

EXPECTATIONS TOWARDS SUPPLIERS IN TERMS OF ENSURING AND IMPROVING THE QUALITY OF PRODUCTS AND PROCESSES

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ABSTRACT

The aim of the article is to present current trends in the expectations of producers operating on the B2B market towards suppliers in the field of ensuring and improving the quality of products and processes. The analysis of the literature allows to conclude that the fulfillment of these expectations by suppliers is largely achieved through the implementation of guidelines contained in international organizational standards in the field of quality and environmental management, as well as elements of the Toyota Production System (such as Kaizen, 5S, TPM) or the based on the concept of Lean Management. The results of the empirical research (with the use of the CATI technique) indicate that manufacturing companies that are buyers in their expectations towards suppliers focus mainly on improving the technical quality of products, shortening the time of order fulfillment, reducing operating costs.

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1. INTRODUCTION

Most often, the expectations of customers on the B2B market (especially from industrial sectors, and in particular OEMs - Original Equipment Manufacturers towards suppliers focus on ensuring product quality, guaranteeing timely deliveries and reducing costs (Ekici, 2013). Therefore, these companies impose individualized requirements on their suppliers through detailed specifications specifying not only issues related to quality assurance (guaranteeing the technical quality of products), but also organizational issues related to increasing the effectiveness of processes (e.g. shortening cycles of activities), efficiency (reducing costs), and also the requirements related to the need to reduce the burden on the environment (Forkmann et al., 2016). These requirements are increasingly important criteria for the initial and periodic assessment of suppliers (Taherdoost & Brard, 2016). This approach is

a significant incentive for suppliers to make efforts to improve their operations by introducing systemic quality and environmental management, as well as operational improvement tools, such as elements of the Toyota Production System or Lean Management projects. The topic of cooperation with suppliers is relatively widely discussed in the literature (He et al., 2022; Baghizadeh et al., 2021; Zimon & Madzik, 2020), but it is still important and up-to-date due to the changing trends and threats resulting from the current ongoing crises (Deligiannis et al., 2023). As Allenbacher and Berg (2023) rightly point out, it is now crucial for manufacturing companies to implement the adopted strategies beyond the firm level. Manufacturing companies therefore use different concepts and methods to get suppliers to follow the broader strategy outlined in the supply chain (Zhang et al., 2020). This is an important issue as many studies suggest that direct suppliers can be a catalyst for the diffusion of

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requirements to sub-suppliers further upstream in the supply chain (Allenbacher & Berg, 2023; Grimm et al., 2016). Therefore, it seems particularly important for manufacturing companies to formulate clear guidelines on quality, environmental or operational issues that should be followed by suppliers. This will not only affect the effectiveness of cooperation within the consignee-supplier, but may also improve the functioning of the entire supply chain (Li et al., 2017). As rightly emphasized by O'Connor et al. (2020), activities contributing to closer cooperation with suppliers within the supply chain increase its innovation, responsiveness and profitability. In view of the above considerations, the aim of the article is to identify the requirements of manufacturing companies towards suppliers. The obtained research results will allow for a better understanding of the expectations of manufacturing companies as part of relations with suppliers, which, as noted earlier, affects supply chain management strategies. (Lu et al., 2022). In order to achieve this goal (based on a wide literature review), eight key requirements of manufacturing companies towards suppliers were identified. These are respectively:

- Improving the technical quality of products (Kang & Um, 2023),
- Shortening the time of order fulfilment (Harbi et al., 2018),
- Reducing operational costs by reducing the level of non-compliance and waste (Yoo et al., 2019),
- Reducing the risk of non-compliance in operational processes (Zimon & Madzík, 2020),
- Reducing the risk of hazards related to products (Wieteska, 2020; Li & Chen, 2019),
- Improving the environmental performance of products (Wang et al., 2021; Salem et al., 2023),
- Reducing the negative impact of processes on the environment (Bartos et al., 2022; Zimon et al., 2022a; Zimon et al., 2022b),
- Improved standardization of activities (Zimon et al., 2020).

The research covered Polish large and medium-sized manufacturing companies operating on the B2B market. All the analyzed enterprises implemented the requirements of the ISO 9001 standard, more than half of them implemented the requirements of ISO 14001, some of the surveyed enterprises implemented concepts such as TPS or Lean Management. This is an important fact, because the research results available in the literature indicate that the use of management concepts and systems has a positive effect on building proper relationships with suppliers. (Dellana et al., 2020; Zimon et al., 2020; Rojo-Gallego-Burin et al., 2020).

2. METHODOLOGY OF RESEARCH AND RESULTS

In order to determine the importance of expectations towards suppliers in terms of ensuring and improving the quality of products and processes, empirical study was carried out. These studies were performed using the Computer Assisted Telephone Interview (CATI) technique. The study covered 150 manufacturers operating on the B2B market (employing over 49 employees) from the automotive, electromechanical and chemical sectors. The study was commissioned to a specialized research agency, which made a targeted selection of companies registered in the Bisnode database. All companies participating in the study implemented a quality management system based on the requirements of the international management standard ISO 9001. The surveyed enterprises assigned the indicated

expectations towards suppliers in terms of ensuring and improving the quality of products and processes the appropriate ranks on a scale from 5 (the most important criterion) to 1 (the least important criterion). Detailed study results are presented in the tables 1-4.

The conducted cross-sectional analyzes of the results of empirical research allow to indicate interesting observations.

Table 1. The importance of expectations towards suppliers in terms of ensuring and improving the quality of products and processes (general, comparison between enterprises due to the origin of capital; rank averages)

Expectations towards suppliers	General N=150	Origin of capital	
		Polish N=79	Foreign N=71
Improving the technical quality of products	4.77	4.74	4.82
Shortening the time of order fulfillment	4.71	4.75	4.66
Reducing operational costs by reducing the level of non-compliance and waste	4.65	4.63	4.67
Reducing the risk of non-compliance in operational processes	4.41	4.41	4.41
Reducing the risk of hazards related to products	4.39	4.37	4.41
Improving the environmental performance of products	4.37	4.34	4.42
Reducing the negative impact of processes on the environment	4.23	4.24	4.22
Improved standardization of activities	4.21	4.23	4.19

Improving the technical quality of products as an expectation towards suppliers is particularly important for large organizations with foreign capital, as well as for companies from the automotive and

electromechanical sectors. In turn, shortening the time of order fulfillment is very important for large producers with Polish capital and companies from the automotive sector. Companies that have implemented the concepts of Toyota Production System and Lean Management clearly focus their expectations towards suppliers in terms of reducing operating costs by reducing the level of non-compliance and waste. The study results indicate that medium-sized organizations (employing 50-250 employees) and companies from the automotive sector attach greater importance to reducing the risk of non-compliance in operational processes. On the other hand, large producers (employing over 250 employees) and business organizations that have implemented the Toyota Production System and Lean Management concepts focus on expectations towards suppliers in terms of reducing the risk of product-related hazards. Improving the environmental performance of products by suppliers is of particular importance in the case of large producers, as well as for companies from the chemical sector. It should also be noted that for medium-sized producers and for enterprises that have implemented an environmental management system as expectations towards partners who are the source of purchases, it is important to reduce the negative impact of processes on the environment as well as to improve the standardization of processes.

Analyzing the results of the research and the emerging trends in the scope of expectations towards suppliers, it should be assumed that they will increasingly focus on:

- ensuring the quality of products (reducing the risk of non-compliance and improving safety) and the possibilities of their improvement (especially through closer cooperation in the field of joint research and development works),
- reducing the negative impact of products and processes on the environment (over 50% of the surveyed buyer entities have implemented an

environmental management system, especially representatives of the chemical and automotive sectors), and

- increasing the level of efficiency of processes by shortening their cycles (about 20% of the surveyed organizations have implemented elements of TPS and implement Lean Management projects, especially in the automotive sector).

Table 2. The importance of expectations towards suppliers in terms of ensuring and improving the quality of products and processes (comparison between enterprises by number of employees; average ranks)

Expectations towards suppliers	General N=150	Number of employees	
		50-250 N=65	Over 250 N=85
Improving the technical quality of products	4.77	4.71	4.83
Shortening the time of order fulfillment	4.71	4.65	4.76
Reducing operational costs by reducing the level of non-compliance and waste	4.65	4.65	4.64
Reducing the risk of non-compliance in operational processes	4.41	4.46	4.37
Reducing the risk of hazards related to products	4.39	4.28	4.46
Improving the environmental performance of products	4.37	4.25	4.47
Reducing the negative impact of processes on the environment	4.23	4.28	4.20
Improved standardization of activities	4.21	4.26	4.17

Table 3. The importance of expectations towards suppliers in terms of ensuring and improving the quality of products and processes (comparison between enterprises by sector; rank averages)

Expectations towards suppliers	General N=150	Sector		
		Automotive N=63	Electromechanical N=36	Chemical N=51
Improving the technical quality of products	4.77	4.83	4.81	4.68
Shortening the time of order fulfillment	4.71	4.85	4.55	4.65
Reducing operational costs by reducing the level of non-compliance and waste	4.65	4.73	4.55	4.62
Reducing the risk of non-compliance in operational processes	4.41	4.53	4.30	4.33
Reducing the risk of hazards related to products	4.39	4.47	4.39	4.26
Improving the environmental performance of products	4.37	4.34	4.36	4.42
Reducing the negative impact of processes on the environment	4.23	4.29	4.12	4.24
Improved standardization of activities	4.21	4.29	4.12	4.17

Table 4. The importance of expectations towards suppliers in terms of ensuring and improving the quality of products and processes (comparison between enterprises due to the implemented tools for improving products and processes; rank averages)

Expectations towards suppliers	General N=150	ISO 14001 N=76	TPS N=39	Lean Management N=24
Improving the technical quality of products	4.77	4.80	4.84	4.85
Shortening the time of order fulfillment	4.71	4.65	4.79	4.79
Reducing operational costs by reducing the level of non-compliance and waste	4.65	4.66	4.68	4.73
Reducing the risk of non-compliance in operational processes	4.41	4.35	4.45	4.32
Reducing the risk of hazards related to products	4.39	4.39	4.50	4.64
Improving the environmental performance of products	4.37	4.32	4.44	4.32
Reducing the negative impact of processes on the environment	4.23	4.50	4.30	4.36
Improved standardization of activities	4.21	4.25	4.36	4.32

3. CONCLUSION

The results of the conducted study indicate that the surveyed enterprises, as the most important expectations towards suppliers, focused on improving the technical quality of products, shortening the time of order fulfillment, reducing operating costs by reducing the level of non-compliance and waste. The study results also indicate that the expectations of the surveyed manufacturers towards suppliers in terms of reducing the risk of non-compliance in operational processes, reducing the risk of hazards related to products (possibility of technical non-compliance) as well as improving the environmental performance of products should also be considered significant.

Recapitulating the above considerations, it should be stated that the requirements imposed on suppliers by OEMs in the field of implementing systemic quality and environmental management, as well as improving the efficiency and effectiveness of processes brings significant benefits to supply chain participants

The effective implementation of the quality management system undoubtedly contributes to ensuring the technical quality of products by supervising operational processes and reducing the level of risk of hazards.

In turn, the effective implementation of environmental management system contributes to reducing the negative impact on the environment by reducing the consumption of natural resources, emissions of harmful factors and waste. By effectively implementing system solutions in the field of quality and environmental management, as well as elements of TPS and Lean Management projects, suppliers can achieve significant benefits. These benefits include:

- a higher level of product quality assurance,
- increase in effectiveness (measured by the degree of achievement of the assumed objectives, improvement of efficiency) and efficiency of processes (by reducing the costs of activities by increasing the efficiency of employees / infrastructure, or eliminating unnecessary activities and unused / not fully used resources),
- shortening delivery cycles, reducing the negative impact on the environment (of processes and products).

Meeting customer requirements by suppliers can therefore turn into mutual benefits, the achievement of which is based on building cooperation. This cooperation is based on building trust between partners and ensuring continuity of processes in supply chains.

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