

Supply chain and logistics controller – two promising professions for supporting transparency in supply chain management

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Abstract

Purpose – This paper aims to identify the occupational profiles of a logistics and a supply chain (SC) controller, both promising SC professions, examining the required competences and tasks undertaken while taking into account current trends in supply chain management and its wider dimensions.

Design/methodology/approach – The study used a content analysis based on job advertisements for the position of logistics controller and SC controller. The collected material allowed the construction of an occupational competence mix model in the style of Cheetham and Chivers for the logistics and SC controller, and the identification of the level of competence of both professions, using the model proposed by Czaplá. In addition, the analysis of the data was supplemented by use of the Anova test and a radar chart.

Findings – The SC and logistics controllers have a high degree of similarity in both the meta and core competences areas. Similarities also occur in the case of the analysed groups of tasks undertaken by these professions. Tasks in the areas of “definition” and “maintaining” prevail. The SC controller and the logistics controller are considered “engaged inspirers” because they have reached this level of professional competence. Both these professions can ensure an effective, sustainable and transparent SC through direct cooperation with the SC manager and/or logistics manager.

Research limitations/implications – This study uses a content analysis based on job advertisements addressed to the German market. These job advertisements are standardized, and therefore, provide only a general outline of the competences and tasks of the SC and logistics controllers.

Practical implications – The study provides information to practitioners by identifying the competences and tasks assigned to the SC and logistics controllers that are needed to improve the efficiency and transparency of the SC and its management. The research is an incentive for people involved in education to adapt changes in curricula in the business (accounting, controlling and logistics) and engineering (related to logistics) fields of study by creating courses based on SC controlling or/and logistics controlling.

Originality/value – The study shows the current, necessary changes for SC professionals (e.g. the appointment of a SC controller and/or logistics controller) resulting from changes in business and the challenges for SC management (e.g. transparency and sustainability).

Keywords Skills, Supply-chain management, Managers, SCM competency

Paper type Research paper

1. Introduction

Changes in the economic environment affect the dimensions of supply chains (SC), including logistics. This is the basis for numerous discourses conducted by researchers who attempt to identify and analyse current problems and challenges in supply chain management (SCM), performance measurement and its tools, information and IT systems and professional profiles (roles, competences and responsibilities) involved in SC activities (Bak *et al.*, 2019; Bag *et al.*, 2019; Bartnik and Park, 2018; Machado *et al.*, 2019; Zhu *et al.*, 2018; Clegg *et al.*, 2013; Crum *et al.*, 2011; Markley and Davis, 2007). Globalization, Industry 4.0, corporate social responsibility (CSR), advanced technology, internet-based solutions are all phenomena that logistics and SCM have to face nowadays. The needs of the markets and their participants influence the increasingly

complex and dynamic nature of SC and its management process. SCM must adopt new directions that will integrate the achievement of economic (financial) objectives with those of the social and environmental spheres. These premises contribute to the increasing complexity of SC and are a challenge for SC professionals – in particular, for SC managers and logistics managers. These professionals play a major role in ensuring the success and competitiveness of SC (Mangan and Christopher, 2005), as SC managers are expected to achieve SC ambidexterity, which takes into account both efficiency and flexibility, the creation of a sustainable and transparent SC and, as a result, the value chain (Zhu *et al.*, 2018; Aslam *et al.*, 2018;

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Crum *et al.*, 2011). New trends in SCM, however, require a different approach by managers to the new information available from the performance measurement system and the way it is communicated (Kumar and Goswami, 2019; Hofmann and Bosshard, 2017) when carrying out activities in SC (e.g. activity-based management). The SC manager needs more advanced competences, including the ability to analyse data (Bag *et al.*, 2019) and developing soft skills (relational and behavioural) alongside hard skills (functional and managerial) (Bak *et al.*, 2019). In addition, they have to focus primarily on the implementation of tasks of a planning and controlling nature, and activities with analytical and strategic purpose, taking into account all areas of the SC (Cousins *et al.*, 2006; Vollmann, 2005; van Hoek, 2000). The SC manager, therefore, needs a performance measurement and information system (including both financial and non-financial measurement) that is integrated into SCM. Such a system would support the operational and strategic scope of SCM and ensure both the quality of information and the transparency of the SC (Machado *et al.*, 2019). In business, this role is effectively fulfilled by controlling, which has gained greater recognition among companies, especially those with complex activities. These controllers, by using specific tools and methods and coordinating the flow of information, support the process of management and decision-making in an organization, i.e. the work of managers [1].

Considering:

- firstly, that the controller is a highly desirable specialist in business, who not only passively but also actively helps managers to achieve their goals at the operational and strategic level and to adapt to the needs of the environment (Wolf *et al.*, 2015) and
- secondly, SC managers face the challenge of implementing transformations in the SCM process, which increases the need for them to analyse ever more information, react dynamically, adopt innovative solutions in SC and focus on behavioural aspects, the need arises to directly support their functions through the appointment of an SC and/or logistics controller.

In the prevailing literature on the subject, one can find publications on the concept of logistics controlling or SC controlling, while rarely on the subject of a controller focussed on SC and logistics (Czenskowsky and Piontek, 2007).

The paper aims to identify the occupational profiles of the logistics and SC controllers, as promising SC professions, in terms of the required competences and tasks while taking into account current trends in SC management and its dimensions.

Trends and changes in SCM place the SC manager in a critical position because such a complex structure as SC in such a dynamic environment is not able to effectively manage itself. This aspect was noted by practitioners and scientists from Germany who highlight the importance of the logistics controller and SC controller (Czenskowsky and Piontek, 2007). Both these profiles are becoming more sought after by the logistics industry and for SCM, which can be observed, for example, in the German and British markets. However, data from the German market are the most reliable for analysis because we find the best-developed concepts of controlling (institutional support by the International Group of Controlling) and logistics (the highest Logistics Performance Index in 2018 in the world). Germany is the fastest

growing country in terms of current business needs, which suggests that implementations in this market, taking into account the impact of the German economy on the world, will be transferred to other countries, including those in Central and Eastern Europe (Szychta and Dobroszek, 2017). Therefore, it is worthwhile becoming familiar with the SC and logistics controller profiles through the analysis of competences and task types performed by them. The proper identification of the professional profiles of SC and logistics controllers may bring about changes in higher education in financial and logistic fields, particularly in regions (e.g. Central and Eastern Europe, the Middle and Far East) where controlling and logistics are still developing in science and business.

In the article, the analysis of the SC and logistics controller profiles was based on content analysis from the verification of job advertisements for the position of SC and logistics controller. These advertisements reflect the current needs of the market, meaning they are an appropriate source of data for preliminary recognition of the phenomenon under investigation. The job advertisements selected came from German job portals because only in the German market could a sufficient number be found. This is the result of the strong development of controlling in Germany, where the diversification of this concept can be observed in recent years. It consists in focussing controlling on supporting individual business functions or other specific areas (e.g. projects and environment). Hence, logistics and SC controlling have been separated from logistics or SC controlling (Schäffer and Weber, 2010). This is because of the fact that there is strong development of the logistics industry and the controlling function in business and science.

The collected material allowed the creation of an occupational competence mix model of Cheetham and Chivers for the logistics and SC controller, as well as to indicate the level of competences of both profiles, taking into account the model proposed by Czaplá. Cheetham and Chivers (1996) in the model of occupational competence, distinguishing core components (“functional”, “behavioural” and “personal” competences as well as “values and ethical” competences) with the accompanying constituents and meta competences (“communications”, “self-development”, “creativity”, “analysis” and “problem-solving”). Meta competences, as superior competences, enable core competences to be developed. In turn, Czaplá (2010) created a model consisting of four levels of competence (basic competences, advanced competences, professional competences and expert competences). They are the result of the intersection of presented attitudes and skills. Competence allows logistics and SC controllers to carry out tasks of different nature. On this basis, particular areas of controlling tasks have been separated (“planning”, “analysing”, “reporting/information”, “maintaining”, “control”, “definition” and “decision-making/participation in management”). They reflect the function of the analysed concept and are presented by International Group of Controlling (IGC/ICV, 2012).

Taking into account the issues of competences and conceptual models created on the basis of those competences, performed tasks and new trends in logistics and SCM in the context of SC and logistics controller, the following research questions were formulated:

- RQ1. Are the SC controller’s competences different from those of the logistics controller?

- RQ2. Are the task areas of the SC controller different from those of the logistics controller?
- RQ3. Do the competences of the SC and logistics controller and the scope of their tasks allow them to be described as “professionals”?
- RQ4. What role can the SC and/or logistics controller play in the context of the position of SC and/or logistics managers within SCM to support its transparency?

The article consists of theoretical and empirical sections. Section 2 discusses the theoretical section, there is a discourse on current SCM trends and dimensions, the importance of human resources and knowledge for a well-functioning SCM, and the resulting competences arising. In addition, new challenges for SC professionals (mainly SC managers) are presented, and the suggestion is made that the logistics and SC controller be included in the “professional” grouping. Section 3 presents the empirical section of the article consists of a description of the research methodology and presentation of the results of analysis of the competences and tasks of the SC and logistics controllers according to selected models and assumptions. In Section 4, the findings are discussed. The discussion and summary end the article in Section 5.

2. Theoretical background

2.1 Supply chain management and its current dimensions and challenges

SCM has its own identity because there are different approaches to considering and perceiving this concept among researchers and practitioners (Halldórsson *et al.*, 2015). SCM is often associated with purchasing management, logistics management, buyer-supplier relationship management and the management of a “specific” business model. SCM includes the so-called “end to end” management, although researchers, in particular practitioners, often consider the beginning and end of SC differently, which, in turn, determines the scale and the parts of its management (Storey *et al.*, 2006). Despite the discrepancies in the perception of SCM as a result of its various disciplines (logistics, marketing, HR, economics, management, IT and finance), the common elements are defined and interconnected (Hausman *et al.*, 2006). These elements include a systemic and strategic approach and customer orientation (Mentzer *et al.*, 2001). Presenting SC as a system enables adaptation of the concept of activity-based management, which is strategic, long-term and which is aimed at both cost reduction through optimization of some actions, elimination of inappropriate actions and value creation – mainly for the customer (Hofmann and Bosshard, 2017). As a result, SC is a complex business project requiring an appropriate management approach to raise the level of the value chain.

SCM has a detailed and dynamic nature. This includes the elements that make up the SC (organizations and their resources), and the uncertainties and risks arising from the involvement of resources in different transactions (Turner *et al.*, 2018). Aitken *et al.* (2016) indicate that this complexity of SC may be “dysfunctional” (errors and ineffective processes) and “beneficial” (adaptive). Both options are determined by structural, socio-political and

emergent perspectives and related responses in the management process in areas such as planning and control, cooperation, development and flexibility. Therefore, the practice of SC professionals can refer to SC exploration (refining and using existing knowledge) focussing on flexibility and providing efficiency, and to SC exploitation (innovating, problem-solving and creating new knowledge) (Aslam *et al.*, 2018; Turner *et al.*, 2018).

Transformations within the environment such as globalization or technology development, means that SCM trends and requirements for SC professionals are undergoing constant change (Bartnik and Park, 2018; Cousins *et al.*, 2006). SCM must simultaneously meet short-term (agility) and, increasingly often, long-term objectives (adaptability) and additionally, be aware of market sentiment. These three perspectives affect SC dexterity (Aslam *et al.*, 2018), which means that SC professionals need to create a flexible and effective SC simultaneously because of its dynamic character (Aslam *et al.*, 2018). This situation is conditioned by contemporary transformations of the economic environment, for example, implementation of the assumptions of the Industry 4.0 concept: custom programming solutions, internet of things, cloud computing and real-time SC optimization (Bag *et al.*, 2019). Their correct adaptation to SCM allows the achievement of smooth and lean SC operations, which results in a sustainable SC and value chain.

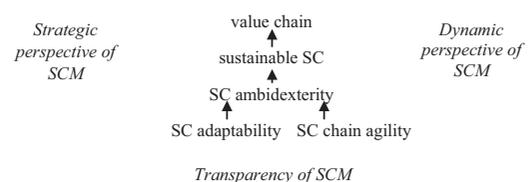
Sustainable SCM is an issue that scientists have been keen to address in recent years as a result of the emergence of the CSR and triple bottom line concepts (Bag *et al.*, 2019; Markley and Davis, 2007). For example, Crum *et al.* (2011) highlight the potential for further empirical and theoretical studies in the context of sustainable SCM. Being a business phenomenon of the twenty-first century, required by various stakeholders, it is a challenge for SC professionals (mainly SC and logistics managers), who need to identify those actions that would affect economic achievements in a transparent way, i.e. increasing them, while not diminishing the importance of processes in the social and environmental spheres.

The sustainability phenomenon has a strategic dimension, and in the SCM context it is best illustrated by the words:

[...] strategic, transparent integration and achievement of social, environmental and economic objectives taking into account systematic coordination of major inter-organizational processes in order to improve economic performance in the long term by individual organizations and their supply chains (Crum *et al.*, 2011).

The modern dimension of the SC is expressed by such issues as sustainability, agility, adaptability, and dexterity, which are the result of changes in the business environment (e.g. Industry 4.0. and CSR). This complexity affects the development (by SC professionals) of an appropriate and dynamic approach to its management, which has a strategic and holistic character

Figure 1 Actual dimensions of a supply chain and its management



and ensures transparency while striving to achieve added value (Zhu *et al.*, 2018) (Figure 1).

Achieving the SC dimension desired by business today is possible only while maintaining a balance between the people, processes and technologies that are elements of resource-based theory.

2.2 Resource and knowledge theory as a base for achieving transparency of supply chain management

M. Porter emphasized strategic management in business by outlining the relationship between a company's internal resources, strategy and performance measurement. The researcher pointed out that company resources not only have value in themselves but also enable the implementation of various activities that increase the competitive level in the global market (Porter, 1991). Therefore, resources should be understood as capabilities, organizational processes, company attributes, information and knowledge. Moreover, they can be divided into physical, human and organizational resources (Barney, 1991). Although each of these types is important to gain and maintain market advantage, it is human resources, which provides both a sustainable competitive advantage and high productivity. Van Hoek *et al.* (2002) emphasize that, in terms of SCM success, the availability of skilled people is more important than physical infrastructure, information and communication, its design and transformation in line with economic trends (Clegg *et al.*, 2013). It is worth quoting at this point a statement, which is often cited in publications: "We cannot do anything without the right people" (Mangan and Christopher, 2005).

Human capital resources consist of three basic elements, namely, know-how, skills and abilities and employee behaviour (Czapla, 2010). The combination of these allows a business to obtain a valuable, rare, inimitable and non-substitutable human resource (Wright *et al.*, 1994). One of the most vital elements in building human capital resources is knowledge. It has been pointed out that a set of intangible knowledge-based capabilities generates most of the effectiveness in creating value, rather than relying solely on financial or physical resources. Knowledge is a strategic resource of a business that creates added value and ensures competitiveness on the global market (Theriou *et al.*, 2009). However, knowledge alone is not useful unless it is properly implemented in business practice. How humans acquire, create, process, store and deliver general and specialist knowledge is reflected in the success of a given organization, expressed in the transparency of its processes, its values and its market advantage (Aharonovitz *et al.*, 2018; Grant, 1996). Knowledge as an important asset of a business solution translates into the concept of "competence" (Davenport and Prusak, 1998).

2.3 Competence as the key to creating the profiles of supply chain professionals

The term "competence" is most broadly defined as the set of skills that a human being must have to perform in any given profession (Burgoyne, 1993). Baker *et al.* (1997) offer a similar position, writing that competence can be identified with attributes that fit the implementation of a specific activity, and thus, to the requirements of "congruence" and "capability", i.e. skills and knowledge in a specific area. This means that

"competence" includes knowledge, attitudes and patterns of behaviour, which, in a properly integrated way, allow for the realization of processes, goals and achievements (Kennedy *et al.*, 2009).

The literature also points to the so-called professional competences (Derwik *et al.*, 2016; Cheetham and Chivers, 1996), an integral whole of knowledge, skills and attitudes for the implementation of complex tasks in the real professional environment (De Kraker *et al.*, 2019). These competences are inscribed in various holistic models, which allow presentation of the profession or the professional components (Czapla, 2010; Cheetham and Chivers, 1996). In case of Cheetham and Chivers model of competence (occupational competence mix model) have been distinguished core components with the accompanying constituents and meta competences. Meta competences, as superior competences, enable core competences to be developed. The above-mentioned elements of this model interact with each other with a different intensity and focus, thus generating macro, micro and partial outcomes as a sign of professional performance (Cheetham and Chivers, 1996). In Czapla's (2010) model of competence, as a result of the combination of skills and attitudes, four levels of competence can be identified, i.e.:

- 1 basic competences (attitude, engaged performer/skills and standard solutions),
- 2 advanced competences (attitude, independent contractor/skills and expanding the standard, non-routine activities),
- 3 professional competences (attitude, engaging inspirer/ability and non-standard solutions) and
- 4 expert competences (attitude, creative creator/ability, going beyond the standard and unpredictable activities).

Both the "engaging inspirer" and "creative creator" are important professional profiles because they take into account contemporary business trends, i.e. they show flexibility, create changes and added value and they are considered as prestigious attributes in business. In total, two examples of such a professional profile are, firstly, management accountant/controller, which from its once menial role of being a passive "bean counter" has become, in the twenty-first century, an active "business partner" (Hiller *et al.*, 2014; Järvenpää, 2007), and secondly, SC or logistics managers who go from technical managers to behavioural managers (Clegg *et al.*, 2013; Crum *et al.*, 2011).

The transformation in the area of competence (concentrating on other points of priority) caused by dynamic changes in the economic environment (e.g. CSR and Industry 4.0.) has not only changed the existing professional profiles of SC professionals (e.g. SC or logistics managers) but also identified the need for new professions in the SCM area (e.g. SC and/or logistics controller) and to consolidate them in business.

2.4 Professionals and their competences in ensuring transparency in the supply chain

To bring about the desired effects (value creation and sustainable development), SCM requires the people responsible for this function, i.e. SC and/or logistics managers, to adapt to trends (e.g. product diversity, product time reduction, globalization, business outsourcing and technology), and in particular to new

requirements set out by the Industry 4.0 concept (McKinnon *et al.*, 2018; Bag *et al.*, 2019; Clegg *et al.*, 2013). Therefore, it is no longer enough for SC professionals (mainly managers) to have short-term, ongoing process control and detection of so-called gaps, they must now engage in the process of automation, ensuring the quality of operations in light of new organizational structures, systems, policies and strategies of the organization, which is reflected in a strategic, long-term approach to management (Bag *et al.*, 2019; Kotzab *et al.*, 2018). The main changes that concern SC professionals (mainly managers) are strategic management of supplier relations, strategic cost management (including delivery costs), process integration and strategic orientation in the context of purchasing (Clegg *et al.*, 2013). A similar approach to necessary changes was presented by Ballou (2007), who additionally emphasized the focus on the strategy of achieving revenues in SC, identification of inter-organizational benefits, building trust within the framework of cooperation in SC, information transfer in the network using the appropriate technology, and organizational integration of various operations (including in the area of purchase and logistics). The presented examples of changes necessary and the challenges for SCM reveal that SC professionals must not only change their approach to their tasks from transactional and clerical tasks to planning and strategic tasks but also must take into account the increasing number of risks, and their degree, on brand image and economic performance (Zhu *et al.*, 2018).

This requires the adoption of advanced skills, including data analysis (Flöthmann *et al.*, 2018; Gammelgaard and Larson, 2001). According to Clegg *et al.* (2013), SC managers must not only have skills and competences from the technological sphere, i.e. advanced technologies, automation, transformation and data transmission but also from the social sphere, i.e. influencing people's behaviour and relationships (communication and group work), to ensure the strategic dimension of SCM and its success. Many researchers emphasize that it is soft skills (relational and behavioural) rather than hard skills (functional and managerial) that will influence the effectiveness and success of SCM most in the future (Bak *et al.*, 2019). This is related to development of the concept known as behavioural SCM, which involves the analysis and evaluation of decisions in SCM in relation to the assumptions, intentions and basis of the people making them (Crum *et al.*, 2011). Van Hoek *et al.* (2002) have already stressed that education in logistics and SCM is not heading in the right direction, i.e. in line with economic and business trends, as it has too much emphasis on technical aspects.

Modern business trends have a significant impact on the type of tasks performed by the main SC professionals, i.e. SC or logistics managers (Bak *et al.*, 2019; Cousins *et al.*, 2006; Mangan and Christopher, 2005). The market determines the demand for such competences, required for the achievement of excellence in the profession. For example, for the SC/logistics manager, there needs to be a shift from an administrative role to a strategic one, which requires creativity, knowledge and talent (Giunipero *et al.*, 2006; Mangan and Christopher, 2005).

That is, why Van Hoek *et al.* (2002) rightly point out that the SC or logistics manager is in a rather critical position and their role, especially when performed by one person, is becoming increasingly difficult to implement to ensure a sustainable SC and value chain. The SC or logistics manager, in the process of

management of the SC and decision-making, cannot base everything only on the data from financial measurements (taking into account primarily the operational and tactical dimension), but increasingly needs strategic data, including non-financial data and performance measurements in the social and environmental spheres. Such a large amount of required data, and additionally the need to ensure transparency of SC information and communications, requires adaptation of advanced SC analytics, which can be provided by logistics or SC controlling (Seuring, 2006). SC or logistics controlling will obtain high-quality measurements from the perspective of both costs and performance, and at the same time integrate operational measurements with strategic measurements (Machado *et al.*, 2019). This results from the fact that SC controlling is rationality-oriented (engages all partners in SC's achievements and goals), coordination-oriented (supports the SC and the logistics manager) and information-oriented (all partners have access to information and the performance reporting system) (Seuring, 2006).

Controlling and its tools have already proved their worth and this is reflected in the number of positive performances (better financial results, financial stability and competitive advantage) (Jermais and Gani, 2004). Because of the increasing complexity and dynamics of SCM, as well as the behavioural orientation of the SC, the responsibility of the SC and/or logistics manager for the functioning of the SC is also growing. This means there is a need to provide direct and organizational support for SCM in the area of analysis, measurement, communication and decision-making. Such support may be offered by the SC controller and/or logistics controller (Wolf *et al.*, 2015). The profile of a controller in business and its translation into the SCM context is described in point 2.5.

2.5 Profile of the controller in business and its adaptation to supply chain management

The profile of the supporting manager's controller has changed as a result of the evolution of controlling tools and methods. Although their role was initially related to cost reduction within the company (from the financial and operational perspective), over time, it has enlarged to cover the organization's environment (market perspective – financial and non-financial and strategic). The literature presents different terms for the controller, which depend on the perception of the process and the role (passive and active) in management. The role has been called, for example, “brake”, “architect”, “innovator”, “change agent”, “counter”, “communicator”, “keeper”, “economic knowledge” or “internal advisor” (Dierolf *et al.*, 2011; Weber *et al.*, 2006). Guldin (1998) developed a model for types of controllers, taking into account their task orientation. The first one is the “indicator information specialist” who focuses on changes in strategy and uses specific indicator systems for this purpose. The second is the “pilot/holder”, who supports operational management and focuses on the analysis of deviations and the monitoring of operational processes – including their optimization. The third role of a controller is played by a “business partner”, who, using specific controlling tools, actively participates in strategy building, management and decision-making processes and modifies business models by providing advice and even by participating in the process itself. The last profile of the controller is the “change agent”,

who works for the development of the strategy and synchronizes it with the operational level of management. The best-known controller profile in science and business is “business partner”, which should be adapted to the currently complex SCM and the new role of the SC or logistics manager in this process (Wolf *et al.*, 2015; Czenskowsky and Piontek, 2007; Järvenpää, 2007).

A modern controller, regardless of the type of business (financial controller or SC or logistics controller) is the so-called “fitmaker”. Not only must he perform his tasks but also cooperate with managers at the level of the organization and the environment (IGC/ICV, 2012). The task of such a specialist is comprehensive, from identifying and understanding specific states of affairs, solving problems and coming up with initiatives and undertakings, to developing entrepreneurship, co-responsibility for the process of management and decision-making. Therefore, a modern controller should have a combination of factual, professional and behavioural knowledge that will allow them to look “between the numbers” and not just ‘at them’ when evaluating them (Wolf *et al.*, 2015; Järvenpää, 2007).

There is no specific controller template in business because there are many different types of controller. However, it is possible to indicate specific basic components of competences for this profession such as knowledge of controlling tools and their application, understanding of the business, ability to create value in the company, a critical approach to and recognition of any weaknesses in the business, knowledge of accounting, expertise in IT as well as neutrality and stability. In turn, it has been stated that in the future higher expectations will include, among others, critical thinking, threat detection, communication and persuasion skills, motivation, teamwork skills, expertise in management competences as well as creativity and flexibility (Wolf *et al.*, 2015; Järvenpää, 2007). In the context of the tasks performed by controllers, they can be divided into those related to planning, defining, controlling, deciding and reporting (ICV, 2018). Moreover, the areas or types of tasks depend on the position of the controller in the organization. For example, the tasks of the junior controller include supporting the team, leading projects, analysing and reporting, planning and preparation of budgets, processing data, making presentations and doing other ad-hoc tasks. While the senior controller controls the planning and managing of business processes (e.g. logistics processes), supporting the decision-making process, advising the company’s management, developing strategies to achieve goals, informing management about the extent to which targets have been achieved, targeting performance comparisons and also optimizing processes (ICV, 2018).

There are a number of scientific studies on the competences of the logistics controller, and the SC controller in particular. Several of them, mainly by German authors, describe the tasks but not the competences of the mentioned profiles. Czenskowsky and Piontek (2007) list such tasks for the logistics controller as establishment and verification of compliance with logistics budgets, variance analysis in logistics, improvement of efficiency, advising the logistics executives (operational level), integration of logistics into strategic planning, implementation of strategies in operational logistics planning and strategic control and documentation of planning (strategic level). In

turn, while the SC controller does not have a theoretical foundation, in the labour market one can find a short description of their tasks, which are, namely, management and financial reporting budget planning, preparation of and commenting on results, creation of financial and management reports and identifying and management of projects that optimize costs within the SC (Controller, 2019).

3. Research methodology

The study used job advertisements for the position of controller that were focussed on logistics and SC. Mangan and Christopher (2005) show that although logistics and SCM are often treated as separate areas, they are closely intertwined and require joint coordination. Due to the fact that both the SC manager and logistics manager may be responsible for SCM, the logistics controller and SC controller were both taken into account for the analysis of the controller’s professional profile.

The analysed job advertisements came from the German market. This is because the concept of controlling (under this term) originated from German culture and in German-speaking countries (mainly in Germany itself) and was the most widespread in science and business. In addition, controllers have institutional support in the form of the International Group of Controlling (IGC), which also has a strong impact on the countries of Central and Eastern Europe, thus popularizing controlling and its specializations (Wolf *et al.*, 2015). The above premises prove that the selection of job advertisements for logistics and SC controllers from the German market is appropriate, as controlling has its strongest roots in this geographical area and both German practice and science reflect the trends of this concept to the greatest extent, e.g. diversification of controlling on logistics controlling or SC controlling (Schäffer and Weber, 2010). The need to develop logistics or SC controlling, and therefore, the need to hire specialists from this area may result from a very well-developed Transport-Freight Forwarding-Logistics (TFL) sector in Germany Logistics Performance Index – 4.20 according to Global Ranking prepared by the World Bank (Global Ranking, 2018). However, companies in this sector have to compete with other businesses in Europe and the rest of the world, and therefore, there is a need for an additional coordination and information system in the area of logistics and the SC, which is controlling. Becoming familiar with the elements of the professional profile in the logistics and SC controlling sphere for which the demand is reported on the German labour market may be useful for creating similar jobs ads in other countries such as Central and Eastern Europe, where also the TFL sector is developing rapidly.

The job advertisements were downloaded in January and October 2019 from the job search portals indeed.de, stepstone.de, kimeta.de, gehalt.de, karriere.de and manpower.de. To separate the target job advertisements related to the analysis of the professional profiles of SC professionals, logistics controller and SC controller, the following keywords were entered into the search engine of the above-mentioned websites, namely, “logistics controller”, “SC controller”, “Logistik Controller” (in German), “Controller im Bereich Logistik” (in German), and “Controller für SCM” (in German). The sample consists of 90 advertisements, including 50 advertisements for logistics

controller and 40 advertisements for SC controller. It was not possible to find more job advertisements in the above-mentioned job search engines in the analysed period. Further searches for job advertisements for these professions caused that the advertisements were repeated. Moreover, differences in the number of job advertisements result from the fact that in the analysed labour market, there is a greater demand for logistics controllers than for SC controllers. This number of job advertisements in relation to other known professions (e.g. logistics manager and financial controller) proves that both professions are still developing in the German market and demand for them will continue growing.

Taking into account the importance of the German economy, including logistics and its impact on other countries, it can be assumed that there will be dynamic growth in these occupational postings in the near future and a corresponding need for staff in this area across the whole of Europe, especially Central East Europe. Nevertheless, 90 advertisements for both professions included in the analysis seems to be sufficient. This is because of the fact that the job advertisements are structured in such a way that a greater number of job advertisements for SC and logistics controller would not affect the general dimension of data analysis and reasoning.

Analysing content based on job advertisements is a method often used by researchers. There are many publications from various fields, which use this technique to better understand the overall conditions of the studied phenomenon and, on this basis, make assessments and do further in-depth research. It is worth noting that job advertisements reflect the needs of business, the labour market and education (Calanca *et al.*, 2019; Brooks *et al.*, 2018; Dziobczanski *et al.*, 2018).

The analysis of the collected research material focussed on the separation of two data areas, namely:

- 1 required competences (meta and core competences) and
- 2 tasks – for either logistics or SC controller.

To organize the competences identified in the job advertisements, elements (meta and core components) of occupational competence mix models of Cheetham and Chivers (1996) were used, while the required tasks to be performed by SC or logistics controller were ranked according to a range of tasks presented by IGC and the corresponding main controlling function. As a result of the data analysis, a professional profile for the SC and logistics controller was created according to the above-mentioned model, and the competence level was identified according to the structure proposed by Czapla (2010).

The analysis of the data has been divided into three stages. In the first stage, a descriptive analysis of data concerning competences (core and meta) and tasks was made to identify those dominating characteristics for particular profiles. The second stage of the analysis consisted of indicating the role of particular attributes in terms of competences and tasks in job advertisements in the context of shaping the professional profiles of the SC and logistics controller. For this purpose, a radar chart was used for data presentation as it allows answers to be made of the questions of which competences and tasks are the most similar and which are different between professional profiles of SC and logistics controller. In the third stage of the analysis, to check the significance of differentiation of particular

attributes (competences, tasks) between an SC and logistics controller, a one-way Anova variance analysis test was used. The total variance (variability of results) is divided into a part derived from differences between groups and a part derived from differences between results within groups. More specifically, this method consists of on a comparison of intergroup variance to intra group variance. The purpose of the Anova test is to indicate that the intergroup variance is substantial and the intra group variance is as small as possible (H_0) (Malska and Twaróg, 2017).

4. Findings

4.1 Competences of an supply chain and logistics controller

Taking into account the occupational competence mix models of Cheetham and Chivers (1996), the core competences were analysed. In both cases, “knowledge/cognitive competences” prevails. For SC controller, they refer, for example, to knowledge of English and knowledge of written and spoken German, IT (MS Office, especially MS Excel and SAP ERP), knowledge of business functioning, organization, human relations, process approach and technical knowledge. Also, required at this level is completed studies in business administration (at the level of BA and less MA) (the largest number of indications), less frequently in engineering or economy or logistics and SCM. For a logistics controller, these kinds of competences include completion of studies in business administration or business informatics, knowledge of IT (mainly MS Office software, e.g. MS Excel) and excellent knowledge of English.

The second place is occupied by “personal/behavioural competences” for both professions. In the case of SC controller, the following qualities are indicated in the job advertisements, namely, teamwork, excellent organizational skills, organization of work, good client relationship skills, readiness to travel, ability to coordinate with clients and colleagues under pressure, entrepreneurial spirit, result-oriented, independent way of working and ability to work in an international environment. In turn, the “personal/behavioural competences” of the logistics controller are characterized by such issues as a team player, assertiveness, a strong hands-on mentality, good organization of work and approach to process/provision of services.

Third place in the analysis was taken by “functional competence”. Employers require from an SC controller an education with a specialization in controlling, accounting, supply chain controlling or SCM and professional experience in controlling, accounting, reporting, as well as the ability to operate specialist software (Business Intelligence, SAP with financial, controlling and material flow modules, AP and Hyperion Planning). For logistics controllers, the same issues were distinguished as for SC controller but in addition knowledge of cost calculation and pricing models as well as forwarding programs. Moreover, employers placed emphasis on directional education, stressing that a logistics controller should have completed studies in economics with an element of logistics or directly in logistics, controlling or SCM. Importance is also placed on experience in the field of logistics (sometimes specifically, e.g. specialized in waterborne

transport or warehousing or in the automotive or trade sector), controlling or controlling logistics. There were also requirements for command of specialist software (SAP with modules such as CO, FI, BO, MM) and knowledge on reporting and forecasting, also knowledge in VBA macro and SQL were desirable.

“Values and ethical competences” are rarely mentioned in advertisements for either logistics controllers or SC controllers. They are referenced as follows: maintaining a friendly atmosphere, i.e. friendly relations, and identifying with the company’s community and its values. The best example of a request for “value and ethical competences” is reflected in the following phrase used in one of the job advertisements: “absolutely loyal and stand with body and soul behind your task and the company for which you will work in the future”.

The next stage of the analysis focussed on meta competences, which for both occupational profiles, related to “self-development” predominately, being an active approach to developing oneself on various levels, i.e. educational and practical, for example, by gaining experience (internships, apprenticeships, other positions). In addition, there is also the desire to travel (learning about new cultures, nationalities), and learning about new technological and business solutions (e.g. a process approach). The competences relating to “communication” are also important in the case of both profiles. Here, it can be distinguished by e.g. the ability to talk to employees of all positions and partners from different companies (usually in English). This characteristic plays a special role in the work of the SC and logistics controller because both specialists not only collect data from other business partners but also provide information at various stages of the organizations and SC (Colicchia *et al.*, 2019). Also, emphasized in job advertisements for these professions is the ability to think analytically – “analysis”. Some small differences between profiles occur in the case of “problem-solving” and “creativity”. Competences relating to “problem solving” are highlighted more frequently for logistics controller (e.g. having a “solving mentality” and having a conceptual, strategic approach or the ability to convey complex facts intelligibly, the solution-oriented way of acting) than for SC controller. In turn, the area of “creativity” is identified more for SC controller and the following examples from the announcements can be indicated, namely, high personal initiative or independence.

4.2 Tasks of the supply chain controller and logistics controller

Meta and core competences enable SC and logistics controllers to carry out their tasks effectively. Their orientation in the SC is to support the management process and ensure its effectiveness and transparency.

For the SC and logistics controller, the tasks from the group “definition” have an advantage. They are, for example, a specified inventory and quality levels, define SC KPIs, defining and implementing measures, defining processes to make global supply relationships between internal manufacturing and logistics units, knowledge building (for SC controller) or construction and development of indicator systems, conception of standardized logistics reporting, development and automation of logistics controlling, development of

optimization approaches, preparation of recommendations (for logistics controller).

In the case of other task areas, differences can be observed between the profiles, for example, for SC controller, in second place, “maintaining” (e.g. ensuring the integrity of the MRP, coordinate production in line with forecast, monitor the KPIs of the SC, ensure the continuous development of reporting, coordination of planning in the area of SC management, ensure that customers are impressed by outstanding delivery performance, support national and international customers with their consulting know-how). However, “maintaining” for logistics controller occurs in third place in the analyses and consists of ensuring that the end client is kept up to date regarding potential delays and delivery schedules, ensuring that special certification is obtained for transportation, ensuring data completeness for continuous analysis, support of the sales areas during the offer preparation and final costing, and ensuring optimal material flow planning. In third place with respect to the SC controller, we see “control” (e.g. verification of invoices by means of invoice control, control of planning in the area of SCM, controlling for SC Global Business Centres, Transport Management Centres and Centres of Excellence for Sourcing, control of SC cost blocks, control of the varied planning processes in the SC) and “analysing” (e.g. profitability analyses of production and logistics processes, deriving performance analytics to identify opportunities, deviation analyses, analyse information, *ad hoc* analyses). Subsequently, the following areas of work can be identified for the described profile, namely, “reporting/information” (e.g. reporting procurement KPIs, communicating the status within the SC to the wider business, preparation of regular and ad-hoc reports, representing the logistics sector in central financial meetings, creation of local and group SC reports), “decision-making/participation in management” (e.g. discussions about costs, advise and coach the SC employees on data acquisition, recommendations to management, active contribution to the optimization of SAP controlling tools, supervise subtasks or management of project teams) and to a lesser extent “planning” (e.g. planning and preparation of the forecast, preparation of investment plans for production and logistics, participation in the budget and planning process).

Evaluating, in turn, the scope of tasks for logistics controller, in second place is seen “analysing” (e.g. analysis of monthly development, analysis and evaluation of the performance indicators of the warehouse, and fleet logistics of various delivery logistics locations, continuous analysis of the intended/actual processes, process cost analyses, operational business analyses on quantities, costs and performance of logistics or preparation of regular statistics). To a lesser extent, there are areas related to “planning” (e.g. planning the shipping of goods and materials, preparation of financial planning and forecasts, forecasting and budgeting, effective and efficient planning, logistics planning, capacity and cost planning in logistics projects), “reporting/information” (e.g. reporting of important logistics figures, preparation of management presentations, reporting of air/sea freight activities, and results for business in Europe, and preparation of monthly and annual statements at branch level) and “decision-making/participation in management” e.g. advising the branch management over financial questions and the corresponding decision templates,

close cooperation with immediate supervisors and advice, especially when deciding important issues. The last place was taken by tasks from “control” (e.g. financial control of the logistics centre in an international context, control of the project for capacity expansion).

4.3 Attributes specified in job advertisements in the context of shaping supply chain and logistics controller profiles

On the basis of the radar diagram (Figure 2) of the indicated attributes in the area of core competences in job advertisements, it can be observed that enterprises perceive the importance of “knowledge/cognitive competences” for the SC controller (items from this competence group were the most significant in a given specific job advertisement). “Personal/behavioural competences” and “functional competences”, on the other hand, have the same meaning in the context of their indications in an employer’s job advertisement. The same situation applies to the job advertisements for logistics controller; however, it may be interesting to note that in the case of “values/ethical competences”, slightly more indications occurred in the job advertisements for logistics controller than for SC controller.

Another area of analysis concerns meta competences (Figure 3). In any given job advertisement for SC controller, and for logistics controller, there is a benefit in competences in the area of “self-development”. Also, employers attach importance to competences in the area of “communication” in the job advertisements for both profiles. The differences between indications in the job advertisements occur in the case of competences in the area of “creativity”, where greater frequency is visible in the job advertisements for the SC controller, and in the case of competences, in the area of “problem solving”, in the job advertisements for the logistics controller.

The third area of analysis covers the nature of the tasks, which have to be carried out in companies performing the functions assigned to them (Figure 4).

In the case of job advertisements for SC and logistics controllers, the tasks related to “definition” and “maintaining” dominate. In other areas, there are differences in the context of tasks from a specific area in any given job advertisement. For example, for the SC controller, it is also possible to observe a

significant number of indications in the job advertisements for activities in the “decision-making/participation in management” area, while for the logistics controller, in the “planning” and “analysing” areas.

Figure 5 summarizes the importance of competences of both types as well as tasks in the job advertisements for SC and logistics controllers.

4.4 Analysis of the diversity between supply chain and logistics controllers in terms of attributes from the area of competence and tasks

To check the difference between job advertisements for SC and logistics controllers in terms of attributes in the competences and tasks area, a one-way Anova variance analysis test was applied. The one-way Anova analysis of variance, which serves to compare averages in groups, was used to test the relevance of variation in the competences and tasks between the SC and logistics controller as well as within those subgroups. The total variance (variability of results) was divided into the part derived from differences between the subgroups and the part stemming from differences in results within the subgroup. Table I shows that significant differentiation in competences and tasks between the SC and logistics controller subgroups occurs in “creativity”, “problem solving” for the meta competence analysis and “planning”, “control”, “decision-making/participation in management” for the task analysis. For the abovementioned attributes, this means positive verification of the null hypothesis. For the other attributes in the competence and task area, the hypothesis is rejected on the 10 per cent significance level (Table I).

5. Conclusions, limitations and further research opportunities

Analysis of SC controller (Figure 6) and logistics controller (Figure 7) competences compared to the main elements (core and meta competences) of the occupational competence mix model of Cheetham and Chivers allows the identification of both similarities and differences between the above-mentioned profiles. It should be recognised that at the core competences level, there are no differences in assigning identified competences to the following groups of competences, namely,

Figure 2 The relevance of core competences in the job advertisements for SC and logistics controllers

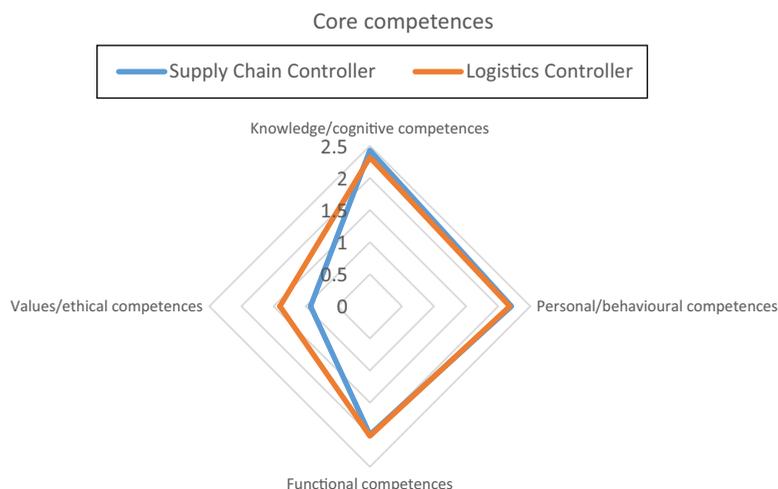


Figure 3 The relevance of meta competences in the job advertisements for SC and logistics controllers

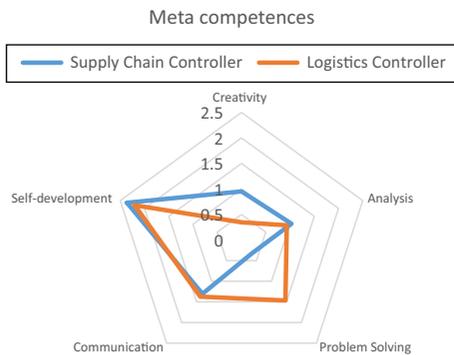


Figure 4 The relevance of task areas in the job advertisements for SC and logistics controllers

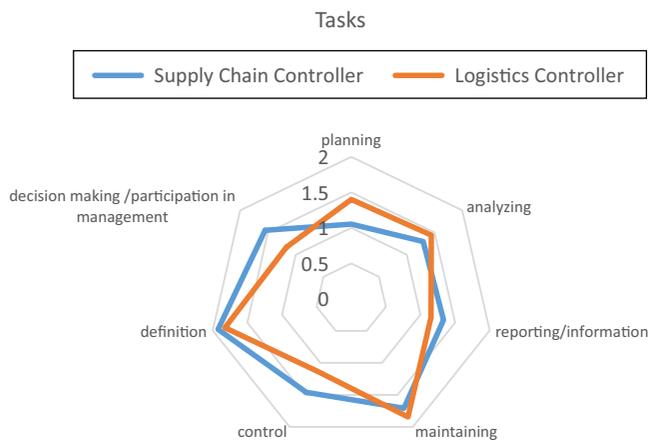
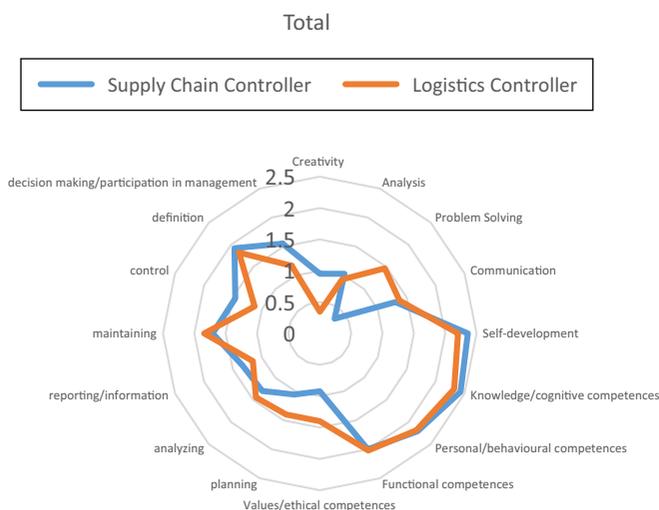


Figure 5 A comprehensive view of the importance of competence areas and tasks in job advertisements for SC and logistics controllers



“knowledge/cognitive”, “personal/behavioural”. Only in the case of SC controller is there a slightly higher number of indications assigned to “ethical value/competence”, and in the case of logistics controller to “functional competences”. A

similar situation exists for meta competences. For both the SC and the logistics controller, the emphasis is on “self-development” and “communication”. Slight differences also occur in the case of other meta competences in the analysed profiles. Although there are some small differences in the area of competences between profiles, the level of this difference is not significant. Therefore, it can be concluded that SC and logistics controller in this area of analysis are similar professional profiles that can effectively support SCM.

The second area of analysis concerned the tasks expected by employers to be performed by the SC and logistics controller. In both cases, the tasks in the area of “definition” and “maintaining” dominate. In the case of a logistics controller, the tasks from the “analysing” area are also predominant. In the case of an SC controller, the tasks from the area “control” and “analysing” can be listed next. The prominence of “definition” activities in job advertisements in both cases may mean that employers are looking for SC or logistics controllers to organize SC controlling or logistics controlling systems in the company or implement new tools in this regard. This group of tasks corresponds to the strategic dimension of SC or logistics controlling. On the other hand, the dominance of the “maintaining” task indicates that enterprises expect SC and logistics controllers to supervise and control and improve the existing solutions in the controlling system on an ongoing basis. This task area is partly combined with “control” activities. On the other hand, this group of tasks has a mixed character in the context of controlling, i.e. it is also possible to indicate activities from the scope of operational, tactical and strategic controlling. In both profiles, tasks are also often mentioned in the area of “analysing” that are of an operational controlling nature because they are related to the counting of indicators or analysis of deviations. In the case of the SC controller, it is also worth mentioning the “decision-making/participation in management” tasks, although they are less numerous than the activities of other groups in job advertisements, their identification by employers indicates that business practice reflects a new trend in the role of controller’s, which is to serve as an active business partner.

Regardless of the number of indications of the activities of particular groups in advertisements for employment in economic practice, they overlap to a greater or lesser extent.

Therefore, the scope of tasks for both professions can be considered the same. Only a detailed verification allows one to state that their focus may be different, i.e. the SC controller focuses more on inter-organizational solutions, and the logistics controller focuses mainly on logistics and its tools. Regardless of such facts, the activities performed by both the SC and logistics controller may result in better performance measurement, better information quality for SCM, which is conducive to transparency, and the pursuit of a sustainable SC and value chain.

The analysis of tasks carried out by the SC controller and logistics controller can be adapted to the competence level model of Czapla (2010) (Figure 8). Certainly, the SC and logistics controller have both basic and advanced competences, as shown by the analysis of job advertisements. On the one hand, the mentioned profiles perform standard tasks such as calculating, reporting and maintaining a passive approach in the areas of, namely,

Table I Differentiation of average values for attributes in the area of competences and tasks between and within the position of SC and logistics controllers

ANOVA for meta competences	Profiles	Average	Variance	Between groups	Within groups	F	p-value	F crit
Creativity	SC controller	0.9545	0.2359	5.6053	0.2616	21.4199	0.000	3.9798
	Logistics controller	0.3469	0.2729					
Analysis	SC controller	0.8484	0.2575	0.3899	0.3067	1.2713	0.264	3.9862
	Logistics controller	1.0000	0.3529					
Problem solving	SC controller	1.2222	1.0065	8.8934	0.6575	13.5257	0.001	4.0343
	Logistics controller	0.3529	0.4777					
Communication	SC controller	1.3750	0.3244	0.1551	0.4174	0.37163	0.544	3.9545
	Logistics controller	1.2894	0.5355					
Self-development	SC controller	2.2045	1.7478	0.0700	1.6565	0.0422	0.838	3.9603
	Logistics controller	2.2631	1.5504					
ANOVA for core competences								
Knowledge/cognitive competences	SC controller	2.3200	1.0791	0.1205	1.1855	0.1017	0.751	3.9518
	Logistics controller	2.3947	1.3264					
Personal/behavioural competences	SC controller	2.1800	1.4159	0.1099	1.6111	0.0682	0.795	3.9532
	Logistics controller	2.1081	1.8768					
Functional competences	SC controller	2.0204	1.4787	0.1141	1.2573	0.0908	0.764	3.9532
	Logistics controller	1.9473	0.9701					
Values/ethical competences	SC controller	1.1666	0.9666	0.5761	0.8017	0.0682	0.795	3.9532
	Logistics controller	0.8000	0.7428					
ANOVA for tasks								
Planning	SC controller	1.3461	0.3153	1.3919	0.2196	6.3370	0.015	4.0566
	Logistics controller	1.0000	0.1					
Reporting/information	SC controller	1.1538	0.1353	6.3370	0.1784	1.7241	0.195	4.0343
	Logistics controller	1.3076	0.2215					
Control	SC controller	1.0800	0.16	1.8553	0.2510	7.3902	0.009	4.0383
	Logistics controller	1.4615	0.3384					
Decision-making/participation in management	SC controller	1.1666	0.1449	1.4285	0.2458	5.8108	0.020	4.0670
	Logistics controller	1.5238	0.3619					

“planning”, “control” and “analysing”. On the other hand, they have a broader remit resulting from new business trends, which shows that both profiles have reached a competence standard that should be perceived as higher than only the “committed performer” or “independent contractor”. The tasks assigned especially to “definition” (e.g. developing new tools for measuring or improving current methods) but also to “maintaining” (e.g. monitoring of the essential processes), and to “decision-making/participation in management” (e.g. being a “business partner”) indicate that they have reached the level of professional competence, which allows them not only to solve problems but also to highlight new solutions to managers and inspire them to

implementation. As a result, it can be said that both the SC and logistics controllers fill the role of the so-called “engaging inspirer”, which allows them to be included in the SC “professionals” designation. This is confirmed by the fact that employers in job advertisements indicated the need to have professional experience, so the SC and logistics controller usually has the status of a so-called senior controller. However, it is difficult to assess on the basis of the tasks specified only in the job advertisements whether the SC and logistics controllers have reached the last level of competence in Czaplá’s model, i.e. expert competences related to the creation of new areas of knowledge. This issue requires direct observation in business practice.

Figure 6 Occupational competences: SC controller

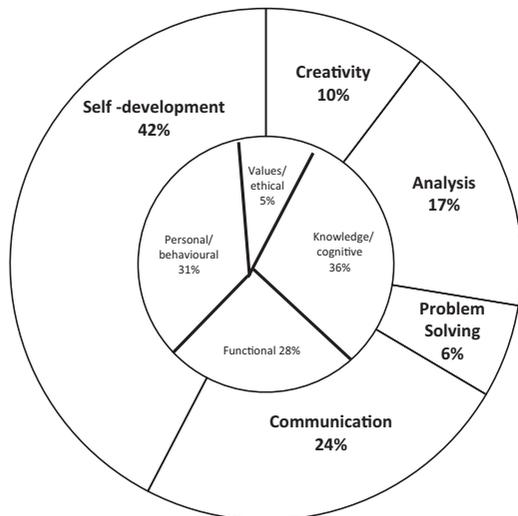


Figure 7 Occupational competences: logistics controller

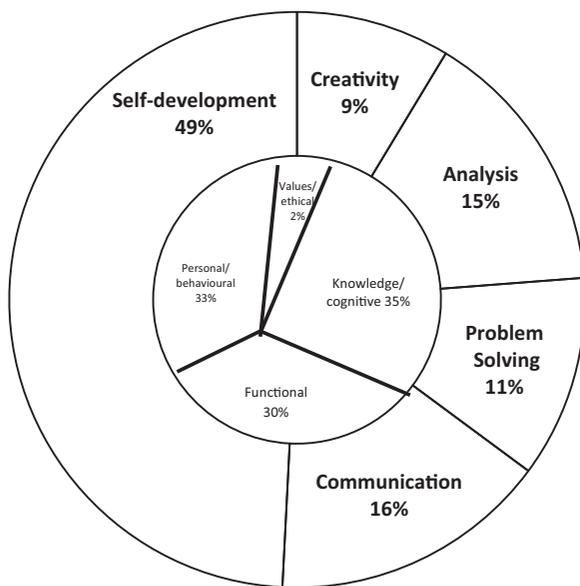
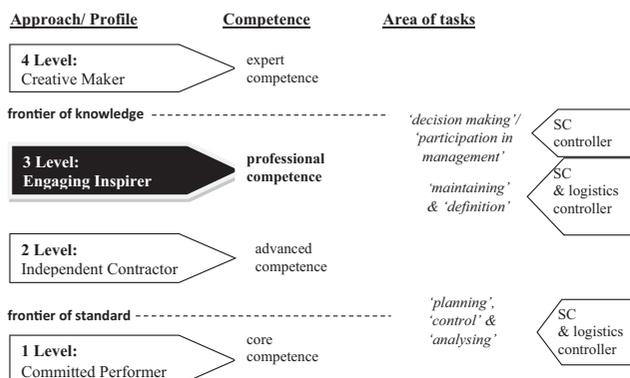


Figure 8 SC and logistics controllers as SC professionals – “engaging inspirer”



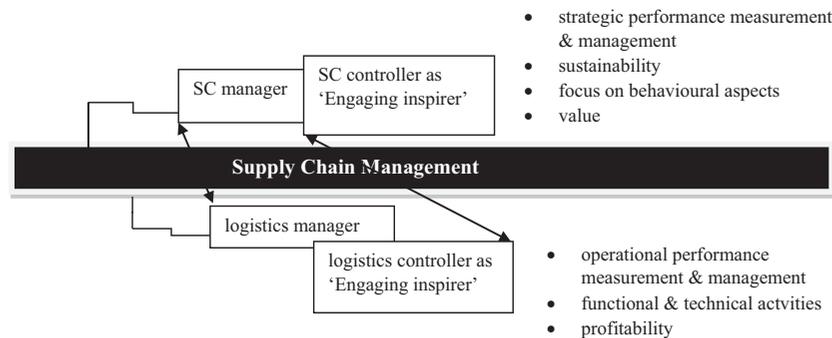
Both logistics and SCM are constantly being evaluated in the context of globalization processes, including technology development. Currently, there is talk of the so-called SC 4.0., which is to allow, through total automation and robotization, increased performance and improved customer satisfaction. Although technology and its related machinery are a resource that creates added value in logistics and in the context of SCM, human resources and their associated competences are still important resources in this area. The role of human resources in the professional world is also undergoing a transformation. It is no longer enough to be a performer or independent contractor but rather an engaging inspirer or creative creator as well (Czapla, 2010). Such competences are expected of the contemporary SC and logistics manager, who not only has to manage the SC but also has to manage the so-called sustainable SC, ensure transparency, and be personally involved in the order process so as to raise the value of the SC over the long term. However, such a wide range of tasks and responsibilities within SCM are not easy to implement without the support of the SC and/or logistics controller.

In business practice, SCM can be performed by various professionals, (mainly the SC manager but also the logistics manager). When the analysis of the collected data from the advertisements is taken into account, both the SC and logistics controller can support SCM effectively, regardless of whether this process is implemented by SC or logistics managers. The competences and scope of the tasks indicate that both SC and logistics controllers are professional and each can be referred to as an “engaging inspirer”.

Taking into account trends in the context of SC and its management, including new challenges for the SC manager (strategic orientation, management in social and environmental areas and focus on behavioural relations), to ensure the greatest effectiveness and transparency of SCM and achieve its true value chain level, it is worthwhile popularizing the role of both the SC manager and logistics manager and the SC and logistics controllers in science and business as “professionals of SCM” (Figure 9).

The proper identification of the professional profile for the SC and logistics controller through the analysis of competences and types of tasks has shown that both professions should be included at the level of SC professionals that support their management in the challenges faced by SCM.

There can be no transparent and sustainable SC or its management process without effective, complex (financial and non-financial, operational and strategic), and, at the same time, transparent performance measurement. Then, such a dimension of performance measurement can be achieved by bringing an SC or logistics controller into SCM and ensuring their close cooperation with the managers (Aharonovitz et al., 2018). Although, on the one hand, Flóthmann et al. (2018) indicate that managers involved in SCM are mainly required to have SCM knowledge and analytical and problem-solving skills, on the other hand, Bak et al. (2019) propose that soft skills (behavioural skills-planning, communication, initiative and negotiation) will be the most important. Such challenges to the attitudes of managers involved in SCM should favour the establishment of an SC or/and logistics controller. Managers could focus on behavioural and people management skills and controllers on hard skills (knowledge and analytical skills). This would mean a certain degree of diversification of tasks and their

Figure 9 The role of the SC and logistics controller and other SC professionals in the SC in obtaining its transparency

faster and more effective execution. It is worth noting that the tasks typical for controllers are probably performed by SC analysts or/and SC planners at present in business practice, meaning that employers often use both specialists, which results in added costs or use one specialist, but then one of the functions of the management process may be less well supported. The solution to this problem is to appoint a controller who will support all SCM functions at the same time (planning, control, organization, coordination and leadership) and decision-making by managers, often located on the side of third-party logistics services (van Hoek, 2000).

The importance of the professional profiles of the SC and logistics controller should be translated into the field of education to introduce courses related to logistics controlling and SC controlling into the curricula of both business and engineering studies to properly prepare students for the role of SC or logistics controller in business practice. The research, therefore, is interdisciplinary in nature and its results are a contribution to science in the area of logistics, SCM, controlling and HR.

For SCM and logistics this means:

- increasing the importance of analytical issues in relation to the technical aspects,
- adding SC and logistics controllers to the range of logistics and SC professionals and
- implementation of SC and/or logistics controlling systems in the context of performance measurement within SC.

For controlling, it is about developing tools and methods specializing in SCM and logistics. In turn, for HR it means looking at a new dimension of competence (more behavioural aspects) and the ability to create and ensure partnership cooperation between a manager and a controller in the context of SCM.

In addition, the study fills the gap between theory and practice by pointing to the need to use a controller and shape the correct profile ("engaging inspirer" or "creative maker") to achieve faster efficiency and transparency of SCM required by the modern economy (e.g. Industry 4.0). To date, SC and logistics controllers are professional profiles not often found in business (except partly for the German and British labour markets, although here the presence of these specialists is more a form of debut) in the context of SCM and, consequently, not supported by business. Therefore, their profiles should be disseminated and adapted to practice in various countries of the world, including Central and Eastern Europe, and especially where the logistics sector is the essence of the economies.

The study does have its limitations. First of all, the analysis of job advertisements is of a limited nature, therefore, the data obtained allowed us to learn only the general outline of this studied phenomenon. Verification of competences and tasks for the SC controller should be carried out at a later stage through surveys and interviews. Secondly, the assignment of particular competences and tasks identified in job advertisements to separate areas of analysis may be subjective in some cases. Thirdly, the job advertisements were verified on the basis of the German labour market. It would be worth analysing the British labour market in this respect to identify the thinking about SC and logistics controllers in a different business environment. Fourthly, the research did not take into account industry, SC structure, organizations or their size and the origin of their capital, all factors that may affect the employment of the SC or/and logistics controller in SCM, and their profiles.

Note

- 1 Among researchers from Germany and Central and Eastern Europe, where the controlling (management accounting and control) concept has a strong impact on business practice, there is a discourse about the "unequivocal treatment" of the terms "controlling" (according to the German approach) and "management accounting" (Anglo-Saxon approach), i.e. "controllers" and "management accountants" (Szychta and Dobroszek, 2017). Despite the slightly different educational path of management accountants and controllers, for example, in the UK and Germany, and the cultural development of controlling in Germany, controllers and management accountants use the same tools and methods in business practice and are, therefore, identical as professionals (Ahrens and Chapman, 2000).

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