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**REQUIRED SKILL SET
FOR THE SUPPLY CHAIN MANAGER
IN CHANGING ECONOMIC REALITY**

1. Main trends in changing supply chains

Managing the supply chain has become increasingly more complicated task due to increasing turbulence and competitiveness of market environments. Adding to the complexity is managers have to achieve cost efficiencies and at the same time – improve customer service and improve customer and supplier relationships within the supply chain (Christopher, 1998).

In present millennium economic reality becomes constantly more difficult for companies due to a synergy of larger complexity and growing dynamics of business processes. There are many phenomena that seem to be the basis the intensity and scale of changes such as: emerging virtual networks of global influence, growing sophistication of customers' expectations, shorter life cycles of products, and rapid development of the service sector. Quite often it results in discontinuity of development of businesses, particularly in the environment troubled by economic recessions and cycles of shrinking business opportunities.

Important macroeconomic and social trends have a constant effect on the development of logistics and supply chains. Those trends constitute major challenges for logistics managers, who have to catch up with evolution of dynamic trends in corporate development. At the beginning of the 21st century the main directions in logistics development were identified as follows (Skjoett-Larsen, 2000):

- supply chain management cooperation normally including such characteristics as joint planning and mutual exchange of information, co-operation based on end users' requirements, cross co-ordination on several levels in the participating companies long-term co-operation and trust between the actors, fair sharing of risks and benefits and common visions and company cultures;
- globalization of the supply chain concerning supplier and customer markets where domestic and local suppliers and customers play a less important role compared to global suppliers and customers; within Europe, it resulted in removal of trade and transport barriers between EU countries, opening of new markets in Eastern Europe, acceptance of a single European currency, development of information technology and fast communication systems, and emergence of pan-European logistics service providers offering fast, reliable, and cost-efficient distribution in Europe;
- strategic partnerships focusing mainly on strategic supplier co-operation, distinguishing between four generic supplier strategies; strategic partnerships/system suppliers, outsourcing of non-critical purchase, leverage purchasing and bottleneck purchasing;
- virtual enterprises, held together by trust, synergies of the partners, contract and information technology (Hedberg et al., 1994); they result in creation of

- virtual supply chains operating without long-term relationships, can be enabled or dissolved easily on a real-time basis; they are characterized by a networks of internal and external relations that constantly change;
- e-business with Internet applied as a fast and efficient means of communication; electronic commerce with completely new distribution concepts and needs for agreement on a common standard;
 - greening the supply chain, i.e. carrying out life cycle analyses of products and processes in order to reduce adverse environmental impact on the total supply chain; requirements for environmental certification from suppliers; packaging area faced with stricter requirements for repossession and recycling; the transport area facing with changes and city logistics becoming an area of growing interest; use of environmentally friendly trucks and high capacity utilisation of the transport materials; reverse logistics being a concept that is applied in processes connected with recycling, reusing and reducing the amount of materials used; demands for a reduction in CO₂;
 - relations management in connection with external co-operators such as suppliers, third-party operators or customers; important issues concern negotiation of partnership agreements, maintaining and developing co-operative relations with external partners and developing inter-organisational information systems.

At present we witness increased domination of such above mentioned concepts as virtual enterprises, “green supply chains” and process-oriented management.

It might be interesting to confront the above mentioned set of forecasted trends in supply chains with later research that identified the main trends in logistics and supply chains on the basis of interviews with managers of total 897 trade companies, manufacturers and logistics service providers from Germany, USA, and China (Straube, Pfohl, 2008). Table 1 summarizes the opinions concerning the importance of the main mega-trends in logistics and supply chains as perceived by the respondents.

Table 1 indicates several major mega-trends that have the greatest influence on logistics at present and their significance in 2015, i.e. (Straube, Pfohl, 2008):

- globalization based on internationalization of procurement, production and distribution posing – according to respondents – the biggest logistics challenge; some of the respondents expect a related geographic extension of logistics chains;
- security and risk problems, resulting from increasing globalization, dynamics of the market, outsourcing concepts and single-sourcing strategies; all these trends result in an increasing number of potential “failure points” and organizational vulnerability of supply chains;

- environmental and resource protection as an issue of the increasingly more important concept of sustainable development, with sustainable logistics strategies facing global supply chains, and yet at the same time reducing e.g. emissions of climate gases;
- technological innovations like information and communication, RFID technology particularly in the trading sector, etc.;
- social responsibility for the effects of logistics and supply chain activities on society;
- regulation and compliance with changing statutory requirements which may be a bigger challenge due to uncertainty of political framework conditions and increasing state regulation;
- demographic development, and mainly an aging society and resulting from that shortage of skilled personnel; it also should be connected with the increasing age of the end customers of companies.

Table 1
Influence of main trends on logistics and supply chain management

MEGA-TRENDS IN LOGISTICS	% of companies affected by the listed trend to a „large“ and „extremely large“ degree															
	TRADE				INDUSTRY				SERVICES							
	Retail		Wholesale		Plant engineering		Automotive		Electrical engineering		Chemical		3PL		Freight forwarding	
	2008	2015	2008	2015	2008	2015	2008	2015	2008	2015	2008	2015	2008	2015	2008	2015
Globalization	40	52	40	68	48	74	57	76	73	84	78	86	62	83	71	85
Security	14	43	39	52	39	57	24	43	51	64	74	95	46	60	52	65
Regulation, compliance	35	50	48	48	52	59	19	33	45	60	52	73	31	38	58	67
Social responsibility	40	60	16	24	26	52	19	48	30	47	43	59	26	47	40	52
Environmental and resource protection	14	64	24	68	21	55	19	76	27	76	48	91	27	76	31	82
Technological innovation	29	67	24	80	42	55	20	48	36	65	22	68	32	70	53	78
Demographic development	14	48	32	42	-	44	5	48	9	42	4	18	12	50	12	53

Source: Based on (Straube, Pfohl, 2008).

Predictions in Table 1 clearly indicate that such trends which were manifesting themselves for a long time, i.e. globalization/internationalization, sustainable development and “greening” the chain are the main robust trends in contemporary supply chains. Also technological innovations are an expected tendency influencing logistics and supply chains. However, there are new developments in logistics and supply chain management that recently exposed new mega-trends which were not widely discussed neither in earlier literature nor in hitherto practice. Those trends are connected to security issues, regulation and compliance, and corporate social responsibility problems.

According to the demographic development trend, companies must understand how the definition of success is changing in the light of new business trends, and be able to track the impact of those new trends on human resource management efforts. Given high unemployment, financial regulations and escalating healthcare costs, the uncertain economy remains the most important driver behind Human Resource Management efforts forcing the organization to operate more efficiently, in order to secure company’s growth and achieve organizational growth goals.

In order to empower logistics and supply chain managers to make better decisions, probably differentiated hiring, retention and development plans should be created for critical talent and risk management to support organizational growth. The most important trends in supply chain management, such as globalization, security requirements, the need to protect environment and spare resources, social responsibility, and also modification of business systems, require new competencies from logistics managers.

This article aims at answering the main research question: In what way the profile of actual supply chains in changing economic reality shapes the challenges for managerial skills and competencies?

2. Importance of human resources in logistics and supply chains

In 2003 a note in *Harvard Business Review* indicated that “(...) despite years of process breakthroughs and elegant technology solutions, an agile, adaptive supply chain remains an elusive goal. Maybe it’s the people who are getting in the way” (Beth et al., 2003, p. 65). It is commonly believed that instead of considering the supply chain to be a 50/50 mix of infrastructure and information systems technology, rather any supply chain is more like 45/45/10 mix of human behaviour, systems technology and asset infrastructure (Gattorna, 2006).

Andraski and Novack (1996, p. 29) indicated that people are “(...) the most important element of the logistics marketing concept”. Daugherty et al. (2000, p. 66) noted: “To take supply chain performance to the next level, companies will have to tap into this human element more intensively. Many companies have pushed hard on technological and infrastructure improvements and investments. The next wave of improvements and investment should center on the people who manage and operate the supply chain”.

One of the research reports created a model of impact of the way of managing human resources. “Generally, the HR policies create a positive organisational social climate, creating higher levels of trust, cooperation and people engagement. Secondly, the HR policies increase human capital flexibility – the skills and behaviours needed for the organisation to change. The changes in human capital flexibility and organisational social climate have an impact on nonfinancial performance. Companies that have better non-financial performance also reported in the survey better financial performance and delivered higher returns on their assets as shown in their published annual reports” (Bourne et al., 2008, p. 5).

Current challenges also include managing changes associated with an aging work force that is yielding to a new generation of youth performing frontline logistics activities.

Importance of human resource management and change of management priorities is presented in Figure 1. It clearly shows that actual privileged investments in IT systems in future will probably be replaced by investments in the field of employees support and training (Straube, Pfohl, 2008).

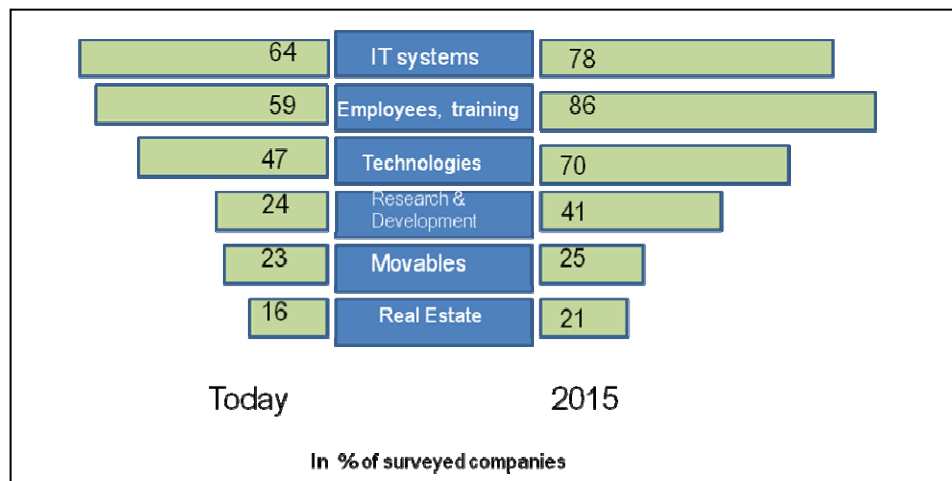


Figure 1. Direction of investments in contemporary and future supply chains

Source: (Straube, Pfohl, 2008).

The criticality and complexity of logistics personnel was also discussed on the basis of literature review in some professional journals (Ozmet & Keller, 2009, pp. 378-407).

3. Evolution of requirements for logistics managerial qualifications

Generally, specific qualifications of supply chain managers require the following qualities:

- the ability to look from the specific perspective of supply chain management which is based on profound understanding of integrated processes within a business and between the partners and decision-making skills,
- becoming members of operating teams and exhibit an exceptional capability of adaptation (flexibility),
- application of work evaluation systems, recognising qualifications and delegating responsibilities,
- ability of non-standard thinking,
- communication skills (ability to move effectively within networks of virtual organisations),
- working in a fully automated logistics processes.

More often companies are organised in relation to cross-business processes rather than according to traditional functional areas. Cross-company efficient coordination and management of the processes has been ensured by setting up teams of employees within purchasing, production, product development, logistics and sales/marketing. Due to progressing integration of companies in supply chains (especially at the top management level e.g. in retail trade) the nature of work also changes: inter-organisational teams with employees from key suppliers sometimes are formed in order to ensure a smooth flow of goods and “frictionless” decision-making between the links in the total supply chain. In contemporary supply chains the role of the “logistics co-ordinator” changed from solving daily logistics problems to a kind of project manager for cross-functional and cross-company teams of internal and external employees (Skjoett-Larsen, 2000).

Some time ago the opinion was that entry-level logistics managers needed basic knowledge in economics, marketing, industrial management, and statistics that was believed to be of immediate use for employers (Henderson 1963). The most important logistics skills were customer service, transportation management, warehousing management, and inventory management. Then the evolution of logistics concept increased focus on greater skills in information management, and in supply chain and production management (Ozmet & Keller, 2009).

The detailed requirements for future improvements of qualifications indicated by actual managers in a survey have been presented in Figure 2. The surveys were conducted in 2008-2009 in order to identify logistics competencies, which should suit operation of Polish companies a southern region of Poland in virtual supply chains. There were around 100 of respondents representing various sectors and branches of economy and companies consisting of very large, large, medium size and small companies (Kisperska-Moroń, ed., 2009).

Figure 2 indicates that logistics service providers require massive further development of competencies in the field of transport management. In the same group of companies managers stress the great need for good knowledge of foreign languages due to expanding global character of their operations. Logistics service providers indicate also their need to extend their knowledge on warehouse management, which becomes important due to constantly growing range of services offered to demanding customers besides regular transport services. In trade companies the main educational requirements are connected to the problems of strategic management of product flows in supply chains, and also purchasing and general procurement issues. Inventory management skills also require further improvement in that group of companies. Managers in the group of manufacturing companies are interested mainly in improvement of production planning skills, inventory management. They would like to study also strategic management in an organization, innovations and change management.



Figure 2. What skills need improvement for effective management of virtual supply chains?

Source: (Kisperska-Moroń, 2010).

Further research results presented in literature showed that logistics and supply chain managers demonstrate greater productivity when they are well-equipped with social skills (interpersonal and leadership), decision-making, problem-solving, and time-management skills (Myers et al., 2004; Mangan and Christopher, 2005). Senior managers rated logistics operations managers very high with respect to the skills in social, problem-solving, time-management, and integrity-type skills, but decision making was an advanced skill rewarded by increased financial compensation (Daugherty et al., 2000).

Senior-level logistics managers must possess a broad-based skill-set that includes first, general managerial attributes, specific attributes of logistics management, and then general business skills (Murphy and Poist, 2007). Logistics skills were seen as important, but to a lesser degree than general management skills.

Contemporary supply chains and their modified profiles, as described earlier in this paper, resulted in a specific logistics knowledge being almost a prerequisite for 88% of surveyed European companies (Straube, Pfohl, 2008). Figure 3 shows that among basic skills of logistics managers fundamental value belongs to relationships management such as the ability to manage projects effi-

ciently, ability to cooperate one on one, with colleagues and with customers and partners and also use modern information and communication technologies competently (extremely good skills in fully automated information systems. Implementation skills would be also another requirement valued quite high. However, it is easy to notice that besides those qualifications there are, so called, “soft skills” which seems to be of utmost importance: social skills, methodological skills, and intercultural skills, extremely needed the global environment of contemporary supply chain operations.

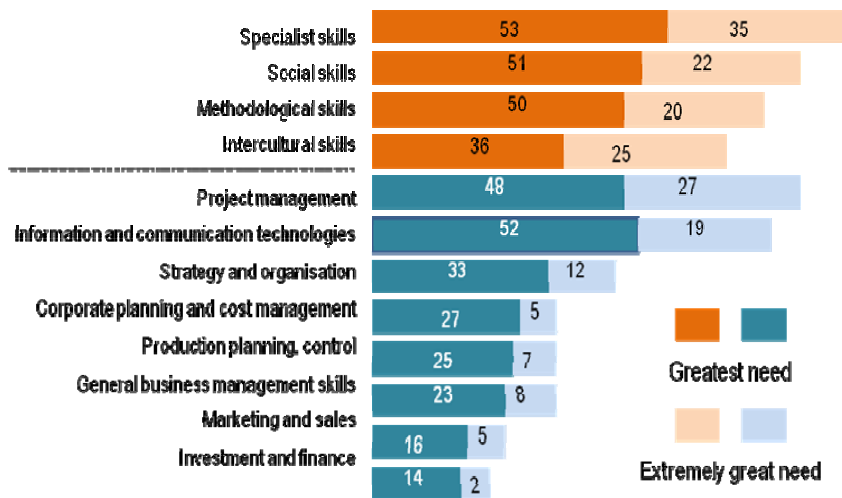


Figure 3. Requirement profile for logistics managers in Europe

Source: (Straube, Pfohl, 2008).

Long-term experience of the author of this article with the process of certification of professional achievements of logisticians (within the framework of European Junior and Senior Logistician Certificate of the European Logistics Association) allows to notice that due to frequent discontinuity of business and temporal arrangements in many product flows, contemporary supply chains demand even more specific skills of their managers:

- Increased requirements for highly educated personnel even at the operational level, since contemporary supply chain offers extremely high level of customer service and it has to operate in the best possible way from the start. There is no time for long-term training and education of personnel, employers like to recruit from “the best” ones available on the market.
- Good communication skills required for efficient coordination of day-to-day activities of collaborating firms, and in particular:

- convincing to reach compromise between the partners in a temporary business,
 - team work of partners who do not have large previous experiences of joint task completion.
- Critical analysis of problems and their not conventional solution often required in business situations not to be experienced by companies operating in companies with long-term relationships and opportunities to improve them.
 - Extreme adaptability to constantly changing requirements of a temporary business.
 - Open mind and innovative talents.

Generally, it is difficult to present a short list of all skills required from contemporary supply chain managers. In the research of Thai, Cahoon and Tran (2011) 68 different skills of logistics managers were mentioned. The five most important skills and knowledge (in order) as currently perceived by respondents are personal integrity, managing client relationships, problem-solving ability, cost control and ability to plan. Their research also followed the change of importance of logistics skills as perceived by responding managers. Those skills and knowledge which have the decreased perceived magnitude of importance are understanding logistics terminologies, ability to delegate, traffic/transport management, effective supervision of staff, and occupational health and safety, among others. On the other hand, those skills and knowledge which increased perceived magnitude of importance are: use of logistics specialised software, strategic management, risk management, identifying opportunities and threats, and developing environmentally sustainable logistics systems.

4. Educational aspects of contemporary logistics qualifications

There is a strong drive among supply chain managers to have some professional development courses in the future to prepare themselves as a logistics and supply chain professionals. The most desired forms of educational programs include: professional development courses, postgraduate qualifications, undergraduate courses, diplomas and other forms such as management training, certificate of competency, IT courses, specific target short courses and cultural awareness of foreign country business as the most popular training programs in the future (Thai, Cahoon and Tran, 2011). Those authors also report that surveyed professionals expressed the opinion that education programs should be developed mainly in consultation with logistics associations, other business associations and with international universities. Thus, the majority of responses indica-

ted that the industry should be involved in this process ensuring that educators and trainers provide skills and knowledge that are in line with the needs of industry professionals. The solution that universities design and conduct educational program on their own is not a preferred choice.

The main challenge for further development of competencies of logistics and supply chain managers operating in actual dynamic business environment results from constantly growing scope of intercultural management. Due to internationalization of supply chain activities and increasing number of contacts from different cultural backgrounds those aspects became more important than ever before. The set of main skills in this area for future training has been presented in Table 2.

Table 2

Important intercultural skills for training and further development

Skills	In % of surveyed companies		
	Industry	Distribution	3PL
Ability to work in a team with people from other cultural backgrounds	61	72	71
Ability to communicate with people from other cultural backgrounds	60	74	66
Language skills	61	41	57
Ability to negotiate with people from other cultural backgrounds	58	49	55
Knowledge of other cultures	40	54	46
Self-perception	28	28	25
Other	6	0	1

Source: Based on (Straube, Pfohl, 2008).

Communication and team skills included in Table 2 are not just the most important intercultural skills. As indicated earlier they are general requirements for logistics managers but also for other personnel in the logistics area. These skills are equally important also for cross-company cooperation in a supply chain. Shaping of those skills should become a focus of many educational programs offered for logistics personnel.

Practices of the companies in the use of instruments promoting the development of intercultural skills (Straube, Pfohl, 2008) include such methods (in the order of frequency of use):

- deployment in other countries in a project context,
- recruitment of foreign employees,
- self-learning,

- regular meetings and discussion in international teams,
- foreign deployment of management executives,
- information-based training (e.g. information events),
- experience-based training (e.g. simulation, role play, etc.),
- international job rotation,
- coaching by mentors with international experience.

Despite such pattern of frequency of use of the above mentioned instruments, only few of them are considered to be highly effective. Definitely, deployment in other countries in a project context, foreign deployment of management executives or regular meetings and discussion in international teams, are viewed as the most effective instruments for shaping intercultural skills. On the other hand, self-learning and information-based training were reported as the least effective methods.

Finally, there is a need to shape the following competencies while educating the supply chain management personnel:

- line management ability, i.e. their ability to manage day to day supply chain operations and meet goals established in terms of quality, productivity and budgeting;
- problem solving ability, i.e. ability to anticipate and diagnose problems as well as to develop and apply new ways of cost savings, service improvement and increased return on investment;
- project management ability, i.e. the ability to structure and manage projects designed to improve the supply chain process;
- people management ability, i.e. the ability to develop and motivate their employees' technical and management skills.

Conclusions

Today logistics managers have to operate in the environment that could be described by co-existence and co-operation of different generations, diversification and individualization of career types, temporary co-operation and long-term collaboration. Even in such a complex business situation in the end, it is the employees and not the systems and processes that ensure solutions to the logistics tasks and provide the company with the necessary competitiveness.

Evolution of general business environment imposed a large challenge for new shape of logistics skills and qualifications of logistics managers. They become really interdisciplinary experts, and it demands a very complex set of skills. It is really difficult to list all requirements in the field of qualifications of contemporary managers of flow of goods.

In Europe, many companies are already searching in vain for suitable employees, also in the field of logistics. 66% of European companies are already unable to find suitable recruits for vacant logistics positions and only one in five companies say there is no personnel bottleneck. More than one in three European companies is greatly in need of logistics managers (in all sectors of industry, trade and services). Moreover, two in three European companies are convinced that they will in future need a high number of employees with logistics skills (Straube, Pfohl, 2008). Therefore, it is crucial not to underestimate the human and cultural aspects in the implementation of logistics and supply chain operations, becoming more often robust projects of change.

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