

The Functioning of Supply Chains in Uncertain Economy

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The article focuses on the question of uncertainty and risk analyzing the changes in contemporary world business activity. It presents the notion of The Risk Intelligent Enterprise which may be seen as a model solution for managing uncertainty. The author presents subsequently the problem of risk and uncertainty in supply chain management underlining key areas in that field. Followed by a case study the article outlines conclusions and recommendations for better risk management in the 21st century.

1. UNCERTAINTY AND RISK

Uncertainty¹ is directly associated with risk. The higher the uncertainty the greater the risk. And risk is becoming one of the major factors affecting business activity. A fact affirmed through changes in procedures² adapted in American enterprises:

- increasing regulation pressure; NYSE introduced the directive to audit all stock market enterprises in order to assess risk management practices;
- shareholders gain more liberty; institutional investors, at present as a rule, include risk management in their investment decisions; financial means flow is directed towards enterprises which implemented risk management practices;
- a company's rating is under considerable influence of the cost of capital; Moody's

and Standard&Poor's the potential of ERM (enterprise risk management) into their evaluation criteria; lack of the above system may result in the increase of the cost of capital;

- the Internet has changed the rules of the market game; all information is available immediately and in any place; thus the ability to preserve secretly certain agreements, which can be threatening to company's reputation, is practically unattainable;
- enterprise risk is increasingly becoming a personal risk of the management which is verified by numerous lawsuits resulting in the defrayal of the costs of erroneous decisions from the part of presidents/managing directors.

In his report Deloitte³ speaks of the two faces of risk which are of particular importance to presidents or managing directors within enterprises: rewarded risk and unrewarded risk. The latter can be compared to 'folding' in a game of poker, which means not entering into play. This passive attitude does not guarantee any success. There are many such situations in business;

¹ More about uncertainty cf.: T. Nowakowski, Problemy niepewności oceny systemów technicznych w: H. Brdulak, E.Duliniec, T.Gołębiowski (sc. ed.)Trans'09. Wspólna Europa. Partnerstwo przedsiębiorstw jako czynnik ograniczania ryzyka działalności gospodarczej, SGH, Warszawa 2009

² Cf.: The Two Faces of Risk. Cultivating Risk Intelligence for Competitive Advantage, DeloitteReview.com, 2009

³ The Two Faces of Risk, op. cit.

repeatedly their priority is merely to protect the company's value, not to increase it. Nonetheless, it is necessary to face two kinds of risk and most importantly to recognize them. It is fundamental to decide which risk one should undertake, which will 'reward' us with improved competitiveness and increased market value, and which risk must be avoided, as it may lead to decreasing the company's value in time.

New term: The Risk Intelligent Enterprise refers to organizations which pay a great deal of attention to the issues above. They are best described by the following:

1. they have a good development plan which they consistently realize; each day new risk emerges: operational, competitiveness, ecological, safety, strategy. It is very rare for the companies to currently follow these phenomena. For instance, financial service providers are focused mainly on interest rates, exchange and credit risk, but practically do not take into consideration the effects of a pandemic which may seriously affect the job flow.
2. they form bridges between organizational sections; problems have the tendency to accumulate (leading to a risk increase) in a situation when risk experts operate in geographical seclusion or as a result of functional structure. Therefore it is necessary to maintain open communication, share knowledge and information. However, such structures demand for formal organization, regular meetings, particular documentation.
3. they communicate on common grounds; quite often risk experts operating within silo structures, create their own ecosystems with a defined language, access rules and criteria. Intelligent organizations establish common nomenclature concerning risk so that everybody speaks the same language. Moreover, it is essential to create a system of criteria which enables the comparison of risks occurring in particular businesses.
4. they assess the influence of risk on a particular business; monitoring and planning of activities with a single risk is highly problematic. Therefore it is significant for business leaders to concentrate on the final effect of a defined risk, recognizing its multidimensional aspect. For instance a terrorist attack, tornado, and public transport strike are three incogruent

- examples of risk which can have similar effect – preventing employees from coming to work.
5. they cultivate the creation of cultural awareness; only with risk management practises being included into corporate culture, strategy and tactics allow the development of processes with a built-in intelligent risk regard
 6. they tend to accept risk as a form of rewarding; Not only do intelligent businesses try to minimize risk but also regard risk takeover as a means of creating value; it is regarded as an ability to capitalize market capabilities and readiness for potential disruptions.

2. FACTORS DISRUPTING THE FUNCTIONING OF THE SUPPLY CHAIN

Disruptions in supply chain can originate inside the chain, which can be anticipated by the participating businesses; they can as well be induced by external factors both predictable and unpredictable. It is difficult to estimate the influence of disruptions on the flow of goods, both inside and outside supply chain; whether they will act locally or operate extensively intensified by other factors and in result cause destabilization of the entire supply chain. Management in uncertain environment demands particular attention towards suppliers and their financial condition. The reports and research of AT Kearney and Chinese Academy for Social Studies state that half of American providers for the motor industry turned bankrupt in 2009, and also around 100 thousand Chinese supply houses in this branch of industry declined in 2008. Furthermore, a whole 58% of global suppliers experienced some serious financial problems in 2008.⁴ Highly popular business models, tending to concentrate on enterprises key competences and ready to render its remaining areas to external suppliers lead to a situation where, in uncertainty, one can lose control of the entire supply chain as the demand for external suppliers has been increasing.

Uncertainty in a supply chain refers to various elements, most often though it is the volume of demand, which means that the flow of goods in a supply chain is unstable and unpredictable.

⁴ Five Building Blocks for Successful Supplier Risk Management. Turning Supplier Data into Supplier Intelligence, Aravo Solutions, 2009

Consequently it is necessary to find such a balance where, on the one hand, we guarantee the fluency of operations in an unstable course, and on the other – we maintain optimal (with regard to profit) cost and resources level. In this situation ‘lean management’ proves very helpful.

Another uncertain factor in supply chain is the rate of integration or the synchronization of information systems applied by various transaction participants. Difficulties with integrating / synchronizing can lead to irregularities in conveying information on the course of transaction (as well as the whereabouts of particular goods and divergence from settlements agreed on in the order) which intensely affects the competitiveness of a particular supply chain.

From the position of the ordering party/customer in a supply chain there are two key objectives: to deliver particular goods undamaged to the place and on time and information about any divergence in relation to the original order. It must be assumed that the delivery costs are in agreement with previous settlements. Additionally, a deciding factor is the safety of all the data concerning the product and customers network most often send through electronic routes.

Along with the progressing globalization a greater attention is paid to the policy of conformity with legal regulations and established rules of conduct concerning both good practices as well as corruption prevention, protection against terrorism⁵ and determining of favoured rules of conduct towards all participants in a supply chain. That last area is repeatedly defined as ethical rules (code), business liability before the clients (corporate responsibility) or code of conduct.

Management strategies adopted with uncertain economy are focused predominantly on two measures:

1. Searching a manner to increase certainty which in turn creates a focus on minimizing uncertain factors discussed above and

⁵ This area is defined in English as ‘compliance’. The term is most often used in banking – e.g. NBP states that ‘compliance’ rests in banks adapting to new procedures and requirements based on stricter risk control (regulations are based on recommendations of Basilean Committee (cf. www.nbp.pl)

2. Incorporating uncertainty into management and creating a flexible, autoregulation system based on the idea of fuzzy sets or neural network.

Nowadays an increasing number of enterprises, basing on risk increase, seek solutions rested on flexible models which can be compared to self-learning computer systems.

3. CHANGE OF THE NATURE OF RISK IN ENTERPRISES

During the first year, starting in the second part of 2008 and ending in the first part of 2009, one can observe a change in the nature of risk in supply chain⁶. Main factors causing disruption in supply chain over the last 12 months in 2008 have been presented in chart no 1.

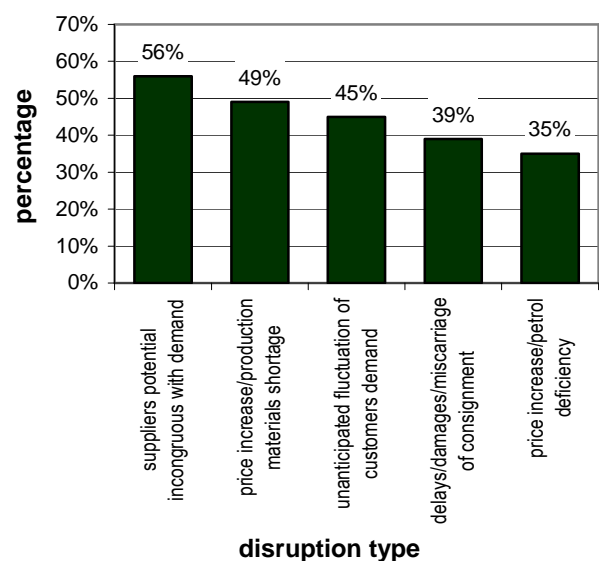


Chart no 1. Disruptions in supply chain occurring over the last 12 months until the first half of 2008.

As illustrated in the chart most common are: a mismatch of suppliers efficiency and existing demand (reading 56%), materials price increase along with their deficiency and unexpected demand changes among customers.

In one year of recession the image of risk in supply chain changed violently. Research

⁶ Supply Chain Risks in the Uncertain Economy: Grappling with Changes, Research Brief, Aberdeen Group, July 2009

conducted with 209 American enterprises indicate that the key risk factor concerns suppliers and prompt reaction to demand changes. Financial and economic situation of suppliers deteriorated considerably, principally as a result of the absence of minimum orders rate on the part of customers. Disruption areas in supply chain are presented in detail in chart 2.

Since as much as 23% (1 of 5) of examined enterprises maintain that disruptions in supply chain were caused by deterioration of suppliers financial situation, one can assume the necessity to create the means for suppliers monitoring and managing with regard to the incurred risk.

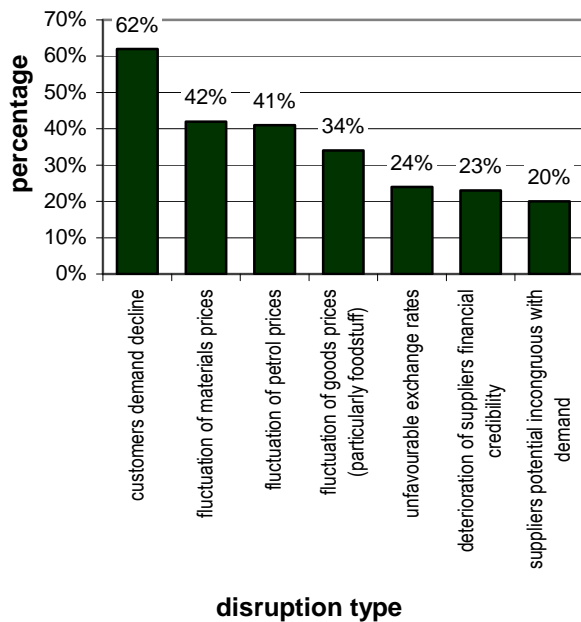


Chart no 2. Disruption in supply chain occurring over the last 12 months until the first half of 2009.

Similar results are presented in Aravo report of 2009.⁷ A majority of businesses do not sufficiently monitor this process. According to ARM Research of May 2009 businesses introducing supplier management system increase employment in this area by 35%. Since all data require constant verification they should be monitored and available instantly with a system for data collection operating across an enterprise. The same report claims that such data handling denotes company expenses of over 1000 USD yearly per supplier. Prior to the creation of a unique

(intelligent) system it is essential to estimate potential risk regarding the area of activity in question. At first it is worth considering the following questions:

1. Which of our key suppliers (also customers) are most venturesome?
2. What kind of risk is associated with our suppliers?
3. What is the probability of financial mistake when dealing with them and how this situation will affect our supply chain?
4. In case of a crash, do we have a back-up plan for the business?
5. How fast can we bring this plan into effect?
6. What type of scenario is most probable with suppliers and how it could be introduced to improve the conditions of ours (e.g. credit accessibility, shorter working time)?
7. How reliable and precise is our market knowledge concerning supply chain?
8. What kind of information sources can we use to protect data actually?

Creating a system of supplier information management requires building five blocks: risk vision, strategy, process, technology and success measures. It has been presented in the chart below.

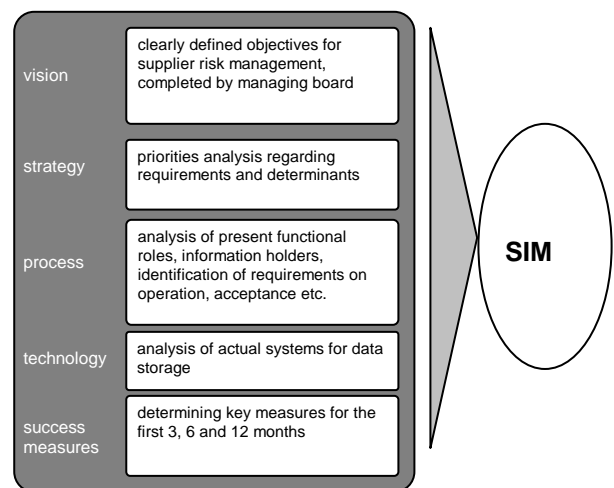


Figure no 1. Building blocks for successful Supplier Information Management

⁷ Five Building Blocks..., op. cit, 2009

CASE STUDY

Global producer of high-tech commodities.

Actions taken within the company.

In one year there was much acquisition resulting in higher complexity of supply chain and slowdown of processes. Global recession which followed caused reduction of demand for certain company products along with higher recognition for monitoring suppliers financial situation. With crisis the inefficiency of delivery network is prominent. In order to improve supply chain ratings, the management have determined new objectives to optimize flow of goods from the beginning to an end (end-to-end) and to minimize the costs.

New objectives in recession.

1. Business objectives have been determined across the company to support supply chain redeployment and processes optimization. As a result of numerous acquisitions, the company possessed a comprehensive base of minor suppliers who were difficult to manage. A 50 % reduction in suppliers base has been decided. The objective is being under implementation as it appears extremely difficult to accomplish without earlier heavy optimization of processes within supply chain. In effect, the above objective requires production strategy and actions regarding new products development.
2. In order to avoid a potential breakdown owing to the suppliers reduction, the company improved the processes for managing suppliers risk and the risk concerning business activity results. Emergency plan regarding alternative suppliers has been prepared in case of a delivery break on the part of crucial suppliers.

Simultaneously, with uncertain economy which can eventually threaten financial situation of a company, a considerable number of respondents pointed out the improvement of processes in supply chain to be effective actions. Research showed that most prosperous companies pay twice

as much attention to improving the processes management at this time (reading 56%) than average enterprises (reading 25%). Most of all it concerns the improvement of quality, concern for regulatory compliance and safety in supply chain. The conducted research also revealed lack of connections between areas recognized as hazardous with Enterprise Risk Management and a potential influence of disruptions in supply chain over entire business. As recognized, most companies lack appropriate managing processes and capabilities with regard to suppliers risk as well as demand in delivery network. In 2008 less than 1/3 of businesses actually managed a particular risk, including risk on conformity with trading procedures, materials risk, demand fluctuation, production quality, financial stability, suppliers and customers profile, exchange fluctuation, catastrophies, logistics capabilities and congestion, supply chain safety and environmental threats.

In top enterprises, risk management conventionally includes regular risk overview and identification of adequate procedures which considerably affect the emergence of disruptions in supply chain. A crucial factor in such a process is the evaluation of risk in the entire delivery network, not only in one's own company or enterprises directly related.

4. FAVOURED SOLUTIONS IN RISK MANAGEMENT WITH CONSIDERABLE ALTERATIONS IN SUPPLY CHAIN COURSE

Numerous enterprises operating as service providers decided to introduce certain improvement to monitoring and customer information in order to estimate risk and manage the potential more efficiently. This sort of services is provided by:

1. Consulting service providers (e.g.. IBM Global Business Services, PwC, Marsh, Deloitte et al.). They claim that enterprise risk management is implemented to a low extent which creates favourable conditions for their activity
2. Specialized solution providers for supply chain risk management (e.g. Protiviti helps businesses to recognize the sources of risk, to define optimum strategy and to create a long-term strategy in order to monitor proactively and

estimate risk, including strategies for organization, processes and technology)

3. Best software providers (e.g. Ariba, SAP). For instance SAP suggests applications for management, risk and activities to adapt to regulations (governance, risk and compliance – GRC system).⁸

In the conclusion one could assume that in order to improve all practices concerning supply chain management, companies create an environment with a low tendency for risk which is considered to improve supply chain flexibility. Currently there are available various solutions, functional (sales and operations planning, network determining, global trade management, transport management etc.) and perspective with the intention to achieve supply chain transparency, occurrences and disruptions management, supply chain ‘intelligence’.

5. RECOMMENDATION

Enterprises should redefine their supply chain management strategy and recognize key and extreme risk elements for supply chain:

- supply chain planning perspective – processes which require including the possibility of risk should also have the framework of supply chain network, sales and operations planning as well as resource planning;
- supply chain functioning perspective – companies should improve potential (resources) management, both logistics and transportive, alternative safety solution for service providers (3PL) as well as warrant a proactive process in case of disruptions in supply chain;
- more attention should be paid in short-term evaluation and suppliers risk management, particularly under uncertain economy;
- in the long run companies should adapt holistic approach to supply chain management, considering the risk, costs and feedback from many available strategies and business models considering supply chain.

All factors should be considered, including suppliers network, demand network, financial agents and other, affecting general business;

- if there is a risk management group inside an enterprise it should be fully aware of the manner in which potential disruption in supply chain can influence business results; in this situation it is necessary to incorporate supply chain risk into corporate risk management.

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⁸ Manage Risk Proactively. Enable risk – intelligent decisions across your enterprise. SAP Solution Brief, 2009