

The adoption of soft skills in supply chain and understanding its current role in supply chain management skills agenda: A UK perspective

Abstract

Purpose - With supply chains expanding in scope and scale globally, the academic literature underlined the increasing role and importance of soft skills. Traditionally, the supply chain literature geared towards hard skills including functional and technical skill sets with limited discussion on soft skills. Therefore, the purpose of this paper is to assess and explore the soft skills demand in supply chain management arena.

Design/Methodology/approach – This study has utilised a mixed methods study in two phases, with first stage including a questionnaire distributed to 120 supply chain employees in the UK, followed by six interviews with supply chain experts in the UK.

Findings – The results suggest that soft skills, especially behavioural skills such as communication, planning, initiative and negotiation were seen to be more important when compared to decision making, negotiation and management skills. The findings indicate that the changing supply chain scope encourages the requisition and development of different supply chain soft skills with varied levels of emphasis in relation to fifteen soft skills identified in the literature.

Research implications – This study employs a mixed-method approach to establish the perceived importance of soft skills in the UK supply chains. This limits the generalizability of the results to other contextual settings.

Practical implications –This paper presents soft skills impact upon the supply chain. Specific soft skills are critical to supply chain employees compared to others (e.g. behavioural and people management skills), which may lead to articulation of supply chain soft skills training initiatives.

Originality/value –This paper contributes to the soft skills discussion in the supply chain context and discusses the role of soft skills. Topical gaps in the literature are identified as areas for future research. The findings have generated additional supply chain skills to the academic literature as well as provided an understanding of the weighting of soft skills in terms of their importance and application to industry needs.

Keywords – Supply Chain Management, Soft Skills, Supply chain skills, UK

Article Classification – Research paper

Background

The literature on supply chain skills indicates the need for a balance of both hard skills (functional) as well as soft skills (relational) in order to manage global supply chains (Cottrill, 2010; Ellinger & Ellinger 2014; Murphy & Poist 2007; Jordan and Bak, 2016; Gammelgaard & Larson 2001). Dubey and Gunasekaran (2015:89) also note that “hard skills combined with soft skills, definitely offer a competitive edge to managers”. In the last twenty years there has been a growing emphasis towards ‘softer’ aspects of supply chain skills (Ellinger & Ellinger 2014; Murphy & Poist 2007). Whereby, soft skills have been defined as abilities and traits that pertain to personality, attitude, and behaviour rather than to formal or technical knowledge (Moss and Tilly, 1996). However, the tendency in the supply chain research agenda was driven towards hard skills, as it has been regarded more attributable to employers’ needs (Balcar, 2016; Bak and Boloucher-Passet, 2013; Tadesco et al., 2014). Hence, in the context of supply chain skills, hard skills have been interlinked with functional and management skills, such as inventory management, transport management and logistics service management (Derwik & Hellstrom 2017; Sodhi et al., 2008), which has entailed a level of “technical expertise and knowledge needed for a job” (Robles, 2012:453), which were far easier for firms to measure (Balcar, 2016). However, a recent study conducted by Groysberg (2014) found that skill requirements that were once primarily aimed at sourcing functional and hard skills have now become a standard requirement, whilst key decisions about hiring tend to focus on the interpersonal and relational skills. Similarly, a report by Langley in collaboration with Capgemini Consulting (2015) supported the fact that future supply chain skills will need to include soft skills to supplement hard skills, and another survey found that 72% of CEO’s felt that soft skills are more important for their business in the current environment (Economist, 2016). Although the importance of soft skills are on the rise, there is limited research, which may be due to the fact that “the measurement of soft skills is difficult as there is no objective way to test the skill itself as opposed to hard skills” and hence soft skills requirements and its measurement could show variance across companies’ needs (Balcar, 2016:454).

According to Davis & Muir (2004), in the past an employee’s soft skills didn’t matter as long as they could do their job, but now positions traditionally associated with hard, task-orientated work like accounting (Cole, 1999) and information systems (Solomon, 2000) require soft skills alongside the traditional hard skills. With increasing demand for soft skills, new skills sets have been recognised, such as flexibility, negotiation, which have not

necessarily being associated with, supply chain and logistics in the past (Ellinger et al., 2002; Balou, 2007). The external environment also influences this trend towards soft skills, where some hard skills can become obsolete and not transferable from one situation to another (Kapp, 1999), whereas, soft skills are more transferable and adaptable in a fast-paced environment (Giunipero, et al., 2006). However, there is limited research on soft skills and their role in the supply chain (Jordan and Bak, 2016; Koh, 2017; Smith-Doerflein et al., 2011; Shub and Stonebraker, 2009; Sweeney, 2013; Tokar, 2010). Therefore, the primary aim of this paper is to investigate soft skills in the supply chain management since the literature review suggests that there is a need to identify the soft skills gap in the supply chain as well as to what extent the soft skills are needed. With this overall purpose based on the extant literature the following research questions will be explored; what do the soft skills play within the current supply chain? and to what extent can we observe the soft skills impact in supply chain context?

To address these research questions our paper is structured as follows. The next section presents a short background of the soft skills within the supply chain context. In the following section, we describe the methodology including the sample selection. The paper concludes with key findings and their implications for researchers and discusses areas for future research.

Defining the role of soft skills; a supply chain perspective

Traditionally the definition of hard and soft skills were based on the nature of skills with hard skills associated with technical and administrative categories, whereas soft skills corresponding to the skills in the human, conceptual, leadership and interpersonal categories (Weber, 2009). Within this context soft skills are defined as the skills related to the acquisition of interpersonal, human, people or behavioural skills in the workplace (Rainsbury et al, 2002). Within the supply chain context, a combination of hard (functional and managerial) and soft (relational and behavioural) skills is required to manage supply chains effectively (Getting, 2014). According to Russell (2016) supply chains in 2020 will require interpersonal, communication, collaboration, and sales skills which will help integrate supply chains. Giunipero and Percy (2000) as well as Jordan and Bak (2016) have grouped soft skills in supply chains under (1) decision making skills, (2) management skills, (3) behavioural skills, but also included a new direction highlighting the role of (4) negotiation skills as derived skill sets from the literature.

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3 *Decision Making Skills.* Decision making skills have been highlighted as one of the most
4 important skills for supply chain employees, considering the 24/7 global service availability,
5 skills such as problem solving, organisational skills, planning, flexibility, and initiative
6 became important in the supply chain context (Giunipero and Percy, 2000; Jordan and Bak,
7 2016). The study by Murphy and Poist (1991) underlined the importance of problem solving
8 skills, which was also later echoed by Jordan and Bak (2016) who noted that “[a]lthough
9 problem solving skills might be taught at the classroom level, nevertheless experience is
10 perhaps the most effective means of developing this skill”, which refers to contextual
11 relationship of the soft skill. This finding is also in line with Bak and Boloucher-Passet
12 (2013) whose research indicated that problem solving skills are imperative however may be
13 subject to change based on the context and industry specifics (Kovács et al., 2012).
14 Similarly, Lutz and Birou (2013) viewed planning as an important skill for supply chain
15 management, with attributes relating to the ability to plan and organise, ability to supervise,
16 and delegate responsibility. Commitment and flexibility were seen necessary as a supply
17 chain skill for today’s supply chains (Basnet, 2000; Bowersox, 2002; Jordan and Bak, 2016;
18 Lorenz et al., 2013). Busaibe et al. (2017) concur that employees who display flexibility
19 within their workplace roles, are much more effective when company goals change. With
20 flexibility and initiative becoming increasingly pivotal as supply chains are affected by
21 information technology (IT) (Bowersox, 2002; Lorenz et al., 2013), product proliferation
22 and shorter product life cycle times (Bowersox, 2002; Lorenz et al., 2013), initiative;
23 thinking ‘outside the box’ becomes important (Jordan and Bak, 2016). The initiative is
24 especially imperative within an industry challenged to find new solutions and innovations to
25 continually drive service levels up and costs down, requiring supply chain experts to take
26 the initiative in order to respond.

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45 *Management skills.* Management skills as soft skills which have attracted interest in the
46 supply chain as a valuable skill (Christopher, 2004; Kovacs et al., 2012; Lutz and Birou,
47 2013). One, that can equip supply chain employees to cope with a variety of different
48 situations within the expanding scope of global supply chain (Jordan and Bak, 2016).
49 Management skills includes, people management, teamwork, leadership skills and
50 collaborative learning. The academic literature highlighted the individual management
51 skills, such as the people management, team working (Gammelgaard and Larson, 2001;
52 Lutz and Birou, 2013; Myers et al., 2004) and collaborative learning (Thomchick, 1997).
53 Collaborative learning is identified by Thomchick (1997) as a means by which students
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engage with others as part of the learning process. However, the ability to actively participate in discussions and to critically assess the objects for discussion is continuing in the workplace (Jordan and Bak, 2016). Previous research indicated the importance of leadership as a key skill for an effective supply chain (Hoffman 2005; Jordan and Bak, 2016; Lutz and Birou, 2013). The shift in inclusion and importance of management skills resonates with Sohal's (2013) findings, which suggest that effective team-working skills are essential for the successful integration of intermediaries along the supply chain, with consideration to both local and global partners. For example the UKCES (2014) study found that employers in the logistics industry noted that available personnel at interview did not always have a full range of skills required to be successful in the supply chain.

Behavioural skills. Behavioural traits are often seen as key employability factors, Yew Wong et al. (2014:539) noted that supply chain managers "must be good managers first and logisticians second". Within the supply chain context, academic studies included effective communication (Sauber et al., 2008; Lambert et al., 2008; Derwik & Hellstrom, 2017), time management (Jordan and Bak, 2016; Myers et al., 2004), motivation and enthusiasm (Gammelgaard and Larson, 2001; Murphy and Poist, 1991; Jordan and Bak, 2016; Yew Wong et al., 2014). For example, one of the behavioural skills, communication, in both written and oral formats, and at all levels of management was seen as necessary (Gammelgaard and Larson, 2001). Whereas the time management skill has been seen rather important in managing contemporary supply chain context, which operates on a 24/7 basis to meet increasing customer demands in real time across the globe (Myers et al., 2004; Jordan and Bak, 2016). Some of the soft skills have been also associated with the managerial levels, for example Murphy and Poist (1991) found that motivation skills are particularly of importance for senior logistics executives. Another soft skill, which is impacted by the demands of a fast-paced, competitive environment, is the demand for stress management stemming from the widening scope and scale of supply chains. Hence, Myers et al. (2004) and Kovács et al. (2012) found that stress management is an essential element to cope with the supply chain challenges of today's workplace.

Negotiation Skills. With the expanding scope and scale of supply chains in the management of change and complexity have been viewed as imperative (Bak and Boloucher-Passet, 2013; Ankers and Brennan, 2002; Sheffi and Klaus, 1997). The expanding scope and scale of supply chains have led the need for employees who can cope with the changing scope of

supply chains. Negotiation has been recognised only by Kovács et al. (2012) as a supply chain skill, especially in a humanitarian context. According to Jordan and Bak (2016: 620) negotiation skills scope may vary with those in “more senior roles, seeing this as a high level attribute specifically relating to commercial negotiations between existing and potential business partners. However, it is equally a determinant of success at lower managerial and operational levels as it enables the individual to coordinate activities with other functional departments and instigate trade-offs to the benefit of all parties”. For all these reasons, the primary aim of this paper is to investigate soft skills in the supply chain management context since it represents a relevant and overlooked context. We adopt four categories of supply chain soft skills as noted in the academic literature as a lens to help understand and contextualise the study’s findings and to identify any soft skills categories which affect the supply chain.

Soft Skills	Authors
Decision making Skills	
Problem solving	Murphy and Poist, (1991); Jordan and Bak, (2016); Bak and Boloucher-Passet, (2013); Lutz and Birou, (2013)
Organisational skills	Jordan and Bak, (2016); Kovács et al., (2012)
Planning skills	Lutz and Birou, (2013) ; Jordan and Bak, (2016)
Flexibility	Basnet, (2000); Bowersox, (2002); Lorenz et al., (2013); Jordan and Bak, 2016; Ellinger et al., (2002); Balou, 2007, Pradham et al. (2017)
Initiative	Jordan and Bak, 2016; Busaibe et al. (2017)
Behavioural Skills	
Communication	Britt (2016); Cottrill, (2010); Dubey and Guneseakaran (2015); Gammelgaard and Larson, (2001); Jordan and Bak, (2016); Sauber et al., (2008); Lambert et al., (2008); Derwik & Hellstrom, (2017)
Time management	Jordan and Bak, (2016); Myers et al., (2004)
Motivation and enthusiasm	Gammelgaard and Larson, (2001); Murphy and Poist, (1991); Jordan and Bak, (2016); Yew Wong et al., (2014)
Stress management	Jordan and Bak, (2016); Myers et al., (2004); Kovács et al., (2012)
Management Skills,	
People management	Christopher, (2004); Kovacs et al., (2012); Lutz and Birou, (2013); Jordan and Bak, (2016); Getting (2014)
Teamwork	Lutz and Birou, (2013); Sohal, (2013); Jordan and Bak, (2016)
Leadership skills	Hoffman, (2005); Kovács et al., (2012); Lutz and Birou, (2013) Jordan and Bak, (2016)
Collaborative Learning	Thomchick, (1997); Jordan and Bak, (2016)
Negotiation Skills	
Management of complexity and change	Ankers and Brennan, (2002); Jordan and Bak, (2016); Bak and Boloucher-Passet, (2013); Sheffi and Klaus, (1997)
Negotiation	Jordan and Bak, (2016); Kovács et al., (2012)

Table 1: Compiled Supply Chain Soft Skills

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3 Based on a comparison of the skills listed by previous supply chain researchers in Table 1,
4 the research will identify and explore the role of soft skills in supply chains, which is
5 described and explored in the following methodology section.
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9 **Methodology**

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11 This study utilises a mixed method research which include the "...collection and analysis of
12 both qualitative and quantitative data in a single study in which the data are collected
13 concurrently or sequentially [which] involve the integration of data at one or more stages in
14 the process of research." (Creswell et al., 2003:212). A mixed method study is especially a
15 good choice when the study requires "the researcher to simultaneously answer confirmatory
16 and exploratory questions, and therefore verify and generate theory in the same
17 study" (Teddlie and Tashakkori, 2003:15).
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25 There are three distinctive advantages of using mixed methods including; a) obtaining a
26 convergence and integration of findings which enhances or expands the research, b)
27 shrinkage of other possible explanations for conclusions made from the data, and c)
28 elucidation of different aspects of the phenomenon under investigation (Johnson & Turner,
29 2003). The use of the mixed methods in studies intends to eliminate what Van Maanen
30 (1979) refers to as losing the touch between the concept and the measure by using causation
31 between variables. By using mixed methods, the researcher aims to have "greater faith in
32 [the] findings and make greater contributions to the field" through the dual emphasis on
33 both "discovery and justification" (Curren & Towler, 2003). It is important in mixed
34 methods to consider the data integration point, as stated by Tashakkori & Teddlie (2003)
35 and Creswell et al. (2003) the integration might occur at different (multiple) stages either
36 within the research question, within the data collection and analysis, or interpretation of
37 findings. Therefore, "the mixed methods researcher needs to design a study with a clear
38 understanding of the stages at which the data will be integrated and the form this integration
39 will take" (Creswell et al., 2003:222). The current research followed sequential exploratory
40 mixed methods design, which moved from deductive logic to an inductive logic (Figure 1).
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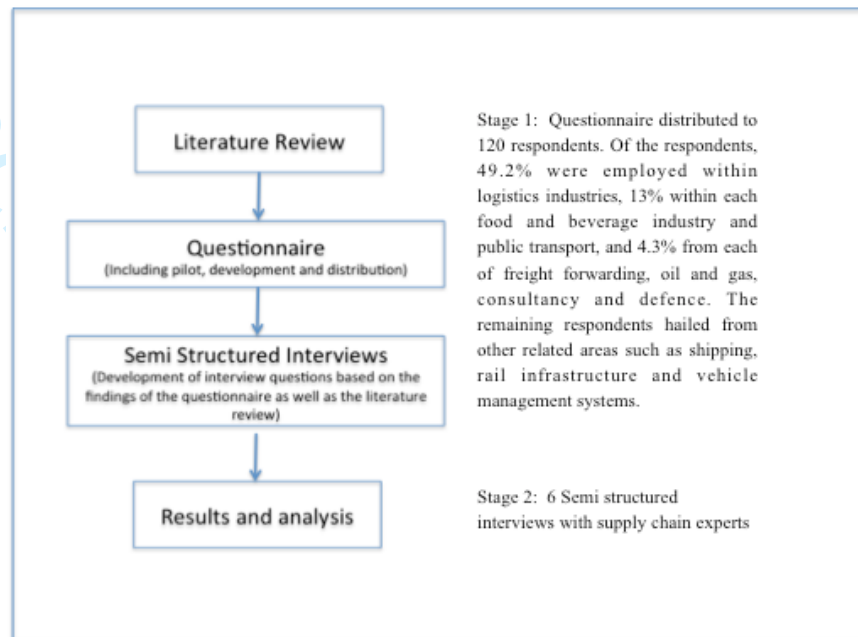


Figure 1: The use of explanatory sequential mixed methods utilised in the current study

The first stage of the mixed methods research entailed a questionnaire distributed by e-mail to a sample of supply chain employees working in the industry. The data collection was derived from a set of nationally recognised employers who have recruited supply chain graduates, including manufacturers, retailers, logistics service providers, consultancies, etc. The survey instrument was developed based on a comparison of the skills listed by previous supply chain researchers in Table 1. The survey was pilot tested within the higher education institution to test for clarity of questions and concepts used, additions, modifications and alterations were undertaken based on the feedback.

The sample selected consisted of a total of 120 respondents, the response rate achieved 20% with respondents employed in supply chain roles ranging from director to management trainee. Of the respondents, 70% had worked with their current employer for over 24 months and hence are likely to have a deeper understanding of the demands for supply chain graduate skills. In order to determine the skills requirements, the questionnaire was designed using a seven-point Likert scale. Respondents were asked to rate each of the skills listed. Followed by a second stage interview developed based on the findings of the questionnaire and a comparison of the skills listed by previous supply chain researchers in Table 1. The semi structured interview has been

The survey instrument

The survey instrument was tested for reliability, factor loadings and average variance explained (Table 4). The exploratory factor analysis (EFA) is used to find the validity of constructs as suggested by Fabrigar et al. (1999) for established measures in Table 1. using principal component analysis with varimax rotation. The scales' reliabilities ranged from .691 to .952 with average variance extracted ranging from 61% to 90%. The factor loadings ranged from .549 to .919 ($p < .01$). Table 2 below reports the complete CFA results. The initial analysis for reliability indicated that all measures were acceptable at a minimum for Cronbach's coefficient alpha of 0.60 and in case of explorative measures 0.50 (Hair et al., 2011), implying that they were internally consistent. According to Churchill (1979), if the study is exploratory in nature, the Cronbach's coefficient alpha levels between 0.50 and 0.60 are acceptable. For this study the Cronbach's coefficient alpha ranges from 0.63 to 0.90. The factors and their respective scales and the Cronbach's coefficient alpha levels are shown in Table 2.

Soft Skills Categories	Soft skills	Item	Std. factor loading	Cronbach's Alpha	Average Variance Extracted		
Decision Making Skills	Problem solving (PRO)	PRO1	.927	.903	85.41		
		PRO2	.884				
		PRO3	.751				
	Planning skills (PLN)	PLN1	.702			.813	74.47
		PLN2	.835				
		PLN3	.697				
	Flexibility (FLX)	FLX1	.593			.756	67.56
		FLX2	.710				
		FLX3	.824				
Behavioural Skills	Organisational skills (OSM)	OSM1	.915	.875	81.59		
		OSM2	.962				
		OSM3	.828				
	Communication skills (COM)	COM1	.694	.878	82.39		
		COM2	.898				
		COM3	.880				
	Time management (TIM)	TIM1	.724	.797	71.46		
		TIM2	.713				
		TIM3	.716				
	Motivation and enthusiasm (MAE)	MAE1	.815	.732	69.16		
		MAE2	.644				
		MAE3	.616				
	Stress management (SSM)	SSM1	.916	.952	91.73		
		SSM2	.948				
		SSM3	.888				
Initiative (INI)	INI1	.548	.793	71.74			
	INI2	.776					

		INI3	.828		
Management Skills	People management (PEM)	PEM1	.734	.825	75.05
		PEM2	.855		
		PEM3	.662		
	Collaborative learning (COL)	COL1	.793	.691	64.93
		COL2	.652		
		COL3	.903		
	Teamwork (TEW)	TEW1	.782	.637	61.93
		TEW2	.350		
		TEW3	.726		
	Leadership skills (LES)	LES1	.913	.879	81.24
LES2		.669			
LES3		.855			
Negotiation Skills	Management of complexity and change (MCC)	MCC1	.906	.865	91.17
		MCC2	.919		
		MCC3	.910		
	Negotiation (NEG)	NEG1	.776	.772	69.31
		NEG2	.770		
		NEG3	.533		

Table 2: Items, reliability and factor loadings

Table 3 presents the results of the correlation analysis between the soft skills and their interrelationships. Based on the correlation analysis, the results indicate that, apart from time management skills, all other variables have prominent and positive correlations with each other, except time management with leadership and planning skills.

	PRO	OSM	PLN	FLX	INI	COM	TIM	MAE	SSM	PEM	TEW	LES	COL	MCC	NEG
PRO	1														
OSM	.570**	1													
PLN	.735**	.589**	1												
FLX	.785**	.483*	.560**	1											
INI	.802**	.722**	.705**	.764**	1										
COM	.584**	.677**	.603**	.377	.757**	1									
TIM	.186	.325	-.099	.140	.118	.198	1								
MAE	.613**	.348	.733**	.408	.534**	.617**	.039	1							
SSM	.525*	.730**	.691**	.423*	.785**	.816**	.095	.576**	1						
PEM	.774**	.547**	.689**	.806**	.713**	.581**	.188	.600**	.464*	1					
TEW	.743**	.649**	.688**	.747**	.848**	.560**	.176	.415*	.734**	.602**	1				
LES	.719**	.308	.622**	.764**	.690**	.474*	-.021	.558**	.446*	.647**	.776**	1			
COL	.665**	.741**	.607**	.609**	.776**	.673**	.322	.458*	.694**	.632**	.754**	.455*	1		
MCC	.590**	.450*	.437*	.765**	.646**	.469*	.041	.424*	.316	.798**	.452*	.561**	.454*	1	
NEG	.828**	.445*	.363	.723**	.651**	.481*	.325	.385	.296	.766**	.513*	.601**	.476*	.649**	1.

Table 5: Correlations

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

The highest correlation between the soft skills was found to be significant between negotiation and problem solving as well as between team work and initiative. The

interrelationship between negotiation and problem solving is a determinant of success at lower managerial and operational levels, as it enables the individual to coordinate activities with other functional departments and instigate trade-offs to the benefit of all parties (Jordan and Bak, 2016).

	Range Statistic	Minimum	Maximum Statistic	Mean	Mean Std. Error	Statistic	Std. Dev. Statistic
<i>Decision making skills</i>							
PRO	3.00	4.00	7.00	6.09	.17	.810	.669
OSM	2.67	4.33	7.00	6.04	.17	.830	.700
PLN	2.00	5.00	7.00	6.39	.14	.670	.451
FLX	2.66	4.33	7.00	5.86	.17	.810	.665
INI	2.33	4.67	7.00	6.04	.15	.740	.549
<i>Behavioural skills</i>							
COM	3.66	3.67	6.30	6.30	.17	.840	.706
TIM	4.66	4.67	5.91	5.91	.14	.683	.467
MAE	4.33	4.33	6.07	6.07	.17	.822	.676
SSM	2.66	2.67	6.01	6.01	.21	1.032	1.06
<i>Management Skills</i>							
PEM	4.66	4.67	6.05	6.06	.16	.780	.623
TEW	4.66	4.67	6.13	6.13	.16	.770	.593
LES	3.00	3.00	6.01	6.01	.20	.976	.954
COL	4.00	4.00	6.15	6.16	.18	.892	.797
<i>Negotiation Skills</i>							
MCC	4.33	4.33	5.92	5.93	.17	.840	.707
NEG	4.33	4.33	6.01	6.01	.17	.820	.682

Table 3: Soft skills descriptive analysis

Based on the feedback received, the questionnaire instrument was refined. When looked into, the distribution of soft skills based on highest emphasis, we observed that behavioural skills in addition to management skills have achieved the highest averages across the soft skills categories, indicating the significant role of these soft skills (Figure 2).

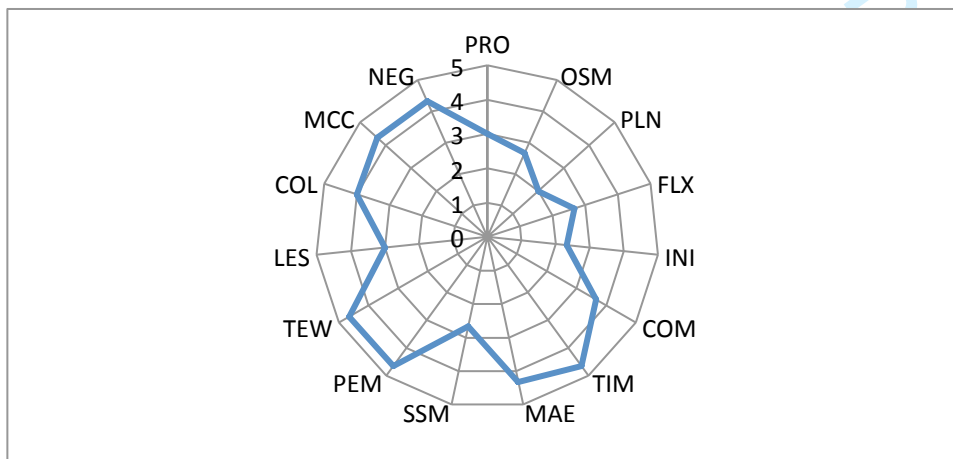


Figure 2: Distribution of skills based on emphasis

Findings and Analysis

The research has provided an insight to supply chain soft skills based on four categories based on decision making skills; behavioral skills; management skills and negotiation skills with a set of fifteen soft skills that has been addressed in the supply chain literature. The results suggest that soft skills, especially behavioural skills such as communication, planning, initiative and negotiation were seen to be more important when compared to decision making, negotiation and management skills. The findings indicate that the changing supply chain scope encourages the requisition and development of different supply chain soft skills with varied levels of emphasis in relation to fifteen soft skills identified in the literature.

Decision making skills. Decision making skills have been seen as one of the most important skills for including skills such as planning, flexibility and problem solving. Communication skills were seen as imperative by the interviewees who noted that soft skills such as the communication and organisational skills, with one the interviewee noting that “...communication and organisational skills have [played] a paramount [role] in my career to date”. “[to] be able to formulate and present an effective argument and be able to deal with [it]”. The questionnaire also indicated that problem solving skills were ranked as one of the highest emphasis under decision making skills. The highest score that was achieved between the other soft skills was planning skills, as indicated by an interviewee; “[p]lanning skills was seen important” and allowed the management of “diverse tasks within bigger projects. This allows them to become flexible and adaptable employees in future.” This finding is also in line with Bak and Boloucher-Passet (2013) whose research indicated that problem solving skills and planning skills are imperative within the context of the supply chain. Whereas, organisational skills are overarching and do not relate solely to the supply chain context and hence may vary based on the industry specific context (Kovács et al., 2012; Lutz and Birou, 2013).

Similarly, our findings indicated that respondents placed a high emphasis on organisational skills within the supply chain soft skills context. One interviewee noted that they “[n]eed to promote more logical thinking”. Another interviewee agreed “[d]eveloping the ability to investigate a subject, allowing the best possible decision making process to take place” was important. Whereas, the planning skills indicated in our findings in line with who viewed planning as an important skill for supply chain management. Interestingly, flexibility was

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3 seen as important by all respondents, but achieved the lowest mark, despite the emphasis in
4 the literature that flexibility has become pivotal nowadays (Bowersox, 2002; Lorenz et al.,
5 2013, Pradhan et al., 2017) as a result of the growing demands of supply chain (Basnet,
6 2000; Bowersox, 2002; Jordan and Bak, 2016); the shorter and more frequent product life
7 cycle times (Bowersox, 2002; Lorenz et al., 2013), and the transition of business towards
8 integrative management (Bowersox, 2002). Whilst initiative as a soft skill was given one of
9 the highest rankings, as a result of boundary spanning supply chains which require initiative,
10 creative thought or thinking. As one interviewee noted, it required thinking ‘outside the
11 box’. Another interviewee noted that “[w]e hope, as the students are learning to manage
12 diverse tasks within bigger projects, this allows them to become flexible and adaptable.
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21 Initiative is especially important within an industry, which is challenged to find new
22 solutions and innovations to continually drive service levels up and costs down, requiring
23 supply chain experts to take the initiative in order to respond. Initiative and problem solving
24 was seen as a compulsory part of tasks and processes as noted by a respondent “[it is]
25 expected [that a graduate or manager would] take the initiative when working and devising
26 projects.” An assessment of industry needs identified initiative and innovative thinking as
27 being a significant feature, indicating similarities and conformance to Gammelgaard and
28 Larson’s (2001) and Busaibe et al’s (2017) studies. Murphy and Poist (1991) similarly
29 underlined the importance of problem solving skills within the context of supply chain
30 skills. It was interesting that interviewees felt that the two skills were closely interrelated,
31 which was inline with our findings with correlation of .802 which was significant at the 0.01
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43 *Behavioural Skills.* Our findings indicated a high emphasis on these soft skills, including
44 communication, time management, motivation and enthusiasm, and stress management.
45 Similarly, Gammelgaard and Larson (2001) study concluded that communication was one of
46 the most important skills for supply chain management employees. Within our study,
47 communication skills also included a high agreement with a maximum of 6.30 and with SD
48 of .840, indicating high agreement overall. The interviewees also responded that “...effective
49 communication was instrumental at a strategic level in career development”, another
50 interviewee noting that communication had a “high impact on the career progression”.
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57 Time management has been viewed as an essential skill for managing contemporary supply
58 chains (Myers et al., 2004). A characteristic of the supply chain involves activities that are
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3 time-sensitive and interconnected to meet increasing customer demands in real time.
4
5 However, in our study, as a behavioural skill, this achieved a lower mean average with 5.91.
6
7 Myers et al. (2004) and Kovács et al. (2012) indicated stress management to be an essential
8
9 element necessary to cope with the demands of a fast-paced, competitive environment; this
10
11 was also confirmed in our study. Murphy and Poist (1991) found that motivation skills are
12
13 particularly of importance for senior logistics executives. Despite its importance, one
14
15 interviewee noted that “motivational skills are perhaps missing from ... skills.” As Yew
16
17 Wong et al. (2014:539) highlighted, this may be still a relevant discussion, especially where
18
19 senior executives “must be good managers first and logisticians second”. One interviewee
20
21 noted that “[d]elegation and motivational skills are perhaps missing from the ... skills
22
23 portfolio.” Also, interestingly the notion of self-motivation was raised as important to
24
25 respondents with another interviewee noting that “learning to deal with stress and
26
27 complexity within the group and individual tasks as well as managing tight deadlines.”

28 *Management Skills*

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30 People management includes many sub-skills such as working in a team (Gammelgaard and
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32 Larson, 2001; Lutz and Birou, 2013; Myers et al., 2004) and collaborative learning
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34 (Thomchick, 1997). As a standalone category, people management skills as an overall
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36 evaluation attracted one of the highest rankings of the categories under investigation. People
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38 management was seen as a valuable skill for all respondents, this is in agreement with
39
40 previous studies on supply chain skills (Christopher, 2004; Kovacs et al., 2012; Lutz and
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42 Birou, 2013). Our findings also indicated that employees should be equipped with the
43
44 necessary people management skills to deal with a variety of different situations within the
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46 global scope of supply chains, with one interviewee noting that; “it is directly linked to
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48 “[everyday] practical application to the workplace [and] interpersonal skills are paramount
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50 in the workplace.” Employers noted that the ability to work as part of a team was important
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52 in the workplace. This resonates with Sohal’s (2013) findings, which suggest that effective
53
54 team-working skills are essential for the successful integration of intermediaries along the
55
56 supply chain, with consideration to both local and global partners.

57
58 The findings placed leadership skills as a vital area which required further development.
59
60 This is in line with previous research indicating the importance of industry leadership skills
in supply chain management (Hoffman 2005; Lutz and Birou, 2013) as a key ingredient to
lead effectively (Hoffman, 2005; Kovács et al., 2012; Lutz and Birou, 2013). Collaborative

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3 learning is identified by Thomchick (1997) as a means by 'lifelong learning', the ability to
4 actively participate in discussions and to critically assess the objects for discussion are
5 encouraged during the academic process and this can also continue in the workplace to
6 generate graduates who are active in their learning through listening and working with
7 others.
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11 Collaborative learning is rated highly within the study, indicating the importance of
12 involvement of a range of contributors in the learning process, which may reflect the
13 changing scope and scale of supply chains (Jordan and Bak, 2016).
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17 18 19 *Negotiation Skills*

20 Although in the literature, managing change and complexity have been viewed as important
21 (Bak and Boloucher-Passet, 2013; Ankers and Brennan, 2002; Sheffi and Klaus, 1997), this
22 contradicts our findings, which indicated that the respondents viewed it as a skill of average
23 importance. One interviewee noted that "[a]lthough change management has been ... an
24 integral part in the discussion of project management as well as information technology
25 applications." This may be due to the fact that negotiation is a key activity both internally
26 and externally to an organization and relates to the effectiveness of personal communication
27 and expertise in interpersonal relations. The perception of the term "negotiation" may vary
28 with those in more senior roles, seeing this as a high level attribute specifically relating to
29 commercial negotiations between existing and potential business partners (Jordan and Bak,
30 2016). However, it is equally a determinant of success at lower managerial and operational
31 levels as it enables the individual to coordinate activities with other functional departments
32 and instigate trade-offs to the benefit of all parties. Negotiation has been recognised only by
33 Kovács et al. (2012) as a supply chain skill, especially in a humanitarian context. However,
34 our findings indicated that this skill is not solely relevant to humanitarian supply chains, but
35 also accepted across other supply chain.
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50 **Conclusion and research implications**

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52 This study began with a discussion of soft skills in the supply chain arena, identified in the
53 academic literature. The discussion surrounding supply chain soft skills needs is not new,
54 although the emphasis on specific soft skills areas has evolved over time based on industry
55 needs (Bak and Boloucher-Passet, 2013). However, on-going discussions have omitted the
56 soft skills impact and development, whereas hard skills have been widely explored and
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acknowledged (Bowersox, 2002; Kirby 2003; Mangan and Christopher, 2005). Supply chains are increasingly people-driven and are highly dependent on the specific skills, and the strength of these skills, for their overall success. When investigating the soft skills, our study indicated several findings. Firstly, the changing competitive global environment indicated the increasing need for supply chain soft skills with an emphasis placed on behavioural skills, decision making skills and management skills as critical in soft skill discussions in the UK. The results suggest that soft skills, especially behavioural skills such as communication, planning, initiative and negotiation were seen to be more important when compared to decision making, negotiation and management skills. The findings indicate that the changing supply chain scope encourages the requisition and development of different supply chain soft skills with varied levels of emphasis in relation to fifteen soft skills identified in the literature.

However, the discussion on individual supply chain soft skills such as time management (Gammelgaard and Larsson, 2001; Meyers et al, 2004) and initiative (Christopher, 2004; Kovacs et al. 2012; Lutz and Birou, 2013) reflect the diverse nature of supply chain soft skills, requiring further investigation. Specific soft skills seem to be more critical to certain supply chain employers compared to others (e.g. behavioural and people management skills), which may be a result of factors such as the nature of those organisations, the sector they operate in, the relative size and structure, and their competitive environment. Although many of these soft skills derive from innate ability, the organisation and workplace culture plays a considerable role (Busaibe et al., 2017). Whilst an awareness of organisational culture and its impact upon soft skills is recognised as of increasing importance by Srivastava and Dubey (2015). Based on our findings, the soft skills should encourage organisations, educators and employers to consider ways in which such skills can be explored, developed and enhanced, within the context of their working environments. Hence, this research also may lead to articulation of supply chain soft skills training initiatives. Soft skills training initiatives may be most effective when driven by the joint effort of both educators and employers, and this could offer a valuable future strand of research.

Limitations and directions for future research

The current study has examined the supply chain soft skills, moreover the four categories of soft skills adoption. Despite the interesting findings of the study, there are certain limitations

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3 that need to be addressed at this stage, which revolves around four main categories. The first
4 limitation is the limitation of context whereby the results are derived from UK based sample
5 which may limit the generalisability of our findings for other contextual settings as the soft
6 skills involving country-level variations due to variances driven by culture, values, politics,
7 management styles as stated by (Al-Mehrzi and Sighn, 2016). Such individual differences
8 maybe enhance the understanding of soft skills and differences in supply chains across
9 borders. Hence, the soft skills in current study may be enhanced by additional factors, which
10 can be explored in further studies. Another limitation related to the time limit, in which a
11 longitudinal study to examine the development of supply chain soft skills may be beneficial
12 to understand the impact of change within an organisation places increasing demands
13 on employees to constantly develop their workplace skills. For example; in
14 organisation literature Pradham et al. (2017) and Almatroshi et al (2016) identified
15 emotional intelligence as a component for adaptability to organisational change and can
16 be a factor in driving positive behaviour; hence it would be interesting to evaluate the
17 emotional intelligence as an attribute to soft skills in the supply chain context. These
18 limitations of the current study can be assumed as the bases for carrying out further
19 research on supply chain soft skills, providing future research avenues which may
20 expand and test our findings in new contextual settings.
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