000, during regional meetings with the senior leadership, and a meeting with the then Chair and Founder of the organisation during a visit to Zambia, Sunny Money Zambia seemed to struggle to get other country programmes to engage with its pilot approach to selling lights through partners, feeling instead that it was being judged for not achieving higher sales volumes
through schools and agents. This may have been a subjective impression but the quote from the Chief Executive suggests some scepticism on the part of senior managers.

A number of factors may have contributed to the slower pace of sales, particularly in Zambia. Population density is now recognised as being a possible factor, both by members of the Zambia team as well as by senior management.

“Also, you have to remember Zambia is a huge country that is sparsely populated. It’s not Tanzania and it’s not Kenya. And I think Solar Aid maybe went into it a bit blindsided by the millions of sales that we had achieved across those two countries.” (BB)

I think the other is just sometimes geographical density is a bit different there [Zambia]. (AA)

Perhaps surprisingly, factors that may have contributed to the comparative lack of success of the business model in Zambia do not seem to have been researched and instead, appear to have been influenced by impressions. Certainly, population density differs considerably between the country programmes. According to the World Bank (2022), the national average population density in Zambia is 25 people per km² as compared to Tanzania at 67ppkm² (and Mafia Island at circa 107ppkm², where Sunny Money sold thousands of lights) Kenya at 94ppkm², Malawi at 203ppkm² and Uganda at 228ppkm².
Additionally, there seems to have been a perception among senior managers that higher teacher salaries in Zambia went some way towards explaining the relative lack of sales.

“But [in] Zambia... teachers ...are much better paid ... than in Tanzania and Kenya...Ultimately in Kenya we started ... turning head teachers into agents or their families, ... and it became a thing. But in Zambia ... that may not have worked quite as well [because of] the structure of the education authority and the money that teachers would get just from their day to day work.” (AA)

However, the Zambia team does not seem to share this view. Indeed, there appears to have been a similar approach adopted in Zambia as in Kenya and Tanzania, where teachers were actively recruited to be agents.

“I mean you look at our agents and a lot of our agents are teachers. It’s a bit of a blurred line at the moment between... the schools and the agents. You have a lot of agents who are just Zambians [non-teachers]. Then you...have another set of agents who are current headteachers or former headteachers who still really like our lights.” (BB)

“Teachers who become agents are normally recruited through our schools’ campaign.” (DD)

Teacher incentives may be one element in which approaches differ between country programmes run by Sunny Money. This may have a bearing on the relative value of light
sales for teachers in Zambia. However, it seems that the Zambian team has used a variety of incentivisation techniques:

“*I mean we’ve done so many different incentives over the years.*” (BB)

One additional contributing factor has more to do with the distribution of attention from senior managers. At the time of Tanzania’s and shortly thereafter Kenya’s pico solar boom in sales, both the Chief Executive and Managing Director were based in Kenya and travelling regularly to Tanzania. Kenya was also the main case study for the World Bank supported Lighting Africa initiative, the first place in which early entrants to this market met during an international conference (Lighting Global, 2010; Harper, 2021), and benefitted from widespread adoption of mobile money platforms (Lepoutre & Oguntoyé, 2018). Some of these factors may have contributed to the relative early success of the Tanzania and Kenya programmes, as illustrated by the following quotes.

“...we’re\textsuperscript{15} both based in Kenya... We’re basically saying to the Kenya Operations Manager at the time, we need to do this... We weren’t there day in day out in the other countries [Malawi and Zambia], so that might have had an impact...But we started it in Tanzania and we’re there evolving, senior management team going down there, you know.” (AA)

\textsuperscript{15} In this instance, ‘we’ refers to the incumbent CEO who was Managing Director of Sunny Money at the time, and reported to the combined CEO of SolarAid and Sunny Money. In other words, the two most senior members of staff at that time.
In later years, with Sunny Money’s financial troubles and withdrawal from both Kenya and Tanzania, the Zambia, Malawi and Uganda teams seem to have suffered from changing and inconsistent support from senior management, as illustrated by the following quotes from Zambia’s then Operations Director, provided on two different days:

“So, I mean since I’ve been doing this position, I’ve had nearly five CEO’s. That in itself is quite chaotic. You know, it’s quite tough … And they all come in with their own idea and their own thoughts of how things should be done.” (BB)

“…we’ve gone through many different CEO’s who have their own whatever’s. And now I look at say two of our competitors who just got huge grants from SIDA and wherever. We didn’t get that grant…. But I think that’s [change of senior management] quite a factor in the way that you are…it’s because you end up sometimes…thinking I’ve made that suggestion…and idea but…will it ever actually happen, maybe not because I’ll probably get told no.” (BB)

While potential differences in levels of managerial support may not seem directly linked to the research question about leveraging innovations between countries, they are mentioned here because they can have a bearing on team performance. Teams that receive less managerial support can feel abandoned. In addition, managerial support could be considered more important where a model does not seem to be working as well, because it may require adjustment in order to fit the different context. So, in seeking to leverage
innovations across and between countries, it is important to consider internal as well as external differences.

In addition to perceptions about team performance relative to the pace of sales in a given country, the deteriorating fortunes of the organisation and particularly its two largest programmes may also have had an impact on the levels of support afforded to the different country programmes. Crisis management, or “survival” as the Chief Executive calls it, may not have equated to a period of support for the programmes posting incremental growth such as Zambia and Malawi.

The findings presented thus far have related to historical and contemporary changes and innovations to the business model. In the next section, planned and future innovations are presented, grouped under theme three.

4.2.4 Theme Three – future facing BMIs
The final theme demonstrates Sunny Money’s continued (and renewed) focus on working with people living at the BoP and the extent to which this shapes its operations and SBMI. Although there is little or no historical evidence with which to assess the relative success of each of these, it is pertinent to include them because the reflexive thematic analysis demonstrated that they comprise a significant part of the in-depth interviews and feature heavily in the last three years’ annual reports produced by Sunny Money. As such, they demonstrate some of the ways in which the organisation continues to try to evolve in complex and changing environments, in keeping with fulfilment of its mission to reach those living in energy poverty at the BoP. From a series of quotes from the Chief
Executive in 2017, relating to the further refinement on targeting the “last mile”, examples of pilot projects and innovations that have been launched since 2019 and continue to drive the organisation’s mission are discussed in detail.

4.2.4.1 Evolution of the socially-driven mission

Since the creation of Sunny Money, the Millennium Development Goals have come to an end and been replaced by the Sustainable Development Goals (see Section 2.3.7, pp. 56-60). The year 2020 has passed and the use of kerosene lamps has not been eradicated from SSA, which was Sunny Money’s BHAG. However, renewable energy has become much more widespread and the pico-solar market has witnessed tremendous growth. As a result, Sunny Money has reviewed and revised its vision and mission, as well as its role in the renewable energy sector in SSA.

One unwavering focus of Sunny Money is the relative importance of its targeting of the ‘last mile’ segment of society. This is due primarily to Sunny Money’s perception of the void that is created as other actors are developing towards a more urban and peri-urban focused clientele that is able to afford more expensive and technologically advanced solar powered products. The concern (illustrated in the next quote, and identified by Sunny Money’s CEO when he was working at GOGLA) about big companies shifting the focus of their customer targeting to other segments of society (i.e. away from the BoP), has been identified in recent research (for example Barry & Creti, 2021; Cross & Neumark, 2021; Trompette & Cholez, forthcoming). Sunny Money sees itself filling a social and environmental void, rather than finding an operational niche, but it recognises that the market has changed and that its prominence on the international stage has diminished.
This is in keeping with the more recent literature (for example Munro et al., 2022). Furthermore, the focus of many other organisations appears to have moved towards the scale of investment, much of it provided by equity, debt and some philanthropic investments made, for the most part, by European and North American companies that saw huge potential in the burgeoning PAYG business model (Alstone et al., 2015; Lighting Global, 2016; Clowes et al., 2019):

“I was working at GOGLA and no one was talking about Sunny Money [any more]. That’s old news. They used to...now it’s more like what are Green Light Planet [doing]? They’ve just had 60 or 80 million dollars in...private financing...it’s private companies making announcements...But ... how many of them are actually going for that lowest part of the population?” (AA)

As the quote below illustrates, this appears to have reinforced Sunny Money’s drive to remain focused on the BoP:

“And…one of the only things... Sunny Money or Solar Aid should be [doing is] justifying its existence, you know, cos they can’t make money out of the poorest people or they’re not prioritising that...reaching last mile...” (AA)

Recognition of the validity of this focus can be found in the couching of it within the wider research on progress towards SDG 7:
“...since that [SDG7] goal was set...research is coming out from the International Energy Agency, the Shell Foundation...[and] everyone seems to be saying that [SDG7 is] gonna be hit in...much of the world but not Sub-Saharan Africa and it’s not gonna be hit by hundreds of millions of people through business as usual...and the assumption is it’s gonna be the hardest to reach people, poorest segment of the population who are gonna be underserved.”

The following quote further illustrates that Sunny Money’s early mission was less refined in terms of its explicit focus on the BoP.

“So, then it’s like ok, well then, it’s those guys we exist for, as opposed to before, it was [more like] everyone...that’s different to what we were thinking six or seven years ago [in 2011/12]...where we thought ok, schools might be really interesting to get markets moving and then build, but we’ve changed our thinking since then.”

(AA)

While reaching those people living in energy poverty and using kerosene has always been a feature, it appears that the organisation was less concerned about a unique BoP focus, especially when the market was still relatively nascent and it was innovating towards improving its business model. The more recent evolution of its mission reflects changes amongst its competitors but also the continuing scale of the challenge for people living at the BoP, for example:
“Now it’s like…everyone’s gonna be met but those guys aren’t. So…it’s that segment that we need to work for. And so, is it a case of is our mission evolving? Well subtly, it kind of is. (AA)

However, there is also recognition that such a specific focus makes attainment of an economically viable business model more difficult, as illustrated:

“…but it’s very difficult to make a business model out of it.” (AA)

The above quotes originate from the time that the incumbent Chief Executive was taking up his new post in SolarAid/Sunny Money, returning after a sabbatical from it. Although they all come from one individual, he is the most influential member of staff and the impressions he has formed, both during his time working with Sunny Money, but also while working at GOGLA and witnessing changes in the “quality-certified” solar landscape, seem to have led to a shift in the focus of Sunny Money’s ‘revised’ business model. As a result of this renewed focus, the organisation has been developing a number of new initiatives aimed at targeting the BoP, and at addressing its recognition of the waste that is created by solar products. These are now presented, using both primary and secondary data sources.

4.2.4.2 BMs and pilot innovations for the future

Since 2018, the organisation has begun to introduce a variety of new initiatives aimed at reaching the poorest people living in the most remote areas. Light Libraries, first piloted in Senegal, are being introduced in Zambia and Malawi. This scheme “is like a book
library but for solar lights where a family can rent a solar light for less than 1p per day.” (Annual Report & Financial Statements, 2018/19, p. 9). In addition to supporting the poorest families it acts as a “try-before-you-buy” incentive (ibid.).

Two entirely new schemes are being piloted in Malawi, known as Project Switch and Light a Village. Both are being piloted in single villages. Mandevu village, in which Project Switch\textsuperscript{16} is being trialled, has its own solar charging station which allows an agent to provide solar lights for rental, for outright purchase and under rent-to-own schemes (Annual Reports and Financial Statements from 2018/19 to 2020/21). Light a Village will pilot provision of free solar lights to all 500 homes in a village. Thereafter, each house will have to “pay for their energy usage on a pay-as-you-go basis.” (Annual Report, 2020/21 p. 15). According to email correspondence with the Chief Executive, Project Switch is funded entirely by supporter donations from members of public, i.e. unrestricted grants.

In Zambia, Sunny Money is piloting an electronic waste repair scheme (SolarAid Tackling Solar E-Waste, 2021) and the development of an associated app for mobile phones (Figure 61). This work builds on PhD research that started in 2015 (SolarAid website archive, 8\textsuperscript{th} August, 2016) as well as other research into e-waste (for example Cross & Murray, 2018).

\textsuperscript{16} Project Switch launched in Malawi | SolarAid (solar-aid.org)
Along with the mobile app, a printed manual has been produced, to help customers and technicians to troubleshoot problems with solar lights and assist repair (Annual Report, 2020/21; SolarAid Tackling Solar E-Waste, 2021). The organisation has, for the last three years, been “awarded [one of] the Global LEAP e-waste challenge award[s]” to finance, pilot and promote efforts to extend the life of solar products with a view to reducing e-waste associated with solar technologies (McCloskey, J., SolarAid website archive, 2019). The funds, being a total of £72,442 in 2019/20 and £76,026 in 2020/21 (SolarAid Financial Statements, 2019/20, 2020/21) associated with this award are restricted in nature and come from a multi-donor platform.\footnote{Solar E- (efficiencyforaccess.org)} Further innovations in Zambia have seen the organisation return to the provision of solar lights and technologies for health centres.
and clinics, funded through restricted grants from FCDO and the Churches Health Association of Zambia (Annual Report, 2020/21), as well as distribution of more than 4,350 solar lights and charging systems to support Covid-19 vaccination centres in Malawi and Zambia, in partnership with national ministries of health. Though delayed because of Covid-19, a new subsidy model is due to be piloted in Zambia once the country has begun to recover from Covid-19, as part of which end-users will receive subsidies and the organisation will “be testing this…much talked about concept…by piloting and scaling up a subsidy model.” (Annual Report, 2020/21, p. 15).

Four other innovations deserve particular mention. One of these is the attempt to achieve national coverage of Malawi through a network of 46 super agents, each of which supports and works with other agents. To date, 17 super agents have bought into the scheme, investing their own money. Also, in Malawi, Sunny Money has established the country’s first energy cooperative, which allows agents and other entrepreneurs to buy solar stock, and to access loans at 50% of the cost of other micro-finance schemes in the country (Annual Report 2019/20). Additionally, in making its model open-source, Sunny Money supported Oxfam to replicate a solar schools’ programme in Sierra Leone (Annual Report, 2018/19). Finally, Sunny Money is planning to pilot a subsidy scheme in Zambia, as highlighted in Figure 62 from its 2020/21 Annual Report:
SUBSIDY AS A BUSINESS MODEL

Recognising that low income households struggle to afford solar lighting, we plan to test the use of subsidies in Zambia, to see if lower retail prices for entry level lights can help overcome the finance barrier which prevent many from being able to own a solar light. Solar lights will be treated as a loss leader, after which we will then work to bring households up the ‘energy ladder’ so that they can access greater levels of solar light and power.

Source: SolarAid/Sunny Money Annual Report 2020/21, p. 23

With the result that the following message (Figure 63) from the organisation’s Chairwoman suggests that the focus on reaching the most disadvantaged members of society is more firmly embedded in Sunny Money than it has ever been.

Figure 63. Part of the message from the new Chair of the Board of SolarAid

With solar enterprise now taking off in major African markets, our mission has shifted to centre around those with least access to energy; to those most disadvantaged, who continue to face danger from darkness and unsafe alternatives. We continue to believe in a social enterprise model, creating decent work and sustainable interventions, but we recognise that the hardest to reach will remain in the dark without further innovation. Although the idea is simple enough, implementing it will be hard. We choose to do the difficult.

Source: Annual Report & Financial Statements 2020/21, p. 3

This concludes the presentation of the findings from the primary data, which were preceded by findings identified during analysis of secondary data, though there is overlap between both data types in some of the sections presented. The next section fully
discusses these findings relative to the literature reviewed in Chapter 3, in relation to Sunny Money.

4.3 Discussion

Maintaining the structure of the findings presented thus far, the discussion is presented in order of each of the three themes revealed in both the reflexive thematic analysis (Braun & Clarke, 2021, identified in Chapter 3 on pp. 217-219 and the above findings (see Sections 4.1-4.2.4, pp. 226-334). It begins with section 4.5.1, attending to Theme One, and Research Objective Two, namely a critical analysis of emergent ecosystem challenges. This is followed by discussion of SBMIs adopted by the organisation, relating these to Theme Two, and the case study enterprise’s innovations to deliver social value (Schaltegger et al., 2012; Boons & Lüdeke-Freund, 2013). A business model archetype is included within the section, based upon use of the Business Model Canvas developed by Osterwalder and Pigneur (2010). Section 4.5.3 discusses future facing BMIs, thus contributing to Research Objective Three and Theme Three. With regard to discussion of Research Objective One, the undertaking of a longitudinal case study, is implied throughout the entire section because historical, contemporary and future-facing innovations, couched within the ecosystem in which the organisation operates, have all been studied as part of a longitudinal study.

4.3.1 Emergent ecosystem challenges

The factors discussed below were identified courtesy of the supplementary data. The initial focus is upon the legal status of the organisation and the ways in which decisions taken regarding an organisation’s status can significantly help or hinder its functioning
(Battilana et al., 2012; Teasedale, 2012). This is important in light of the relative paucity of evidence regarding the legal forms adopted by social enterprises operating in SSA (Holt & Littlewood, 2015; Kolk & Rivera-Santos, 2018). Thereafter, resource acquisition and management strategies are discussed, also essential for an organisation’s survival and independence.

4.3.1.1 Legal status

By virtue of its use of both charitable and limited liability company statuses, as well as its use of commercial, philanthropic and voluntary income, SolarAid/Sunny Money can be considered a hybrid social enterprise (Battilana et al., 2012; Doherty et al., 2014; Ebrahim et al., 2014; Margiono et al., 2018).

Several operational impacts arise as a result of SolarAid’s structure and legal registration. In the country in which SolarAid is headquartered, the UK, it needs to correctly record all of its UK and overseas consolidated activities as being charitable in order to benefit from the UK’s tax exemptions and in order to be able to reclaim gift aid. In addition, it needs to be familiar not only with the UK’s laws, which are relatively well publicised and understood and which, scored highly in terms of ease of doing business (World Bank, 2020), but also with the regulations in each of the overseas countries in which it operates, all of which have traditionally recorded low scores in terms of ease of doing business (World Bank, 2020) and are considered to have complex ecosystems in which social enterprises must operate (Navarette Moreno & Agapitova, 2017; Richardson et al., 2020). Linked to both of these points, it should be recognised that the establishment of each of these entities, particularly the overseas ones and the annual process of correctly managing
audits and tax returns, is time consuming, complex and resource intensive (ibid.). This may be a drain on senior managers, detracting them from other operations, and may act as a further deterrent to potential new entrants to the market.

SolarAid/Sunny Money’s apparent non-adoption of the UK’s CIC status begs the question “why not become a CIC?”. This may be extrapolated to other countries that have also sought to create organisational forms to encourage social entrepreneurship, e.g. the USA, in which statuses such as Low-Profit Limited Liability Company, Flexible Purpose Corporation and Benefit Corporation have all been introduced (Kerlin, 2010; Battilana et al., 2012; Battilana & Lee, 2014; Doherty et al., 2014). Non-adoption of one of these statuses by organisations that operate in a country with a context (Austin, 2006; Kerlin, 2010; European Commission, 2020) or an ecosystem (Navarette-Moreno & Agapitova, 2017; Richardson et al., 2020) that is designed to support social enterprises may indicate several things. Firstly, and perhaps most simply, organisations established prior to the introduction of such forms may be unaware of their existence (Defourny & Nyssens, 2008). That, in and of itself, would suggest scope for governments to improve awareness of such initiatives. Alternatively, organisations may be aware (whether or not they were established prior to government introduction of the initiative) but may not be attracted because of perceptions that the new status affords fewer benefits than existing and continued use of dual status (e.g. limited company and charity).

In some cases, the reverse may also be partially true, as illustrated by some of the other companies that work in the solar sector in SSA. Reference to the notion that many registered companies working in the solar sector identified as being “social enterprises”,
enabling them to provide financial returns to investors while expressing care for the environment (Munro et al., 2022), and making reference to “last mile distribution” (GOGLA, 2020), suggests some organisational benefit to adoption of the virtues of being a social enterprise and/or adoption of the status. Specifically, many of these companies secured millions of dollars of equity and debt investment (Alstone et al., 2015; Clowes et al., 2019; Lighting Global, 2020), primarily for their PAYG BMs, and principally from companies based in Europe and North America (Trompette & Cholez, forthcoming). As the concept of the social enterprise is well understood in the European and North American countries (Teasedale, 2011; Doherty et al., 2014) in which most of the investors are based, there appears to be merit in adopting such a status, or set of principles.

However, this suggests a potentially worrying scenario. If, as the literature and the empirical data suggest, adoption of the term “social enterprise” and/or the virtues associated with use of it as an idea facilitate investments that remain predominantly economically motivated or in which the economic bottom line will always trump any social or environmental bottom line (Elkington, 1997), then the broad umbrella of organisations classed as social enterprises (Ridley-Duff & Bull, 2016; EU, 2017; Government of Ireland, 2019) may inadvertently reinforce structural inequities and social injustices (Kumar et al., 2019; Sovacool et al., 2019). Put another way, if investors are drawn to companies that are producing good quality solar (or other renewable) products, which help the environment, but whose target audience is (or becomes) the more middle class, then those living at the BoP (Lappeman et al., 2019; Dembek et al., 2020) and least able to afford such products will remain underserved or left behind, as has recently been suggested in the solar sector in SSA (Jacome & Ray, 2018; Cross & Neumark, 2021;
Groenewoudt & Romijn, 2022). By extension, this could apply to any type of organisation seeking to innovate towards a more SBM (Bocken et al., 2014; Geissdoerfer et al., 2018), whether securing external financing or using internal resources to do so. Regardless of organisation type, it will be easier to recoup the costs of investing in the development of environmentally more sustainable products and services by selling to the middle and upper classes (as illustrated by the entrepreneurs identified by Davies & Chambers, 2018) living in more densely populated areas than it will by selling to the poor, living in remote areas. There is therefore a risk that double bottom line initiatives (environment and economy) reinforce structural inequities (Kumar et al., 2019; Sovacool et al., 2019) and thus fail to address some of the fundamental principles of poverty alleviation (Townsend, 1979; Sen, 1999) that helped enhance global understanding of and efforts to tackle multidimensional poverty (Alkire et al., 2017; Salecker et al., 2020), thus slowing global efforts to tackle SDG7 and other SDGs (UN, 2015).

In a slightly different vein, the adoption of a new organisational form and legal structure may not be designed to afford any, or many, additional benefits because a supportive ecosystem may already accommodate so many organisational forms (Dacin et al., 2010; Ridley-Duff & Bull, 2016; EU, 2017; Government of Ireland, 2019) that its primary function is to facilitate registration for new organisations, but not to penalise older ones already registered under earlier systems. As a result, the change may not be worth the hassle for existing organisations, nor be targeted at them. Adoption of the new form may be primarily limited to organisations that are only just establishing themselves or entering a market, an intentional or unintentional decision by government. The possible reasons for non-adoption of recognised social enterprise status may be applicable not only to
countries that already have supportive ecosystems (Kerlin, 2010; Defourny & Nyssens, 2010), but also to ones that may be in the process of enhancing existing, partially supportive ecosystems (Navarette-Moreno & Agapitova, 2017; Richardson et al., 2020), or designing them from scratch.

For organisations like SolarAid/Sunny Money, that are head-quartered in a country (the UK) that is considered to have a relatively supportive ecosystem (European Union, 2017; Navarette-Moreno & Agapitova, 2017), but that operate and/or have subsidiaries in countries that do not have supportive ecosystems (Navarette-Moreno & Agapitova, 2017; Richardson et al., 2020), there may be a perception and potential discernible benefits in retention of a status that is more universally recognised, such as limited company or charity, even if the ecosystem in the country headquarters is familiar with the term social enterprise. The ability to demonstrate that one’s parent company is a registered charity in the headquarter country may facilitate annual reporting and, e.g. qualification for tax exemptions, in subsidiary countries.

Non-adoption of recognised social enterprise status in economies (developing, emerging or developed) in which there exists no or only limited understanding of the concept of social enterprises (Kerlin, 2010; Richardson et al., 2020) is easier to comprehend. If no such status exists then there is no way of adopting it; if the status exists but brings with it no discernible advantages then, why bother, in much the same way as discussed earlier; if the status exists but is perceived (justifiably or otherwise) to be tinged with a hint of scepticism from certain quarters then again, why bother? For instance, with regard to electricity supply, if private enterprises are prevented from service provision to rural
communities as is the case in Zambia (Navarette-Moreno & Agapitova, 2017), yet that is your primary objective, then to adopt a social enterprise status that might inadvertently raise questions about the legitimacy of your non-profit claims would be foolhardy. Retention of, or dual registration to include charitable status would seem a logical decision in such circumstances.

The reverse is also true, i.e. if social enterprises are recognised, with some form of organisational status that affords certain benefits that cannot be achieved by retention of either or both company and charity status, then it may be more likely to be adopted. In Zambia, the concept of social enterprises is not yet widely understood, but some international donor agencies based in the country have developed funding mechanisms that specifically target social enterprises (Kerlin, 2010). How then, should a social enterprise best navigate the apparent paradox that some international funding is specifically designed for social enterprises, yet within the national context of the country, the concept is poorly understood? One of the implications of this is that if governments and their partners (such as international donor agencies) are seeking to encourage participation of social enterprises, they will need to ensure that all policies are updated and aligned to reflect and accommodate their input.

Whether or not a social enterprise operates within a supportive ecosystem, or has multiple operations in supportive and less supportive locations, there are time and economic resource implications involved in changing status, from whatever the current form(s), to the new form(s). Organisations will not voluntarily incur additional costs without there being associated benefits. Taking this a step further, if organisations are currently able to
get on with what they do, and find themselves mostly able to benefit from exemptions (e.g. tax-exemption for solar products) that are associated with a particular organisational form, then they may very well be reluctant to adopt new organisational forms that would shine the spotlight on them and their operations, if only because of the distrust of government, of legal structures and of authorities (Kistruck et al., 2011; Webb et al., 2013; Parmigiani & Rivera-Santos, 2015) that enforce legislation and associated taxation, sometimes inconsistently, in SSA (Navarette-Moreno & Agapitova, 2017; Richardson et al., 2020). The implications of this include the need for governments and multi-lateral agencies to not only continue to work to create more supportive ecosystems “on paper” but to seek to engender more open and trusting relations with other sectors, and to consistently apply legislation. This is in keeping with the multi-country studies undertaken in SSA by Navarette-Moreno & Agapitova (2017) and by Richardson et al (2020).

4.3.1.2 Resource acquisition

Review of the composition of SolarAid’s finances illustrates several key issues that the organisation needs to manage, but that create tensions for it. First amongst these is the impact of having to manage income from such a diverse set of funders, which can create tensions associated with the management of the expectations of each type of funder (Pache & Santos, 2010; Tracey et al., 2011). Every year bar one, SolarAid has managed at least seven and up to fourteen grants to which restrictions are applied (Table 24, p. 237). Each of these grants, while important, has conditions and reporting requirements that must be met in order for funds to be released. This is time consuming and can be quite complex as different types of funders attach different standards to their reporting
Furthermore, it can detract from the organisation’s primary focus if, as Margiono et al (2017) suggest, conditions of the grant that are imposed by the funder give the funder either a degree of control and/or are not strictly in keeping with the organisation’s core work.

In addition to the restricted grants, SolarAid has consistently secured in excess of £466,000 per annum in terms of funds that are classed as unrestricted. While these represent some of the most useful funds to any organisation (by virtue of their lack of conditionality), time, effort and expertise are also required to secure these funds and to provide, e.g. individual supporters and fundraisers with the information necessary to populate their fundraising pages and to secure donations from friends and family. Furthermore, the organisation needs to maintain a balance between its commercial and social operations, to avoid the potential that its supporters perceive over-prioritisation of commercial interests (Dart, 2004; Dacin et al., 2010; Pache & Santos, 2013). The more time is spent managing the higher proportion of non-commercial revenue, the less time there may be to focus on operational management (Battilana et al., 2012).

In contrast to some of the challenges that arise from management of diverse revenue streams, access to such grants and donations can be critical in ensuring the survival of the organisation in an ecosystem that is hampered by inconsistent application of, e.g. tax laws (Navarette-Moreno & Agapitova, 2017); Richardson et al., 2020), as well as one in which commercial competitors may be able to sell cheaper, “generic” products (Barry & Creti, 2020; Munro & Barlett, 2020), may have more flexibility in their use of funds, and where a large proportion of the customer base lives in multidimensional poverty (Salecker et al.,
(Alkire & Kanagaratnam, 2021) and has very low purchasing potential at the BoP (Kolk et al., 2014; Lappeman et al., 2019; Dembek et al., 2020). A bad year (e.g. in terms of agricultural production) can lead to very limited client purchasing power and therefore significantly reduced commercial income. Grants and donations can help address such shortfalls and would not normally be available to commercial enterprises (Zahra et al., 2009; Doherty et al., 2014). Sunny Money appears to fall into the category of social enterprises (and organisations categorised as third sector non-profits) that have become relatively adept at marketing to a range of different potential sources of revenue (Di Domenico et al., 2010; Battilana et al., 2012), suggesting that “novel [and differentiated] resource acquisition strategies” (Davies & Doherty, 2019, p. 1045) are considered a worthwhile use of time and resources.

Whatever the challenges and tensions associated with securing and managing multiple sources of income, resource acquisition is a major consideration for social enterprises (Dees, 1998; Santos et al., 2015), which seem on occasion to benefit as a result of their status (Zahra et al., 2009; Teasedale, 2010; Doherty et al., 2014), and on occasion to suffer as a result of it (Seelos & Mair, 2005; Austin et al., 2006). If, therefore, investors are sceptical of social enterprises (Doherty et al., 2014; Davies & Doherty, 2019) even in countries with supportive ecosystems, and if commercial enterprises tend more easily to secure private investment (Seelos & Mair, 2005; Austin et al., 2006), then is there not a chance that this would be replicated and potentially more pronounced for investors from countries and ecosystems that are less familiar with and less supportive of the concept? For instance, tax breaks for corporates investing in developed countries might not yet be in place in the same fashion in less developed countries.
In the specific case of the off-grid renewable energy sector in SSA, Sunny Money appears to have bucked a widespread trend by not taking on capital investment, whether debt or equity. As highlighted earlier, there has been a substantial growth in North American and European private investment into social enterprises working in this sector (Cross, 2013; Alstone et al., 2015), reaching over half a billion dollars between 2014 and 2016 (Lighting Global, 2020), and currently standing at over one billion dollars (Clowes et al., 2019; Munro et al., 2022).

While the CEO of Sunny Money appears to have felt that a lack of private investment may have hampered its capacity to grow faster and to deal with being over-stretched in Tanzania, and may have shifted some of the discussions at GOGLA away from Sunny Money and towards the amount of private money being invested into the sector, it appears to have enabled it to retain its focus on the BoP (Prahalad & Hart, 2002) segment (Hammond et al., 2007). In a recent report, GOGLA (2020), identifies that many companies involved particularly in the PAYG solar model, advertise their models as adopting “last-mile distribution” and focusing on “rural” customers. A substantial body of recent research (Barry & Creti, 2021; Cross & Neumark, 2021; Munro & Samarakoon, 2022; Munro et al., 2022; Trompette & Lopez, 2022), however, suggests that these organisations are in fact selling primarily to urban and peri-urban customers. Furthermore, those people living in extreme energy poverty, in rural BoP areas are no longer a target market for many of these companies (Cross & Neumark, 2019) because, as company representatives reported, “[once we] try and go more rural, the daily price is still just too high” (Munro & Samarakoon, 2022, cited in Munro et al., 2022, p.15).
A number of scholars (for instance Jacques & Ray, 2018; Cross & Neumark, 2021; Groenewoudt & Romijn, 2022) go further with their critique of investment into solar companies, many of which branded themselves as “social enterprises” (GOGLA, 2020; Munro et al., 2022). Their critiques revolve primarily around one of the most widely reported tensions faced by social enterprises, namely the hybrid, and often opposing economic and social objectives, and associated potential for mission drift. Jacques & Ray (2018, p. 263) refer to the “cost-recovery goal…[having come into conflict with] human-rights goals [of] access to basic electricity”; Cross and Neumark (2021, p. 912) refer to “something greater than ‘mission drift’…[being] a wholesale change in purpose and values.”; while Munro et al. (2022, p. 19) refer to a “Faustian Pact – giving power to investors who might not share the original mission of their enterprise”. This body of research ultimately highlights that corporate approaches to poverty alleviation based on traditional market forces may not only be inadequate for the BoP, but actually reproduce inequality (Groenewoudt & Romijn, 2022) and structural forms of injustice that affect the very poor (Kumar et al., 2019; Sovacool et al., 2019). With the continued interest in the potential of MNCs/MNEs to help address global challenges (Ritala et al., 2018; Bocken & Geradts, 2020), it is important to be aware of the risks that people living at the BoP (Lappeman et al., 2019; Dembek et al., 2020) can easily be left behind.

While Doherty et al (2014) and Margiono et al (2017) identify that social enterprises can find their activities being influenced by the terms of grants made by government or philanthropic bodies, so it would seem the same may be said for social enterprises that attract more private investment, in the form of equity and debt (Doherty et al., 2014; Jacques & Ray, 2018; Cross & Neumark, 2021).
Having elected not to take on private investment, Sunny Money has had to diversify its revenue generation strategies, including developing a supporter base. However, the challenge with regard to resource acquisition from a public supporter base may be great, particularly in very low-income countries and/or countries in which there is great wealth inequality and only a very small minority of people benefit from high incomes. In developed economies, for instance, public supporters of social enterprises and/or charities tend to have more disposable income, better access to technology to support them (such as online donation platforms, or inbuilt GPS trackers that show their location and progress relative to a particular sporting challenge to raise funds for a “good cause”), wealthier friends and work colleagues, and opportunities to secure crowd funding (Lechner & Nicholls, 2014). As such, it would seem considerably more likely that a social enterprise in a developed country would be able to secure unrestricted donations, social investment and crowd-funding than a similar social enterprise in a developing country, especially one that is among the Least Developed Countries and/or most unequal. An interesting avenue for research would be the extent to which social enterprises in developing countries are able to tap into remittances from friends and family working in wealthier economies.

In terms of the composition of income sources, restricted grants have comprised between 11% and 44% of total income over the last seven years, with revenue from commercial sales and unrestricted donations comprising the remainder. As such, SolarAid/Sunny Money could be classified as a Type 3 hybrid Figure 14, p.142 according to the logic proposed by Margiono et al (2017) with regard to resource dependency. As a Type 3 hybrid, it would enjoy predominantly private funding and private control, while operating
an efficiency-centred configuration. However, in contrast to the Type 3 hybrid focus on lowering transaction costs and, therefore, not supporting the very poor and disadvantaged (ibid.), Sunny Money explicitly focuses upon the poorest and most difficult to reach. This characteristic is in keeping with the Type 2 hybrid proposed by Margiono et al (2017) and as such may challenge the customer reach proposed for each type of social hybrid.

Furthermore, with regard to revenue, it is worth nothing that the relative proportions of each income type have shown considerable temporal variation, with commercial revenue having fallen the furthest in both monetary and proportional terms. Given the variations shown across income streams, it would seem plausible for organisations to move between hybrid classes in order to adapt and survive. It also seems possible that organisations can combine characteristics from different hybrid types, suggesting perhaps that each class (e.g. as proposed by Margiono et al., 2018, but also by Ebrahim et al., 2014 and Santos et al., 2015) should only be considered as a general descriptor rather than having fixed parameters.

4.3.1.3 Implications of labour force limitations

In terms of personnel, labour markets in all the East and Southern African countries in which the organisation has worked show educational and professional limitations that are consistent with business management and social enterprise literature (e.g. Rivera-Santos et al., 2015; World Bank, 2017; Richardson et al., 2020), literature on multidimensional poverty (e.g. Alkire & Santos, 2014; Robles Aguilar & Sumner, 2020; Nájera Catalán & Gordon, 2020), as well as BoP literature (e.g. Hammond et al., 2007; Lappeman et al., 2019; Dembek et al., 2020). Publicised personnel challenges associated with social
enterprise status even in countries in which there is a supportive ecosystem (Battilana et al., 2012; Battilana & Lee, 2014) seem to have affected Sunny Money, with the Chief Executive considering this to be their biggest challenge and others confirming the problem.

In addition to the above limitations associated with poor levels of education and limited formal employment opportunities (Rivera-Santos et al., 2015; Richardson et al., 2020), if society and the most well recognised economic sectors (public, private and third/non-profit) remain relatively unfamiliar with the concept of social enterprise (Kerlin, 2010), then challenges of recruitment will continue, both because prospective employees may be reluctant to join a relatively unknown organisational status (given that it may be associated with lower job security given the lack of familiarity with its status), and because it already proves difficult to recruit people whose professional expertise straddles both private and non-profit (Battilana et al., 2012; Battilana & Lee, 2014). As a result, social enterprises may continue to suffer in their recruitment and retention of talented individuals, thus hampering their relative ability to develop, innovate and expand.

4.3.1.4 Implications of poor infrastructure

The findings presented are consistent with the literature regarding poor infrastructure (Bloom et al., 1998; Kistruck et al., 2013) and associated higher transport costs for those living and working at the BoP (e.g. de Soto, 2000; Hammond et al., 2007; Mason & Chakrabati, 2017), and there are several implications for SolarAid/Sunny Money. In the first instance, road conditions mean that it can take a long time to reach sites, in particular schools, in which sales of lights have been arranged. The longer the time taken, the greater
the cost in terms of payment of Daily Subsistence Allowance for staff in the field, and the longer they are out of the office and unable to conduct other business. The lower the population density and larger the country, the greater these costs become. Additionally, the poorer the quality of the roads, the more expensive it is to operate vehicles and the greater the costs associated with their repair. Conditions such as these have been identified by solar companies with private investment as “yielding higher than expected operating costs…for serving customers…in these geographies” (Clowes et al., 2019, p.21) and have contributed to their focus on urban and peri-urban populations (Barry & Creti, 2021; Munro & Samarakoon, 2022; Trompette & Cholez, forthcoming).

The greater the distances travelled and the more challenging the conditions encountered, the higher is the likelihood of an accident. Accidents have direct consequences on the individuals involved in terms of their health and safety, as well as on the organisation. More time, effort and resources need therefore be invested in identifying competent drivers and developing good health and safety procedures and policies. However, regardless of the measures that an organisation might put in place for its own employees, the quality of the roads and the competence of other road users are factors beyond its control but with direct bearings on the health and safety of staff.

Transport of lights across multiple borders, particularly for landlocked countries such as Malawi and Zambia, has a number of implications associated with this sort of multi-country ecosystem. Cross-border disagreements and strikes can be very difficult to foresee but the resultant delays can negatively affect an organisation’s ability to meet demand from and establish credibility with clients, be these individuals or organisations
that may be awaiting orders, in bulk or in smaller quantities. Furthermore, where products are transported across several countries in which tax exemptions should align and be enforced, there can be additional delays in securing those exemptions. Finally, the longer distances, the greater the likelihoods of accidents, vehicle break down, theft and demand for bribery, all of which have economic consequences and/or can further damage organisational reputation.

4.3.1.5 Implications of widespread poverty among target customers

Widespread multidimensional poverty (CSO, 2016; Nájera Catalán & Gordon, 2020; Alkire & Kanagaratna, 2021) means that prices must be kept very competitive. The seasonality of people’s income can lead to irregular commercial revenue generation (Hammond et al., 2007). External factors, such as tardy implementation of government food subsidy schemes can exacerbate the seasonality of commercial revenue. Significant changes in rainfall can affect a large portion of the client base, when 80% or more are smallholder farmers, with the result that there is even less disposable income in the rural BoP (Chikweche et al., 2012; Kolk et al., 2014; Lappeman et al., 2019; Dembek et al., 2020). Additional external factors such as currency fluctuations, price shocks and high inflation, all present significant challenges for anyone running a business that relies on global supply chains and involves international currency exchange. However, these factors also present a very significant challenge at the point of sale – if the relative cost of the product doubles, it becomes more of a luxury item for vulnerable customers living at the BoP (Chikweche et al., 2012; Lappeman et al., 2019), especially when cheaper alternatives exist (e.g. firewood and dung) (Ozughalu & Ogwumike, 2019). In order to capitalise on the seasonality of income, it is also vital that products are available at the
time that the client base is able to afford them. The long lead time between lights being bought from China and arriving at the organisation’s storage units in SSA, means that one or more external factors may have arisen that could lead to the majority of the client base no longer having the means to afford the lights. As a result, the organisation could find itself with an excess of lights that it is unable to sell, until conditions improve. The longer lights are kept in storage, the more likely faults will arise and the more warranty time is lost, unused.

4.3.1.6 Competition from generic products

In addition to BoP customers potentially choosing traditional sources of energy such as dung and firewood (Nussbaumer et al., 2012; Sovacool et al., 2012; Ozughalu & Ogwumike, 2019), there has been a huge increase in the penetration and availability of “generic” pico-solar lights, which has generated cause for concern among those operating in the sector (Lighting Global, 2020; Trompette & Cholez, forthcoming). These are not quality-certified by Verasol, are often sold more cheaply, appear in some places to achieve greater geographic penetration, and despite concern among the producers of certified products, may be of equal or better quality (Grimm & Peters, 2016; Bensch, 2018; Trompette & Cholez, forthcoming).

During the primary research in Zambia, it became apparent that such products were becoming increasingly available and posed some competition, with several of the lights having been seen by field agents and having adopted copycat designs. The Country Director reported that staff had tried to photograph some of these products but the owners were unwilling to have them photographed. Although this is not discussed in great detail
in the findings, such products are considered to represent over 70% of the pico-solar products sold (Lighting Global, 2020), and thus are likely to continue to represent competition particularly when incomes are limited for people living at the BoP and where product quality may be comparable.

4.3.1.7 Inconsistent application of taxation

Whether or not policies are consistent, the manner in which they are applied also has a bearing on the attractiveness of a country’s market and associated ecosystems (Parmigiani & Rivera-Santos, 2015). The inconsistent application of tax and import duties on entry level solar lights, while not unique to SolarAid, is likely to deter organisations from investing in low-income countries and/or make operations very challenging (Parmigiani & Rivera-Santos, 2015; Navarette-Moreno & Agapitova, 2017; Richardson et al., 2020).

Not only might this deter potential investors, but it also has implications for those organisations that decide to enter or remain in a market. For instance, how best should one approach the possibility of retrospective application of taxes on products imported and sold two years earlier? Is it better to factor tax into the projected costs of products as the Chief Executive reports that some organisations have done? Or is it preferable to hold in reserve a certain amount, in anticipation that tax may be applied? If the latter option, tax for which year(s) and on which of the products that have already been approved as being exempt of tax and import duty? To include tax within the cost of lights runs the risk of pricing them out of the reach of the poorest members of society. To set aside sufficient monies for potential retrospective taxation requires the organisation to maintain sufficient reserves based on best estimates. This, in turn, prevents that money from being invested
in other areas, such as innovation, staff development or expansion. For smaller organisations, or those without financial reserves, backdated tax bills could lead to financial ruin. Alternatively, some organisations may seek to pay bribes, or find illegal ways of avoiding paying taxes, which in turn may create and/or propagate a culture of corruption. Whatever potential course of action, inconsistent or ambiguous application of policies engenders greater ambiguity and distrust in the rule of law (Webb et al., 2013; Littlewood & Holt, 2015; Parmigiani & Rivera-Santos, 2015), leads to potential organisational failure, and is illustrative of the challenging ecosystems which are symptomatic of East and Southern Africa (De Soto, 1989; Navarette Moreno & Agapitova, 2017; Littlewood & Holt, 2018; Richardson et al., 2020).

4.3.1.8 Dealing with corruption

Corruption at the aggregate level is harmful for the economic growth and development of a country (Williams & Kedir, 2016). Beyond the financial implications of corruption, whether internal or external, there are several other factors to consider. For instance, unwillingness to pay external demands for bribes can lead to the processing of products being held up, which can have a knock-on effect on the ability to meet delivery times. There may also be security risks associated with non-payment of bribes. Staff can become very demoralised by the consequences of corruption, particularly if it is internal to the organisation, and the development and implementation of anti-corruption whistleblowing measures can be time-consuming and difficult. Lastly, accusations of corruption at an organisational level can damage organisational reputation and can lead to criminal investigations as well as withdrawal of investments.
4.3.1.9 Management of a hybrid organisation across complex ecosystems

Despite the challenges of operating in such diverse environments, review of the empirical findings under Theme One suggests that Sunny Money has managed to survive by showing resilience (Littlewood & Holt, 2018), adapting to the conditions and circumstances in which it does business, and by making the most of opportunities in different countries. Examples of this include its success in navigating multiple ecosystems (Navarette-Moreno & Agapitova, 2017) and in creating a consolidated family of subsidiaries, its success in juggling income of different types and from different sources (Teasedale, 2011; Doherty et al., 2014), and its ability to sell lights to an economically deprived customer base living at the BoP (Prahalad & Hart, 2002; Dembek et al., 2020). Adapting to such circumstances takes time, exposure, resilience (Littlewood & Holt, 2018), innovation (Holt & Littlewood, 2015) and creativity.

Despite its ability to survive, review and categorisation of the challenges encountered by Sunny Money in operating in SSA suggests a very limited sphere of influence over many of the factors identified. This is due in part to the target client base (poor, rural smallholder farmers for the most part), but primarily to the external factors affecting the client base, namely widespread poverty, precarious weather patterns, inconsistent and delayed payments (from the FRA in Zambia’s case), the impacts of currency volatility, as well as poor education and skills levels. Figure 64 seeks to represent these factors, categorising them as either internal or external, and attributing to each a sphere of influence ranked as either low or high.
Figure 64. Internal and external factors and Sunny Money’s degrees of influence upon them

<table>
<thead>
<tr>
<th>Internal factors – low influence</th>
<th>Internal factors – high influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff temptations in face of internal and external corruption pressures</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>External factors – low influence</th>
<th>External factors – high influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff skills at point of recruitment</td>
<td>Vehicle safety</td>
</tr>
<tr>
<td>Agent skills at point of becoming an agent</td>
<td>Planning for seasonality within global supply chain</td>
</tr>
<tr>
<td>Road conditions and other drivers</td>
<td></td>
</tr>
<tr>
<td>Currency volatility</td>
<td></td>
</tr>
<tr>
<td>Erratic rainfall</td>
<td></td>
</tr>
<tr>
<td>Delays in payment by Food Reserves Agency</td>
<td></td>
</tr>
<tr>
<td>Poverty of rural smallholder farmers as key customer base</td>
<td></td>
</tr>
<tr>
<td>Competition from generic products</td>
<td></td>
</tr>
</tbody>
</table>

Source: author’s categorisation.

Operating in conditions in which one has such a limited ability to influence external factors can be a major deterrent for potential new entrants. Organisations such as Sunny Money could choose to adjust their client base in order to focus on more profitable households, such as middle-class households in more urban areas, as others have done (Barry & Creti, 2020; Cross & Neumark, 2021; Groenewoudt & Romijn, 2022). This would significantly reduce and/or eliminate several of the external factors over which they have limited influence – impacts of erratic rainfall, delays in payment by bodies such as the FRA, endemic poverty levels in rural areas, and some challenging road conditions. However, that is not something that Sunny Money is currently willing to do, choosing to “sacrifice financial returns” (Holt & Littlewood, 2015, p. 107) and instead target those people living in more remote areas and in rural multidimensional poverty (Alkire et al., 2017; Robles Aguilar & Sumner, 2020). This is reflective of their social, environmental
and sustainably-driven mission, as well as their use of BMIs (Foss & Saebi, 2017), which are discussed next. Their continued focus on reaching people living at the BoP (Lappeman et al., 2019) and in rural areas is in stark contrast to the “corporate-led market-based model” whose reliance on private investment is questioned and/or considered to be “inadequate to serve the poorest and rural populations” (Jacome & Ray, 2018; Conway et al., 2019; Cross, 2019; Cross & Neumark, 2021; Groenewoudt & Romijn, 2021, p. 39; Munro et al., 2022).

4.3.2 SBMIs for poverty alleviation

Moving to discussion of Theme Two, this section comprises eight subsections, including discussion of Sunny Money’s move from macro to pico-solar, its adjustment from aid to trade-based revenue, decisions to move away from manufacturing and assembly, to focus on distribution, process-related innovations, as well as internal tensions that have arisen from over-reaching. It also discusses attempts to re-engage with product manufacture, as well as the challenges posed by competitors.

4.3.2.1 From community centred to household centred SBMI

In its 15-year history, SolarAid/Sunny Money has adopted two very different BMs (Teece, 2010). The first was premised upon the use of restricted grant funding provided by international donors to support installation of medium-large “macro-installations” on community buildings, the idea being that these would provide a central location for people to have access to a well-lit, shared venue that could be used for a range of purposes. This BM is best described as a traditional aid-NGO model. It could be considered a SBM by virtue of its provision of “measurable ecological and/or social value in concert with economic value” (Boons and Lüdeke-Freund 2013, p.13; Goni et al., 2020; Ferreira et al.,
Although the funds required to install and maintain the systems were not commercially generated but provided as restricted grants, there were plenty of donors willing to support this model and the users of the facility benefited socially, on occasion economically, and environmentally insofar as the energy source was renewable.

Despite its ability to secure restricted grant funding and to provide communal access to well-lit venues, Sunny Money innovated and undertook a “designed, novel [and] non-trivial change” (Foss & Saebi, 2017, p. 201) to its BM for a number of reasons. The technology employed in the “macro-installations” was fast becoming outdated and was costly to install and maintain. In addition, there was a realisation that people using the community venues were still returning to homes that were only lit by candles, wood, dung or kerosene lamps (Ozughalu & Ogwumike, 2019), thus hindering more productive use of time and endangering health (Bond et al., 2013; Lam et al., 2013).

These two reasons suggest that the BM for macro solar, while partially sustainable, needed upgrading in order to offer better value to domestic customers, to keep pace with technological advances, and to try alternative means of generating revenue, all in keeping with moving towards a more SBM (Bocken et al., 2014; Geissdoerfer et al., 2018). This illustrates the need to continually seek to innovate, sometimes incrementally and sometimes in more radical or transformational ways (Weerawardena & Mort, 2012; Dwivedi & Weerawardena, 2018), even where products and services already offer social and environmental benefits. Finally, individual solar lights were being piloted both by Sunny Money itself, and by Chinese manufacturers. Sunny Money therefore took the decision to see out its contractual obligations on the older “macro-installations” and to
completely cease operating via a traditional-aid NGO business model. It sought instead to focus on becoming a social enterprise that provided lights for use in the home. This was considered a brave move, that, according to the Chief Executive, resulted in a number of staff whose thinking was more in tune with the traditional “aid” model electing to leave the organisation, which is in keeping with findings by Battilana et al (2012), Liu & Ko (2012) and Doherty et al (2014). Those who remained were either more attuned to the social enterprise model, were willing to give it a go, and/or possibly had no alternative employment options.

4.3.2.2 From aid to trade

In opting to become a social enterprise, in choosing to sell lights rather than install them via aid money, and in moving the focus of the product from a community structure to that of a homestead, Sunny Money undertook a significant BMI on the basis of the changes being “designed, novel [and] nontrivial…to key elements of [the] firm’s business model and/or the architecture linking these elements” (Foss & Saebi, 2017, p. 201). Furthermore, given that the move from macro to pico lights was in part intended to address health and safety at home rather than in a community structure, the move also sought to “overcome barriers to…product [and] service innovations” (Boons & Lüdeke-Freund, 2013, p. 13) thus qualifying as a sustainable business model innovation (SBMI), or a business model innovation for sustainability (BMI4S) (Bocken et al., 2014).

4.3.2.3 From manufacture/assembly to distribution

Under the new BM, Sunny Money sought to innovate in product development, through its assembly units in Kenya and Malawi. However, it quickly recognised that it could not
compete with Chinese manufacturing expertise, so moved from a product focus to service innovations targeted at delivering sustainable value propositions (Boons & Lüdeke-Freund, 2013; Bocken et al., 2014). These innovations remain in the scope of SBMIs because: the lights are powered by renewable energy thus “significantly reduc[ing] negative impacts for the environment” (Bocken et al., 2014, p. 44); over a period of a few months, clients save the money that would otherwise be spent on kerosene, candles and battery torches (all of which have short lifespans) thereby “creating positive effects for…society (Schaltegger et al., 2016, p. 3); and, clients further benefit from improved health as a reduction of inhaling kerosene and candle smoke (Lam et al., 2013; Bond et al., 2013). An important lesson for practitioners emerges herein, namely the benefit of knowing when to move aside (in this case for Chinese products) in order to channel energies into areas that are better suited to an organisation’s presence (in the target countries) and skillset.

4.3.2.4 Process innovation and achieving scale

Having found that the Chinese pico-solar lights were proving popular among clients, Sunny Money felt it had “hit on a model” and sought to replicate it in all four countries in which it then operated. The majority of its success seems to have been due to its creative use of service delivery and its desire to constantly offer what it considered to be the best quality products on the market, targeted at people living at the “last mile”. In adopting such a model, it has consistently placed a premium on the creation of social value (Schaltegger et al., 2012; Boons & Lüdeke-Freund, 2013), with environmental value (ibid.; Abdlekafi & Tausher, 2017; Evans et al., 2017) being considered intrinsic by virtue of the use of renewable energy. The model created economic value, as can be seen by the
amount of commercial revenue generated, but this would seem to have been a secondary consideration and one that required support from other sources of income. The creation of social value, environmental value and economic value third would, therefore, be classified as a SBM as identified in the literature (Hart et al., 2003; Stubbs & Cocklin, 2008; Schaltegger et al., 2012). The new BM led to very good growth in two countries and extraordinary growth in two others.

In keeping with Research Objective Three, to propose a business model archetype for sustainable business model innovation in the energy sector in SSA, Figure 65 presents the following SBM as an ‘archetype’ and does so using the BMC (Osterwalder & Pigneur, 2010) as its foundation. The BM presented relates to Sunny Money’s pico-solar era, rather than either its preceding macro-solar era, or its future facing innovations which have yet to be fully implemented and which may introduce yet further changes to the BM.
### Figure 65. Business model archetype using Business Model Canvas (Osterwalder & Pigneur, 2010)

<table>
<thead>
<tr>
<th>Key Partners</th>
<th>Key Activities</th>
<th>Value Propositions</th>
<th>Customer Relationships</th>
<th>Customer Segments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppliers of pico-solar and SHS systems (including dLight, Greenlight Planet &amp; Omnicrom)</td>
<td>Distribution and sale of pico-solar lights &amp; SHS to key partners</td>
<td>Tiered pricing strategies for purchase of different volumes of lights</td>
<td>Direct customer relationships through schools programme</td>
<td>Base of the Pyramid market</td>
</tr>
<tr>
<td>Schools and teachers throughout the country</td>
<td>Light Libraries – borrowing scheme</td>
<td>Range of quality-certified and affordable products</td>
<td>Indirect customer relationships through agent network</td>
<td>Financially impoverished</td>
</tr>
<tr>
<td>Ministries of Education and Health, as well as regional officials</td>
<td></td>
<td>Widespread geographic availability of products</td>
<td>Indirect customer relationships through partner organisations</td>
<td>Rural and often remote</td>
</tr>
<tr>
<td>Members of the public interested in becoming agents</td>
<td></td>
<td>Product warranties</td>
<td>Direct relationships with agents and with staff in partner organisations</td>
<td>Precarious and seasonally dependent sources of income</td>
</tr>
<tr>
<td>Social enterprises, commercial enterprises, NGOs, churches and other organisations</td>
<td></td>
<td>Repair services by phone and by technician</td>
<td>Indirect customer relationships through partner organisations</td>
<td>Inconsistent income</td>
</tr>
</tbody>
</table>

#### Key Resources

<table>
<thead>
<tr>
<th>Key Resources</th>
<th>Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue from sale of products to customers</td>
<td>Repeat and scheduled visits to schools</td>
</tr>
<tr>
<td>Grant income from government and philanthropic organisations</td>
<td>Indirect sales channels via agents in remote locations, many going to rural villages</td>
</tr>
<tr>
<td>Public donations and sponsorship</td>
<td>Indirect sales channels established by partner organisations</td>
</tr>
<tr>
<td>Personnel, vehicles, key contacts among agents, schools and partner organisations</td>
<td>Limited office sales channels</td>
</tr>
</tbody>
</table>

#### Cost Structure

- **Fixed cost:** product purchase, primarily from China
- **Fixed cost:** product transport – least cost is by sea and lorry. Highest cost is air freight.
- **Fixed costs include:** lockable storage containers, office premises, utilities, personnel salaries.
- **Variable costs include:** fuel, vehicle maintenance and repair, daily subsistence allowance for staff, incentives.
- **Unforeseen costs:** taxation (despite exemption), currency volatility.
- **Economies of scale:** large orders from super-agents, from schools, from partners.
- **Competition from sale of quality-certified and generic, uncertified products.**
- **Competition from free sources, e.g. wood, straw, dung.**

#### Revenue Streams

- **Fixed, but tiered pricing structure.**
- **Direct, upfront capital sales, especially through schools.**
- **Direct, upfront capital sales to agents.**
- **Direct, staggered sales to partner organisations.**
- **Indirect, upfront capital sales, especially via agents.** Often protracted payment periods for the agents, some of which may involve negotiation.
- **Limited PAYG and leasing arrangements.**

Source: Author
4.3.2.5 Overreaching

However, in their desire to see the model taken to scale, Sunny Money’s senior managers aimed to achieve extraordinary growth in all countries. As a result, they may have overlooked other internal and incremental innovations (Weerawardena & Mort, 2012; Dwivedi & Weerawardena, 2018), such as sales through partner organisations. They may also have failed to recognise the extent of competition posed by “generic” products and other competitors selling “quality-certified” products (Barry & Creti, 2020; Munro, 2020; Munro & Bartlett, 2020). They may also have failed to recognise and properly research differences between SSA countries, including the “higher-than expected operating costs [in different countries]” (Clowes et al., 2019, p. 21), the aspirations of people living at the BoP (Clowes et al., 2019; Lappeman et al., 2019; Singh et al., 2022), and the general complexities of working with people living in extreme multidimensional energy poverty (Nussbaumer et al., 2012; Munro & Schiffer, 2019). In targeting a very poor customer base, Sunny Money’s profit margins would always be very small, and according to the Chief Executive, even the largest programmes (Tanzania and Kenya) required financial support in addition to their commercial revenue in order to stay afloat. Much less densely populated locations (Munro & Samarakoon, 2022) and countries could not realistically hope to achieve the same scale in adopting exactly the same BMI. A more nuanced, country-context specific BMI, supported by senior managers may have been appropriate.

Alternatively, even with the introduction of context-specific BMIs, it may be that demographics and levels of poverty would prevent such rapid scaling up in the absence of some form of subsidy.
4.3.2.6 Internal tensions and lack of information

Staff in Zambia demonstrated preferences for what they perceive to be more socially beneficial routes to market over ones considered to provide less social value – schools are considered better than NGO or corporate partners by most staff. This provides two interesting insights. Firstly, the widely publicised (Battilana et al., 2012, Battilana & Lee, 2014; Doherty et al., 2014, Davies & Chambers, 2018) tensions between social and economic values (Schaltegger et al., 2012; Boons & Lüdeke-Freund, 2013) can manifest themselves even when all customers are likely to fall into the remote, rural category, as could be argued for the people to whom agents and organisations such as One Acre Fund are selling. Additionally, there may be internal problems of perception (Dacin et al., 2010; Battilana et al., 2012). Sunny Money staff felt that they know where the lights are going and by whom they are being used when the sale is made to a school pupil and their family. While it may be possible to have a record of that student in ways that are not possible (in the absence of GPS trackers) with sales made via agents or other social enterprises, this should not be confused with sales via the latter being any less valuable, or any less likely to be used by a student for study.

4.3.2.7 Re-engaging with manufacture to support the BoP

It is interesting to reflect on SM’s decision to try to re-enter the manufacturing space (albeit through a form of co-production), after having closed its African manufacturing operations several years earlier. On the one hand, its decision to do so through co-creation of a product reflects its focus on trying to provide an affordable light for the poorest people in society – this could be viewed as a technological innovation driven by its evolving social purpose, as well as recognising that many companies with private
investment were focusing on higher-end and more complex product development, such as solar systems with televisions (Munro et al., 2022), thus leaving behind those people living in the most extreme energy poverty (Sovacool et al., 2019; Cross & Neumark, 2021; Groenewoudt & Romijn, 2022). It may also reflect its first-hand experience of field-testing dozens of products, primarily those manufactured by other companies, and its resultant belief that quality lights could be made cheaper, thus seeking to create a “value proposition [that] provides measurable ecological and/social value in concert with economic value” (Boons & Lüdeke-freund, 2013, p. 13). It was also to have been a mechanism via which to generate a greater profit per light as well as greater brand recognition for Sunny Money itself, potentially demonstrating more economically motivated value creation (Chesbrough, 2007). On the other hand, the lessons learned may suggest that caution should be exercised when seeking to innovate on many different fronts and seeking to do so when in financial difficulty.

4.3.2.8 Increasingly competitive markets

While the two largest overseas programmes were theoretically taken over by other, national organisations, in what could be seen as a positive strategic direction, it is reported that neither is doing particularly well, with one having ceased operations. This may suggest that the markets in which the organisation was operating were already very competitive, or became more so, particularly Kenya. This is in keeping with a huge increase in the number of actors in this sector (see Lighting Global, 2018; Clowes et al., 2019; Ockwell et al., 2019; GOGLA, 2020). Alternatively, it may indicate that the successful management of such a BM was quite difficult, and/or that neither of the organisations that took over from Sunny Money were as able to secure other forms of
income, including unrestricted donations and restricted grants. A number of companies, including large ones such as Mobisol and Barefoot Power, that were considered extremely successful, filed for insolvency in recent years, due to their “inability to convert market share into a profitable enough venture to pay off debts” (Africa Business, 2019; Dizard, 2019; Munro et al., 2022, p. 12) thus providing further illustration of the economic challenges of operating in the sector and/or at the BoP.

4.3.3 Future facing BMIs

Sunny Money has outlined, and part-financed, plans for a number of future-facing BMIs. These include Light Libraries, whose “try before you buy” scheme may help sceptical first-time buyers in the rural BoP to experience the potential benefits of solar systems for the equivalent of 1-2 pence per day, thus hopefully leading to an increase in sales.

Its intention to pilot subsidy schemes as a BM in Zambia is innovative and intended, in perhaps a similar fashion to Light Libraries, to support people to get on the energy ladder (Masera et al., 2000; Heltberg, 2005). Subsidies as a potential mechanism via which to ensure provision of access to electricity for the poorest members of the BoP also feature in recent literature (for example Ockwell et al., 2017; Conway et al., 2019; Cross & Neumark, 2021) and will be an area for future research. With regard to the poverty literature, subsidies may also help address some of the “unrealistic assumptions that underlie the monetary approach [to poverty alleviation] and the workings of the market” (Salecker et al., 2020, p. 551).
Project Switch, due to be piloted in Malawi, takes a different technological and social approach to other ones promoted by Sunny Money. Instead it is based upon seeking to provide electricity to an entire village via a charging station situated within the village, and with options for people to buy, rent, or lease solar lights. Light a Village, also due to be piloted in Malawi, seeks to initially provide free solar lights for an entire village with a view to encouraging people on to the energy ladder, after which it is intended that each household will rent its lighting system.

Although these business models are fundamentally different, there is an element of return to community provision, as seen in earlier macro-installations, but with each home having access to its own light and power rather than each home having access to a shared building in which such access was provided. This would appear to attend to issues of deprivation identified in the poverty literature (for example Townsend, 1979; Nájera Catalán & Gordon, 2020), as well as providing choices (Kukyls & Robeyns, 2004; Thorbecke, 2007) that can enhance people’s quality of life (Sen, 1999). It would also attend to calls from IRENA (2017) for development of BMIs using pico-solar, SHS and mini-grid platforms, with a view to supporting progress towards SDG7 (UN, 2015).

Between them, these four innovations seem also designed to cater to the heterogeneity that is present at the BoP (Laporte, 2017; Lappeman et al., 2019; Dembek et al., 2020), to offer greater choice (Kang, 2014; Hasan et al., 2017; Singh et al., 2022), and to offer lights via a range of mechanisms designed to cater for the different segments within the BoP population (Hammond et al., 2007; Rangan et al., 2011).
Introduction, in Zambia of an eWaste scheme, app and training manual is in keeping with recent research (for example Magalini et al., 2016; Cross & Murray, 2018) into the waste generated by solar systems, though the significance of this problem is likely to increase with time.

Efforts to create an energy co-operative via which agents can access more affordable loans aim to address the burdens created by excessively high repayment rates from microfinance institutions (Navarette-Moreno & Agapitova, 2017), while the proposed creation and recruitment of 46 super-agents able to create national coverage in Malawi may also attend to issues of deprivation (Townsend, 1979). Given the salutary lessons by social enterprises and start-up companies that have found themselves saddled with private investor debt, it will be important that Sunny Money carefully monitors its work with such super-agents, to try to avoid their investments also reinforcing some of the structural energy injustices that have featured in recent research (for example Sovacool et al., 2019; Cross & Neumark, 2021; Groenewoudt & Romijn, 2022).

Following presentation and discussion of the empirical findings, the following section moves to consider the evolving conceptual model, presented in Figure 15, p. 150.

4.3.4 Evolving conceptual model

As illustrated in Figure 15, p. 150, discussion of the findings and enfolding of the literature (Eisenhardt, 1989; Tracy, 2010) suggests that while our understanding of the complexities of poverty and energy poverty have improved, there is a real risk that structural injustices (Kumar et al., 2019; Sovacool et al., 2019; Groenewoudt & Romijn,
2022) in provision of access to affordable, safe and clean forms of energy as part of SDG7 (UN, 2015) will not reach those living in the most extreme energy poverty unless there are concerted and coordinated efforts to explicitly target people living at the BoP in the most remote locations, as a result of which 679 million people are expected to still be living in energy poverty in 2030 (UN, 2022).

No single initiative will be sufficient to address this. However, a number of points emerge from the discussion. Diverse resource acquisition strategies seem critical to the resilience of hybrid organisations and contextual understanding may support the best combination of strategies (Doherty et al., 2014; Holt & Littlewood, 2015; Littlewood & Holt, 2018). Supportive ecosystems can be developed, but require coordination between all actors, national and international (Kerlin, 2010; Navarette-Moreno & Agapitova, 2017). Within hybrid organisations, continuous innovation, both incremental and radical (Dwivedi & Weerawardena, 2018), towards more SBM seems to play a critical part in ensuring that more social value can be delivered, particularly at the extreme end of the BoP (Kolk et al., 2014; Lappeman et al., 2019). Subsidies, such as the ones due to be piloted by Sunny Money in Zambia, to support provision of access to BoP populations may hold potential to better address extreme energy poverty (Cross & Neumark, 2021; Groenewoudt & Romijn, 2022). Continued access to grant-funding and funds raised by members of the public, while offering diverse forms of income, could also be considered a form of subsidy and it may be useful to identify such funding streams in this way. A willingness to make ones SBMs and BM archetypes open-source, in the spirit of sharing of information (Davies & Doherty, 2019; SEA, 2021), may support attempts to address
extreme energy poverty at a wider scale if other organisations can be encouraged to adapt these SBMs with a view to helping to achieve SDG7.

Caution should be exercised when taking on private equity investments that may support BM expansion at the expense of targeting the BoP customer living in extreme energy poverty (Jacome & Ray, 2018; Cross & Neumark, 2021; Groenewoudt & Romijn, 2022). Caution should also be exercised in seeking to exactly replicate SBMs and SBMI between countries because SSA comprises 48 countries (World Bank, 2020) with very varied cultures, population densities, customer aspirations and economic opportunities, and assumptions of direct BM transferability run the risk of failure, particularly with vulnerable BoP populations (Cross & Neumark, 2021; Munro et al., 2022).

Alternatively, or complementarily, for those who consider that MNCs/MNEs are the right vehicles to take to scale initiatives targeting the extreme energy poor, then it may be worth considering introduction of parameters via which they are required to allocate a proportion of their resources to supplying those living in extreme energy poverty (even if they are unable to generate profit from such sales), while concurrently selling to wealthier segments of society. The relative paucity of reported long-term success of MNCs/MNEs operating in BoP contexts (Karnani, 2010; Arora & Romijn, 2011; Simanis, 2012; Hart et al., 2016; Dembek et al., 2020), the reports of barriers to adoption of SBMs (Hart & Milstein, 2003; Stubbs & Cocklin, 2008; Chesbrough, 2010; Zott et al., 2011; Schaltegger et al., 2012; Boons & Lüdeke-Freund, 2013; Evans et al., 2017), and the push from investors in solar companies to target profit-making customers (Barry & Creti, 2020;
Munro & Samarakoon, 2022; Trompette & Cholez, forthcoming) suggests large scale targeting of the extreme energy poor will otherwise not occur.

4.4 Summary

This Chapter presents and discusses empirical research findings in relation to the use of SBMIs that have been adopted in pursuit of the alleviation of energy poverty in SSA. Following a case-context to introduce the reader to the organisation, a presentation of supplementary data regarding the history, legal structure and finances of the organisation is presented. Next, the primary data provides evidence regarding the ecosystem in which the organisation operates, as well as data regarding the various product and process related innovations that have been introduced. This is complemented by presenting findings relating to future-facing BMIs, for which some funding has been secured, but for which there is not yet evidence. There follows a discussion of the findings from the supplementary and primary data in relation to the literature, inclusion of a business model archetype, based upon the BMC that was developed by Osterwalder & Pigneur (2010), and discussion of the evolving conceptual model. The chapter concludes with a summary. Chapter 5 follows and provides conclusions to the research.
CHAPTER 5

GENERAL CONCLUSIONS

5.0 Introduction

Given the importance of ensuring universal access to electricity (Nussbaumer et al., 2012; Vezzoli et al., 2018; UN, 2021), the aim of this research was to advance our understanding of business model innovations adopted by hybrid social enterprises seeking to provide a basic service to people living at the BoP. More specifically, the locus for this research is Zambia, in SSA (see Chapter 1, Section 1.2, p. 9 and Chapter 2, Section 2.3.9, pp. 64-69). Chapters 1-4 have each contributed to the fulfilment of this research aim. In concluding the thesis, this fifth and final chapter offers general conclusions drawn from the study and highlights the empirical contributions that it has made to the field of sustainable business model innovations that may be adopted by social enterprises. Limitations of the research are presented, as are suggestions for further research.

5.1 Research conclusions

This thesis began by highlighting the importance of access to energy for the fulfilment of basic human needs, the advancement of education, health and productivity (Nussbaumer et al., 2012; Vezzoli et al., 2018; IEA, 2021). In so doing, this discussion demonstrated the progress that has been made in the last 30 years in improving access to electricity, but also the difficulties that people the world over continue to face, with a large proportion of households currently living in energy poverty (Chirambo et al., 2018; Jiang et al., 2020; Mahoney et al., 2020; Bouzarovski et al., 2021; UN, 2022) (Chapter 1, pp. 3-4). The value
of undertaking this research is illustrated by the projection that over 750 million people still lack access to any electricity (Alem and Demeke, 2020; IEA, IRENA, UNSD, World Bank, WHO, 2021) and that this number rises to two billion people when factoring in the unreliability of electricity access (Efficiency for Access Coalition, 2019). Given these staggering figures, a multipronged approach with input from social enterprises and businesses is required to try to ensure that universal access is provided by 2030, the target of SDG7 (UN, 2021). To fulfil the overarching research aim, the following research objectives were proposed:

- **Research Objective One:** To provide an insightful, longitudinal analysis of the challenges of establishing sustainable business model innovation in the context of social enterprise in SSA.

- **Research Objective Two:** To conduct a critical analysis of the emergent ecosystem challenges that can support or constrain the development of sustainable business model innovations.

- **Research Objective Three:** To propose a business model archetype for sustainable business model innovation in the energy sector in SSA.

**Research Objective One** is addressed in elements of Chapters 2, 3 and 4, respectively these being the literature review, the methodological approach, and the findings and discussion. Prior to identifying the findings (Chapter 4) from the longitudinal analysis, Chapter 2, Section 2.4, pp. 76-106, attends to the **social enterprise** element of Research Objective One, providing a review of social enterprises, in Europe and the USA, from where most of the literature emanates, as well as from SSA. Section 2.4.1 reviews
attempts to define social enterprises (pp. 76-79), while noting the existence of a large number of definitions (at least 37, according to Dacin et al., 2010), the variations between regions and countries (Kerlin, 2010), and the likelihood that definitions will continue to evolve (Government of Ireland, 2019), before concluding with the convergence upon two central characteristics as identified on p.79, these being firstly the generation of revenue through some form of commercial or trading activity, and secondly the pursuit of social aims (Mair & Marti, 2006; Peattie & Morley, 2008; Doherty et al, 2014; Ridley-Duff and Bull, 2016). Sections 2.4.2-2.4.4 (pp. 79-88) address the scale, impacts and historical evolution of social enterprises, primarily in Europe and to a lesser extent in the USA, these being the two regions in which there is the greatest volume of literature. In Europe alone, the impacts include the creation of hundreds of thousands of jobs and the generation of tens of billions of Euros in revenue (McKinsey & Company, 2016; OECD/EU, 2017) (p.79).

While noting the many positive contributions made by social enterprises, several authors identify tensions that are inherent in the generation of both social value and revenue from commercial or trading activities (Mair & Marti, 2006; Battilana et al., 2012; Doherty et al., 2014; Santos et al., 2015; Davies & Doherty, 2019). These and other authors (such as Ebrahim et al., 2014; Margiono et al., 2018; Dwivedi & Weerawardena, 2018) refer to social enterprises as undertaking hybrid organising, or being organisational hybrids, a concept premised upon the fusion of their two key characteristics. Tensions can arise when one or other characteristic begins to dominate, and when stakeholders feel that the balance is wrong (Dart, 2004; Pache & Santos, 2010; Doherty et al., 2014). Mission drift, for instance, is deemed to occur when too much emphasis is placed upon the generation
of revenue (ibid.). As summarised in Appendix 1, a perceived lack of focus, or ironically, a perception of over-emphasis upon on the creation of social value can lead to internal tensions and the departure of staff who feel uncomfortable with whatever balance is being struck.

Sections 2.4.5 – 2.4.7, pp. 89-106, attend to the SSA part of this RO, namely the context of social enterprise in SSA. Section 2.4.5, pp. 89-90, points to mounting interest in social enterprises in SSA, as illustrated by Ethiopia’s 2019 hosting of the first ever Social Enterprise World Forum in Africa (p. 89). Despite the relative paucity of social enterprise research from Africa, several individual country studies are identified in Section 2.4.6, on pp. 90-92, such as Kenya (Holt & Littlewood, 2018), Nigeria (Ademola et al., 2020) and the most developed, South Africa (Claeyé, 2016). Two important multi-country studies are also identified and provide the foundations for much of the discussion, these being Navarette Moreno & Agapitova (2017) and Richardson et al (2020).

With regard to the longitudinal aspect of Research Objective One, this is first discussed in detail in Section 3.3.3 (p. 177), in which the researcher’s prior (beginning in 2011) association with the case study enterprise is explicated in the spirit of openness and transparency (Tracy, 2010), and in keeping with recognition of the value of sustained periods of engagement in case-study research (Mintzberg, 1979; Guba & Lincoln, 1985; Siggelkow, 2007; Yin, 2018). The nature of and participants in the primary data collection that contributed to this longitudinal study are set out in Section 3.3.4 (pp. 179-184), supported, in Section 3.3.5 (pp. 184-199) and Table 23 (p. 191-199) by explanation of the multiple sources of supplementary evidence that were also made available to the
researcher as part of this study. Chapter 4 provides detailed presentation of the findings of the research, opening with a case study context and elucidation of the history of the case study enterprise, courtesy of supplementary sources. Legal structure, products sold, and sources of revenue are all presented in Chapter 4, sections 4.1.2 – 4.1.4 (pp. 229-247). Presentation of the primary data begins on p. 247 (Section 4.2) and includes detailed descriptions and accounts from a variety of staff, including the CEO, who has worked for the case study enterprise since its inception (with the exception of one year spent on sabbatical). A timeline is included (Figure 46, p. 274) as is detailed analysis of sales performance across different countries and within different sub-national routes to market. Section 4.2.4, pp. 325-334, concludes presentation of the findings with a shorter section on future strategies that the case study enterprise has begun to develop. Three themes emerged from the reflexive thematic analysis conducted as part of the methodology and between them, they offer insights into the historical, contemporary and future-facing strategies of Sunny Money, thus attending to Research Objective One’s aim to conduct an insightful, longitudinal analysis.

**Research Objective Two** sought to conduct a critical analysis of the emergent ecosystem challenges that can support or constrain the development of sustainable business model innovations. Section 2.1 (pp. 19-31) begins with a high level introduction to global poverty and efforts to improve our understanding of and ability to measure it (Sen, 1999; Alkire et al., 2014, 2017; Robles Aguilar & Sumner, 2020; Salecker et al., 2020; Catalán & Gordon, 2020). This is followed by detailed review of poverty at the BoP (Prahalad & Hart, 2002; Hammond et al., 2007) and advances in our conceptualisation and understanding of it (Kolk et al., 2014; Lappeman et al., 2019; Dembek et al., 2020),
including the identification of some general characteristics (London & Hart, 2010; Weidner et al., 2010; Mason & Chakrabarti, 2017; Borchardt et al., 2020) as well as the widespread heterogeneity that is apparent among people living at the BoP (Laporte, 2017; Lappeman et al., 2019; Singh et al., 2022). Elucidation of these traits, both general and individual, is relevant to the challenges of operating in such emergent ecosystems, because low literacy levels, poor access to health care, limited availability of water and sanitation, lack of institutional support, as well as poor infrastructure, all affect the potential customers living at the BoP (Hammond et al., 2007; Martí & Mair, 2009; Kistruck et al., 2013; Borchardt et al., 2020) as well as the organisations seeking to operate there (Dasgupta & Hart, 2017; Lopez-Morales et al., 2020; Dembek et al., 2020).

With regard specifically to ecosystem challenges affecting development of SBMI among hybrid organisations, Section 2.4.6 (pp. 90-92), reviews the challenges of institutional voids (Khanna & Palepu, 1997; Webb et al., 2013; Parmigiani & Rivera-Santos, 2015) as well as the opportunities for social enterprises operating in such ecosystems (Section 2.4.7, pp. 92-95) (Holt & Littlewood, 2015; Navarette-Moreno & Agapitova, 2017; Littlewood & Holt, 2018; Richardson et al., 2020). Pages 96-106 provide an assessment of the ecosystems, environments, or contexts in which social enterprises operate in seven SSA countries that are covered in the multi-country study by Navarette Moreno & Agapitova (2017). All seven countries, but especially Malawi and Zambia, are found to have either unfavourable or underdeveloped social enterprise ecosystems when compared to the UK (which is considered to offer a supportive ecosystem). Commercial loans and those provided by microfinance institutions have prohibitively high interest rates, very few social enterprises are able to attract impact investors or crowd funding, availability
of donor grants varies considerably between countries, and consumers are also unable to afford microfinance loans with which to buy products, all of which present substantial challenges for social enterprises seeking to provide access to energy (ibid.).

In Chapter 4, Section 4.2.1 (pp. 247-268) provides empirical data about the challenges faced by the case study enterprise and its operations within the ecosystem of Zambia, supported by some additional experiences from its operations in other countries in SSA. This includes challenges associated with labour markets (4.2.1.1, p.248-250), constraints associated with poor infrastructure and low population density (p. 250-254), and inconsistent application of taxation (4.2.1.5, pp. 262-265), among a number of other factors that are presented in detail within Chapter 4.

**Research Objective Three** aimed to propose a business model archetype for sustainable business model innovation in the energy sector in SSA. This is achieved as a result of a rigorous literature review presented in Chapter 2. *Energy poverty in SSA* is addressed by first being situated within a global context (Section 2.3.1, p. 46) before review of definitional complexities (Ozughalu & Ogwumike, 2015; Pachauri & Rao, 2020), conceptualisations (Pachauri et al., 2004; Ozughalu & Ogwumike, 2019), binary and multidimensional measures (Nussbaumer et al., 2012; Alem et al., 2020) in Sections 2.3.2-2.3.6 on pp. 47-56. SDG7 and its associated targets are reviewed in greater depth, beginning on page 55, Section 2.3.7, before presentation of disparities between urban (78%) and rural (25%) access to electricity across SSA (Figures 3 and 4, pp. 63-64). Section 2.3.8 discusses the specific case of Zambia, which is broadly reflective of SSA averages, as well as national trends in provision of access to electricity which, while
continuing to be focused on the mining sector and businesses based in urban areas, demonstrates greater government interest in the potential of renewable sources of energy provision (Haanyika, 2008; Bayliss & Pollen, 2021) but also the persistent underinvestment in rural access to electricity (ibid.) as confirmed by the national Living Conditions Survey Report which states that:

“Dating back to the 1990s, levels of poverty have persistently remained above 60 per cent even when the country was experiencing sustained high economic growth. Worse still, the poverty levels in rural areas have consistently been higher than 75 per cent, implying that three out of every four persons in rural areas are poor.” (CSO, 2016, p.99)

Literature from 2016 onwards demonstrates rising interest in the use of off-grid solar technologies as one solution to help advance provision of electricity across SSA, particularly in rural areas in which grid extension costs per capita become prohibitively high for current levels of resource and investment (Adomdza et al., 2016; IRENA, 2016; Nygaard et al., 2016; Orlandi et al., 2016; Warnecke and Houndonougbo, 2016; Barrie & Cruickshank, 2017, Lighting Global, 2020; IEA, IRENA, UNSD, World Bank, WHO, 2021). This assessment/evaluation of the literature is relevant to the energy sector component of RO Three and confirms the contemporary relevance of the current study. The relevance of this doctoral research is further illustrated by more recent calls from IRENA and GOGLA for greater integration of off-grid renewables into national electrification plans, as well as the need for more innovation and business model development to support advances in solar technologies (IRENA, 2017; GOGLA, 2020).
However, initial enthusiasm in the role of small-scale solar power has recently suffered from reductions in international investment, as a result of the complexities of operating within this sector, competition from generic products, and pressure from some debt and equity investors that has seen companies shifting their focus to wealthier segments of society (Jacome & Ray, 2018; Munro & Schiffer, 2019; Barry & Creti, 2020; Cross & Neumark, 2021; Groenewoudt & Romijn, 2022; Trompette & Cholez, forthcoming), as illustrated in Section 2.3.11 (pp. 72-76).

Section 2.5 addresses the business model innovation aspect of Research Objective Three, addressing the literature on BMs, SBMs, BMI and SBMI in that order, opening with a review of BM definitions that are broadly in keeping with the one proposed by Teece (2010), before presenting the Business Model Canvas (Osterwalder & Pigneur, 2010). The evolution of SBMs and their integration of social and environmental value creation in addition to economic value creation (Schaltegger et al., 2012; Boons & Lüdeke-Freund, 2013) is presented in Section 2.5.2 (pp. 110-113), before discussion of BMI, considered to be “designed, novel, nontrivial changes to key elements of a firm’s BM” (Foss & Saebi, 2017, p. 201). In addressing specifically, the SBMI component of Research Objective Three, review of the literature highlights that SBMIs differ primarily from BMIs in their explicit focus on seeking to “radically reduce negative and/or creat[e] positive external effects for the natural environment and society” (Bocken et al., 2014; Schaltegger et al., 2016, p. 3; Geissdoerfer et al., 2018). Recognising that there are implications associated with adoption of any type of innovation, including SBMIs, Section 2.5.6 (pp. 123-131) reviews the literature on barriers to such adoption (for example Hart & Milstein, 2003; Stubbs & Cocklin, 2008; Montabon et al., 2016; Adams et al., 2016; Evans et al., 2017).
In relation to the case study enterprise, findings relating to its attempts to introduce and adopt SBMIs are presented in Section 4.2, some of which are mission oriented (see subsection 4.2.2.1, pp. 269-271), while others are product-oriented (subsection 4.2.2.4, pp. 276-285), and process-oriented (subsection 4.2.2.5, pp. 285-292). A BM archetype (Figure 65, p. 361) is proposed in subsection 4.5.2.4 of the discussion, adopting the BMC (Osterwalder & Pigneur, 2010) as its foundation. Challenges associated with SBMI are discussed next (subsections 4.3.2.5-4.3.2.8, pp. 362-365), including the risks of overreaching, both for Sunny Money, but also for other organisations that work in the sector and that took on debt and equity investments and that failed to properly comprehend the complexities of the markets in which they were working (Clowes et al., 2018; Barry & Creti, 2020; Munro & Bartlett, 2020).

In successfully illustrating a critical understanding of the strategic overlaps between social enterprises and sustainable business model innovations (Ebrahim et al., 2014; Santos et al., 2015; Margiono et al., 2018), as well as the complexities inherent in working with people living in energy poverty at the BoP (Lappeman et al., 2019; Dembek et al., 2020), section 2.6.3 builds on the concept of hybridity and proposes an evolving conceptual model (Figure 15, p. 150) which summarises these multiple bodies of literature. This evolving conceptual model is revisited in Section 4.3.4 (p. 367-370) following discussion of the findings, both from primary data and supplementary sources.

Chapter 3 begins by presenting the research philosophy, or paradigm, and recognising that all research philosophies are constructs of the human mind and that selection of any
one should reflect the most informed view of its holder (Section 3.1, pp. 154-161). Adoption of a pragmatist epistemological perspective is justified on the grounds of it “enabling research to proceed and to be completed independent of trying to settle the potentially incompatible differences between the two extremes [of positivism and constructivism]” (Johnson & Onwuegbuzie, 2007; Morgan, 2007; Yin, 2016, p. 23). This philosophical approach lends itself to qualitative research in which the “emic” or insider views are given greatest prominence (Guba & Lincoln, 1994; Gioia et al., 2013; Roberts, 2014).

Given the research aim to develop a greater understanding of the role of sustainable business model innovation in helping to provide electricity to people living in the most extreme situations of energy poverty in SSA, and more specifically Zambia, use of a case study approach is justified on the grounds of its suitability for “new topic areas” (Eisenhardt, 1989, p.532). After consideration of a range of potential case-study designs, the holistic single-case study (Yin, 1994, 2018) was selected, partly on the basis of affordability and other full-time work commitments, but also because the longitudinal nature of this case study enables it to fulfil one of the “five rationales” identified by Yin (2018, pp. 49-51), and because longitudinal case studies are considered “particularly important in understanding the underlying dynamics of phenomena that play out over time” (Siggelkow, 2007, p. 22), “can capture organisational change processes” (Bansal & Corley, 2011, p. 235) and may assist in “mitigate[ing] retrospective sensemaking and impression management” (Eisenhardt & Graebner, 2007, p. 28). Furthermore, they help respond to calls for more empirical research from SSA (Holt & Littlewood, 2015;
Navarette Moreno & Agapitova, 2017; Kolk & Rivera-Santos, 2018) as identified in Section 3.3.1 (pp. 171-176).

A case study approach is further justified by virtue of its consistency and therefore relative comparability with other research on social enterprises in SSA such as Calvo & Morales (2016), Littlewood & Holt (2018), and those focused upon the household renewable energy sector, such as Muhoza & Johnson (2018) and Gray et al (2018). In the absence of a particular theory or hypothesis, a deductive approach is rejected in favour of an inductive approach, which it is explained will allow for “deep and rich theoretical descriptions of the contexts in which organisational phenomena occur” (Gioia et al., 2013, p.16). Chapter 3 goes on to explain how a strong, trusting relationship was established between the researcher and the case study organisation, as well as the use of in-depth, semi-structured interviews that were conducted (Sections 3.3.3-3.3.4, pp. 177-184). The use of supplementary evidence is explained in pages 184-200 and summarised in Table 23 (pp. 191-199), as is its importance in helping to triangulate findings (Yin, 2014) with a view to demonstrating credibility (Tracy, 2010), and enhancing substantiation (Eisenhardt, 1989). The ethical approval that was sought and obtained prior to conducting the research is explained in Section 3.4, pp. 201-202. Supplementary evidence included access to internal reports spanning several years, numerous follow-up emails between the researcher and interviewees, access to sales data spanning several years, field notes and observations, as well as publicly available audited accounts and annual reports (samples of which are provided in Appendices 3-8). Section 3.5, pages 202-216 explain the use of inductive and reflexive thematic analysis following guidance provided by Braun & Clarke (2012, 2021) and Gioia et al (2012), with the researcher refamiliarizing himself with the
audio recordings and transcripts, the field notes and sketches, before undertaking coding. Mind maps and analysis of sales records facilitated the identification of pivotal moments in the case study organisation’s history and allowed greater appreciation of the significance of statements made in the in-depth semi structured interviews. Three Themes are identified as a result of the reflexive thematic analysis (Braun & Clarke, 2012, 2021) and are presented as Figures 23-25 (pp. 217-219), forming the basis of Chapter 4, in which empirical findings are analysed and discussed.

The empirical findings presented in Chapter 4, relate to all three Research Objectives, and were identified in the three themes that were revealed as part of the reflexive thematic analysis that concluded Chapter 3 (pp. 217-219). Section 4.1 provides the case context for Sunny Money and presentation of the findings from supplementary data provided by its staff and available through research. Pages 230-232 present excerpts from its annual reports and financial statements, all of which demonstrate its dual registration as a charity and as a company limited by guarantee, in the UK and in its overseas subsidiaries in Malawi and Zambia. Section 4.1.3 (pp. 233-235) provides an overview of the “quality-verified” products (Munro et al., 2022; Verasol, n.d.) which it sells, before use of multiple streams of income are presented in Section 4.1.4 (pp. 235-247), including revenue generated through commercial sales of solar lights, restricted grant income and unrestricted public and philanthropic donations. This conforms to the literature on hybrid social enterprises and their need to both access and juggle different sources of income in order to survive in competitive markets (Battilana et al., 2012; Doherty et al., 2014; Margio no et al., 2018). Of interest is the variation in income by stream and the general reduction, since 2014, in the proportion of income represented by commercial sales.
Closure of its two largest country programmes explains the majority of this, though Covid-19 restrictions have also had a bearing on revenue from sales in the last two years, all of which is supported by the literature (such as Munro et al., 2022; Groenewoudt & Romijn, 2022). Since 2018-19, income from restricted grants and from unrestricted donations has increased, suggesting that efforts to appeal and market to a diverse base of supporters is working. This corresponds with observations made by Teasedale (2011) and Lehner & Nicholls (2014). The importance of the relationship with the founding company is also clearly evidenced in the accounts and in recent news articles, since the buy-out of the founder company (pp. 242-246).

Section 4.2.1 captures the factors that relate to the ecosystem in which Sunny Money operates, thereby corresponding directly with Theme One (Figure 23, p. 217). Challenging labour markets are identified by the Chief Executive as the single biggest factor “...if you’re a small social enterprise...you’ve gotta get the right people at the beginning, otherwise it’s a disaster” (pp. 248-250). Infrastructure constraints, linked primarily to road conditions, but also to the lack of banks and mobile money facilities in rural areas is identified by several members of staff from Zambia, who note “vehicle costs, fuel costs” (BB), “the risk of accidents” (CC) and “going out to rural areas [is] expensive, hard to reach.” (AA) (pp. 250-254). The complexity of crossing borders is further reported, with different tax regimes, varying road conditions, mistrust and potential strike action in a neighbouring country all having the potential to delay the transport of goods. Currency volatility and the precarious and seasonal nature of earnings for the low-income customer are covered in pages 254-262 and confirm the ecosystem challenges identified by Navarette Moreno & Agapitova (2017). Competition posed by
“generic” products (Barry & Creti, 2020; Lighting Global, 2020; Munro & Bartlett, 2020) is identified, as are instances of corruption, which conclude the findings relating to ecosystem challenges (Section 4.2.1, pp. 247-268).

Section 4.2.2 (pp. 268-297) presents BMI as a means to alleviate energy poverty, as identified in Theme Two (Figure 24, p. 218). The extent of the social-value driven mission is evident throughout, but captured with quotes such as “our goal is to get to the last mile people” (CC). Subsection 4.2.2.2 (pp. 271-274) explains the profound shift in business model from macro-solar community installations financed through traditional aid to pico-solar household lights sold to individual customers. In keeping with Foss & Saebi’s (2017) definition of “designed, novel [and] nontrivial changes…to key elements of [the] firm’s business model and/or the architecture linking these elements” (p. 201), this represents a definite BMI and one aimed at creating greater social value (Schaltegger et al., 2012, 2016). In its move to pico-solar, Sunny Money seems to have taken the right decision in disbanding its own early efforts at assembling solar products in favour of importing and selling high quality Chinese products. Its subsequent focus on service delivery models, based primarily around schools and agents helped it achieve scale in a very short space of time (see subsection 4.2.2.5, pp. 285-292). However, by over-reaching in its ambition (see subsection 4.2.2.6, pp. 292-297), its lack of adequate financial buffer appears to have contributed to the closure of its two largest programmes, though this would seem also to have been compounded by increasing competition from “generic” products (Clowes et al., 2019; Lighting Global, 2020; Munro, 2020). A number of internal tensions arose as a result of differences in scale and reach between the country and programmes and these are discussed in subsection 4.2.3.4 (pp. 316-325).
Theme Three, future facing BMIs, is presented in Section 4.2.4 (pp. 325-334). Sunny Money perceived that the poorest members of society were being left behind by manufacturers of solar home systems that are becoming ever more efficient and attractive to wealthier individuals, as well as being pushed by debt and equity investors wanting returns on their investments (Jacome & Ray, 2018; Cross & Neumark, 2021; Groenewoudt & Romijn, 2022). As a result, Sunny Money renewed its focus on the “last mile” and has begun piloting a number of future-facing BMIs. These include light libraries, building on a “try-before-you-buy” concept, publicly-funded initiatives to install an innovative system designed to light every home in two different villages and to conduct research on the schemes, the introduction of an e-waste management scheme and app, new partnerships with churches, with health facilities and with super-agents.

5.2 Research Contributions

Three contributions arise from this research and are presented below.

**Contribution One.** In making its first contribution, this doctoral study proposes a sustainable business model archetype, Figure 65, p. 361, the design of which helps to support social enterprises whose mission is to work with people living at the BoP in rural SSA. Building upon commercially-recognisable “market hybrid” social enterprises and the concept of “value spillover” (Ebrahim et al., 2014; Santos et al., 2015, pp. 37 & 45), this contribution extends earlier work in two important ways. In the first instance, it demonstrates that application of multiple SBMIs (Boons & Lüdeke-Freund, 2013; Schaltegger et al., 2016) can support social enterprises to provide access to off-grid electricity in sparsely populated areas such as rural Zambia with its population density of
25ppkm$^2$, as compared to Rwanda’s densely populated 558ppkm$^2$, the context featured in the case reviewed by Santos et al (2015). In addition, it provides empirical data to support an environmentally, socially and economically SBM that has not taken on any equity or debt financing, and as such extends recent literature which cautions against such approaches because of the potential for resultant investor-led mission drift (Jacome & Ray, 2018; Cross & Neumark, 2021; Groenewoudt & Romijn, 2022; Munro et al., 2022) and/or economic ruin (for example Africa Business, 2019; Dizard, 2019).

Though incremental in nature (Nicholson et al., 2018), this contribution is also significant given that, while enterprises working in the off-grid solar sector in SSA have been moving their focus from people living in extreme poverty at the BoP, to those with more disposable income living in urban and peri-urban locations (Barry & Creti, 2021; Cross & Neumark, 2021; Munro & Samarakoon, 2021; Trompette & Cholez, forthcoming), it is SSA’s rural poor who continue to live in the most extreme cases of multidimensional poverty, lagging furthest behind the rest of the world, including urban SSA, in gaining access to electricity (CSO, 2016; IRENA, 2017; IEA, IRENA, UNSD, World Bank, WHO, 2021).

This contribution helps realise a number of recommendations for social enterprises (as well as other types of organisation) interested in serving this sector. Time and effort should be invested in developing a thorough understanding of the operating environment, or ecosystems in which the social enterprise intends to work, thus maximising its resilience (Littlewood & Holt, 2018) and chances of adapting to taxation laws, infrastructure constraints, labour market limitations, potential lack of understanding of
the concept of social entrepreneurship, as well as weak and fluctuating currencies (Navarette-Moreno & Agapitova, 2017; Richardson et al., 2020).

Furthermore, in recognition of the heterogeneity and poverty that exists throughout and within potential customers living at the BoP (Laporte, 2017; Lappeman et al., 2019; Dembek et al., 2020), it is advisable that multiple BoP customer profiles be developed and regularly reviewed, in order to ensure that product offerings cater to customer preferences (Hasan et al., 2019; Singh et al., 2022) and thus decrease potential rejection of the products and processes on offer. A further recommendation attends to the organisational status and legal structures available to the social enterprise (Battilana et al., 2012; Doherty et al., 2014), encouraging adoption of forms that are most suitable for varying national contexts, and that enable effective operation in multiple countries, while also facilitating revenue generation from a variety of sources (Di Domenico et al., 2010; Teasedale, 2011; Davies & Doherty, 2019). A final, but no less important feature of this business model archetype, is the recommendation that staff be encouraged to develop and embrace multiple routes to market and access to grant funding (ibid.; Battilana et al., 2012), even in times of relative economic prosperity, in order to insure the social enterprise against the effects of potential future economic challenges, pandemics, or conflicts (UN, 2022).

Contribution Two advances understanding of the ways in which people living at the BoP can be offered product choices that create value for the environment, for themselves and therefore society, while also generating economic value for the BoP customer and the social enterprise. Provision of customer choice for people living at the BoP is important
but often insufficiently addressed (Hasan et al., 2019; Lappeman et al., 2019). Further, while recent literature (such as Davies & Chambers, 2018) demonstrates ways in which sustainable businesses with a predominantly commercial focus can offer environmentally sustainable products by targeting wealthier segments of society in Europe, the case study enterprise featured in this doctoral study demonstrates that people living at the BoP in SSA are just as deserving and able to benefit from environmentally, socially and economically SBMs, if the social enterprise innovates in an appropriate manner, whether radically or incrementally (Dwivedi & Weerawardena, 2018).

A number of SBMIs (Boons & Lüdeke-Freund, 2013; Schaltegger et al., 2016) have been identified and implemented by the case study enterprise to support this second incremental contribution (Nicholson et al., 2018). In the first instance, the case study enterprise undertook a radical shift, moving from macro-installations shared by a whole village, to pico-solar and SHS, targeting individual households and thus offering additional social value creation (at the household level) while keeping pace with technological advances that were moving beyond the lead acid batteries that were a feature of the early macro-installations. In addition, it introduced Light Libraries, designed to provide potential BoP customers living in extreme energy poverty with a Try-Before-You-Buy facility. Further, identified as part of Theme Three, one of its future facing strategies includes an initiative in which households can choose whether to rent lights, to buy them outright, or to enter into a rent-to-own arrangement, all three schemes benefiting from micro-franchisee support. Finally, repair and recycling schemes have been introduced, with a view to reducing the e-waste and environmental damage created by pico-solar products, despite them being considered to be a clean and renewable source
of energy. Each of these initiatives demonstrates firstly, the need to continually adapt to improve the environmental credentials of one’s SBM, however environmentally sustainable it may already appear, and secondly contributes to literature that suggests that non-Western-market models, such as Light Libraries, may be particularly suitable for BoP settings (Landrum, 2007) and benefit from further research.

An additional consideration, which connects the second contribution to the first, is that in some cases, SBMIs such as the shift from macro to pico-solar can be self-financing, as illustrated by the former Operations Director in Zambia: “We were on a good run. You know, we had money coming in, we were able to cover costs ourselves. We weren’t really having to rely too much on Solar Aid sending us money at all.” (BB) However, in other cases, novel changes or BMI (Foss & Saebi, 2017) may require additional funding, for instance grants or publicly-raised funds to pilot new schemes such as Project Switch in Malawi. Thus, a critical link emerges between contributions one and two in that, in order to continually innovate to offer more customer choice to people living in extreme energy poverty at the BoP, diverse resource acquisition strategies are required.

**Contribution Three.** The third and final contribution of this research enriches comprehension of the significance of supportive ecosystems in facilitating the work of social enterprises and other organisations seeking to contribute to the SDGs and alleviation of poverty at the BoP (Prahalad & Hammond, 2002). Building on rare multi-country studies conducted in SSA (for example Navarette Moreno & Agapitova, 2017; Richardson et al., 2020) this contribution identifies the need to develop supportive ecosystems not only for social enterprises and their BoP customers (ibid.) but also for the
micro-franchisees, or agents, through whom many social enterprises and other organisations distribute products and services to distant locations. These micro-franchisees, some of whom live and work at the BoP, also suffer from a lack of access to affordable micro-credit initiatives and loans, thus diminishing their ability to secure resources with which to buy stock at discounted rates. Furthermore, in order to function effectively, micro-franchisees were found to require 12-18 months of support and training in basic business skills.

Both these additional requirements for support suggest that, rather than considering micro-franchisees as one mechanism via which to create more “automatic value spillover” for the social enterprise, it may be prudent to provide access to financially-affordable loans and/or training, thus making this “value spillover...contingent” upon the provision of such support (Santos et al., 2015, p. 45). Training may, as in the case study enterprise featured in this longitudinal research, be undertaken by the social enterprise itself, or by a partner organisation. Support to micro-credit and loan facilities (for example creation of Malawi’s first energy cooperative, FEBCO, introduced by the social enterprise, and offering loans at 50% the cost of other national micro-finance schemes) could also be undertaken by the social enterprise, as is being piloted in Malawi, but for many social enterprises this may be beyond their scope, suggesting instead that government and the market could be encouraged to provide more supportive ecosystems and more affordable micro-credit facilities and loans. Presented as a third incremental contribution (Nicholson et al., 2018), this has implications for policy makers, for finance institutions as well as for organisations (including social enterprises, NGOs and
commercial enterprises) that may be planning to incorporate micro-franchisees into their business models.

5.3 Research limitations

While every effort was made to guard against researcher bias, the lack of other researchers leaves the findings open to accusations of bias. Thus, the following limitations to the research are identified.

Access to information from Zambia was very easy to obtain but this was not the case for other countries. Both Kenya and Tanzania had ceased operations by the time the research began. Though Malawi continues to operate, the research was designed to focus upon Zambia. Only later did it occur that field visits to Malawi might have been useful, to better understand contextual differences, but financial and time constraints, as well as the onset of the Covid-19 pandemic, prevented any further field visits. Restrictions associated with Covid-19 also prevented a possible final visit to Zambia.

Interviews with former and current members of the board, as well as access to minutes from previous meetings may have contributed greater insight and helped further corroborate some of the historical information. This may present an avenue for future investigation.
5.4 Further research

Avenues for further research include a more thorough and longitudinal investigation into the performance of agents, as micro-franchisees, and into the range of skills, social capital and assets upon which they draw. This would provide further insight into the ecosystems in which micro-franchisees operate and would be of practical relevance to Sunny Money and other organisations working with and through micro-franchisees. It would also be of relevance to policy-makers and providers of micro-finance loans. Similarly, further research involving customer use of the pico-solar lights would be interesting, both in terms of perception, but also with regard to their use as part of either energy stacking, or a first rung on the energy ladder. With a more in-depth understanding of the customer, social enterprises could better adjust their provision of services and products to meet customer requirements. This would represent an opportunity rarely afforded to small organisations, constrained by resource limitations. Finally, future investigation into the Business Models and Business Model Innovations adopted by other pico-solar companies operating in Zambia and beyond would provide useful contextual comparisons.

5.5 Summary

This thesis comprises five chapters. Chapter 1 situates the study within the global context of poverty, poverty as experienced by people living at the BoP, and the specifics of energy poverty. It summarises rising interest in small, off-grid, renewable solar solutions, designed for individual households but also reports recent challenges faced by the sector. The role of social enterprises as creators of economic and employment opportunities is briefly introduced, as is their use of BMIs, and the tensions that can arise from operating as hybrid organisations. The study’s research aim, and three research objectives are
introduced, as is the methodological approach and preliminary research contributions. Chapter 2 reviews literature relevant to the study. In so doing, it provides a more in-depth discussion of multidimensional poverty, the attempts to measure and define it, as well as life at the BoP, including general characteristics as well as individuality and heterogeneity in all BoP settings. This is followed by in-depth review of literature relating specifically to energy poverty and its relevance to the people of Zambia, which forms the primary locus of this research. It reports that over 80 per cent of Zambians living in rural areas have no access to electricity, while more than 75 per cent of those living in urban areas do have access, a trend that is consistent with averages for SSA, despite the huge potential of solar and other renewable energies. Chapter 2 goes on to review social enterprise literature in Europe and the USA, before extending the review to SSA, and considering the ecosystem challenges that social enterprises may face in different countries. BMs, SBMs, BMI and SBMI are introduced next, as is their importance for all types of organisation. Barriers to adoption of SBMs are introduced before Chapter 2 concludes with a more detailed review of hybrid organisations, and the introduction of a conceptual framework that seeks to graphically represent evolutions in the poverty literature, alongside evolutions in the social enterprise and SBMI literature.

Chapter 3 covers the methodological approaches adopted for the research, beginning with the philosophical position, and presenting the rationale for selecting an inductive, longitudinal, qualitative, holistic single-case study approach. Sources of evidence, ethical considerations, coding and analysis are discussed before concluding with the identification of three Themes. Chapter 4 addresses the empirical findings and discussion, separating these into ones based predominantly upon supplementary data, and ones using
primarily empirical data. The discussion considers each of the three Themes identified by the reflexive thematic analysis. For Theme One, this includes Sunny Money’s organisational form, its resource acquisition and management, as well as the ecosystems in which it operates, with a primary focus upon Zambia. In addressing Theme Two, the focus is upon Sunny Money’s adoption of Sustainable Business Model Innovations, in terms of product development, and service provision. It discusses transformational and incremental innovations adopted by the organisation, its management of pivotal moments in its history, as well as its consistent focus upon trying to reach people living in energy poverty. Theme Two relates to innovations that were in evidence during the research. In the final part, Theme Three is discussed, in which future facing innovations are presented and discussed. In Chapter 5, the thesis is summarised, including the ways in which the research has addressed the aim and each of the three research objectives. The chapter goes on to present three contributions to the literature, as well as discussing research limitations and areas for future research. This summary concludes the thesis.
REFERENCES


Aminu, R. O., Wei, S., Arowolo, A. O., & Ibrahim, S. B. (2021). Socioeconomic determinants of income inequality among smallholder arable crop farmers in


ERB, The Energy Regulation Board, Zambia. (2019). *COMPANIES LICENSED TO ENGAGE IN PROVISION OF SOLAR.*


contributions and a research agenda. *Environmental Science and Policy, 84* (December 2017), 198–203. https://doi.org/10.1016/j.envsci.2017.11.009


IEA (2021), World Energy Outlook 2021, IEA, Paris [https://www.iea.org/reports/world-energy-outlook-2021](https://www.iea.org/reports/world-energy-outlook-2021), License: CC BY 4.0


Murray, S. (2019, June 6). Social enterprises are learning how to do business better. Financial Times. https://www.ft.com/content/3fe986ca-76f6-11e9-b0ec-7dff87b9a4a2


Trading Economics (2020). Available at: [https://tradingeconomics.com/zambia/indicators](https://tradingeconomics.com/zambia/indicators)


Yin, R. K. (2016). Qualitative research from start to finish (2nd ed.). Guilford Press.

Yin, R. K. (2016). Qualitative research from start to finish (2nd ed.). Guilford Press.


### APPENDIX 1 – SUMMARY OF SOCIAL ENTERPRISE OPPORTUNITIES & CHALLENGES

Summary of opportunities and tensions identified in Social Enterprises as hybrid organisational forms

<table>
<thead>
<tr>
<th>Topic</th>
<th>Opportunities</th>
<th>Tensions and challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Context</td>
<td>Shortcomings of market, state &amp; non-profit sectors have led to interest in SE as a potential alternative, with widespread interest from policy-makers &amp; practitioners (Austin et al., 2006; Amin, 2009; Santos et al., 2015). An inhospitable economic climate may provide more opportunities for SEs to establish themselves (Austin et al., 2006). Some countries and regions have created environments and opportunities to facilitate the development of SEs (Austin 2006; Kerlin, 2010; Defourny &amp; Nyssens, 2010).</td>
<td>Being located at the intersections of public, private &amp; non-profit sectors creates pressures to live up to the expectations of each sector (Pache &amp; Santos, 2010; Tracey et al., 2011; Doherty et al., 2014). Pressures extend to SEs facing competition from each intersecting sector and being judged against standards set by each (Austin et al., 2006; Battilana et al., 2012). Inhospitable economic climates tend to negatively affect the funding environment, thereby making it more challenging to secure resources (Austin et al., 2006). Some countries and regions have limited understanding of the concept of social entrepreneurship and have yet to create environments that support the development of SEs (Austin 2006; Kerlin, 2010; Defourny &amp; Nyssens, 2010).</td>
</tr>
<tr>
<td>Organisation form and legal structure</td>
<td>There are different forms of and routes to becoming a SE. Some non-profits evolve “organically” into SEs, new SEs are created at inception phase (“enacted”), while some “relabel” or rebrand themselves as SEs to Adoption of an organisational form that includes the generation of revenues &amp;/or is viewed as equating to the “marketisation of the non-profit sector” is uncomfortable for some stakeholders and can be rejected by others (Eikenberry &amp; Kluver, 2004; McKay et al., 2011; Doherty et al., 2014, p.422).</td>
<td></td>
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</tbody>
</table>
seize opportunities (Liu & Ko, 2012; Teasdale et al., 2013; Doherty et al., 2014, p.421).

New legal structures have been created to facilitate SE establishment in some countries where social entrepreneurship is well established (e.g. UK, USA, various European ones) (Battilana et al., 2012; Teasdale, 2012; EU/OECD, 2016; UK BEIS, 2017).

To access commercial revenue and non-profit grants, SEs sometimes create dual legal entities. Management of dual entities can be administratively and managerially burdensome (Battilana et al., 2012).

| Mission     | Combining creation of social value with generation of revenue can open new economic opportunities and the dual appeal of using revenue to generate social value can be seen as a virtuous circle, or win-win (Mair & Marti, 2006; Di Domenico et al., 2010).
|             | Different narratives can be constructed in order to appeal to different stakeholders (Teasedale, 2010) and thus help attract support, contracts and resources from consumers, public bodies and investors (Doherty et al., 2009; Zahra et al., 2009).
|             | Juggling demands of social, commercial and public sectors can lead to mission drift (Carroll & Slater, 2009; Pache & Santos, 2010; Doherty et al., 2014).
|             | When tensions arise between social and commercial interests, there is a risk that managers prioritise commercial interests over social ones (Zahra et al., 2009; Battilana & Dorado, 2010).
|             | Prioritisation of either commercial or social interests can lead to negative perceptions (Doherty et al., 2014). If stakeholders (e.g. supporters, customers or volunteers) perceive commercial interests as being prioritised, they may withdraw their support (be it financial, in-kind or other) (Dart, 2004; Pache & Santos, 2013).

| Financial resources | Social investors are particularly interested in SEs and their creation of social value. They are therefore willing to accept slower and lower rates of return (Doherty et al., 2014; Santos et al., 2015).
|                     | SE’s lack of conformity to existing institutional logics creates confusion for potential investors and this can lead to loss of income linked to questions of legitimacy and organisational categorisation (Doherty et al., 2014).
SEs are able to access grant funding, bank loans, philanthropic donations, support from volunteers, as well as generating their own revenue, thus providing a diverse range of income-generating opportunities (Zahra et al., 2009; Teasdale, 2010; Doherty et al., 2014).

SEs are also credited with “novel resource acquisition strategies such as bricolage” through which they make good use of beneficiary relationships and embeddedness in community structures (Dacin et al., 2010; Di Domenico et al., 2010; Battilana et al., 2012; Davies & Doherty, 2019, p.1045).

Examples of new types of funds include crowd funding (Lehner & Nicholls, 2014).

Uncertainty regarding SE’s ability to genuinely achieve social and financial returns can lead to loss of investment opportunities, particularly when compared to investment in commercial enterprises (Seelos & Mair, 2005; Austin et al., 2006; Davies & Doherty, 2019). Linked to perceptions of mission drift and inappropriate prioritisation of economic value over social value is the risk of withdrawal of financial and other resources from volunteers, supporters, philanthropists and grant making organisations (Dacin et al., 2010; Battilana et al., 2012).

Over-reliance on investors and grant-makers can lead to them being prioritised as clients, at the expense of focus on the social client (Doherty et al., 2014).

In keeping with the centrality of the social mission, SEs often pay above market-price for products. This can place them at a competitive disadvantage to commercial competitors (Liu & Ko, 2012). In a similar vein, SEs are more likely to set prices that are affordable for their clients, thereby incurring lower profit margins (Dees, 1998; Battilana et al., 2012).

Personnel

The hybrid nature of SEs can facilitate recruitment of paid employees, volunteers and other supporters, and working for an SE can provide a sense of worth and motivation for employees and volunteers (Battilana & Dorado, 2010).

SEs are often resource-constrained so lack the capital to be able to attract the most gifted and suitable employees (Zahra et al., 2009; Doherty et al., 2014).

Despite the popularity of SEs in some countries, many people are unfamiliar with the concept and there is only a relatively small number of people experienced in working for SEs, so the recruitment pool can be very limited (Battilana et al., 2012).
Because of their social mission, SEs are better able than commercial enterprises to offer non-pecuniary benefits in lieu of higher salaries (Austin et al., 2006).

The governance structures of some SEs (e.g. cooperatives) tends to be more inclusive, providing opportunities for all stakeholders to participate (Cornforth, 2004; Doherty et al., 2014).

Some social entrepreneurs have received awards and been the subject of media attention and academic literature (Forbes, 2019; Thompson et al., 2000), helping raise awareness and profile.

Many SEs recruit paid employees and volunteers from the non-profit and for-profit sectors. This can lead to a clash of cultures and internal frustrations (Liu & Ko, 2012; Battilana et al., 2012). There tends to be higher staff turnover in SEs that use paid employees and volunteers. High staff turnover is difficult for any organisation to manage (Battilana et al., 2012).

Some literature has criticised media & academic focus on individual entrepreneurs as placing too much value in the perceived role of the hero (Corner & Ho, 2010), ignoring team efforts and potentially causing internal tensions.

Non-remunerative payment can be frustrating for paid employees, particularly from the commercial sector (Austin et al., 2006).

The model adopted by some SEs requires the provision of additional training in order for their clients (e.g. long term unemployed) to properly benefit from the social value. This is an additional cost that is incurred by the SE (Nyssens, 2006; Doherty et al., 2014).

SEs often absorb the social costs associated with their model, making them less competitive than their commercial equivalents (VanSandt et al., 2009).

Governance structures in SEs often combine trustees from non-profit and commercial backgrounds, with the potential to create similar tensions to those experienced by employees stemming from the same background (Doherty et al., 2014).
SEs cannot pay board members, thus potentially putting them at a disadvantage when compared to commercial enterprises (Cornforth, 2004; Low, 2006 cited in Doherty et al., 2014).

The models adopted by some SEs results in multiple stakeholders having input into governance structures, which can create additional managerial challenges (Lumpkin et al., 2013).

| Performance measurement | Although it is challenging to accurately measure and assess the performance of SEs against the complexity of social, environmental and economic parameters, there is recognition of this complexity and an element of “forgiveness” in recognition thereof (Austin et al., 2006).

Inferior performance by SEs may not be punished as severely as it would be for commercial enterprises (Austin et al., 2006). |
---|---|
| | It is challenging to accurately measure and assess the performance of SEs against the complexity of social, environmental and economic parameters, and SEs often incur the cost of trying to do this (Austin et al., 2006; Doherty et al., 2014).

Lack of accurate measurement can deter potential investors, as well as making it difficult for SEs to assess their own progress (Doherty et al., 2014).

By straddling public, private and non-profit sectors, SEs can find themselves subject to punitive performance measures that are applied equally to the SE as they are to an organisation that sits firmly within one of the other sectors (Austin et al., 2006).

It tends to take much longer for social value to emerge and as a result a much longer and more complex system of measurement is required (Austin et al., 2006). |
APPENDIX 2 – ETHICAL APPROVALS

THE UNIVERSITY OF HUDDERSFIELD
Business School Research Ethics Committee

POSTGRADATE RESEARCH STUDENT ETHICAL REVIEW FORM

Please complete and return via email to alex.thompson@hud.ac.uk along with the required documents (shown below).

SECTION A: TO BE COMPLETED BY THE APPLICANT

Before completing this section please refer to the Business School Research Ethics web pages which can be found under Resources on the Unilearn site (Ethics Policies and Procedures). Applicants should consult the appropriate ethical guidelines.

Please ensure that the statements in Section C are completed by the applicant (and supervisor for PGR students) prior to submission.

<table>
<thead>
<tr>
<th>Researcher(s) details</th>
<th>Matthew Snell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project title</td>
<td>How do social enterprises navigate the paradoxes of formal-informal economies?</td>
</tr>
<tr>
<td>Award (where applicable)</td>
<td>PhD</td>
</tr>
</tbody>
</table>
| Supervisor details (where applicable) | Adrian Wood  
Gerard McElwee  
Omar Al-Tabbaa |
| Project start date | 11/01/2016 |
## SECTION B: PROJECT OUTLINE (TO BE COMPLETED IN FULL BY THE APPLICANT)

<table>
<thead>
<tr>
<th>Issue</th>
<th>Please provide sufficient detail for your supervisor to assess strategies used to address ethical issues in the research proposal. Forms with insufficient detail will need to be resubmitted.</th>
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<tbody>
<tr>
<td><strong>Issue</strong></td>
<td><strong>Please provide sufficient detail for your supervisor to assess strategies used to address ethical issues in the research proposal. Forms with insufficient detail will need to be resubmitted.</strong></td>
</tr>
<tr>
<td><strong>Aims and objectives of the study.</strong> Please state the aims and objectives of the study.</td>
<td>To explore how social enterprises manage the challenges of operating in developing countries. More specifically to explore how international NGOs can transition to a social enterprise model in which they have to contend with the regulations of developed economies as well as the lack of regulation in less well developed economies (formal/informal economies).</td>
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<tr>
<td><strong>Brief overview of research methodology</strong> The methodology only needs to be explained in sufficient detail to show the approach used (e.g. survey) and explain the research methods to be used during the study.</td>
<td>An inductive case study approach will be used. The research methods will include:</td>
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<td>Interviews</td>
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<td>Questionnaires</td>
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<tr>
<td></td>
<td>Review of narrative and financial documents</td>
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<tr>
<td></td>
<td>Observation</td>
</tr>
<tr>
<td><strong>Does your study require any permissions for study?</strong> If so, please give details</td>
<td>No</td>
</tr>
<tr>
<td><strong>Participants</strong> Please outline who will participate in your research. Might any of the participants be considered ‘vulnerable’ (e.g. children)</td>
<td>Participants will be managers, staff and trustees of the NGOs and/or social enterprise(s).</td>
</tr>
<tr>
<td><strong>Access to participants</strong> Please give details about how participants will be identified and contacted.</td>
<td>Access to one social enterprise has already been obtained as the researcher previously worked for that organisation. Access was obtained through discussion with the CEO of the organisation who also got trustee approval. Access to other potential social enterprises has been and continues to be obtained through correspondence.</td>
</tr>
<tr>
<td><strong>How will your data be recorded and stored?</strong></td>
<td>Audio recordings of interviews.</td>
</tr>
</tbody>
</table>
| Informed consent. | Financial and narrative records shared by the NGOs or social enterprises with the researcher.  
All information will be stored on the University of Huddersfield’s internal computer system, more specifically on the researcher’s K:Drive on the university system.  
All participants have the research explained to them verbally and in writing before participating in any interview. They also sign a consent letter confirming they are willing to participate. |
<table>
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<tbody>
<tr>
<td>Please explain how you will inform your participants about the study and whether they will be in a position to give informed consent.</td>
<td>Right to withdraw</td>
</tr>
</tbody>
</table>
| Please identify whether you are offering your participants a right to withdraw from the study and/or to withdraw their data from the study and how this will take place. If you are not offering a right to withdraw, please explain why. | Confidentiality | Participants are offered the opportunity to review the transcriptions of the interviews in which they have participated.  
Participating social enterprises are offered the chance to be anonymous in the research. |
| Please outline the level of confidentiality you will offer respondents and how this will be respected. You should also outline about who will have access to the data and how it will be stored. (This information should be included on Information your information sheet.) | Anonymity | Removal of names and roles of participants and of participating organisations. |
| If you offer your participants anonymity, please indicate how this will be achieved. | Harm | Minimal. The research seeks to explore how social enterprises have tried to juggle challenges of working in different contexts. There is no judgement on the way they have responded but an attempt to understand and from this develop a conceptual framework that may be tested with other organisations. |
| Please outline your assessment of the extent to which your research might induce psychological stress, anxiety, cause harm or negative consequences for the participants (beyond the risks encountered in normal life). If more than minimal risk, you should outline what support there will be for participants. If you believe that that there is minimal likely harm, please articulate why you believe this to be so. |
Retrospective applications. If your application for Ethics approval is retrospective, please explain why this has arisen.

SECTION C – SUMMARY OF ETHICAL ISSUES (TO BE COMPLETED BY THE APPLICANT)

Please give a summary of the ethical issues and any action that will be taken to address the issue(s).

Individual participant names – these will not appear in the research unless approved by the participant.

Participating organisations – these will only appear in the research if approved by participating organisations.

SECTION D – ADDITIONAL DOCUMENTS CHECKLIST (TO BE COMPLETED BY THE APPLICANT)

Please supply copies of all relevant supporting documentation electronically. If this is not available electronically, please provide explanation and supply hard copy.

I have included the following documents

<table>
<thead>
<tr>
<th>Document</th>
<th>Yes</th>
<th>☒</th>
<th>Not applicable</th>
<th>☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information sheet</td>
<td>☒</td>
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<td></td>
<td></td>
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<tr>
<td>Consent form</td>
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<tr>
<td>Letters</td>
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<td>Questionnaire</td>
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<td>Interview schedule</td>
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</table>
SECTION E – STATEMENT BY APPLICANT

I confirm that the information I have given in this form on ethical issues is correct. (Electronic confirmation is sufficient).

and (for PGR students only)

Affirmation by Supervisor (where applicable)
I can confirm that, to the best of my understanding, the information presented by the applicant is correct and appropriate to allow an informed judgement on whether further ethical approval is required

Supervisor name/signature:

Date:  26.04.18

Name of applicant:

Matthew Snell

Date:  26/04/2018

All documentation must be submitted electronically to the Business School Research Ethics Committee Administrator, Alex Thompson, at alex.thompson@hud.ac.uk.
All proposals will be reviewed by two members of BSREC. If it is considered necessary to discuss the proposal with the full Committee, the applicant (and their supervisor if the applicant is a student) will be invited to attend the next Ethics Committee meeting.

If you have any queries relating to the completion of this form or any other queries relating to the Business School’s Research Ethics Committee in consideration of this proposal, please do not hesitate to contact the Chair, Dr Eleanor Davies (e.davies@hud.ac.uk) ☏ [47] 2121 or the Administrator Alex Thomson (alex.thompson@hud.ac.uk) ☏ [47] 2529
HOW DO SOCIAL ENTERPRISES NAVIGATE THE PARADOXES OF THE FORMAL/INFORMAL ECONOMY?

INFORMATION SHEET

You are being invited to take part in a study about NGOs and social enterprises. Before you decide to take part it is important that you understand why the research is being done and what it will involve. The research is being conducted by Matt Snell as part of his PhD at Huddersfield University. Matt has spent approximately 15 years working with and for international NGOs, primarily in sub Saharan Africa. Having been a senior manager of NGOs for 10 years he is interested in NGO management and attempts by some NGOs to develop social enterprises. Please take time to read the following information carefully and discuss it with Matt if you wish. Please do not hesitate to ask if there is anything that is not clear or if you would like more information.

What is the study about?

The purpose of this study is to seek to understand the challenges faced by managers of NGOs that have set up or are trying to set up social enterprises operating in both formal and informal economies.

Why I have been approached?

You have been asked to participate because the organisation you represent is considered to be an NGO that operates or is trying to establish a social enterprise model.

Do I have to take part?

It is your decision whether or not you take part. If you decide to take part you will be asked to sign a consent form, and you will be free to withdraw at any time and without giving a reason. Your decision to withdraw should be provided in writing within three months of participating in the research. A decision to withdraw at any time, or a decision not to take part, will not affect you or your continued employment in the NGO or social enterprise.

What will I need to do?

If you agree to take part in the research you will be asked to participate in face to face interviews that are likely to last 1-2 hours. You may also be asked to participate in an interview conducted by phone or via Skype. You may also be asked to answer written questions sent to you by email. Finally, depending on your position within your organisation you may be asked if you would be willing to share narrative and/or financial reports about
the organisation. This will only be asked of people in senior positions with the authority to share such information.

**Will my identity be disclosed?**

All information disclosed within the interview will be kept confidential, unless you indicate that you or anyone else is at risk of serious harm, in which case I would need to pass this information to.

**What will happen to the information?**

All information collected from you during this research will be kept secure and any identifying material, such as names will be removed in order to ensure anonymity. It is anticipated that the research may, at some point, be published in a journal or report. However, should this happen, your anonymity will be ensured, although it may be necessary to use your words in the presentation of the findings and your permission for this is included in the consent form.

**Who can I contact for further information?**

If you require any further information about the research, please contact me on:

Matt Snell

m.j.snell@hud.ac.uk or 01484 472582
CONSENT FORM

Title of Research Project: How do social enterprises navigate the paradoxes of the formal/informal economy?

It is important that you read, understand and sign the consent form. Your contribution to this research is entirely voluntary and you are not obliged in any way to participate, if you require any further details please contact Matthew Snell (m.j.snell@hud.ac.uk or +44 (0)1484 472582.

| I have been fully informed of the nature and aims of this study as outlined in the information sheet version 1, dated 23/04/2018 | □ |
| I consent to taking part in this study | □ |
| I understand that I have the right to withdraw from the research by informing the researcher in writing | □ |
| I give permission for my words to be quoted (by use of pseudonym) and to be recorded | □ |
| I understand that the information collected will be kept in secure conditions for a period of 10 years at the University of Huddersfield | □ |
| I understand that no person other than the researcher/s and facilitator/s will have access to the information provided | □ |
| I understand that my identity will be protected by the use of pseudonym in the report and that no written information that could lead to my being identified will be included in any report | □ |

If you are satisfied that you understand the information and are happy to take part in this project please put a tick in the box aligned to each sentence and print and sign below.

<table>
<thead>
<tr>
<th>Signature of Participant:</th>
<th>Signature of Researcher:</th>
</tr>
</thead>
<tbody>
<tr>
<td>______________________________</td>
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<td>Print:</td>
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<td>Date:</td>
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<td>______________________________</td>
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(one copy to be retained by Participant / one copy to be retained by Researcher)
457
APPENDIX 4 – SAMPLE END OF YEAR REPORT

Summary information presented in End of Year Reports developed by country programme teams

TOTAL SALES, ALL PRODUCTS BY MONTH

<table>
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<tr>
<th>Month</th>
<th>Sales</th>
</tr>
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<tbody>
<tr>
<td>April</td>
<td>2318</td>
</tr>
<tr>
<td>May</td>
<td>2761</td>
</tr>
<tr>
<td>June</td>
<td>5559</td>
</tr>
<tr>
<td>July</td>
<td>7011</td>
</tr>
<tr>
<td>August</td>
<td>4899</td>
</tr>
<tr>
<td>September</td>
<td>2421</td>
</tr>
<tr>
<td>October</td>
<td>3799</td>
</tr>
<tr>
<td>November</td>
<td>3379</td>
</tr>
<tr>
<td>December</td>
<td>2699</td>
</tr>
<tr>
<td>January</td>
<td>2298</td>
</tr>
<tr>
<td>February</td>
<td>1238</td>
</tr>
<tr>
<td>March</td>
<td>1903</td>
</tr>
</tbody>
</table>
Revenue – Schools

* Please note, the profit column is for selling the lights only. It does not yet take into account DSA, fuel, vehicle maintenance, etc.

<table>
<thead>
<tr>
<th>Products</th>
<th>Total Number Sold</th>
<th>Total Revenue</th>
<th>Total Product Cost</th>
<th>Profit</th>
<th>% Profit</th>
<th>Average Selling Cost</th>
<th>Average Cost Price</th>
<th>Profit per Light Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>2,026</td>
<td>110,922</td>
<td>99,537</td>
<td>11,385</td>
<td>10%</td>
<td>54.75</td>
<td>49.13</td>
<td>5.62</td>
</tr>
<tr>
<td>S2</td>
<td>1,788</td>
<td>93,095</td>
<td>94,066</td>
<td>(971)</td>
<td>-1%</td>
<td>52.07</td>
<td>52.61</td>
<td>(0.54)</td>
</tr>
<tr>
<td>Pico</td>
<td>259</td>
<td>20,767</td>
<td>16,338</td>
<td>4,429</td>
<td>21%</td>
<td>80.18</td>
<td>63.08</td>
<td>17.10</td>
</tr>
<tr>
<td>Eco</td>
<td>728</td>
<td>45,820</td>
<td>48,048</td>
<td>(2,228)</td>
<td>-5%</td>
<td>62.94</td>
<td>66.00</td>
<td>(3.06)</td>
</tr>
<tr>
<td>Mobile</td>
<td>2,804</td>
<td>492,000</td>
<td>482,793</td>
<td>9,207</td>
<td>2%</td>
<td>175.46</td>
<td>172.18</td>
<td>3.28</td>
</tr>
<tr>
<td>Total</td>
<td>7,605</td>
<td>762,604</td>
<td>770,209</td>
<td>(7,605)</td>
<td>-1%</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>
AGENTS – PRODUCTS BY MONTH

TOTAL AGENT SALES BY PRODUCT
## Revenue – Agents

* Please note, the profit is for the lights only. This does not take into account the shipping of some of these lights via courier services.

<table>
<thead>
<tr>
<th>Products</th>
<th>Total Number</th>
<th>Total Revenue</th>
<th>Total Product Cost</th>
<th>Profit</th>
<th>% Profit</th>
<th>Average Selling Price</th>
<th>Average Cost Price</th>
<th>Profit per Light Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>1,618</td>
<td>94,743</td>
<td>79,492</td>
<td>15,250</td>
<td>16%</td>
<td>58.56</td>
<td>49.13</td>
<td>9.43</td>
</tr>
<tr>
<td>S2</td>
<td>4,290</td>
<td>255,257</td>
<td>225,697</td>
<td>29,560</td>
<td>12%</td>
<td>59.50</td>
<td>52.61</td>
<td>6.89</td>
</tr>
<tr>
<td>Pico</td>
<td>727</td>
<td>67,277</td>
<td>45,859</td>
<td>21,417</td>
<td>32%</td>
<td>92.54</td>
<td>63.08</td>
<td>29.46</td>
</tr>
<tr>
<td>Eco</td>
<td>2,015</td>
<td>135,179</td>
<td>132,990</td>
<td>2,189</td>
<td>2%</td>
<td>67.09</td>
<td>66.00</td>
<td>1.09</td>
</tr>
<tr>
<td>Mobile</td>
<td>2,299</td>
<td>402,880</td>
<td>395,842</td>
<td>7,038</td>
<td>2%</td>
<td>175.24</td>
<td>172.18</td>
<td>3.06</td>
</tr>
<tr>
<td>Pro</td>
<td>16</td>
<td>4,800</td>
<td>3,599</td>
<td>1,201</td>
<td>25%</td>
<td>300.00</td>
<td>224.92</td>
<td>75.08</td>
</tr>
<tr>
<td>Pro2</td>
<td>665</td>
<td>159,060</td>
<td>141,585</td>
<td>17,474</td>
<td>11%</td>
<td>239.19</td>
<td>212.91</td>
<td>26.28</td>
</tr>
<tr>
<td>Marathoner</td>
<td>466</td>
<td>112,830</td>
<td>99,724</td>
<td>13,106</td>
<td>12%</td>
<td>242.12</td>
<td>214.00</td>
<td>28.12</td>
</tr>
<tr>
<td>Home</td>
<td>39</td>
<td>35,100</td>
<td>23,351</td>
<td>11,749</td>
<td>33%</td>
<td>900.00</td>
<td>598.74</td>
<td>301.26</td>
</tr>
<tr>
<td>Total</td>
<td>12,135</td>
<td>1,267,126</td>
<td>1,148,139</td>
<td>118,987</td>
<td>9%</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Revenu – Shops

* Please note, the profit is for the lights only. This does not take into account the shipping of some of these lights via courier services.

<table>
<thead>
<tr>
<th>Products</th>
<th>Total Number</th>
<th>Total Revenue</th>
<th>Total Product Cost</th>
<th>Profit</th>
<th>% Profit</th>
<th>Average Selling Price</th>
<th>Average Cost Price</th>
<th>Profit per Light Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>846</td>
<td>48,126</td>
<td>41,564</td>
<td>6,562</td>
<td>14%</td>
<td>56.89</td>
<td>49.13</td>
<td>7.76</td>
</tr>
<tr>
<td>S2</td>
<td>3,296</td>
<td>184,211</td>
<td>173,403</td>
<td>10,808</td>
<td>6%</td>
<td>55.89</td>
<td>52.61</td>
<td>3.28</td>
</tr>
<tr>
<td>Pico</td>
<td>208</td>
<td>19,360</td>
<td>13,121</td>
<td>6,239</td>
<td>32%</td>
<td>93.08</td>
<td>63.08</td>
<td>30.00</td>
</tr>
<tr>
<td>Eco</td>
<td>587</td>
<td>40,363</td>
<td>38,742</td>
<td>1,621</td>
<td>4%</td>
<td>68.76</td>
<td>66.00</td>
<td>2.76</td>
</tr>
<tr>
<td>Mobile</td>
<td>545</td>
<td>103,935</td>
<td>93,838</td>
<td>10,096</td>
<td>10%</td>
<td>190.71</td>
<td>172.18</td>
<td>18.53</td>
</tr>
<tr>
<td>Pro</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>224.92</td>
<td>n/a</td>
</tr>
<tr>
<td>Pro2</td>
<td>482</td>
<td>126,670</td>
<td>102,623</td>
<td>24,047</td>
<td>19%</td>
<td>254.50</td>
<td>212.91</td>
<td>41.59</td>
</tr>
<tr>
<td>Marathoner</td>
<td>137</td>
<td>34,510</td>
<td>29,318</td>
<td>5,192</td>
<td>15%</td>
<td>251.90</td>
<td>214.00</td>
<td>37.90</td>
</tr>
<tr>
<td>Home</td>
<td>296</td>
<td>217,700</td>
<td>177,227</td>
<td>40,472</td>
<td>19%</td>
<td>735.47</td>
<td>598.74</td>
<td>136.73</td>
</tr>
<tr>
<td>Total</td>
<td>6,397</td>
<td>774,875</td>
<td>669,836</td>
<td>105,037</td>
<td>14%</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Revenue – NGO/CP

* The profit here reflects the true profit as we do not typically deliver unless it is with in Lusaka. So nothing additional should be taken out for the profits.

<table>
<thead>
<tr>
<th>Products</th>
<th>Total Number</th>
<th>Total Revenue</th>
<th>Total Product Cost</th>
<th>Profit</th>
<th>% Profit</th>
<th>Average Selling Price</th>
<th>Average Cost Price</th>
<th>Profit per Light Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>2,004</td>
<td>109,639</td>
<td>98,457</td>
<td>11,182.48</td>
<td>10%</td>
<td>54.71</td>
<td>49.13</td>
<td>5.58</td>
</tr>
<tr>
<td>S2</td>
<td>3,218</td>
<td>180,096</td>
<td>169,299</td>
<td>10,797.02</td>
<td>6%</td>
<td>55.97</td>
<td>52.61</td>
<td>3.36</td>
</tr>
<tr>
<td>Pico</td>
<td>453</td>
<td>39,863</td>
<td>28,575</td>
<td>11,287.76</td>
<td>28%</td>
<td>88.00</td>
<td>63.08</td>
<td>24.92</td>
</tr>
<tr>
<td>Eco</td>
<td>1,188</td>
<td>90,899</td>
<td>78,408</td>
<td>12,491.00</td>
<td>14%</td>
<td>76.51</td>
<td>66.00</td>
<td>10.51</td>
</tr>
<tr>
<td>Mobile</td>
<td>613</td>
<td>119,720</td>
<td>105,546</td>
<td>14,173.66</td>
<td>12%</td>
<td>195.30</td>
<td>172.18</td>
<td>23.12</td>
</tr>
<tr>
<td>Pro</td>
<td>13</td>
<td>3,900</td>
<td>2,924</td>
<td>976.04</td>
<td>25%</td>
<td>300.00</td>
<td>224.92</td>
<td>75.08</td>
</tr>
<tr>
<td>Pro2</td>
<td>1,434</td>
<td>378,775</td>
<td>305,313</td>
<td>73,462.06</td>
<td>19%</td>
<td>264.14</td>
<td>212.91</td>
<td>51.23</td>
</tr>
<tr>
<td>Marathoner</td>
<td>149</td>
<td>38,470</td>
<td>31,886</td>
<td>6,584.00</td>
<td>17%</td>
<td>258.19</td>
<td>214.00</td>
<td>44.19</td>
</tr>
<tr>
<td>Home</td>
<td>257</td>
<td>280,080</td>
<td>213,750</td>
<td>66,329.82</td>
<td>24%</td>
<td>784.54</td>
<td>598.74</td>
<td>185.80</td>
</tr>
<tr>
<td>Total</td>
<td>9,429</td>
<td>1,241,442</td>
<td>1,034,158</td>
<td>207,283.84</td>
<td>17%</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Revenue and Profit by Route to Market

*Please note, the total product cost and profit via route to market and by product differs by K29,000. After checking the work multiple times, I have to say that this is due to differences in how they are captured and in the average cost price.

<table>
<thead>
<tr>
<th>Products</th>
<th>Total Number</th>
<th>Total Revenue</th>
<th>Total Product Cost</th>
<th>Profit</th>
<th>% Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools</td>
<td>7,605</td>
<td>762,604</td>
<td>770,209</td>
<td>(7,605)</td>
<td>-1%</td>
</tr>
<tr>
<td>Agents</td>
<td>12,135</td>
<td>1,267,126</td>
<td>1,148,139</td>
<td>118,987</td>
<td>9%</td>
</tr>
<tr>
<td>Shops</td>
<td>6,397</td>
<td>774,875</td>
<td>669,836</td>
<td>105,037</td>
<td>14%</td>
</tr>
<tr>
<td>NGO/CP's</td>
<td>9,429</td>
<td>1,241,442</td>
<td>1,034,158</td>
<td>207,284</td>
<td>17%</td>
</tr>
<tr>
<td>Direct</td>
<td>4,689</td>
<td>708,859</td>
<td>556,429</td>
<td>152,430</td>
<td>22%</td>
</tr>
<tr>
<td>Total</td>
<td>40,255</td>
<td>4,754,906</td>
<td>4,178,771</td>
<td>576,135</td>
<td>12%</td>
</tr>
</tbody>
</table>

Revenue Vs. Profit by Route to Market
**APPENDIX 5 – SAMPLE FAULT SHEET**

This provides information for a single product. Similar reports exist for all products.

<table>
<thead>
<tr>
<th>Date</th>
<th>Sold Faulty Stock Identified</th>
<th>Unsold Faulty Stock Identified</th>
<th>Credit/Replacement received</th>
<th>Faults still to Claim</th>
<th>Cumulative Fault Balance in Office</th>
<th>Lights Sold</th>
<th>Incentives Samples, Others</th>
<th>Cumulative Total</th>
<th>% of Fault</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starting Balance from Previous Year</td>
<td>84</td>
<td>84</td>
<td></td>
<td></td>
<td>16,251</td>
<td>837</td>
<td>17,098</td>
<td>0.49%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apr-13</td>
<td>14</td>
<td>0</td>
<td>0</td>
<td>151</td>
<td>1,953</td>
<td>21</td>
<td>19,074</td>
<td>0.53%</td>
<td></td>
<td>sold to company to claim credit for 92 lights; no response</td>
</tr>
<tr>
<td>May-13</td>
<td>27</td>
<td>0</td>
<td>0</td>
<td>129</td>
<td>2,513</td>
<td>179</td>
<td>21,766</td>
<td>0.59%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jun-13</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>130</td>
<td>1,442</td>
<td>123</td>
<td>23,331</td>
<td>0.65%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jul-13</td>
<td>88</td>
<td>0</td>
<td>0</td>
<td>222</td>
<td>5,145</td>
<td>37</td>
<td>28,531</td>
<td>0.78%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aug-13</td>
<td>52</td>
<td>0</td>
<td>0</td>
<td>279</td>
<td>4,861</td>
<td>37</td>
<td>33,409</td>
<td>0.83%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sep-13</td>
<td>87</td>
<td>0</td>
<td>0</td>
<td>364</td>
<td>2,147</td>
<td>363</td>
<td>35,919</td>
<td>1.01%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oct-13</td>
<td>13</td>
<td>2</td>
<td>0</td>
<td>157</td>
<td>3,458</td>
<td>112</td>
<td>39,480</td>
<td>0.96%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nov-13</td>
<td>27</td>
<td>0</td>
<td>0</td>
<td>184</td>
<td>3,394</td>
<td>92</td>
<td>42,075</td>
<td>0.94%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dec-13</td>
<td>195</td>
<td>174</td>
<td>292</td>
<td>2,007</td>
<td>45,000</td>
<td>27</td>
<td>56,443</td>
<td>1.34%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan-14</td>
<td>33</td>
<td>0</td>
<td>0</td>
<td>239</td>
<td>6,352</td>
<td>22</td>
<td>47,173</td>
<td>1.35%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feb-14</td>
<td>33</td>
<td>1</td>
<td>183</td>
<td>96</td>
<td>1,911</td>
<td>141</td>
<td>49,255</td>
<td>1.36%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mar-14</td>
<td>39</td>
<td>0</td>
<td>135</td>
<td>714</td>
<td>4,020</td>
<td>98</td>
<td>53,343</td>
<td>1.34%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apr-14</td>
<td>144</td>
<td>147</td>
<td>748</td>
<td>2,974</td>
<td>56,444</td>
<td>183</td>
<td>66,540</td>
<td>1.33%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>May-14</td>
<td>26</td>
<td>0</td>
<td>53</td>
<td>777</td>
<td>2,117</td>
<td>174</td>
<td>58,734</td>
<td>1.37%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jun-14</td>
<td>2</td>
<td>0</td>
<td>59</td>
<td>783</td>
<td>2,633</td>
<td>182</td>
<td>61,549</td>
<td>1.37%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jul-14</td>
<td>15</td>
<td>0</td>
<td>74</td>
<td>798</td>
<td>4,584</td>
<td>26</td>
<td>46,159</td>
<td>1.21%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aug-14</td>
<td>30</td>
<td>22</td>
<td>108</td>
<td>819</td>
<td>2,212</td>
<td>24</td>
<td>48,395</td>
<td>1.21%</td>
<td></td>
<td>missing 81 lights in import, as agreed in March meeting</td>
</tr>
<tr>
<td>Sep-14</td>
<td>12</td>
<td>51</td>
<td>198</td>
<td>841</td>
<td>2,830</td>
<td>156</td>
<td>71,441</td>
<td>1.38%</td>
<td></td>
<td>credit note received for 53 s x 52 (INV-010-FY2015)</td>
</tr>
<tr>
<td>Oct-14</td>
<td>15</td>
<td>52</td>
<td>135</td>
<td>910</td>
<td>3,565</td>
<td>18</td>
<td>75,064</td>
<td>1.21%</td>
<td></td>
<td>missing 48 lights in import, as agreed March meeting</td>
</tr>
<tr>
<td>Nov-14</td>
<td>21</td>
<td>14</td>
<td>170</td>
<td>945</td>
<td>3,226</td>
<td>2</td>
<td>78,292</td>
<td>1.21%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dec-14</td>
<td>7</td>
<td>3</td>
<td>184</td>
<td>959</td>
<td>1,815</td>
<td>3</td>
<td>80,110</td>
<td>1.20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan-15</td>
<td>27</td>
<td>0</td>
<td>213</td>
<td>991</td>
<td>2,153</td>
<td>68</td>
<td>82,333</td>
<td>1.20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feb-15</td>
<td>16</td>
<td>0</td>
<td>218</td>
<td>1008</td>
<td>1,809</td>
<td>148</td>
<td>84,888</td>
<td>1.20%</td>
<td></td>
<td></td>
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APPENDIX 6 – SAMPLE AGENT SPREADSHEET

Personal details have been removed. The Master spreadsheet contains over 1,000 agent names and purchase histories.

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## APPENDIX 7 – SAMPLE TIERED PRICE LIST

### SOLAR LIGHTS FROM SUNNYMONEY

<table>
<thead>
<tr>
<th>Product</th>
<th>Specifications</th>
<th>ORDER VALUE RANGE (K €)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D. LIGHT A1</strong></td>
<td>20 lumens • 5 years warranty and minimum 3year battery life • Inbuilt solar panel • Adjustable twist lock</td>
<td>Tier 1: 70, Tier 2: 68, Tier 3: 63, Tier 4: 60</td>
</tr>
<tr>
<td><strong>D. LIGHT S2</strong></td>
<td>Smart battery unit and external use • External solar light 25 lumens • 2 years warranty • 2 year battery life</td>
<td>Tier 1: 105, Tier 2: 100, Tier 3: 95, Tier 4: 90</td>
</tr>
<tr>
<td><strong>SUN KING MOBILE</strong></td>
<td>Desk, room, hanging and hand carry lamp • Includes LED panel • 180 lumens, 6 hours of light per full charge • Can charge one phone</td>
<td>Tier 1: 330, Tier 2: 280, Tier 3: 250, Tier 4: 237</td>
</tr>
<tr>
<td><strong>SUN KING PRO 2</strong></td>
<td>Desk, room, hanging and hand carry lamp • Includes LED panel • 180 lumens, 6 hours of light per full charge • Can charge one phone</td>
<td>Tier 1: 425, Tier 2: 400, Tier 3: 370, Tier 4: 330</td>
</tr>
<tr>
<td><strong>SUN KING HOME SYSTEM</strong></td>
<td>1 Insight LED lamps with included wall mountable light switch • Can charge the phones or devices • 2 years warranty • Two piece warranty • Home not included</td>
<td>Tier 1: 1120, Tier 2: 1000, Tier 3: 925, Tier 4: 850</td>
</tr>
</tbody>
</table>

**ORDER VALUE RANGE (K €)**

<table>
<thead>
<tr>
<th>Tier 1</th>
<th>Tier 2</th>
<th>Tier 3</th>
<th>Tier 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>700</td>
<td>730</td>
<td>750</td>
<td>800</td>
</tr>
</tbody>
</table>

- Price list effective 1 August 2015 and subject to change without prior notice.
- Please note that we work on a tier system. You will get the tier pricing dependent on what your invoice value is worth. (For example, if you were to order 10 S2, you would fall into tier 2 pricing at get them at the price of K105 since your invoice would amount to K1,050)
- For further inquiries please contact us at:
  - 0974793464 or 0975190511
  - info.zambia@sunnymoney.org
APPENDIX 8 – AGENT TRAINING MANUAL

Selected information from training manual. Contact details, photos and identifying information have been removed.

Sunny Money Solar Lights

YINGLI SM100

- 18 Lumen
- You can hang light on the wall, hand carry or use as a head torch.
- 1 year warranty
- 5 hours of light per full charge
- Integrated Solar panel.

D. Light S2

- 25 lumen
- Great for study, work and home use
- 2 year warranty
- 4 hours of light
- Integrated Solar Panel

Omni Pilot X

- Can be used as a lamp, hung on the wall and hand carry
- 8X brighter than kerosene (max lumen is 74 lumen)
- Comes with cell phone charging equipment (phone not included)
- Includes a 1.8W solar panel and 5m wire
- 2 year warranty
Sunny Money Solar Lights

Green Light Planet Boom

- Desk, room, hanging and hand carry lamp
- Digital music and radio player. SD, USB and MP3 compatible with built in speaker.
- 15X brighter than kerosene (6 hours @ 160 lumens, 12 hours @ 75 lumens, 36 hours @ 25 lumens per night depending on lighting mode and radio usage)
- Comes with cell phone charging equipment (Phone not included)
- Includes a 2.7 W solar panel with 5m wire
- 2 year warranty

Green Light Planet Home System

- 3 bright LED lamps with individual wall mountable light switches. Each light has 3 settings of brightness
- 2 USB outputs to charge phones or other devices. (1 USB cable and cell phone charging equipment included)
- 3 brightness settings
- 6 W solar panel with lots of extra cables for mounting to the wall
- Up to 24 hours of light
- 2 year warranty
- Phone not included
Ordering process

Agents programme is meant to empower self-starter entrepreneurs. To become an agent is very easy. All you need is:

1. A minimum of K700.00 to invest in solar products i.e. you are to buy products worth K700.00 for resale. Which lights you purchase is up to you, depending on your market.

2. Fill out an agent form which can be done over the phone.

3. When you are ready to place an order, kindly text, beep or call XXXXX so that the customer care personnel can take your order and avail you our account details.

Once our accountant has confirmed the deposit, we package the products and send them to your nearest post office or courier office in your town at Sunny moneys expense (except for shipping out Home systems).

The products are sent on Tuesdays and Thursday, it is therefore important to deposit the money a day earlier.

We send the products via EMS or other courier services within Zambia and we cover the cost of sending the products to you if you are outside Lusaka, but inside Zambia.

As an agent, you are able to benefit from promotions such as price reductions in order to maximise profits.

Marketing your solar Lights

1. Reach out to the Community

Meet with chiefs and village elders, headmen of the area, attend church and women’s meetings—demonstrate the light and extend the special offer. Encourage first purchasers to give testimony to those who have not bought yet.

2. Demonstrate solar lights to EVERYONE you meet

Explain the benefits and features, the special price, limited time offer, and warranty.

Features: durability, Over 30 hours of brilliant light, two year warranty, weather resistant, portable, etc.

Benefits: cost savings from paraffin, improved health, more time studying, safe, no danger of fire, clean source of energy.

Carry solar lights with you wherever you go!

3. Use testimonials from customers

Potential customers are more likely to believe what they hear from your other customers.

Make sure you have the name, location and maybe even the job of the person giving you the testimonial. The more detailed the more likely your potential customer will believe they exist.

4. After sales service and support

It is important to follow up by phone, mail or by visiting your customers after you have made a sale. SunnyMoney products have a warranty on all its products ranging from 1-2 years. This kind of support will create a good relationship with all your past and future customers. Often customers will have questions about the product and this will give you the opportunity to answer them.
<table>
<thead>
<tr>
<th>Monthly Cash Flow Projection</th>
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<tbody>
<tr>
<td><strong>Enter Individual/Company Name Here</strong></td>
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</tr>
<tr>
<td><strong>Enter Date Here</strong></td>
<td>ZMW</td>
<td>Explanation</td>
</tr>
<tr>
<td><strong>1. CASH ON HAND</strong></td>
<td></td>
<td>Cash on hand same as (7), Cash Position Previous Month</td>
</tr>
<tr>
<td>[Beginning of month]</td>
<td></td>
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<tr>
<td><strong>2. CASH RECEIPTS</strong></td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>(a) Cash Sales</td>
<td>-</td>
<td>All cash sales. Great credit sales unless cash is actually received.</td>
</tr>
<tr>
<td>(b) Collections from debtors</td>
<td>-</td>
<td>Amount to be expected from all debtors.</td>
</tr>
<tr>
<td>(c) Loan or Other Cash Injection</td>
<td>-</td>
<td>Indicate here all cash injections not shown in 2(a) or 2(b) above.</td>
</tr>
<tr>
<td><strong>3. TOTAL CASH RECEIPTS</strong></td>
<td>[2a + 2b + 2c=3]</td>
<td>Self-explanatory</td>
</tr>
<tr>
<td><strong>4. TOTAL CASH AVAILABLE</strong></td>
<td>Before cash out (1 + 3)</td>
<td>Self-explanatory</td>
</tr>
<tr>
<td><strong>5. CASH PAID OUT</strong></td>
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<tr>
<td>(a) Gross Wages</td>
<td>-</td>
<td>Base pay plus overtime [if any]</td>
</tr>
<tr>
<td>(b) Rent</td>
<td>-</td>
<td>Self-explanatory</td>
</tr>
<tr>
<td>(c) Telephone</td>
<td>-</td>
<td>Self-explanatory</td>
</tr>
<tr>
<td>(d) Utilities</td>
<td>-</td>
<td>Water, heat, light, and/or power</td>
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<tr>
<td>(e) Advertising</td>
<td>-</td>
<td>Self-explanatory</td>
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<tr>
<td>(f) Other Expenses [Specify each]</td>
<td>-</td>
<td>Any other expenses incurred by the company</td>
</tr>
<tr>
<td><strong>6. TOTAL CASH PAID OUT</strong></td>
<td>Total 5a thru 5f</td>
<td>Self-explanatory</td>
</tr>
<tr>
<td><strong>7. CASH POSITION</strong></td>
<td>End of month 4 minus 6</td>
<td>Enter this amount in (1) Cash on Hand following month</td>
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</table>
In order to keep your solar light in good working order it is important to understand some key **Do's** and **Don'ts**.

<table>
<thead>
<tr>
<th>DO'S</th>
<th>DON'TS</th>
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<tr>
<td>Charge your light with the panel facing the sun</td>
<td>Do not try to repair, open or temper with your light or panel</td>
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<tr>
<td>Do charge your light every day even when it is cloudy</td>
<td>Do NOT put near fire or hot surfaces</td>
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<tr>
<td>Use the light for 4 or more hours a night after fully charging it</td>
<td>Do not leave the solar light outside in the rain</td>
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<tr>
<td>Keep your light and panel clean and free of dirt or dust</td>
<td>Do not allow sand or dirt near the light. When the panel is wet or dirty, wipe it clean</td>
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<tr>
<td>Charge your phone during the day while the panel is facing the sun to maximize battery usage *</td>
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</table>

* for the products charging phones
APPENDIX 9 – ILLUSTRATIVE MIND MAP

Source: Author’s own creation