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The DNA of Supply Chain Executives

By Kai Hoberg, Knut Alicke, Christoph Flöthmann, and Johan Lundin

Who are the professionals who make supply chain management the engine of the firm? We find that many roads lead to Rome: The diversity of supply chain talent resembles the extraordinary, cross-functional nature of the supply chain profession. Here is an overview of the education, career paths, and success factors of supply chain executives.

The daily life of supply chain managers is full of challenging tasks: negotiating last-minute order changes with sales due to new customer requests; defining working capital requirements with the CFO for the next budget period; or reviewing network structures for new emerging markets with suppliers. This diversity is particularly driven by the cross-functional nature of the job: Supply chain managers interact with many departments and people within and across the firm. In a recent discussion, a plant manager in the machining industry, a passionate athlete, shared his view on the role of supply chain managers. "I am an operations guy," he said. "I really need tenacity to bring my production forward and achieve my annual cost reduction target; I need a limited set of capabilities, in particular, staying power like a marathon runner. A supply chain manager is a different type of athlete. He needs all these cross-functional skills, should be versatile, and must coordinate well with all departments. I admire people with these skills. In athletic terms, a supply chain manager should be a like a decathlete—the king of the athletes."

Still, little is known about the backgrounds, careers paths, and success factors of these "decathletes" who intend to make supply chain management the performance engine of the company. In a joint project, our research group from Küehne Logistics University and McKinsey & Company intensively analyzed the gene pool to shed light on supply chain professionals' origins and evolution. We studied the career paths and educational backgrounds of thousands of supply chain managers and hundreds of supply chain executives. In addition, we conducted numerous interviews with supply chain executives.

In this article, we provide an overview of our findings. We summarize the educational backgrounds of supply chain professionals, detail the careers that led professionals into a supply chain executive position, and present fac-

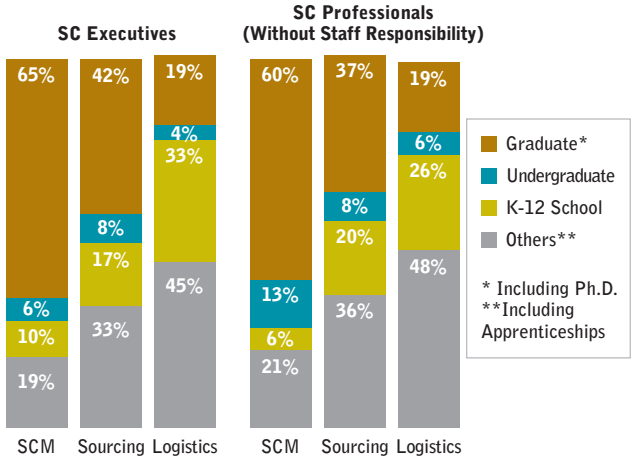
tors that enable a successful career in supply chain management (SCM).

Supply Chain Education

To understand the educational background of professionals in supply chain functions, we analyzed the data of a large-scale survey using the online job platform StepStone, with more than 40,000 participants, most of whom work in German-speaking countries. We focused on employees in SCM and the related functions of sourcing and logistics.

University education has become essential for supply chain professionals. Considering the challenging tasks of supply chain managers, it is not surprising that the average level of education is high. Exhibit 1 shows that the proportion of professionals with graduate university degrees is significantly higher among supply chain executives than among their logistics or sourcing peers. We find that 71 percent of supply chain executives hold university degrees, compared with only 50 percent of executives in sourcing and 23 percent of executives in logistics. The numbers for supply chain professionals without staff responsibility are comparable (Exhibit1). In industries such as automotive (78 percent), manufacturing (79 percent), and FMCG (85 percent), the average educational level is even higher.

EXHIBIT 1



Source: Küehne Logistics University, Stepstone

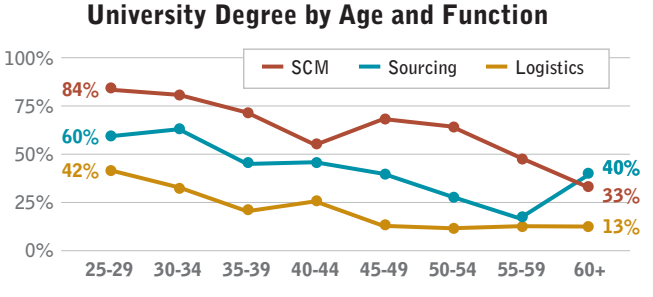
If we consider educational breakdown by age, we find that a university degree is almost essential for young professionals in SCM, as their overall educational level has significantly increased. While only 40 percent of 60+-year-old SCM professionals hold a graduate degree, 84 percent of the 25- to 29-year-olds do (Exhibit 2). While the level of education is significantly lower in logistics and sourcing, the trends are similar.

There are various reasons for the high educational standards in SCM. In many firms, SCM is a highly visible endeavor with strategic priority. Frequently, SCM is responsible for managing the material flows from multiple international production plants through numerous 3PL-managed distribution centers to thousands of customer locations around the globe, coordinating an inter-cultural team of experts from all functions. To do this job, SCM needs nothing less than the best talent—and that best talent most frequently pursued university education.

This was not always the case. In early days, on-the-job training was the most important source of knowledge and skills to fulfill the majority of daily tasks. In particular, anyone with a decent track record in manufacturing was eligible for planning tasks. Other functions such as engineering, finance, or marketing were already more advanced and hiring well-educated university graduates was much more common. However, as SCM matured and skills requirements increased, learning-by-doing was no longer sufficient. The increased need for the best talent has been fueled by the rapid evolution of the SCM profession since the end of the 20th century. Today's supply chain managers need analytical and mathematical skills that were shaped at a university to cope with challenging tasks such as real-time decision-making in production planning, reviewing SKU profitability, or re-designing a supply chain process for end-to-end visibility. Presenting the analysis results to peers and communicating the implications to top management requires another set of skills. Higher levels of education are often associated with providing this broad portfolio of skills.

Having a well-educated workforce in place is also essential to boost the acceptance of SCM among peers in other functions. Experts and executives in other core functions may respect advice and opinions from colleagues with higher educational levels more than from hands-on practitioners.

EXHIBIT 2



Source: Küehne Logistics University, Stepstone

Business administration and engineering background leave largest footprints. Examining the fields of study, we are not surprised to find that only a fraction of university graduates have earned formal degrees in SCM; until recently, there were few formal academic programs in SCM. Previously, firms filled positions with relevant professionals who possessed good analytical skills or prior knowledge in adjacent fields. As illustrated in Exhibit 3, the majority of supply chain executives studied business administration (44 percent), followed by engineering (19 percent) and industrial engineering (14 percent). Although state-of-the-art supply chains are dependent on high-end IT infrastructure and software packages, only 2 percent of supply chain executives studied computer science. Here, we see differences between industries. In the technology industry, only 25 percent of supply chain executives studied business administration, while 53 percent have an engineering background. In the FMCG sector, this trend is reversed: business administration graduates constitute 63 percent of the total, and 16 percent are engineers.

That is changing as the demand grows for supply chain professionals. Universities such as Stanford and the University of Tennessee reacted to the increased demand with dedicated programs for supply chain education. For example, executive education programs with multi-day seminars helped bring executives without formal SCM background up to speed on the related concepts and approaches. The University of Arizona and the University of Houston have recently launched dedicated MBA programs for supply chain management.

If we consider the challenges ahead, including ensuring the same-day delivery of goods, leveraging Big Data for more accurate forecasts, and predicting the impact of 3D printing on future manufacturing processes, well-educated and diverse educational backgrounds will become more essential than ever. Combining the state-of-the-art knowledge of young professionals with their specific studies and the experience of supply chain veterans seems to be the most promising path to address these challenges.

Supply Chain Career Paths

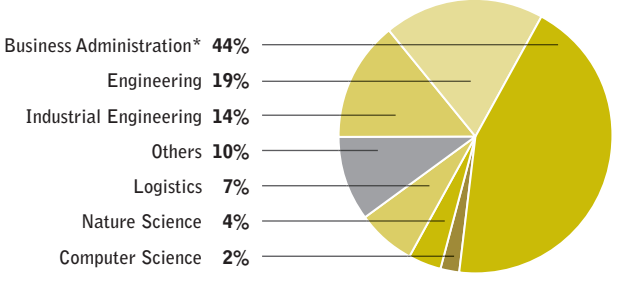
Formal education is an important basis for successful business careers. However, it is typically only the starting point. Accordingly, we decided to analyze how professionals moved into the role of a supply chain executive. To investigate their career paths and its characteristics, we gathered detailed resumes of 300+ supply chain executives. By supply chain executives, we refer to supply chain managers who are directly responsible for staff. We were interested in their career path, including all job positions until their current executive position in SCM. To our surprise, we found that (i) supply chain executives have limited prior functional experience in SCM, (ii) there are many transition opportunities from other functions into SCM, and (iii) we can identify six common career patterns that lead into supply chain executive positions.

Low formal SCM experience. Our research indicates that supply chain executives spent the largest portions of their careers prior to moving into executive SCM positions in logistics, procurement, and sales/marketing. While this might be partially intuitive, we find that a surprising number of supply chain executives are appointed without any previous exposure to SCM. Often, they have much more experience in other functions; in our sample, supply chain executives spent 88 percent of their previous career span outside the SCM function. Even if we include the adjacent functions logistics and manufacturing, we find that still only 40 percent of the prior business experience is SCM-related. Companies seem to be willing to recruit executives from other functions for a number of reasons. Many firms seem to value prior positions with staff responsibility more than extensive SCM knowledge—having broad management skills beats having deep content knowledge. In particular, if the position requires a strong focus on leading personnel or managing projects, extensive SCM expertise seems to be less relevant. As an executive climbs higher up the hierarchical level and is less involved in day-to-day operations, the importance of functional knowledge decreases further.

Regarding communication, professionals from sales/marketing and finance often communicate better. Typically, supply chain analysts are very focused experts who dig deep to solve challenges analytically. However, to take the next step on the career ladder, one must sell oneself to senior management. SCM devotees often seem to lack this skill, while selling and negotiating should be part

EXHIBIT 3

Fields of Study



* Including Economics

Source: Küehne Logistics University, Stepstone

of the daily routines for sales.

Another challenge is that SCM is frequently perceived as being below "classic" management functions. SCM still partly suffers from its former image as a support function in charge of ordering trucks or stacking pallets. Therefore, sales or engineering often appear more attractive to young graduates with more formally defined career paths. However, SCM is cross-functional by definition; thus, it is easy to enter it with a different functional background.

Transitions. As discussed, many supply chain executives spent a large portion of their career in other functions such as logistics, sourcing, or sales/marketing. For this reason, we analyzed the transition frequencies between different functions (Exhibit 4). The chord-chart shows how many professionals are moving into and out of SCM functions. The size of an outer segment (function) illustrates how much experience professionals gathered in different functions (e.g., much time was spent in logistics, and little was spent in HR). The thickness of the ribbon relates to the number of transitions between functions. For example, many people switch from logistics to SCM (thick tie), but few HR personnel switch to SCM (thin tie).

While many job transitions occur internally, we find many transitions from logistics (24.8 percent), sourcing (15.6 percent), and reasonable transitions from production (8.9 percent) into SCM. Obviously, personnel with these adjacent backgrounds are more likely to adapt quickly to their new environment and tasks. For instance, because the majority of SCM activities at a large retail company in essence involve managing physical flows, a former logistics manager can rather easily take over related SCM tasks. In the pharmaceuticals industry, however, SCM personnel need a better understanding of chemical products and quality requirements. Accordingly, a person with a manufacturing background is a good fit to manage and optimize the flow of products. In the machining industry, a technical background in engineering and product development might be valuable.

Despite many transitions from these adjacent functions, we also find many transitions from other functions such as sales/marketing, consulting, and project management into SCM. Apparently, SCM requires people with this special expertise because many large-scale projects need to be conducted. And, we find that 63 percent of supply chain executives were promoted internally.

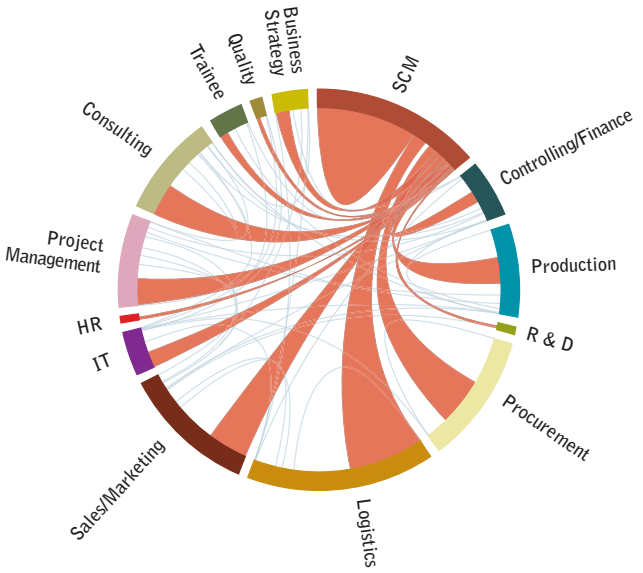
Our transition analysis indicates that SCM is not only cross-functional by its job description but that it is also truly cross-functional in the experience of the staff. The door is open to anyone to switch into SCM and contribute with external knowledge right from the start. In the end, each supply chain executive position requires specific skills from other disciplines, and such positions are filled with people whose profiles match those needs.

Six career patterns. While each career seems individual and unique at first glance, we identified six different career patterns among all career paths, using a methodology from DNA sequencing. We compared all career paths with each other as if they were DNA strands of different animals. Career paths can look very different at first glance. While some supply chain executives started off as "supply chain analysts" and worked their way straight upwards through SCM until they became "director of supply chain applications," others started as "buyer" and passed through "senior sales agent" and "regional director of sales Asia" positions until they became "head of supply chain processes." Still, our methodology is able to capture similarities among career paths and expose six patterns. Exhibit 5 illustrates the details of these career patterns.

We characterize the first career pattern as the "Neighbors." It is the largest cluster, with 69 percent of one's business life spent in logistics, procurement, and production. The "Homegrown" pattern corresponds to native supply chain leaders; the majority of their previous career was spent in SCM, and the second largest fraction was spent in logistics. Despite being the third-largest cluster in

EXHIBIT 4

Transition Frequencies Between SCM and Other Functions



Source: Küehne Logistics University, McKinsey & Company

our study, the next pattern is labeled "Outsiders." Within this cluster, only 12.9 percent prior business experience was spent in SCM, logistics, production, and procurement combined: The largest share of their career was spent in consulting and project management functions.

The next pattern is labeled "Demand-siders" because the majority of the prior business experience of these managers was spent in sales/marketing and in business strategy—two functions that usually put great focus on customer orientation. The "Engineers" have the greatest proportion of individuals with a production background. Its members possess the strongest engineering background among all clusters. "Sourcing Specialists" is the smallest cluster; these individuals spent the longest time in procurement.

It is interesting to see that these six patterns prevail despite the individual biographies of supply chain executives. The diversity of those biographies resembles the extraordinary, cross-functional nature of the SCM profession—many roads lead to Rome. However, some roads are shorter, and some are longer, as shown in Exhibit 5. Given the straight career trajectory of the Homegrown career pattern, on average, they reach a supply chain executive position in 8.8 years. Surprisingly, the Outsiders are even faster—although they were only exposed to SCM jobs for 2.8 percent of their career. The fact that a high proportion of Outsiders are former consultants could explain their above-average career success as consultants, who are known to pursue exceptionally ambitious career goals and whose broad knowledge and diverse skills are valued by employers.

How to become a supply chain executive. How then does one become a supply chain executive? In addition to education and prior experience, we found that many factors are key drivers behind successful supply chain careers. Career development is shaped by one's performance and behavior on the job and by one's personality and skill sets. For our research, we conducted 20+ interviews with supply chain executives (including individuals leading >1,000 employees) on how they advanced their careers, which covered their specific career paths and what were success factors for them.

Through our interviews with supply chain executives, we identified three dominating profiles: the Number Guy, the People Leader, and the Cross-functionalist.

The Number Guy

Given the analytical side of supply chain management, there is a significant percentage of executives who have risen in the ranks by planning and analyzing data. We refer to this profile as the Number Guy. He loves to detail production schedules, determine correct inventory levels, and optimize service levels. While he focuses on data, he can sometimes miss the big picture and the importance of demonstrating value to peers/senior management. A Number Guy fits companies that do not have direct reporting from SCM to the board because he lacks communication skills. Given these characteristics, a Number Guy must undertake three things to become a supply chain executive:

EXHIBIT 5

Details of Career Patterns

Pattern	Percentage in Clusters	Years to SC Executive	Description
Neighbors	33.9%	10.9	• Most experience in SCM related function logistics • Lowest previous exposure to the SCM function (6%) • 36% have previous executive experience
Homegrowns	20.8%	8.8	• Vast majority of careers were spent in SCM functions • Short tenure to become SC executive • For 79%, head of SCM was the first executive position in their career
Outsiders	18.6%	8.2	• Mix of different prior career stations, e.g. in project management • Largest share of former consultants (41%) • Highest education: 91% university graduates, 13% of those with Ph.D.
Demand-Siders	12.1%	14.5	• High amount of prior business experience in sales/marketing (50% total experience) • Rather long business experience before becoming SC executive • Many careers with staff responsibility in other functions before joining SCM (70%)
Engineers	8.5%	11.1	• 80% of aggregated career years spent in production • Frequent backgrounds in engineering • Experienced leaders: 44% of previous career years spent heading other functions
Sourcing Specialists	6.2%	16.2	• "Lowest" percentage of university graduates: only 65% university graduates • Majority currently employed in industrial goods and services industry • Least frequent pattern and longest tenure to SC executive

Source: Küehne Logistics University, McKinsey & Company

• ***Communicate and get out of your box.*** You are great at what you are doing, but unfortunately, nobody knows about it. Consider meetings to be a marketplace where you can sell the work about which you are passionate as your product. Communicate your contribution to your supervisor and participate in more group projects.

• ***Improve your management skills.*** Your analytical skills and the depth of your SCM expertise are already sufficient to become a professor. However, an executive needs to learn how to motivate and lead people.

• ***See the big picture.*** You must be aware of the consequences of your decisions to other functions. You might also consider switching to another function (at least for a certain time) to understand another perspective.

The People Leader

The People Leader excels at managing people and projects, while analysis and content are left for others to solve. The People Leader wants to problem solve in teams, is proficient at communicating with peers and senior managers, and prefers to delegate tasks to others. Often, the People Leader has background experience from another company function.

The People Leader works with a top-down approach without going down into details, which results in a basic SCM understanding. He yields the best results in enterprises where the supply chain already performs and where he has Number Guys working for him who complement his strengths with their SCM expertise.

Given these characteristics, the People Leader should consider the following to become a supply chain executive:

• ***Deepen your SCM knowledge.*** You already possess the skills that many SCM peers lack: managing people, networking, and selling yourself. However, in many situations, your limited expertise and knowledge become apparent to experienced peers. You need to work on your SCM knowledge by exchanging ideas frequently with your SCM colleagues, reading books and relevant magazines, and attending SCM workshops and seminars.

• ***Enrich your personal network with relevant SCM people.*** Your communication skills have enabled you to establish a rich network with various people within your firm and perhaps even extending to customers. Take advantage of this talent, and establish contact with new people relevant to your SCM department. For instance, having a strong network and relationship with suppliers can help your department achieve a wider overview of the supply side and the best prices on the market. Become surrounded with people with better functional knowledge than yours.

• ***If it does not fit, you must admit.*** If you ended up in SCM unintentionally and you see your strengths elsewhere, you should consider moving out of SCM.

The Cross-functionalist

The Cross-functionalist has very good end-to-end visibility into supply chains. He has gathered previous experience in different positions and functions. He understands the cross-functional processes, which makes him a true end-to-end thinker with a holistic view of the company. This also makes him a savvy executive with a deeper understanding of the political game and the ability to negotiate with other senior managers in the company.

Furthermore, the cross-functionalist possesses the relevant breadth and depth of SCM knowledge and speaks the language of peers from other functions. He owns the fundamentals that are required to make a true contribution to SCM performance and works best when his company provides end-to-end visibility, motivates open communication and transparency about ongoing supply chain projects, and pursues mid- and long-term targets.

Given these characteristics, here is what the Cross-functionalist needs to consider to become a supply chain executive:

• ***Think step-by-step.*** You already have the best combination of skills and competencies to become a supply chain executive. The only thing standing in your path is you. While you have a great end-to-end view of SCM, you must focus on your own tasks first and prioritize them according to your job description and senior management's assignment. Otherwise, your KPIs will suffer, and you will not live up to your potential. Think step-by-step. Do your job first, and push your extending ideas forward afterwards.

• ***Find a mentor—even if there is no official mentoring program.*** Although you are already a high-potential leader, many interviewees mentioned that career success was subject to external influence, e.g., luck, coincidence, or a mentor. Because no one can influence luck or coincidence, you should try to find an experienced leader as a mentor who can give valuable advice and open doors for promotion. Many interviewees state that they even climbed up the career ladder in the slipstream of their mentor by taking over his position upon the mentor's promotion.

• ***Increase your leadership skills.*** Because you are already a prospect for future supply chain executive positions on paper, you should work on the soft skills required for future senior management positions. In particular, developing leadership skills is crucial for later success. You can gain experience by volunteering as a project coordinator or a mentor for an intern in your department.

Finally, you should always follow your passion and interests. Almost all of the supply chain executives interviewed mentioned that their main motivation always has been their passion for the job.