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**Building resilient
relationships with
suppliers in the B2B
market****1. Introduction**

In order to meet the requirements of today's market, managers are looking for new sources of value creation as well as opportunities and directions of ensuring continuous improvement of processes carried out in supplier-buyer relationships. One of the most important areas that determine the competitiveness of the supply chain is a reliable supplier base. It can be effectively configured by building partnership based on trust, risk analysis and wide integration. In the face of a great uncertainty of the business conditions, apart from the prevention against different disturbances, it is essential to efficiently respond to the changes occurring in the internal and external environment of the supply chain to minimize their negative impact.

The article aims to answer the question, how companies should develop relationships with suppliers while facing high market volatility. Some authors recommend strengthening the flexibility of supply chains in response to the uncertainty (Chan et al. 2009, Stevenson and Spring 2009, Engelhardt-Nowitzki 2012, Gattorna et al. 2013, Fayezi et al. 2014). In turn, the world-famous prof. Martin Christopher

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(2015) indicates that the next stage in the evolution of supply chain management strategies should be shaping adaptive supply chains. M. Kramarz and W. Kramarz (2014) point that the flexibility and the adaptability are the two key attributes of the resistant supply chains. These supply chains maintain the required level of customer service even in the face of crisis (Jüttner and Maklan 2011). This is facilitated by sharing of information and knowledge, effective communication and mutual commitment to close cooperation (Scholten and Schilder 2015).

In view of the all above challenges for companies, the author attempts to identify the meaning of flexibility and adaptability in the context of Supplier Relationship Management. Conducted considerations are mainly based on the selected journal publications presenting adequate research results. A used research method is a desk research. The analysis of the literature constitutes an initial design for future empirical research on building resilient relationship with suppliers. The article refers to the cooperation between the production company and its first tier suppliers.

2. The uncertainty that is mitigated by the flexible relationships with suppliers

Flexible supply chain is a chain that is able to effectively respond to the changes in supply, demand and products (Fayezi et al 2014). These changes are nowadays more likely to occur as a consequence of the sudden, randomly emerging adverse events. As it is apparent from the global survey conducted by PwC (2013, pp. 16-17), companies are increasingly interested in building flexible supply chains, seeing in this approach an important opportunity to maximize the created value. Mendonça Tachizawa and Giménez Thomsen (2007) indicate that the flexibility of supplier relationships allows to respond to the disruptions on which occurrence the purchasing department does not have a direct influence (table 1). The areas of this type of uncertainty can be:

- focal company,
- upstream,
- downstream.

Flexibility in relationships with suppliers is, therefore, a kind of buffer that supports responding to unpredictable changes in the supply chain environment. There is a number of factors that disrupt an effective implementation of purchases. Emerging disruptions in the focal company, result from the implementation of ATO/MTO/ETO production, performing JIT strategy, as well as a poor performance of the manufacturing process. In the upper chain, the

biggest problem are unresponsive suppliers, while in the downstream – demand volatility and seasonality, which is directly related to the problem of a low forecast accuracy.

Table 1. Supply flexibility drivers

areas of uncertainty for purchases	supply flexibility drivers
focal company	production schedule uncertainty, low component commonality, JIT purchasing, slack capacity at focal company
downstream	demand volatility, demand seasonality, low forecast accuracy
upstream	unresponsive suppliers

Source: Mendonça Tachizawa and Giménez Thomsen 2007

However, a most serious uncertainty for the supply chain comes from its external environment (Engelhardt-Nowitzki 2012). The impact of the macro environment is investigated under PESTLE analysis (AIRMIC/ALARM/IRM: 2002). There are following factors that can influence value chains negatively:

- political factors (e.g. regional conflicts and the embargo on the import of goods. This can discontinue supplies),
- economic factors (e.g. commodity price changes affecting the orders sent to suppliers),
- technological factors (e.g. shortening product life cycle affecting quality requirements towards suppliers),
- legal factors (e.g. the emergence of new European directives, changes to previously applicable regulations which suppliers have to follow),
- environmental factors (e.g. climate changes, which can adversely affect suppliers' plants, e.g. as it was during the floods in Thailand in 2011).

Especially, the supply chains that are international ones, have to deal with the greatest macro environmental uncertainty. Similarly, so do the supply chains providing short life cycle products, for which a demand is difficult to predict. Variability of independent demand hinders not only the production planning processes, but also procurement planning.

Reliable deliveries are a critical input to the manufacturing processes. They ensure the continuity of production and timely execution of orders, thus possibility to maintain a high level of customer service. This is extremely

important, especially in face of the implementation of JIT strategy.

It happens that the company's operations (e.g. promotional activities) are the reason for the increase in demand, for which the purchasing department (and simultaneously suppliers) might not be prepared. In such situations, a destabilization of the process of adding value occurs which can influence the level of the customer service negatively. Purchases require reliable qualitative and quantitative data that come from the market, forecasting and planning processes implemented in the supply chain. Therefore, to ensure the flexibility in the supply chain, there is a need of two types of integration. The first one means the integration of objectives of different departments in the company (e.g. purchases of finance, marketing, production) as well as supplier-client integration. This can be achieved using supply chain maturity models such as Ch. C. Poirier model (2004) or A.T. Kearney model (Witkowski 2010, pp. 67-88).

3. Flexible relationships with suppliers

Flexibility allows systems to deal with supply chain risk and business environment uncertainty. The research results show, that the key to success are the responsive suppliers (Geissbauer et al 2011, p. 7). K.A. Fantasy and others (2009) identified different supply chain flexibility dimensions from the literature. Flexibility in the area of the Supplier Relationship Management is one of the most often described dimensions. In most cases, it refers to:

- sourcing flexibility,
- supply flexibility,
- volume flexibility,
- procurement flexibility.

Analyzing the literature in the field of the flexibility in relations with suppliers (Pujawan 2004, Po-Young Chu Kuo-Hsiung Chang Hsu-Feng Huang 2012), the author identified an inclination to the two following main aspects:

1. Flexible purchasing (sourcing).
2. Supplier flexibility.

Flexible purchasing enables switching orders among suppliers efficiently. Today, co-operation with at least two qualified suppliers for each purchased good or having a sourcing back up is almost a standard in the era of the observed crises. Enterprises, using both initial and periodic evaluation of suppliers, should strive for a situation in which (Pujawan 2004):

- costs of switching the orders from one to another supplier of the same item is low for most cases,

- most suppliers are able to deliver a wide range of items,
- there is a large extra total supply capacity for most items,
- most suppliers are able to produce a large volume in a relatively short time,
- most suppliers are able to produce a small volume due to relatively low setup costs.

When building supply chain flexibility, it is worth considering the global sourcing. It enables to cooperate with the suppliers operating in different geographical localizations. This is critical when it comes to the crisis in one sourcing country. In such case, transferring the order to a supplier located in a safe area, increases the chance of maintaining the continuity of manufacturing and delivering processes.

One of the practice that increases the flexibility of the procurement process is using similar components and manufacturing technology for different products. Simultaneously, this approach means, apart from undeniable financial benefits, minimizing supplier base and thus reducing uncertainty accompanying supplies.

The traditional way to deal with supply risk is to maintain higher inventory levels of components (Zsidisin and Ellram 2003). This strategy also suggests P. Kraljic (1983) for managing relationship with suppliers of bottleneck items.

When increasing the flexibility of the procurement process, it is suggested to considering locating suppliers relatively close to the production plants and markets. Especially, when production takes place on order. This strategy increases the speed of response to the demand and reduces inventory levels. In many cases, however, it means to resign from low-cost country sourcing. Increasing the flexibility of the supply chain is often associated with the inevitable increase in costs. Therefore, decisions on the flexibility should be preceded by a careful analysis taking into account, among others, production capacity of suppliers, market requirements, product characteristics, type of demand or production environment.

Finally, for the procurement process flexibility, it is important to ensure the availability of various modes of transport (at least two types). Having the possibility of choosing the fastest means of transport at a relatively low cost, supports quick reacting to the environmental changes (Pujawan 2004).

In 2013, the author conducted a pilot survey on building flexible supply chains (Wieteska 2015). The respondents were 182 companies operating in the B2B market in Poland. The survey results indicate that the companies, in order to respond effectively to the uncertainty in the area of relationships with suppliers, usually focus on:

- double/multi sourcing (92,82% of the respondents declared this answer),
- maintaining a higher inventory level (77.90%),
- carrying out regular analyzes of supplier market (77.35%),
- sharing information with suppliers on production plans (70.72%),
- differentiation supplier locations (66,85%).

This means that companies still prefer using traditional ways of dealing with the uncertainty of supply, despite the availability of other opportunities to improve flexibility in relationships with suppliers.

Supplier flexibility is the ability when suppliers respond effectively to changes in orders received from clients (Fantazy et al 2009). It is divided into:

- volume flexibility,
- mix flexibility,
- delivery flexibility,
- product flexibility.

Detailed criteria for evaluating the flexibility of suppliers can be used during the selection and periodic assessment of business partners (table 2).

Table 2. Supplier flexibility measures

type of flexibility	Operation measure items
Volume flexibility	Suppliers can operate efficiently at different levels of output Suppliers can operate profitably at different production volumes Suppliers can economically run various batch sizes Suppliers can quickly change the quantities for our products produced Suppliers can vary aggregate output from one period to the next Suppliers can easily change the production volume of a manufacturing process
Mix flexibility	Suppliers can produce a wide variety of products in their plants Suppliers can produce different product types without major changeover Suppliers can build different products in the same plants at the same time Suppliers can produce, simultaneously or periodically, multiple products in a steady-state operating mode Suppliers can vary product combinations from one period to the next Suppliers can changeover quickly from one product to another
New product flexibility	Suppliers can reduce the time to modify existing products Suppliers can reduce the time to implement engineering change order Suppliers are able to minimize the time or cost of new products introduced into production Suppliers can provide the design support in new products pre-launch

Delivery flexibility	<p>Suppliers are able to make dependable delivery promises</p> <p>Suppliers can deliver its products on promised due dates</p> <p>Suppliers can deliver in smaller lots and ship more frequently to replenish our stock levels</p> <p>Supplier can to move planned delivery dates forward to accommodate rush orders or special orders</p> <p>Suppliers can meet the accuracy of delivery quantities</p>
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Source: Po-Young Chu et al. 2012

Sometimes suppliers do not meet requirements in terms of ensuring flexible supplies. Strengthening this type of capability should be a part of the supplier development strategy. Supplier development programs should be aimed at improving the flexibility of suppliers' production systems. The outputs from such a system are in fact the flexible supplies (figure 1).

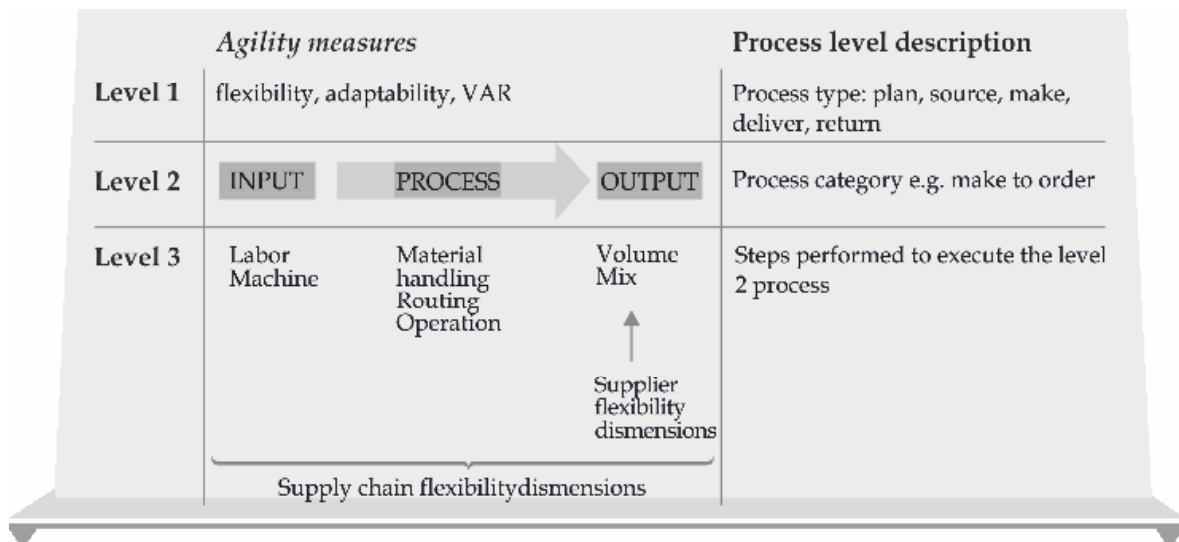


Figure 1. The levels of measurement supply chain agility in terms of the SCOR processes

Source: own study on the basis of Ross 2010 p.19, Supply Chain Council 2010, p. 12

There are many dimensions of flexible manufacturing systems (Vokurka 2000). The basic one, according to the SCOR model, are machines and employees (Ross 2010). The model defines three levels of measuring supply chain agility. The first one refers to such performance indicators as: flexibility, adaptability and value

at risk. The second level describes process category and the third one covers process inputs, outputs and steps.

4. Adaptive relationships with suppliers

In the face of turbulent external conditions, the appropriate way of decreasing supply chain vulnerability is to develop its adaptability. The literature also refers to the issue of ensuring adaptive purchasing (Christopher and Holweg 2011, Engelhardt-Nowitzki 2012). The ability of the supply chain to adapt means the ability to carry out a radical transformation in its resources and / or structure, in order to adjust to major external uncertainty. On the other hand, supply chain flexibility should be understood as quick respond to minor disruptions, using current supply chain resources and structure (Kramarz and Kramarz 2014). Adaptability is built up in the context of adjusting to major environmental changes. It is designed to meet both present and future crises (Engelhardt-Nowitzki 2012). When there is no possibility of the implementation of the flexibility strategy, it is suggested applying the strategy of adaptability (Chan et al 2009).

Adaptive purchasing is a process that adapts to the significant changes in the environment. It is able to perform key and long-term modification in the upper supply chain's structure or resources. Sometimes a company needs to reconfigure its relationships with suppliers because of different reasons, such as:

- changes in law,
- new product design,
- supplier's bankruptcy or acquisition,
- change of localization.

Adaptive purchasing is also called a structural flexibility (Christopher and Holweg 2011). Its development requires, above all, monitoring the market changes and supervising the suppliers with whom the company cooperates. For example, identification of a deteriorating financial situation of the business partner is a warning symptom, for which the company should have emergency procedures. When there is a single sourcing, the business continuity plan should include a temporary increase in inventories and the launch of an active search for a new supplier.

Considering the adaptive supplier relationship, the author decided to refer to the Global Supply Chain Model. This model describes supply chain with respect to the supply chain business processes, supply chain network structure and supply chain management components (Lambert 2001). One of the eight

main business processes included in GSCF model is the Supplier Relationship Management. For the purpose of the paper, SRM adaptation is recognized as the changes in supply network and SRM components (table 3).

Table 3. Adaptive changes in Supplier Relationship Management

Area of the adaptive changes	Description of an adaptive change in Supplier Relationship Management
Supply network	Change in the number of suppliers with which your company works. Change in the number of relationships that based on single sourcing strategy. Change in the number of suppliers located in low-cost countries. Change in the number of suppliers located in a close proximity of production facilities.
Planning of operations	Change in a degree of involving suppliers in defining objectives / supply chain strategy. Change in the importance of reducing the cost of purchase. Change in the importance of improving the technical quality of purchased goods. Change in the importance of shortening the supplier lead time. Change in the importance of increasing supplier flexibility.
Control of operations	Change in the number of employed measures of the effects of joint actions. Change in the number of criteria for supplier pre-assessment. Change in the number of criteria for supplier evaluation. Change in the level of requirements defined to suppliers (expressed in KPI). Change in the importance of supplier risk management. Change in the number of conducted audits of suppliers.
Work structure	Change in the number of activities carried out jointly with suppliers aimed at product innovations. Change in the number of activities carried out jointly with suppliers aimed at process innovations. Change in the number of activities carried out jointly with suppliers aimed at marketing innovations. Change in the number of activities carried out jointly with suppliers aimed at organizational innovations. Change in the number of activities carried out in order to improve the production system suppliers. Change in the number of projects / changes initiated by suppliers.
Information flow facility structure	Change in the number of implemented solutions to improve the flow of information in relations with suppliers e.g. EDI, e-commerce platform, ERP system. Change in the amount of information that company shares with the suppliers (e.g. production plans, sales). Change in the frequency of updating the information given to supplier. Change in amount of knowledge transferred by suppliers to the company. Change in amount of knowledge transferred by company to suppliers

Product flow facility structure	<p>Change in the inventory level held by company.</p> <p>Change in inventory level held by suppliers.</p> <p>Change in the number of implemented solutions to improve the flow of goods e.g. barcodes.</p> <p>Change in the number of investments in suppliers' infrastructure.</p>
Organization structure	<p>Change in the number of divisions involved in the supplier relationships management.</p> <p>Change in the number of employees responsible for supplier relationships management</p> <p>Change in the number of inter organization teams.</p> <p>Change in the number of employees involved in joint activities.</p> <p>Change in the number of divisions involved in joint activities.</p> <p>Change in the number of new forms of cooperation with suppliers (e.g. joint venture).</p>
Management methods	<p>Change in the importance of corporate social responsibility.</p> <p>Change in the importance of sustainable development principles.</p> <p>Change in the number of methods / techniques used in supplier relationships management.</p>
Leadership structure	<p>Change in the number of activities carried out to motivate suppliers.</p> <p>Change in the impact on the direction of development supplier relationships.</p>
Risk and rewards	<p>Change in the number of relationships based on fair distribution of risks and benefits (win-win relationship)</p> <p>Change in the importance of trust to the suppliers for the success of relationships</p> <p>Change in the importance of company involvement for the success of relationships</p> <p>Change in the average length of signed contracts.</p>
Cultures and individuals' attitude	<p>Change in the company involvement of in matching organizational cultures.</p> <p>Change in the number of highly qualified employees responsible for managing relationships with suppliers</p> <p>Change in number of training courses for employees of company, responsible for managing relationships with suppliers.</p> <p>Change in number of training courses that company performs for supplier's employees.</p>

Source: own study

The changes presented in a table 3 refer to the particular areas of Supplier Relationship Management. They can be regard as a reaction to the increasing business uncertainty and be different in terms of sector, product characteristics, demand and production environment.

5. Conclusions

The analysis of the literature conducted by the author shows that nowadays, the right direction to build resistant relationships with suppliers is not only focusing on developing the flexibility, but also the ability to adapt. The article describes the aspects of supplier relationships that are dealing with the business uncertainty effectively. There are two basic characteristics of the resistant relationships with suppliers: flexibility and adaptability (figure 2).

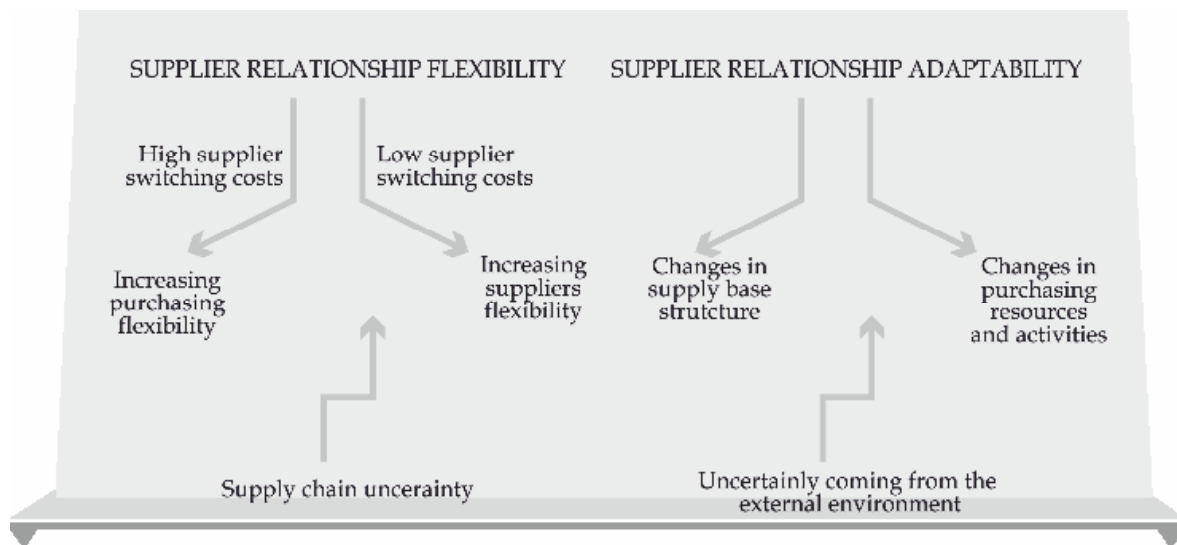


Figure 2. Characteristics of the supplier relationships that are resistant to disruptions

Source: own study

Depending on the supplier switching costs, the company may decide on increasing the suppliers' flexibility or increasing the purchasing (sourcing) flexibility. High switching costs should encourage companies to follow the first strategy (Mendonça Tachizawa and Giménez Thomsen 2007). In practice, however, due to the variety of suppliers as well as the opportunities and threats coming from upper supply chain, it is reasonable to implement both strategies. Adaptability means long-term and radical changes in the structure and / or resources of the supply chain (Kramarz and Kramarz 2014). That is why, supplier relationship adaptability can be considered as the reconfiguration of supplier base and changes in purchasing resources and activities (table 3). This strategy is the

response to the significant uncertainty coming from the external environment of the supply chain (Chan et al. 2009). Whereas, purchasing flexibility is the ability to efficiently respond to the supply chain uncertainty (Mendonça Tachizawa and Giménez Thomsen 2007). That type of uncertainty is more predictable and brings a smaller negative impact. To deal with changes of a small amplitude, companies should implement some temporary changes in the resources or a structure of the upper supply chain.

In summary, building flexible and adaptive relationships with suppliers is an opportunity to ensure the continuity of flow processes in situations of serious disturbances coming from the macro-environment, as well as taking opportunity to effectively respond to the supply chain uncertainty. It seems that in an era of increasing turbulence, companies should concentrate on developing supplier relationship that are resistant to the disturbances. However, there are some questions that define the directions of further considerations and empirical research. First, what factors determine the interest of enterprises in building resistant relationships with suppliers (also in the context of the attributes of the supply chain as demand, product and production environment) and what barriers occur when developing upstream resilience. Another important concern is a so far relatively narrowly described issue, which is a measurement of flexibility and adaptability in relationships with suppliers.

The literature provides different papers on supply chain flexibility and adaptability. The science has already explored supplier flexibility (Fantazy et al 2009) and sourcing flexibility (Pujawan 2004) that are recognized by the author as Supplier Relationship Flexibility (SRF). However there is still a lack of publications on Supplier Relationship Adaptability (SRA). There is a question if the adaptability should be regarded as the company's ability to implement radical changes in the supplier relationship management or it should be understood as an adaptation process, an inherent part of SRM evolution.

Summary

Building resilient relationships with suppliers in the B2B market

The growing uncertainty of business environment that negatively influences the contemporary supply chains is one of the major challenges for today's managers. The literature recommends the development of resistant supply chains, defining them as adaptive and flexible. However, there are a few scientific publications that directly link to the area of Supplier Relationship Management in this regard. The article aims to answer the question what

is the flexibility and adaptability and how to perceive these two characteristics in terms of an upstream supply chain. The observations indicate that building relationships resistant to these disruptions with suppliers includes the formulation of appropriate strategies towards both the suppliers and the purchasing process. Their choice depends on the source of uncertainty and the costs of switching the suppliers

Keywords: *resistance, disruption, supply chain, flexibility, adaptability.*

Streszczenie

Budowanie odpornych na zakłócenia relacji z dostawcami na rynku B2B

Wzrastająca niepewność otoczenia, na którą narażone są współczesne łańcuchy dostaw stanowi dla menedżerów istotne wyzwanie. Literatura przedmiotu rekomenduje rozwijanie odpornych na zakłócenia łańcuchów dostaw, definiując je jako adaptacyjne i elastyczne. Niewiele jest jednak pozycji naukowych, które bezpośrednio odwołują się do obszaru zarządzania relacjami z dostawcami w tym zakresie. Celem artykułu jest odpowiedzenie na pytanie czym jest elastyczność i adaptacyjność dla górnego łańcucha dostaw i jak należy kształtować te dwie jego charakterystyki. Przeprowadzone rozważania wskazują że, budowanie odpornych na zakłócenia relacji z dostawcami obejmuje formułowanie odpowiednich strategii zarówno wobec dostawców jak i procesu zakupów w zależności od źródła niepewności i kosztów zmiany dostawcy.

Słowa

kluczowe: *odporność, zakłócenie, łańcuch dostaw, elastyczność, adaptacyjność.*

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