**THE MAIN FACTORS DETERMINING POSITION OF WOMEN IN CONTEMPORARY LOGISTICS AND SUPPLY CHAINS**

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**Introduction**

Human factor is one of the most important issues of supply chain and logistics, it is subject to essential transformation concerning a profile of skills and competencies. The view that human capital in supply chain management needs to be given far more attention today than ever before is gaining more and more support (*Success Factor*…, 2004). Research indicates that making the best use of the human capital will be the essential success factor in supply chain management. The leading companies invested 44% more into their work force than their competitors. They have more sophisticated human resource management and they have more flexible labour force (Kisperska-Moroń, Klosa, 2017).

All over the world businesses increasingly face the challenge of managing a more diverse workforce. That twenty-first century trend was indicated already long time ago (Nelton, 1995). One of the most important profile of such diversity is the growing number of working women. In terms of changes across time, the female labour force participation rate today is higher than three decades ago. Around the world men tend to participate in labour markets more frequently than women, however, there are huge differences across countries (Ortiz-Ospina and Tzvetkova, 2017). The female-to-male ratio of labour force participation rates, differs from 20% to 110%. In 2015 in countries such as Syria or Algeria, the ratio was below 25%. At the same time in Laos, Mozambique, Rwanda, Malawi and Togo, the relationship was close to, or even slightly above 100%, indicating that there was a gender parity in labour force participation or even a higher share of women participating in the labour market than men. The highest women participation rates were typical for the poorest countries within Africa and the richest European countries (Ortiz-Ospina and Tzvetkova, 2017).

A large part of female employment around the world takes place in the informal economy, and particularly in many low and middle income countries, the vast majority of women engaged in paid work are in the informal economy. The share of women employed in various sectors of the economy (e.g.in the US) differs also between industries (Figure 1).

The debate on discrimination against women in the labour force is still very much an open topic, and one that affects all economic sectors and positions/levels of responsibility. In certain industries such as logistics and transportation, the difference in gender representation is so large that it denies any statistics that could indicate a trend of improvement (Mateu, 2017). Therefore, women are easily overlooked as a significant part of the logistics industry.

The purpose of this study is double fold. First of all it aims at exploring potential career-related concerns and problems among female logisticians and supply chain decision makers. Secondly, it suggests potential career patterns of females who currently are or might be involved in logistics and supply chain disciplines.

In order to achieve these goals the following research questions have been formulated:

RQ1: What logistics disciplines offer actual good conditions for women’s employment?

RQ2: How do women in logistics perceive selected career-related opportunities and issues?

RQ3: What factors contribute to successful career patterns experienced by female logistics professionals?

All these issues deserve additional studies since despite some research contributions reaching even the year 1990, many aspects have not been investigated yet and not well implemented in practice.

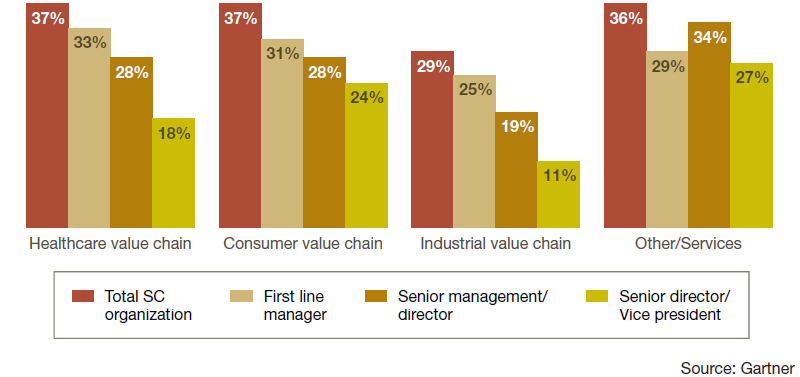


Figure 1: Participation of women varied by industry

Source: Survey Analysis: Women …, 2016

**The role of women in the logistics and supply chain sector**

Logistics sector has traditionally been associated with physical work and, consequently, considered a masculine sector. Jobs involving a considerable amount of physical work such as machine operators and storage technicians are very much male-dominated. However, qualifications required today in logistics operations reach far beyond physical work and requirements for physical strength are not essential for all types of supply chain management positions. Despite that, there’s still a huge gap between the number of women and men working in the sector. Women made up 46.8% of the US labour force in 2015. However, in the US Transportation & Utilities sector, women constitute only 22.6%, even if according to the US Bureau of Labour Statistics, the trade, transportation, and utilities industry is the second largest employer of women, after manufacturing. In 2016, the industry registered a 3.9% increase of women employment from 2006 (Mateu, 2017).

Some EU statistics concern the share of women in transport in the European countries. In the transport industry in Poland the proportion is 20% women and 80% men (Eurostat Labour Force Survey, 2018). The largest share of women in transport industry is typical for such countries like Cyprus (31%), France (27%) and Czech Republic (26%). On contrary, the lowest share was noticed in Luxembourg (12%), Greece and Slovenia (in each of them - 16%).

In supply chains collaborative skills are especially important ([Pateman, Cahoon,](https://www.sciencedirect.com/science/article/pii/S2092521216300049#!) Chen, 2016). The ability to effectively negotiate and work with multiple stakeholders—whether this is internally among marketing, engineering and supply chain, or externally between trading partners—is key to smooth and efficient supply chain management.

The study completed by Danish consultancy, Innovisor in 2012 , based on a survey of around 1,000 people from more than 30 countries, found that irrespective of their cultural origin, women are keener than men to collaborate to achieve a common goal. They often will take the role of bringing about collective success even if it comes at their own expense in terms of recognition and advancement. Moreover, women expressed “a clear desire to collaborate even more than they already do today – a desire that men don't appear to share” (Amble, 2012). What is also interesting, people are far more inclined to cooperate with others of the same sex.

Despite such a clear merit connected to female operations and management style, practice of the share of women in the management staff does not confirm any extend use of collaborative abilities of female managers. Gartner, Inc. shows that the share of women in management drops down at higher managerial levels (Figure 2).

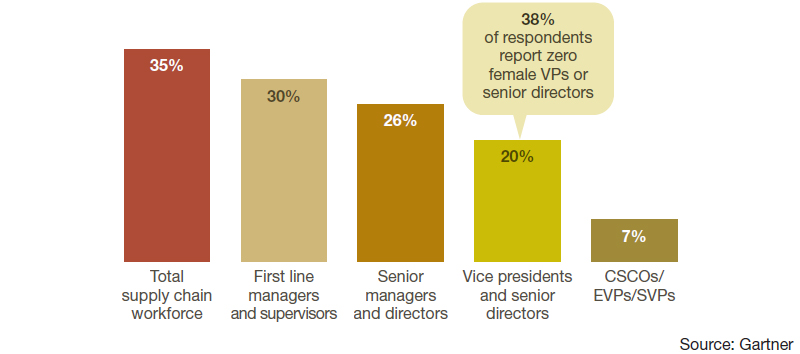


Figure 2: Women in supply chains 2016

Source: Survey Analysis: Women …, 2016

APICS research conducted in 2018 (Supply Chain Compensation… , 2018) indicates that there is a gender gap between men and women in salaries in the supply chain field. Male respondents of the survey reported average salaries that are 15,8% higher than those reported by female respondents. The disparity increases with the number of years of employment in the field. There is also a gender difference in position level with a significantly higher proportion of men in upper position levels. At the staff/associate level the share of women is slightly larger than the share of men. At higher hierarchical levels the share of men is much larger and in particular reaches the 2-to-1 ratios at director and vice president levels, and even 4-to-1 at executive level. However, field tenure appears to be similar between the two groups.

A [study of Fortune 500 companies](http://www.catalyst.org/media/companies-more-women-board-directors-experience-higher-financial-performance-according-latest), completed by Catalyst, a global nonprofit corporate membership research and advisory organization, found that companies with the highest representation of women in leadership positions experienced a 35% greater return on equity and 34% higher return to shareholders. Fortune 500 companies with at least three women board directors experienced a 66% higher return on invested capital, a 42% higher return on sales and a 53% higher return on equity. Women leaders play an important role in understanding and addressing customer needs, since roughly 50% of the population are women and 80% to 85% of all consumer decisions are made by women (Wilson, 2017). „Smart companies appreciate that diversifying their boards with women can lead to more independence, innovation, and good governance and maximize their company’s performance.” (*Companies With More Women*..., 2004).

Besides financial aspects some studies indicate that women are more likely to make ethical choices than men and years of women’s experience in their jobs is correlated with higher level of ethical behaviour (Glover et al, 2002). Such results might have some implications for rethinking gender differences in logistics and supply chain leadership and management.

**Methodology**

The paper presents an exploratory approach to female positions in logistics and supply chain. After detailed literature studies the main potential problems faced by the female staff in logistics disciplines were identified. Basic information and data was obtained from the reports on empirical analyses conducted by professional agencies and corporations reported on numerous internet portals. Several interviews with logistic professionals were also conducted in order to support publicly published information. Basic empirical quantitative data deals with the US logistics sector since in that country such information has been widely published on different web pages.

**Career prospects for women in logistics and supply chains**

The quality of operations within the supply chain depends on people who make decisions and take actions based on their abilities and habits, their motivation and natural talents. Professional qualifications and personal qualities are particularly important for effective logistics operations in terms of both practical experience in logistics operations and high-level education are important (*Employment and Qualifications …*, 2005). Here are some of the most important items shaping the whole picture of SCM qualifications:

* The logistics manager has to negotiate the often-conflicting interests of the different employees, sections and departments, in the context of an integrated process. Having identified the actual cause-and-effect relationships in the logistics system and its environment a logistician will develop and propose solutions based on compromise between the conflicting elements.
* Logistics personnel have to become members of operating teams and exhibit an exceptional capability of adaptation. In addition, logistics managers need to acquire the ability of non-standard thinking, and they must be able to critically examine the options for improving their performance. They have to acquire the ability to look from the specific perspective of logistics management.
* Clearly enough, communication skills are becoming crucial, since logistics managers have to be very persuasive when announcing their compromise proposals.
* The *kaizen* principle of constant learning – should organise rotate training in order to obtain an in-depth knowledge of all company departments and of the links with other organizations and institutions.
* Logistics management has changed dramatically with advancing computerisation (e.g. the computerised processes of product dispatch, satellite systems, radio systems for inventory management, and the Internet). Working in a fully automated logistics requires super-standard skills.

The future working environment will demand even higher flexibility and adaptability, decision-making skills, creation of professional links, and sensitivity to corporate culture. It is for these reasons that the demand for well-educated personnel is still increasing, even at the operational level of order fulfilment (Ozment, Keller, 2009). Requirements for those skills, quite often typical for well educated female personel, should lead to more equal employment rates between men and women. This is a desirable objective for any company, but such a movement is even more vital for the logistics sector, where the gap between men and women is so large and completely unjustified in the contemporary business.

Many business nowadays change their operations and strategies due to dynamic markets and constatntly evolving customer requirements. Several trends relating to the career progress of women transport and logistics managers can be identified in terms of businesses restructuring themselves all the time (Simpson and Holley, 2001):

1. Restructuring is generally associated with negative work aspects, especially and in the private sector and in the case of large-scale restructuring. Employed women have to take to account such forms of negative implications as longer hours, increased work loads, job insecurity and performance pressures. Competitive and performance pressures are likely to be greater in the private logistics sector, mainly due to small impact of trade unions and stronger market constraints. However, such issues more and more often appear also in the public sector, influencing women careers also there. It creates a conflict for women between demands of home and work pressure. Less opportunity to work at home may cause the high incidence of stress and health problems is a possible outcome of these pressures. Quite often work is taken home.
2. Senior women seem to feel more positive about business restructuring, experiencing greater levels of motivation and company loyalty than less senior women. Senior women seem to accommodate and accept changes resulting from restructuring, perhaps partly due to their greater involvment in decision making and strategy formulation. Business restructuring may create more opportunitites for senior women in terms of new positions and managerial jobs.
3. Senior women are more likely to identify attitudinal barriers in their careers than junior women (Lynagh et al., 1999; Holley, 1998) but business restructuring may positively influence women’s careers through reduction of barriers and improvement of attitudes towards women managers within the organisation, particularly prejudice of colleagues and sex discrimination.

Women have held support jobs in [transportation](https://www.monster.com/jobs/q-transportation-jobs.aspx) and [warehousing](https://www.monster.com/jobs/q-warehouse-associate-jobs.aspx) for many decades, most of the careers in these fields have been so male-dominated that they don’t even sem to accesible for women. “Schools and society don’t move women toward those jobs,” says Deborah Cutler-Ortiz, director of National Programs and Policy for [Wider Opportunities for Women](http://www.wowonline.org) (Aaron, 2018). Some research results argue that most female employees in the transport and logistics industry are in administrative positions such as human resources, finance and data processing and not in high-profile operations positions (The Unseen Gender…, 2010). For example, nontraditional occupations for women in transportation and warehousing include road repair, mechanic, forklift operator, warehouse supervisor, logistics manager, and, even drivers. These jobs may offer also much better financial conditions for female employees.

**Determinants of women employment in logistics and supply chain field**

Women’s careers in logistics sector, as in many other fields, are affected by the social structure of their surrounding environment (Ng and Chow, 2009; Reskin et al., 1999). In the cross-national study, Charles et al. (2001, p. 385) assert that “individual decision making and economic behavior can only be understood with attention to the broader social environment in which they occur”. Generally all over the world, women spend more time than men on unpaid care work activities (Ortiz-Ospina and Tzvetkova, 2017).

Gender in supply chain is subject to several structural constraints (Volpe and Murphy, 2011):

* *Organisational demography*in terms of basic attributes such as age, sex, race, and educational level may cause that being in the minority has negative effects on individuals’ affective experience in the workplace. It can have serious implications for women’s access to information, attitude formation, and for interpersonal interactions.
* *Occupational demography*where the rigid structure of training and advancement in some logistics occupations disadvantages women during their childbearing years.
* *Sociopolitical context*represents structural barriers due to sexism and facilitative factors such as the women’s rights movement. These conditions put working women at a disadvantage both in terms of objective rewards for their labor and subjective rewards of work recognition and satisfaction.
  + - *Ethnic or national culture* ***w***hich can be measured by “gender gap index,” which illustrates gender inequality in 134 countries on the basis of four measures: economic participation and opportunity, educational attainment, political empowerment, and health and survival (Hausmann et al., 2010). Nordic countries (Norway, Finland, Sweden, and Iceland) rank highest overall due to their more liberal societies. Pakistan, Chad, and Yemen rank the lowest with the widest gaps between women and men. Across the 134 countries, over 93 percent of the global education gap and 96 percent of the health gap has been closed, whereas only about 60 percent economic participation gap has been closed

The main factors contributing to female labour supply in logistics field can be classified as biological types of factors (maternal health and fertility), childcare and other family-oriented policies, social norma and culture and economic factors connected to structural changes in the economy and delivery of labour-saving consumer durables (Ortiz-Ospina and Tzvetkova, 2017). The various aspects related to maternity impose a substantial burden on women’s time, also that one spent in job performance. Lower rates of fertility can free up a significant amount of women’s time, hence allowing them to enter Professional careers more easily. Having children is very time consuming even when enjoying perfect health. Childcare and other family-oriented policies make employment compatible with childbearing, and thus broaden the professional choices available to women.

Social norms and culture indicate the extent to which it is possible or desirable for women to become engaged in professional work. Despite considerable persistency of social norms, more and more often they can be sometimes largely and even suddenly changed. With sustained development, women gain educationally and the value of their time devoted to professional activities increases. Also the [demand-side pull from growing service sector](https://ourworldindata.org/structural-transformation-and-deindustrialization-evidence-from-todays-rich-countries/) (including logistics services) attracts more women to work. In high income countries, the rise in female labour supply is characterized by women gaining the option of moving into paid, often white-collar work.

The best promotion of gender equality in logistics and supply chains should be based on the following policies directed towards actual and potential female labour force:

* Support career progression by businesses through providing ongoing assistance with career planning, advocacy and general job support.
* Promoting work/life balance by offering parents of either gender reasonably long leave.
* Quotas understood as specific numerical targets like some companies e.g. Mars, Cisco or Deutsche Telekom that have set targets (40% is typical) for women in leadership positions; they are most likely needed to really make change happen.

**Conclusions**

The study presented in this paper revealed some interesting results related to the abilities and position of women in the field of logistics and supply chain. When answering RQ1: *What logistics disciplines offer actual good conditions for women’s employment?* one may conclude that currently there are no real limitations for the potential jobs to be offered to female employees in the field of logistics. Technically, due to technological development, the majority of operational tasks can be performer by women and womens’ educational achievements allow them to act at all organisational levels of management. Analysis of reports addressing RQ2: *How do women in logistics perceive selected career-related opportunities and issues?* suggests that their qualifications are the most important issue here. Supply chain and logistics sec tors require specific qualifications and demand for well-educated personnel is still increasing, even at the operational level of order fulfilment. Therefore female logistics personnel understands the role of education, training and experience in shaping their professional careers. Finally, analysis concerning RQ3: *What factors contribute to successful career patterns experienced by female logistics professionals?* indicates that womens’ professional choices, also in logistics sector, should be considered within the context of broader social environment in which they occur. The most important factors (drivers) in that respekt concern biological types of factors (maternal health and fertility), childcare and other family-oriented policies, social norms and culture and economic factors connected to structural changes in the economy and delivery of labour-saving consumer durables.

This paper offers useful information for benchmarking to women currently working in the field of logistics and supply chain management. In addition, the findings could be valuable for establishing teaching and training programs to facilitate successful education for women currently employed in logistics as well to those who plan to develop their career in the logistics disciplines. Also, the study presents realistic advice to logistics and supply chain female professionals, aiming at providing a better understanding of what room for improvement exists in the discussed field.

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