

# BEHAVIORAL TENDENCIES OF SUPPLY CHAIN MANAGERS IN CONTEXT OF GLOBALIZATION

Mária Nagranová<sup>1</sup>

DOI: <https://doi.org/10.31410/ERAZ.S.P.2019.39>

---

**Abstract:** *This paper presents the results of research study focused on changes in behavior of supply chain managers through the lens of globalization. The main aim is to examine the impact of globalization on supply chain managers' tendencies towards partnership creation. This research was conducted on a sample file of Slovak businesses throughout the ten years of their supply chain activities. Significant changes were examined in managers' focus on structure of supply chains, partnership creation, the importance of foreign suppliers and customers, as the key components of globalization impact on businesses. Multivariate Regression Analysis was used as a main method to perform statistically significant examinations. Findings provide an overview of how globalization can affect supply chains of business companies.*

**Keywords:** *Supply chain management, globalization, business partnerships.*

---

## 1. INTRODUCTION

Supply chain management was developed in the last decades as a response to various novel challenges and pressures put on companies globally. However, its implementation by companies has not been an easy process, especially since its termination should consist of the measures designed to achieve sustainability of all supply chain activities. The key elements of its success are managers responsible not only for day-to-day activities, but also for the strategic goals and approaches adopted by these companies. Moreover, these managers remain the ones who carry the burden for innovation of supply chains in order to adapt to external disruptions and to gain competitive advantage for their company or whole supply chain. Their decisions affect whether the company's is able to approach to markets quickly and is also able to spend less money doing so. Nowadays, it is the role of supply chain managers to ensure the cost minimization, production disruptions avoidance and profitability of company or even the whole supply chain. The task is immense and complex, however not impossible.

In the history of contemporary business activities in supply chains numerous factors have strongly shaped the development of companies' competitive focus and their challenge to deal with market problems in order to reach sought-after outcomes. Globalization has recently become a major business factor, especially in the last decade. Its affects are vast and can vary depending on differences in markets. There is a significant pool of current literature on measuring the effects of globalization on business operations such as [1], [2], [13], [21], [27], and [30]. However, the changing results of global supply chains provided impactful evidence that it is not sufficient for companies to face their competition by themselves as described by [27]. Nowadays, the competition is not just among companies, but among their supply chains as proven by many research studies investigating the potential links between supply chain performance and quality of relationships among its members such as [10], [14], [3] and [22]. The role of supply chain manager is therefore crucial in creating the advantage for their company and achieving desirable results in terms of supply chain performance.

---

<sup>1</sup> Wyższa Szkoła Menedżerska w Warszawie, Faculty of Jan Amos Komenský in Karviná, Lúčna 14, Poprad 05801, Slovak Republic

According to [28], [25] and [8] modern growth of the economies worldwide is characterized by an evolutionary transition from the industrial stage of economic reproduction to the stage of information-network interaction. Such a transition is accompanied by a radical change in the principles and methodology of economic activity, a change in the structure of the economy and the globalization of the markets for goods and services. Therefore, to analyze the impact of globalization on supply chains, it is necessary to take a closer look on their key component – the person responsible for supply chain activities in company. All of such managers have different approach to supply chain partnerships and this approach can also evolve in time due to outside pressure. According to [16], [17], partnerships are based on mutual trust. [12], [19] and [23] added two additional key components that are indispensable for successful partnership, which are reliability and commitment. Supply chain partners share a common objective and are committed to work together to achieve it since they are aware that superior outcomes can be obtained in synergy. Therefore, these four main components of partnerships in supply chains directly affect its performance. Many authors such as [4], [5], [11], [20], [31] focused on this issue, however, their point of view is from a certain company or production industry. In supply chain, the final product is obtained as a result of series of transformation activities that serve as an integrated unit in its corresponding process as proved by [6], [9], [24], [18], [7], [15], [29]. The extent of supply chain activities stretches from the primarily supplier of raw materials to the ultimate consumers and supply chain managers are responsible for smoothness of all of these processes, consequently for its performance.

The literature field is vast, however, there is a research gap. No studies have yet examined how globalization changed the tendencies of supply chain managers. Such changes can have significant impacts on supply chain partnerships and consequently on supply chain performance. Therefore, this research study aims to cover this lack of information and provide a novel focus on supply chain management through the lens of globalization.

## **2. METHODOLOGY**

The main aim of this research study was to examine the impact of globalization on supply chain managers' tendencies towards partnership creation. The examination of supply chain managers' preferences was based on assumption that globalization has created changes in importance of different aspects of partnerships throughout supply chains. Therefore, managers responsible for supply chains had been constantly pressured to reconsider their priorities in terms of supply chain performance and risk management.

The source of data was two separate surveys conducted ten years apart on the same sample file. This research was conducted on a sample file of Slovak businesses throughout the ten years of their supply chain activities. Questionnaires were used to collect data which were distributed electronically via e-mail sent directly to supply chain / logistics managers or managers responsible for supply chain activities and processes. Since base file consisting of all Slovak companies would be too large and diverse to provide information on globalization changes, a single industry was selected. Therefore, corresponding managers of Slovak automotive industry were contacted; however, not all of them complied with the request to provide data for this research study. Table 1 provides data on sample files from both surveys. Since the period of 10 years is a relatively long time, it was not possible to get responses from the same managers during both rounds of questioning. However, the same companies were selected for participation. Only one manager from each company participated on the survey.

**Table 1:** Sample files

<i>Number of employees</i>	<i>Number of companies in 2008</i>	<i>Percentage</i>	<i>Number of companies in 2008</i>	<i>Percentage</i>
0 - 9	115	57,50%	127	59,62%
10 - 49	36	18,00%	42	19,72%
50 - 249	31	15,50%	28	13,15%
over 250	18	9,00%	16	7,51%
Total	200	100,00%	213	100,00%

The representativeness of the sample file was verified using the Chi-square test. The criterion was set on size of company structured by the European Standard No. 2003/361/EC. The null hypothesis was set to assume that the sample is representative. The alternative hypothesis is an assumption of non – representativeness of the sample. From the mathematician point of view the hypothesis are formulated as:

$$H_0 = F(x) = G(x); H_1 = F(x) \neq G(x) \quad (1)$$

Statistics testing in SPSS software is based on formula 2 previously used by [26]:

$$X^2 = \sum_{j=1}^r \frac{(n_j - m_j)^2}{m_j} \approx X_{(r-1)}^2 \quad (2)$$

where:

- $X^2$  - is Pearson Chi-square statistics,
- $r$  - is line,
- $n$  - is overall frequency in the base set,
- $m$  - is measured frequency.

Significant changes were examined in managers' focus on structure of supply chains, partnership creation, the importance of foreign suppliers and customers, as the key components of globalization impact on businesses. Multivariate Regression Analysis was used as a main method to perform statistically significant examinations.

Multivariate Regression Analysis was used to test assumed significant relationships. The confidence level was set at 95 %. The model for the analysis was formulated as follows:

$$Y = \beta_0 + \beta_1 \times X_1 + \beta_2 \times X_2 + \beta_3 \times X_3 + \beta_4 \times X_4 + \sigma(Y) \quad (3)$$

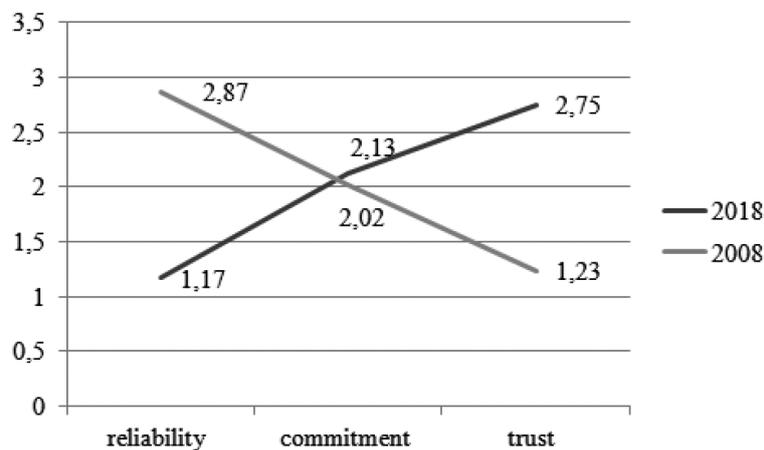
where:

- $Y$  is level of changes in tendencies of supply chain managers caused by globalization,
- $\beta_0$  is intercept,
- $\beta_1 - \beta_6$  are regression coefficients,
- $\sigma(Y)$  is residual standard deviation,
- $X_1$  is age of supply chain managers,
- $X_2$  is education of supply chain managers,
- $X_3$  is gender of supply chain managers,
- $X_4$  is years of experience of supply chain managers in this business area.

### 3. RESULTS AND DISCUSSION

The impact of globalization on tendencies of supply chain managers was examined through the main aspects of supply chain partnership. These factors contained four main partnerships prerequisites for success as described by various literature sources. They are the importance of trust among supply chain partners, the importance of commitment of supply chain partners, the importance of reliability of supply chain partners and the extent of information shared with supply chain partners. The personality of supply chain manager plays a key role in all of these aspects.

The importance of these three main supply chain partnership components has changed during the examined period. In 2008 the trust was the most significant prerequisite for successful partnership as stated by 87 % of supply chain managers. However, the situation changed since trust became the least significant component out of all three in 2018. Over 93 % of managers in 2018 consider partner's reliability to be the most important factor, even though reliability ranked on the third place in 2008. In this ranking the commitment of partners is the only component whose importance has not changed significantly. Figure 1 shows how the importance of these three components changed during the decade.



**Figure 1:** Changes in importance of partnership components

The extent of information shared by supply chain managers with their partners has also change drastically. Whereas, in 2008 managers only shared in average 32.85 % of information with their partners, in 2018 this percentage has grown up 59.03 % to in average.

Multivariate Regression Analysis model was used in order to describe how the opinions and perceptions of supply chain managers on these partnership aspects have changed throughout a decade. Significant relationships were identified between various characteristics of supply chain managers and examined supply chain partnership aspects. It was discovered that managers' education in terms of its length and studied field has no impact on importance of any supply chain partnership aspects. It is very similar for gender. This characteristic has no impact on changes in behaviour of managers caused by globalization. On the other hand, the age of managers is a factor of great importance. There is a significant indirect dependence between manager's age and his or her changes in tendencies caused by globalization. Therefore, it is possible to assume that younger managers are more affected by processes of globalization than managers above 40 years. The trend was however, exactly opposite in terms of their experience. It was discovered that there is a direct significant dependence between these factors. It means that more years of experience managers have in supply chain management, more likely they are to change their behavior and decisions due to globalization.

These two significant relationships that were discovered by the model were further explored in greater detail. The model considers the changes in behaviour caused by globalization as an overall effect combining all of its aspects together. It was necessary to create the Multivariate Regression Analysis model as such in order to identify significant relationships. However, once these dependences are discovered, it is possible to use both managers' age and their years of experience and correlate them with individual aspects of supply chain partnerships. Table 2 provides data on individual correlation coefficients.

**Table 2:** Correlation coefficients

<i>Partnership aspects</i>	<i>2008</i>		<i>2018</i>	
	<i>manager's age</i>	<i>manager's years of experience</i>	<i>manager's age</i>	<i>manager's years of experience</i>
trust	- 0.620	0.792	- 0.653	0.784
commitment	0.281	0.143	- 0.193	0.072
reliability	- 0.683	0.728	- 0.747	0.804
extent of information shared	0.301	- 0.272	0.246	- 0.153

According to the data provided in Table 2, it is possible to conclude that two main partnership aspects that both manager's age and years of experience correlate with are trust and reliability. Changes in partner's commitment and extent of information shared are mostly not affected by these manager's characteristics, therefore were not the source of changes in their behavior due to globalization.

## CONCLUSION

The main aim of this research study was to examine the impact of globalization on supply chain managers' tendencies towards partnership creation. A Multivariate Regression Analysis was performed to evaluate significant relationships. Two such relationships were identified and explored. It was discovered that manager's years of experience directly correlates with changes in his or her behavior caused by globalization. On the other hand, age of manager correlates with such changes indirectly. Supply chain partners' trust and reliability are the main aspects on such partnerships with later being the most significant nowadays.

There were a few similar studies conducted on the topic of globalization's influence on supply chain. A study by [27] also focused on trust, commitment and reliability of partners within supply chain, however the focus was on entire companies. Therefore, the role of supply chain managers was omitted. Furthermore, [11] focused on exploring the dynamics of globalization through the lens of supply chains, however they examined the changes based on the risk management approach. The way managers' personality can affect such changes was not analyzed. Other studies such [10] and [25] combined the issue of globalization with other factors like economic growth and sustainability. Our study thus provides novel information that has not yet been explored by researchers. Findings can serve as guidelines for further interdisciplinary studies into behavioral changes caused by globalization and its effects on business activities.

## REFERENCES

- [1] Bentu, P. (2017). The Globalization of Inequality. *Political Studies Review*, 15. pp. 464-464.
- [2] Blackledge, P. (2017). Globalization and the Critique of Political Economy: New Insights from Marx's Writings. *Political Studies Review*, 15 (3). pp. 423-424. doi: 10.1177/1478929917708112.
- [3] Chen, J. V. et al. (2014). A causal model for supply chain partner's commitment. *Production Planning & Control: The Management of Operations*, 25 (9). pp. 800-813. doi: 10.1080/09537287.2013.764578
- [4] Chen, Y. (2012). Study on the Selection and Evaluation of Supply Chain Partners Based on AHP. *Advanced Research on Material Engineering and its Application*, 485. pp. 233-238. doi: 10.4028/www.scientific.net/AMR.485.233
- [5] Chopra, S., Sodhi, M.S. (2014). Reducing the Risk of Supply Chain Disruptions. *MIT Sloan Management Review*, 55. pp. 73-+.
- [6] Das, K. (2011). Integrating effective flexibility measures into a strategic supply chain planning model. *European Journal of Operational Research*, 211 (1). pp. 170-183. doi: 10.1016/j.ejor.2010.12.006
- [7] Dzuke, A. Naude, M.J.A. (2017). Problems affecting the operational procurement process: A study of the Zimbabwean public sector. *Journal of Transport and Supply Chain Management*, 11. pp. doi: 10.4102/jtscm.v11i0.255
- [8] Glushova, S. et al. (2019). The economy of developing countries in the context of globalization: Global supply chain management. *International Journal of Supply Chain Management*, 8 (1). pp. 876-884.
- [9] Gong, Z. (2008). An economic evaluation model of supply chain flexibility. *European Journal of Operational Research*, 184 (2). pp. 745-758. doi: 10.1016/j.ejor.2006.11.013
- [10] Gozgor, G., Can, M. (2017). Causal Linkages among the Product Diversification of Exports, Economic Globalization and Economic Growth. *Review of Development Economics*, 21 (3). pp. 888-908. doi: 10.1111/rode.12301
- [11] Kalafsky, R.V., Conner, N. (2015). Exploring the dynamics of globalization: supply chain vulnerability to natural disasters. *Journal of Geography in Higher Education*, 39 (1). pp. 173-181. doi: 10.1080/03098265.2014.965666
- [12] Lin, Y.-K. et al. (2016). A simple algorithm to evaluate supply-chain reliability for brittle commodity logistics under production and delivery constraints. *Annals of Operations Research*, 244 (1). pp. 67-83. doi: 10.1007/s10479-014-1741-0
- [13] Nakagawa, J. (2013). Global supply chains and FTAs in East Asia and the Pacific. *Asian Journal of WTO & International Health Law and Policy*, 8 (2). pp. 439-460.
- [14] Patnayakuni, R. et al. (2014). Relational antecedents of information flow integration for supply chain coordination. *Journal of Management Information Systems*, 23 (1). pp. 13-49. doi: 10.2753/MIS0742-1222230101
- [15] Peidro, D. et al. (2010). A fuzzy linear programming based approach for tactical supply chain planning in an uncertainty environment. *European Journal of Operational Research*, 205 (1). pp. 65-80. doi: 10.1016/j.ejor.2009.11.031
- [16] Pongsathornwiwat, N. et al. (2017). Developing Evaluation Criteria for Partner Selection in Tourism Supply Chain Networks. *International Journal of Knowledge and Systems Science*, 8 (1). pp. 39-52. doi: 10.4018/IJKSS.2017010103
- [17] Pun, H., Ghamat, S. (2016). The value of partnership under competition: When competitors may be R&D joint-venture and supply-chain partners for a critical component. *International Journal of Production Economics*, 177 (1). pp. 1-11. doi: 10.1016/j.ijpe.2016.03.018

- [18] Raghupathy, R., Amirthagadeswaran, K.S. (2014). Optimization of Casting Process Based on Box Behnken Design and Response Surface Methodology. *International Journal for Quality Research*, 8 (4). pp. 569-582.
- [19] Rahmani, D., Mahoodian, V. (2017). Strategic and operational supply chain network design to reduce carbon emission considering reliability and robustness. *Journal of Cleaner Production*, 149. pp. 607-620. doi: 10.1016/j.jclepro.2017.02.068
- [20] Rajaguru, R., Matanda, M. (2013). Effects of inter-organizational compatibility on supply chain capabilities: Exploring the mediating role of inter-organizational information systems (IOIS) integration. *Industrial Marketing Management*, 42 (4). pp. 620-632. doi: 10.1016/j.indmarman.2012.09.002
- [21] Sačkov, I., Smreček, P., Tuček, J. (2014). Forest transportation survey based on airborne laser scanning data and GIS analyses. *GIScience and Remote Sensing*, 51 (1). pp. 83-98. doi: 10.1080/15481603.2014.883213
- [22] Sodhi, M. S., Tang, C. S. (2012). Strategic approaches for mitigating supply chain risks. *International Series in Operations Research & Management Science*, 172. pp. 95-108.
- [23] Taki, P. et al. (2016). Risk-pooling strategy, lead time, delivery reliability and inventory control decisions in a stochastic multi-objective supply chain network design. *Annals of Operations Research*, 244 (2). pp. 619-646. doi: 10.1007/s10479-016-2115-6
- [24] Veselovská, L. (2017a). Study of Impacts the Quality of Information Systems have on Measures used to Increase Supply Chain Flexibility in Slovak Tourism Industry. *International Journal of Applied Business and Economic Research*, 15 (25), pp. 391-403.
- [25] Veselovská, L. (2017b). Factors influencing countries on their path to sustainable development: implications for organizations. *Problems and Perspectives in Management*, 15 (2), pp. 475-486. doi:10.21511/ppm.15(si).2017.01
- [26] Veselovská, L. et al. (2018). Relationship between information sharing and flexibility in management of enterprises in automotive industry: an empirical study. *Serbian Journal of Management*, 13 (2). pp. 381 – 393. doi: 10.5937/sjm13-17474
- [27] Veselovská, L., Závadský, J. (2017). Impact of Globalization on Quality of Partnerships in Service Supply Chains. *Globalization and its Socio-Economic Consequences*. Proceedings of 17th International Scientific Conference, Žilina: The Faculty of Operation and Economics of Transport and Communications, University of Žilina, 2017. pp. 2849-2855
- [28] Volodina, E.V. et al. (2020). Optimization of logistics business processes based on the implementation of cognitive information technology. *Smart Innovation, Systems and Technologies*, 138. pp. 455-464. doi: 10.1007/978-3-030-15577-3\_44
- [29] Wang, W. et al. (2009). Inner and outer loop optimization in semiconductor manufacturing supply chain management. *Computational Management Science*, 6 (4). pp. 411-434. doi: 10.1007/s10287-008-0081-4
- [30] Závadská, Z. et al. (2016). Consistency of the performance management system and its quantification using the Z-MESOT framework. *International Journal for Quality Research*. 10 (4). pp. 665-684. doi: 10.18421/IJQR10.04-01
- [31] Yan, T., Azadegan, A. (2017). Comparing inter-organizational new product development strategies: Buy or ally; Supply-chain or non-supply-chain partners?. *International Journal of Production Economics*, 183 (A). pp. 21-38. doi: 10.1016/j.ijpe.2016.09.023