

Supply Chain Manager Skills - The Five Most Important and Why

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Abstract

The Supply Chain Management (SCM) world has become complex and dynamic. What skills do logisticians and supply chain managers need to have to cope with the most recent challenges at work? Being aware of these skills is highly relevant since these people play a fundamental role in ensuring a firm's competitiveness and success. The aim of this research is to (1) study the literature, (2) carry out qualitative interviews with recruiters in the SCM field, and (3) analyze the job postings on Indeed.com to discover the must-have skills for logisticians and supply chain managers. The study helps to bring more clarity to the still young SCM discipline and tries to make people more aware of the key skills in SCM practices.

Keywords: Supply Chain Manager Skills, Supply Chain Leads Responsibilities, Supply Chain Professionals Competencies



1. Introduction

It is hard to generalize what skills supply chain managers should have nowadays. This is because these managers are more diverse than they were in the past. In terms of professional background, they may come from the field of transportation to procurement, IT, finance, etc. They might also get hired immediately after finishing their degree in focused undergraduate courses in logistics and SCM (Mangan et al., 2005).

The inevitable trend towards higher product variety, the shortening of product life cycles, globalization of businesses, permanent changes in information technology, and increased outsourcing make the management of supply chains more complex (Lee, 2002).

Interestingly, 88% of supply chain professionals spoke positively about their job, while 80% said that their job was better than most other jobs. One of the top reasons why people want to build a career in this field is because they want to deal with the challenge of keeping the system up and running in a punctual manner (CSCMP et al., 2021).

The existence of prominent supply chain managers is important as supply chain management is one of the key areas where companies gain competitive advantages (Lee, 2002). Therefore, it is clear how important it is to have supply chain decision-makers who can fulfill their roles adequately.

Supply chain management is a young discipline that is still evolving. However, there has been a lot of disagreement regarding the domain of supply chain managers. Therefore, studies should focus on clarifying the role and responsibilities of supply chain managers, given that they possess a diverse area of responsibilities (de Abreu et al., 2015).

This research tries to identify the five top skills for supply chain managers. A literature review was conducted to investigate the role and responsibilities of supply chain managers. In addition, interviews with three recruiters specializing in the supply chain management field were carried out. The study also analyzed job postings on Indeed.com. The structure of the paper is as follows: the methodology part is divided into 3 parts, namely: literature review, expert interviews, and analysis of job postings. The research is concluded with a small discussion and outlook.

2. Methodology

This study employed multimethod field research to determine the leading supply chain skills that supply chain managers should possess. It consisted of three elements: a literature review that aimed at getting a clearer idea of the manager's professional identity, three qualitative interviews with supply chain recruiters, which corresponded to the ideals of openness and non-influencing of the interview partner, and information about the top skills that was retrieved from indeed.com based on certain keywords.

2.1. Literature review

The current business environment demands supply chain professionals who, instead of thinking in silos, can think in terms of integrated supply chain processes. Supply chain organizations need managers who understand how to manage integrated processes within their

company and between supply chain partners. A paradigm shift transitions the traditional functional perspective to a more horizontal, cross-functional structure. In this regard, universities and other educational institutions should initiate programs that may produce prominent supply chain managers who are fluent in every aspect of the integrated system (Closs et al., 1999).

These supply chain managers must develop the required skills to deal with upcoming challenges in the race against the competition. Considering the five stages concept coined by Dreyfus, transforming these managers will not be easy. According to Dreyfus and Dreyfus (1980), learners undergo five stages of development: (1) novice, (2) competence, (3) proficiency, (4) expertise, and (5) mastery. The more they develop, the less dependent they are on the rules in everyday situations. So, they can act and react more intuitively and appropriately. Once people complete all five stages, they may convert their knowledge into skills (Dreyfus & Dreyfus, 1980).

The Dreyfus model certainly helps supply chain managers understand what they need to do to go from a novice to an expert. Once they reach mastery level, they may see the big picture and go beyond theories when dealing with everyday situations (Daley, 1999). In the opinion of the author, it is precisely the handling of uncertainties that defines the day-to-day work of a supply chain manager, and therefore, that is why one should question whether it is expedient if people come into a logistics/supply chain role right after finishing their degree in Supply Chain Management.

The BLM (Business, Logistics, and Management) framework, which has had several versions over the years, provides invaluable information regarding the required skills for supply chain decision-makers. The recommendation is to combine business, logistics, and management skills for modern logistics executives (Murphy et al., 1991; Murphy et al., 1994; Murphy et al., 2006; Murphy et al., 2007). According to both 1991 and 2007 studies, good managers are also good logisticians. Of the 33 business skills compared between the 1991 and 2007 study, 23 have become more important than before, in which three of them showed the most significant increase: production management, international business, and speech communications. Research also indicates that 12 of the 18 logistics skills investigated have increased in importance, including materials handling and international logistics. 25 of the 32 observed management skills have also been more important, including future threats or opts (Murphy et al., 2007).

Christopher (2011) mentioned that seven business transformations derive from management skill implications. Examples include the transformation from functions to processes, which demands cross-functional understanding and teamwork capabilities. Other skills that influence the other six business transformations are market understanding, customer insight, complexity and change management, information technology competencies, knowledge to define, measure, and manage service demands by market segment, understanding time-based performance indicators, and relationship management (Christopher, 2011).

Gammelgaard et al. (2001) conducted an SCM skills survey with logistics practitioners and students of logistics courses and found a substantial agreement between these two groups on required skills in logistics and SCM, with the top 10 were problem-solving, decision making, teamwork, the ability to see the big picture, prioritizing, written communication, and oral communication. Results from a second survey, conducted with Council of Logistics

Management members with "supply chain" in their titles, show that teamwork, problem-solving, supply chain awareness, the ability to see the big picture, and listening are the five top skills in the field of logistics and SCM. Based on an exploratory factor analysis, three categories of required skills for supply chain and logistics managers come from 45 competencies: interpersonal/managerial basic skills, SCM core skills, and quantitative/technological skills (Gammelgaard et al., 2001).

2.2. Qualitative interviews

Interview one is carried out with Dr. Clemens Schuhmayer (<https://www.schuhmayer.com/>). He deals with management consulting and is a specialist in warehouse and location planning, intralogistics, warehouse technology and automation, material flow and distribution logistics.

The table below shows the most important insights gained from this interview (C.Schuhmayer, personal communication, November 24, 2021).

Table 1. Insights from interview with Dr. Schuhmayer

Required skill	What does this mean?
Good analytical and mathematical skills	The supply chain manager needs to have a feeling for numbers and sizes, flows, and amounts of materials.
Understanding of complex relationships (between areas and companies)	E.g., the production sector manufactures products, wants to optimize the lot sizes, and wants to produce very large lot sizes to improve production. The warehouse sector strives for small lot sizes, therefore less material, so that stocks decrease. The sales department wishes large stocks and many items to be able to offer consumers a lot. The purchasing department wants to buy large quantities to receive more favorable conditions and better purchase prices. The supply chain manager must understand the issues of all areas/departments to be able to optimize the overall system.
View and sense for material and material flows	Is associated with to the ability "Good analytical and mathematical skills", but so important to the interviewee to be mentioned as a separate point.
Ability to work in a team	To be able to find solutions (compromises) with people who often have different ideas and interests.
Communication skills and persuasiveness	To be able to implement solutions in the organization and beyond.

Interview two is carried out with Richard Guest (<https://www.berwickpartners.co.uk/who-we-are/our-team/richard-guest/>). He is an associate Partner in the Procurement and Supply Chain Practice with over twenty years recruitment experience within procurement and supply chain.

The table below shows the most important insights gained from this interview (R.Guest, personal communication, November 24 & 25, 2021).

Table 2. Insights from interview with R. Guest

Required skill	What does this mean?
Strong people management skills	The ability to create a vision, build and create a cohesive team structure, which can often be on a multi-site, multi-cultural basis across a region or globally. In addition to this it has also been crucial over the past 2 years for managers to adapt to managing remote teams whilst ensuring the culture is maintained particularly for those that have started a new role during the pandemic.
Project / Change Management skills	Key skills set required in a fast-changing environment which have been exacerbated over the past 18 months due to the global disruption and impact within the supply chain.
IT / Tech savvy	Huge waves of change in this area with more to come with the impact of AI, Robotics, and data analytics. Coupled with more integrated and efficient systems for mining the data, but it's also imperative that they are or have someone in their team who is an expert in this space to interpret the data and feed that into the functional strategy.
Influencing	Key skill set is the ability to sell to and influence the internal stakeholder community – not on the basis that they have to change their ways to fit your SC model, but to understand where the SC can add value, mitigate risk and drive innovation. Not just to be seen as a blocker for change or the procurement police.
Flexible approach	Ability to react to shifts in market dynamics or the needs and requirements of the business. It is also essential that they have the ability to look on a wider landscape across the business, rather than just through a procurement and supply chain lens. They need to be true business leaders and not just functional leaders.

Interview three is carried out with Sebastian Polesch who is a senior career consultant for supply chain management - purchasing and logistic at Perm4 Permanent Recruiting GmbH (www.perm4.com/supply-chain-management ; www.xing.com/profile/Sebastian_Polesch).

Mr. Polesch told me that in the beginning, although many companies understood the basic idea of SCM, each company interpreted it differently. In 5-10 years, we might be ready to talk about a uniform understanding of a supply chain.

According to Mr. Polesch, the supply chain manager does little operationally himself, but he has the strings in hand and is an architect for the whole construction.

Mr. Polesch said that different industries demand different skills in supply chain management. The pharmaceutical supply chain, for example, deals with topics like regulatory affairs, quality management, traceability of each product, long-term production, introduction of one or two new products a year, and so on. In the fast fashion industry, meanwhile, managers need much more flexibility.

In this regard, the pharmaceutical industry demands managers who can lead their teams to avoid delivery problems and perform well during audits. In the fast-fashion industry, the accuracy of work does not matter much, so managers do not need to be perfectionists. So, managers should be able to tell where they belong. Therefore, Mr. Polesch recommended students take a work contract right away during their study to gain an early positive impression.

The table below shows the most important insights gained from this interview (S. Polesch, personal communication, December 14th, 2021).

Table 3. Insights from interview with S. Polesch

Required skill	What does this mean?
Ability to take on a bird's eye view	<p>The supply chain manager has to adjust to the specific company he or she is working for and has to speak to every department.</p> <p>Basic empathy towards everyone who is in the process.</p> <p>Should question processes (especially if he is new to the company as a supply chain manager).</p> <p>E.g., in the automotive industry, the supply of Chinese ball bearings was disrupted by the covid-19 pandemic. When China was able to reproduce, the German automotive market was flat. In Germany, they cannot deliver ball bearings for 20 months because they did not produce them at first. Then, the market refused their products. This shows that the supply chain manager should always consider how the world could turn and change abruptly.</p>

	He should also think about what can happen if he does not have any contingency plan.
Strong communication skills	<p>The supply chain manager has to communicate the benefit to change the process. For example, he has to go to the accounting department and explain that we are now doing the process in such a way that the invoice goes out by email because then we save 2 hours per day on the student who can help out wonderfully in the warehouse.</p> <p>He has to sell it to people in such a way that in the end, a win-win situation emerges for everyone.</p> <p>He also has to resolve conflicts. For example, if a new process does not work and it escalates between two departments, then he has to intervene and moderate because he has set up the process.</p> <p>We are talking about processes here and it is important to tell people that we have a high error culture here, we change something to the best of our knowledge and belief. We need you to make mistakes and report them.</p>
English skills	See strong communication skills.
Project management	<p>The implementation, changing, or controlling of the supply chain is always a small project. It is important to break everything down into individual stages e.g., no more paper instructions for use, they are put on paper using QR-code and you can access them online. The supply chain manager then has to consider which areas are all affected</p> <p>Change production - no more instructions for use - i.e. adapting the production planning would be a project new storage space becomes available, project what do we do with the storage space that has become free, etc. and then prioritizing</p>
Negotiating skill	Negotiation externally and internally (there is purchasing, which negotiates general conditions, but if there is a problem that affects the supply chain manager, he will negotiate it himself with the service provider; salary negotiating, the employee is promoted)

2.3. Analysis of current job postings

To determine the most required skills for supply chain managers, an analysis of current job postings on Indeed.com was undertaken. Indeed.com is a powerful search engine that summarizes job offers from thousands of job boards, career sites, staffing agencies, and recruiter lists. It is also an all-in-one hiring platform.

The author searched for supply chain manager jobs with the following keywords: "Supply Chain Manager" (Supply or chain or manager or skills or qualifications or tasks or experience).

Altogether, approximately 1.100 results were displayed on Indeed.com that match the search criteria.

The following keywords should appear in the job postings:

Table 4. used keywords to search job postings

ability to see the big picture	English	problem solving
ability to take the larger view	Information technology	Production management
ability to work in a team	Information Technology	project management
analytical skills	competencies	Relationship management
Change management	International business	management
communication skills	Materials handling	Speech communications
Complexity management	mathematical skills	supply chain awareness
cross-functional understanding	negotiating ability	team working capabilities
decision making	negotiating skill	Teamwork
decision making ability	people management	tech-savvy
decision making capacity	people management skills	
empathy	prioritizing	

The workflow can be summarized as follows:

- Creating a Script (Python) and scraping all URL links
- Getting the job description in each job and finding the keywords


```
120     'techn-savvy',
121     'prioritizing',
122     'ability to take the larger view',
123     'english',
124 ]
125 match_list = []
126 for kw in keywords:
127
128
129
130 def read_urls(xlsx_file):
131     wb_obj = openpyxl.load_workbook(xlsx_file)
132     sheet = wb_obj.active
133     return sheet['B']
134
135
136 def jobPost_keywords():
```

Figure 1. Insight in the code: match_list keywords

- Executing the script

```
119     pass
120
121
122 def find_keywords(jobtext):
123     keywords = [...]
124     match_list = []
125     for kw in keywords:
126         if (jobtext.lower().count(kw)):
127             match_list.append(1)
128         else:
129             match_list.append(0)
```

Figure 2. Insight in the code: appending 0,1

- Cleaning the data

The results file (Excel) contains fewer records because duplicates have been cleaned up. Figure 3 shows an extract of this excel file. On the far right there are the respective keywords, i.e., the skills for which the postings were searched, if 1 is in the cell, then the skill was found in the job posting. In the end, the file contained 826 lines and therefore 826 relevant job postings.

Titles	Url Jobs	Companies	Job Descriptions	Original Jobs	communication skills	nal u
Senior Manager, Supply C	https://www.inde	The North Face	Join the North Fac	https://www.inde	1	0
Supply Chain Manager 1	https://www.inde	Caterpillar	Career Area:Mani	https://www.inde	0	0
Supply Chain Manager	https://www.inde	HD Supply	Preferred Qualific	https://www.inde	0	0
Instock/Supply Chain Mar	https://www.inde	Amazon.com Ser	3-5 years' experie	https://www.inde	0	0
Supply Chain Manager	https://www.inde	SKF	Position Summar	https://www.inde	1	0
Manager, International L	https://www.inde	University of Mar	The Center for Int	https://www.inde	0	0
Supply Chain Planner	https://www.inde	Sunpenta	About SunpentaSu	https://www.inde	0	0

Figure 3. Keywords found in each job post

After applying the Excel-function =COUNTIF(I2:I826;"1"), we get insight about the importance of the skills investigated. Table 5 shows the number of times the individual keywords appear in a total of 826 job postings.

Table 4. how often do the keywords appear in the job postings

ability to see the big picture (0)	English (36)	problem solving (240)
ability to take the larger view (0)	Information Technology (19)	Production Management (9)
ability to work in a team (3)	Information Technology competencies (0)	Project management (226)
analytical skills (72)	International business (2)	Relationship management (105)
Change Management (40)	Materials handling (7)	Speech communications (0)
communication skills (397)	mathematical skills (7)	supply chain awareness (0)
Complexity Management (1)	negotiating ability (0)	team working capabilities (0)
cross-functional understanding (0)	negotiating skill (9)	Teamwork (69)
decision making (139)	people management (8)	tech-savvy (1)
decision making ability (0)	people management skills (1)	
decision making capacity (0)	prioritizing (24)	
empathy (4)		

Communication skills seem to be most important here (occur 397 times), followed by problem solving (occur 240 times), project management (occur 226 times), decision making (occur 139 times) and relationship management (occur 105 times).

3. Discussion and future work

This research draws attention to the five most important supply chain management skills. The research is based on the 3-pillar model: Literature research, combined with interviews with recruiters and job postings analysis, serves as a supporting basis that promises empiric and

informative results. One thing to note is that communication should be one of the top five skills as it is mentioned in the literature, interviews, and analysis of job postings. Problem-solving, meanwhile, should also be regarded as one of the top skills for supply chain managers. This term was not specifically mentioned in the interviews, but the interviewees hinted at the ability to resolve conflicts.

Different wordings are often used to refer to the same supply chain management skills. This can certainly be justified since SCM is a very young discipline. So, there should be a certain basic understanding and a uniform opinion on what a supply chain manager does and what skills they should possess.

However, not all skills can be examined accurately as people often refer to the same skills with different names. Thus, a uniform definition of what supply chain managers do and what skills they need is required.

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