

# THE EFFECT OF A RELATIONSHIP BASED ON THE TRUST BETWEEN SUPPLIER AND THE MANUFACTURER IN THE SUPPLY CHAIN RISK MANAGEMENT

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## ABSTRACT

The article discusses the problem of risk management in business relationships that occurs between supplier and the manufacturer. Relationships are regarded as one of the methods of managing that risk. The paper presents various methods of Supply Chain Risk Management and analyses the process of trust creation among partners. The purpose of the article is to present the comprehensive analysis of the Supply Chain Risk Management based on the trust between supplier and manufacturer formed in a business network. For development of a method of Supply Chain Risk Management, a model of relationship based on the trust with collaboration elements is explicated in the paper. The reflections are expanded on the basis of the conceptual framework of the IMP group, encompassing trust phenomenon, and allowing a further analyse of SCRM in empirical studies. Strong relationships combined together with high level of trust are applicable for that purpose and correspond with that need. Entities which trust other party are more willing to collaborate. Therefore the article develops a model of creating relationship based on the trust and collaboration, which may be a less formal and more cost-saving method of managing risk in supply chains.

**Keywords:** Collaboration, Commitment, Relationship, Risk, Supply Chain, Supply Chain Risk Management, Trust.

## INTRODUCTION

Despite the fact, that relationship is obviously a phenomenon which is recurring in many scholars researches, its importance should not be underestimated. Although this topic has been wisely described in the literature, the same as the issue of trust, which is another dominant assumption in IMP tradition [Högberg 2002], there is still lack of comprehensive analysis of their application in Supply Chain Risk Management (SCRM). Since trust deepens relationships [Homans 1958; Blau 1964; Levine & White 1961], its importance in relationship theories has raised [Blau 1964; Guetzkow 1966; Håkansson 1982; Johanson, Mattsson 1987], what results in their validity in Supply Chain Risk Management [Högberg 2002]. To properly manage risk in SC, companies need to build extended knowledge about the network in which they are embedded [Ford 1998; Möller & Halinen 1999]. Companies are not totally free to choose their network partners [Brito & Roseira 2003] and no longer cooperate only with the same entities [Pohja 2004], hence to manage risk in their supply chains, they have to inspect also other related supply chains which may affect themselves [Gadde & Håkansson 2001].

The purpose of the paper is to present the comprehensive analysis of the Supply Chain Risk Management based on the trust between supplier and manufacturer formed in a business network. For the development of a method of Supply Chain Risk Management, a model of relationship based on the trust with collaboration elements is explicated in the paper. The reflections are expanded on the basis of the conceptual framework of the IMP group, encompassing trust phenomenon, what leads to a further analyse of SCRM in empirical studies.

## SUPPLY CHAIN RISK MANAGEMENT

In the result of the intensification of international trade and globalization, evidenced for example by growing popularity of outsourcing, increases the complexity of the structures of supply chains and level of their sophistication [Harland et al 2003]. Hence emphasized is the need for risk management, that appears more often in such complex networks of interdependence between entities, which tend to become more common among suppliers [Roseira, Brito & Henneberg 2010]. Moreover, in the literature distinguished are different types of risk, which become additionally interconnected [Manuj & Mentzer 2008]. Enterprises decide to move a production of goods to a number of Asian countries, such as China or Bangladesh, so there might occur some delays in deliveries. Also, due to unstable economic situation exist a possibility of currency risk [Tummala & Schoenherr 2011]. Despite the fact, that those phenomena may be present in only one specific country, their negative effects will spread widely through other participants of the supply chain located in various parts of the globe. In fact, emphasized might be even an excessive interdependence across the entire supply network [La Londe 2002]. In such advanced systems, the consequences may be perceived even by those entities that are not affiliated in a direct way, and the further growth of the network only contributes to the increase of the risk [Punniyamoorthy, Thamaraiselvan & Manikandan 2013].

Supply Chain Management is a general term which is defined as responsibility for all occurring action, or as a management tool for flow of information and services among different facilities or stakeholders [Won Lee, Kwon & Severance 2007]. The term is linked not only with logistics [Vidal & Goetschalckx 2001] but also with trust phenomenon [Kwon & Suh 2005]. Risk Management is one of SCM functions, so for the purpose of this paper, Supply Chain Risk Management, may be treated as its most important subcategory.

There are two main, basic types of risk that might be distinguished in SCRM, that is: internal risk (within the supply chain or the network in which company is embedded) and external risk (appearing outside of the supply chain) [Waters 2011]. Although, while searching for the methods of managing the risk, the researchers should not be limited only to one of those mentioned specific areas. More extended categorization divides risks into: internal to the firm (process and control), external to the firm but internal to the SC (demand, supply) and external to the network that is environment [Christopher & Peck 2003]. In supply chain discerned may be many more types of risk. Hoffmann et al. [2011], differentiated environmental risk (affecting all actors), financial risk (in case of a bankruptcy of a particular supplier), operational risk (quality problems of a supplier) and strategic risk (occurring when supplier unreasonably cooperates not sufficiently with all buyers and treats them with various solicitude). More complex categorization was presented by Tchankova [2002], who determined the types of the risk on the basis of its environment source and therefore distinguished: physical, social, political, operational, economic, legal and cognitive risks. Other classifications suggest that risk categories should include: physical, financial, information and organizational risks [Waters 2011], financial, operational, reputation, legal, environmental and technical [Handfield & McCormack 2008], supply market, supplier, regulatory and supply strategy risks [Minahan 2005], physical, financial, informational, relational, innovative [Cavinato 2004], innovative, commercial, demand and supply, production and distribution, service, coordination and information risks [Kouvelis et al. 2012, p. 19-20].

In the literature it depends mainly on the researcher what is perceived as a reason for the risk, as its main source are existing threats. Threats that may concern the value chain of suppliers, buyers or even the enterprises environment. This indicates how many entities are linked in the context of even one simple transaction, and leads to conclusion that research on risk phenomenon should not be limited only to those owned by a company, but should be rather extended also for other entities with which it cooperates. Therefore company should focus on all existing risk categorizations rather on one particular, which may be insufficient for their purpose.

Due to the large number of existing threats, enterprises cannot counteract to each with equal effect. Thus, over the years developed were different methods of managing risk. Even despite the fact, that literature underlines that due to the lack of theoretical work over supply chain phenomenon [Croom et al. 2000], theoretical development of supply chain management and establishment of new methods are still required [Pohja 2004]. While risk is one of the most significant components of supply chains, it also indicates for the deepened need of theoretical work.

Though the application of a particular method of risk management, it should be mentioned that not all situations are possible to be assuaged. In supply chains risks may be divided also into those that are manageable and unmanageable [Lynch 2012, p. 327], what determines the particular method to be applied. According to the research conducted by Ferre, Karlberg and Hintilian [2007], more than one third of companies had suffered from natural catastrophes that belong to the unmanageable group of risks.

In general, Supply Chain Risk Management (SCRM) is about minimization of potential risks [Narasimhan & Talluri 2009], and therefore following methods might be distinguished: risk transfer, acceptance, ignorance, adaptation and mitigation. One of the forms of risk transfer are contracts with insurance companies, that guarantee specified regulations, which in fact are some type of risk outsourcing. Another method is to write in a contract exclusion clauses. Their application grows in importance especially when both sides of a contract deal with various currencies. A special type of risk transfer is outsourcing, which gained on popularity among the last years. Currently, companies seem to be slightly

more cautious when deciding to outsource any of their internal important resource and rather abandon the activities of relatively minor value. Risk can also be accepted by usage of ALARP - **A**s **L**ow **A**s **R**easonably **P**racticable method, which allows firm to categorize risk [Tummala & Schoenherr 2011], or ignore when perceived consequences of risk are cheaper than undertaking any activity. Adaptation by changes implementation may be introduced in expectation for future economic situation. However, the great number of researchers state that mitigation is the most popular method of risk management within supply chains [Sinha, Whitman & Malzahn 2004; Faisal, Banwet & Shankar 2006; Pujawan & Geraldin 2009; Tummala & Schoenherr 2011; Sodhi & Tang 2012], as it may include also other already mentioned methods [Olson & Wu 2000]. It is known also as a SAM model (**S**pecification, **A**ssessment, **M**itigation) and uses methods like fault, event trees or emerging team based approach [Kleindorfer & Saad 2005; Wu & Blackhurst 2009]. To manage risk it has to be firstly specified and assessed, what are its expected results. Only then, this risk may be mitigated in various forms such as: risk avoidance, control (proper maintenance), cooperation (risk-sharing) or flexibility (multiple sourcing) [Jüttner, Peck & Christopher 2003]. If mitigation is the first group of SCRM methods that system solutions should be named the second. They are more complex issues which require cooperation between entities, hence methods such as TQM, TPS, TPM, JIT, ISO standards or Six Sigma has a great impact on enterprises business model.

Supply Chain Risk Management (SCRM) can be considered from two main perspectives: local and international as their sources may emerge in different countries [Punniyamoorthy, Thamaraiselvan & Manikandan 2013]. In highly globalized economy, where connections between companies and entities from different world regions are nothing new, a statement about the country of origin of particular good or even a company is questionable. Therefore, when rising a phenomenon of a risk management, researchers should consider it rather from an international perspective. But it differs due to the size of the company, as SMEs may have their supply chains limited only to their own countries. It is more difficult for enterprises to avoid and predict international risk, when not having any correlations with second side of their exchange, and where possibility of control and implementation of own solutions are strongly limited.

All of the mentioned methods are processes that include implementation of the proper strategy, as well as monitoring its effects. Especially, in the international supply chains, introduction of those system solutions might be a difficult task, as a company may not always be able to force the other, located abroad party, to implement them in their own structures. However a situation may occur, in which one company determines signing a contract with other enterprise through the introduction into others structure an appropriate strategy and risk management process. Some authors emphasize that even if the company had never possessed any risk management programs, this does not mean that it would not need any. It rather indicates that so far they have had a great amount of luck and therefore have not suffered the negative and costly consequences of their negligence [Giunipero & Eltantawy 2004]. Hence all organizations should prepare a strategy of how to manage with risk that may occur within its supply chain to cope with crises from each possible source [Olson & Wu 2010].

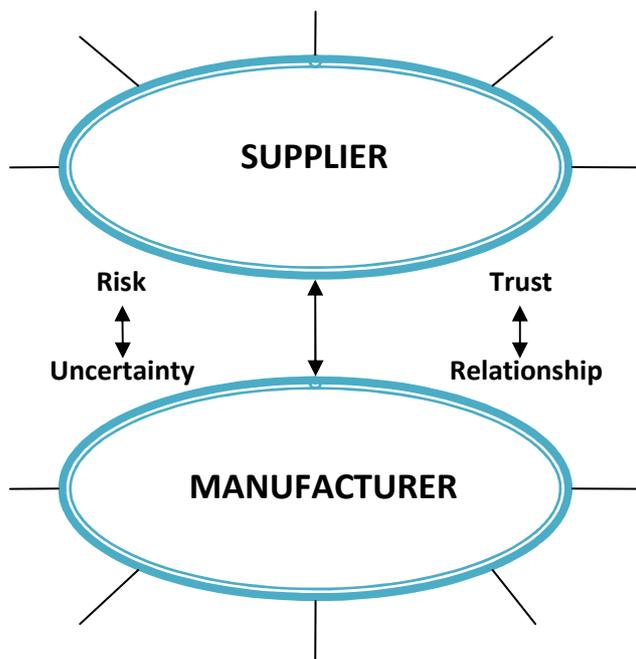
What is of the great importance, is the fact that supply chain should not be considered as one-to-one relationship, like in the B2B market, rather as a network of multiple businesses and relationships [Pohja 2004]. Gadde and Håkansson [2001] alleged that supply chain performance may depend even mostly on correlation between its own resources with those of other supply chains. To manage supply chain properly, in the mean of effectiveness, companies need to gain extended knowledge about the whole network they are a part of [Ford 1998]. Each company which is embedded in a particular SC is as well a member of some other supply chains due to its other entities, so it might be misleading to consider

it in isolation from other companies. Therefore to analyse the risk phenomenon within the SC, a holistic view is required (see Figure 1).

Statement of Gadde and Håkansson gains a special meaning when discussed is a term of collective entrepreneurship, which is basically aimed at creating collaboration among the entities [Franco & Haase 2013]. The main characteristic of this phenomenon is that it does not describe a company in its traditional meaning (with formal structure and law form of organization), but rather as a futuristic confederation of collaborating enterprises [Miles, Miles & Snow 2005]. It means that model of supply chain on the line between supplier and manufacturer varies diametrically as there are many active entities from different locations.

Supplier and manufacturer might be connected with entities from different networks. Their real resources are not only those limited to formally possessed, because resources, activities or actors that are controlled throughout the network are of the same importance [Brito & Roseira 2003]. Therefore development of all those external factors of supply chains has a great meaning for risk management. They not only deal with risk and uncertainty assessment or avoidance, but also need to focus on trust intensification, so in a consequence relationship will be strengthened.

**Figure 1. Factors forming Supply Chain Risk Management between supplier and the manufacturer**



Source: own work

Except of a knowledge, uncertainty is another important factor which determines the level of possible risk [Hoffmann 2011]. Hence the higher is uncertainty index among companies, the lower is expectation against risk predicting and avoiding. Relationship, what is the topic of the next paper's section has strong influence on trust. They both are interdependent and have a great importance for development of SCRM method based on collaboration. Therefore companies have a following possibility: to trust other and accept a possible risk, expecting some benefits, or show a lack of trust due to high, unacceptable level of risk due to existing uncertainty and scarcity of former relationship.

## RELATIONSHIP BASED ON THE TRUST WITHIN SUPPLY CHAIN

Trust is one of the assumptions that adheres to theoretical framework of IMP tradition [Högberg 2002], what is proved by empirical evidence of the positive role that trust plays in supply-chain relationships. Trust is defined as a willingness to take risk and rely on the partner [Kwon & Suh 2005; Bönnte 2008], as it is treated as a mechanism of organizational control, alternative to contracts [Dyer & Chu 2000]. Companies decide to accept this risk to gain access to some social and economic benefits affecting their competitiveness [Ireland & Webb 2007]. This phenomenon has a great importance in detecting, building and strengthening relationships among partners. Many characteristics have been specified in the literature to determine its composition. One of the mentioned is honesty, which however is inseparable element of a concept. The same as a belief in the other party, that it has enough competence to act for the benefits of the whole relationship [Walter, Mueller & Helfert 2000]. Mostly, trust is composed of honesty, benevolence and competence [Joshi & Stump 1999; Dyer & Chu 2000], benevolence, competence, integrity and behaviour predictability [Beccerra & Gupta 1999]. Reciprocity, benevolence and integrity combined together with commitment and dependence are all measures of relationship magnitude [Golicic & Mentzer 2006]. It is also underlined that trust cannot exist without proper risk and uncertainty [Nguyen & Liem 2013]. According to the latest research conducted by Małys [2013, p. 126-128], trust between supplier and manufacturer is also built on reliability and benevolence. It is worth mentioning, that benevolence is less important in dealing with international units than reliability and does not have a big meaning in creating relationship. Engagement is much more important for companies as they perceive it as a long-term strategy.

Walter, Mueller and Helfert [2000] agreeably stated that trust means the belief about cooperating partner's operations, which will not only be friendly but may bring some benefits as well. So the trust is conceptualized as some kind of an expectation rather than real conviction [Zaheer, McEvily & Perrone 1998]. A concept that is strongly linked with trust is opportunism, which in a contrary is focused on selfish action causing the relationship to be far unstable [Högberg 2002]. Opportunistic behaviour is therefore considered as a short-term strategy, as obviously in a business it is a peculiar situation when a relationship is continued even despite a hostile, unfaithful and cheating behaviour of other entity.

Some of the studies existing in the literature are focused on social context of trust and rely on "Prisoner's Dilemma" [McCarter & Northcraft 2007], exposing how trust emerges in situations of collaboration or competition [Atkinson & Butcher 2003], and emphasizing the need for replicable contacts which needs to be developed. Trust is informal feature, which is not easily formalized on paper, although it replaces the formal contracts [Högberg 2002], what has a great importance for Supply Chain Risk Management. Mostly, contracts do not encourage collaborative behaviour, as its counterparties are focused on their own objectives and goals without considering an impact it has on others [Huemer 2004]. It is even stated that formal regulations have negative influence on trust [Yang, Zhou & Jiang 2011]. As informal factor, it cannot be estimated, neither applicable are quantitative methods. Therefore, it is comparable with collaboration, which is similarly another informal feature, however may be included in a contract by specifying the role played by both companies in form of alliance or some other agreement on collaboration among entities. Trust is regarded as a less costly substitute of formal contracts [Hill 1990], at least until any unexpected or hostile action occurs. But yet trust do not weaken relations between parts, what is a threat of formal contracts that may indicate a lack of confidence in the partner [Szczepeński & Światowiec-Szczepeńska 2012]. Also, according to the research conducted by Szczepeński and Światowiec-Szczepeńska [2012], trust relatively rarely occurs without well-developed

relational norms, what may mean that it is not possible to create high level of trust among partners without formal, contracted agreements. Even despite that fact, the hypothesis of formal contracts leading to the greater level of trust was not supported [Handfield & Bechtel 2002]. It means that contracts have a little effect on trust, and therefore developing agreements based on strong trust may replace those embedded in formal contracts.

It is considerable whether trust is developed between people or companies and organizations, and therefore should it rather be considered in terms of inter-organizational or inter-personal relations that determines trust [Zaheer, McEvily & Perrone 1998]. While inter-organizational trust is placed in other partner organization, inter-personal trust is developed between individuals [Vieira et al. 2012]. These are people that trust each other, so it would be obvious to state that inter-personal trust is more important and appropriate to the relationship and supply chain management phenomena [Andersen & Kumar 2006]. All deals and trades from firms to firms are deals between some individuals or groups of them. But according to the research conducted by Blomqvist and Ståhle [2000], this link is not as clear as it might be predicted. All organizations have some specific reputation, internal rules and culture that determines the behaviour of their employees, what in turn influences their external contacts. Even in a situation when individual would like to behave in a different way, it simply cannot due to its contract and internal regulations which are highly influential. Therefore, it might be stated that both concepts of trust are valid, although that inter-personal is stronger, as even if we trust in a certain organization, there are always people that stand behind it. Inter-personal relations have a great impact on the success of inter-organizational relationships [Mavondo & Rodrigo 2001]. While trust is created between individuals [Revesz et al. 2013], company needs to ensure that even if this individual leave the company, trust with particular entity is developed on the next, inter-organizational level. Otherwise trust will disappear, the same as relationship which will be taken away and developed between former partner and new company of former employee [Reynolds & Beatty 1999; Lindgreen 2000].

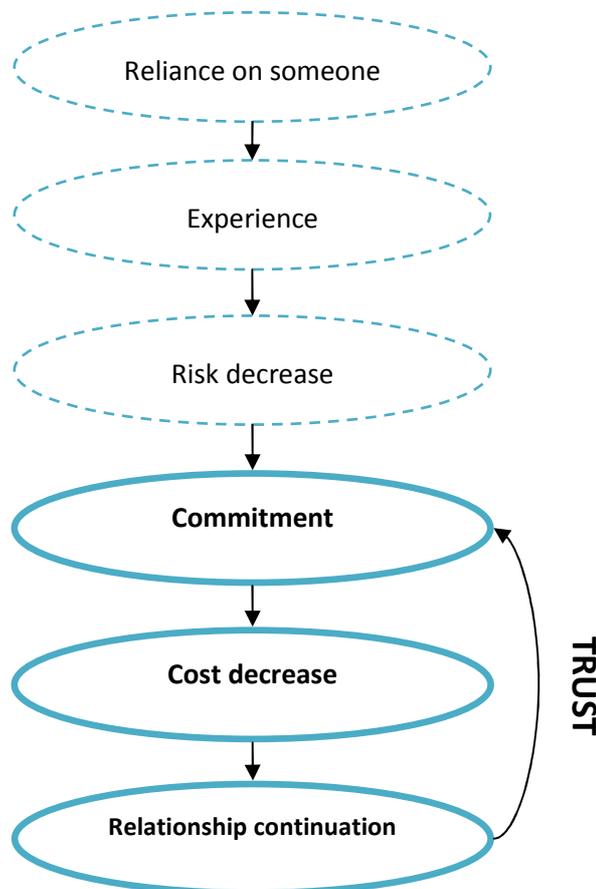
Trust is built over a specific period of time, so generally it is deliberated as a long-term strategy [Blomqvist & Ståhle 2000; Högberg 2002]. As a future-oriented attitude, some enterprises that are willing to set it up may encounter difficulties [Walter, Mueller & Helfert 2000]. Without having any past experience while building relationship, a company is in that case forced to rather rely on other party than call its attitude `trust`. Those are the existing networks in which companies are embedded that through the flow of information about potential partners may enforce expected trustworthiness and transparency. Trust established over a time among entities brings it closer to pursue companies objectives [Raimondo 2000]. Commitment is one of those characteristics that maintains relationship [Hausman 2001], although it should be remembered that development of various relationships may differ. Therefore, not all of them are able to achieve expected maturity which will permit to full trust, so in those cases it may be rather called to rely on someone than trust him.

Trust has a great impact on the relationship. Engaged entities show their high commitment and prove diminution of the perceived risk [Walter, Mueller & Helfert 2000]. As a consequence, costs are decreased what results in a probability of relationship continuation, what in turn increases commitment mentioned before. It is a circle that strengthens some intermediate elements of building relationship based on the trust (see Figure 2). According to researches conducted by Kwon and Suh [2004; 2005], trust has also positive effect on commitment [Iacobucci & Hibbard 1999; Walter, Mueller & Helfert 2000; Coote, Forrest & Tam 2003] and increases its level as it is responsible for development of long-term relationships [Geyskens et al. 1996; Huang & Wilkinson 2013]. Trust has also significant impact on the firms performance [Young 2006; Hua, Chatterjee & Kang-kang 2009; Nyaga, Whipple & Lynch 2010; Sung & Kang 2013], what is proved by one of the latest researches [Jani et al. 2014], which claimed that cost decrease enables relationship to continue.

This relationship needs to be developed and administrated carefully. When such a collaboration is created with other supplier within a supply chain, it influences the finances of a company due to costs reduction, thus affects its competitiveness [Ratajczak-Mrozek & Małys 2012].

According to the trust development mechanism presented in the Figure 2, at the beginning two entities without any past experience have to rely on the other party, as there is no possibility to call it in terms of trust. Over a time risk is lower so both parties commitment is higher [Doney, Cannon & Mullen 1998]. It results in lower costs [Dyer & Chu 2003], which reinforces a probability of relationship continuation. This means a new level of commitment, that makes it possible to continue the relationship. Because trust has a positive effect on commitment it will just strengthen its effect [Nyaga, Whipple & Lynch 2010].

**Figure 2. Trust development mechanism**



Source: own work based on: Doney, Cannon & Mullen 1998; Walter, Mueller & Helfert 2000; Kwon & Suh 2004; Kwon & Suh 2005.

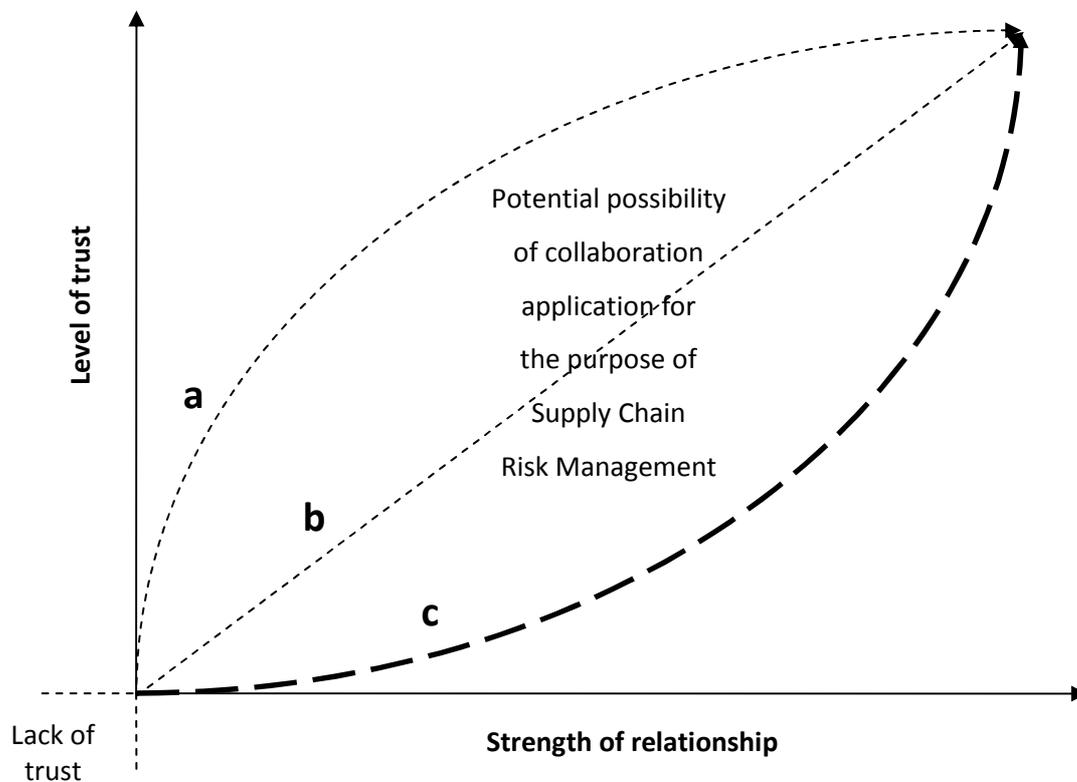
The opposite of trust phenomenon is a lack of trust. It appears when the flow of information is rather poor, knowledge sharing becomes strongly restricted, and new characteristic of relationship arises, that is suspicion. Obviously, it might be stated that this should not appear as the whole belief system may be illustrated in the form of established rules and norms. However, it is not the genuine description of trust, which as stated earlier, is built on informal relations, not the formal contract. The form in which potential lack of trust may arise is a conflict caused by the breakdown of a relationship [Lewicki & Wiethoff 2000]. According to the latest research conducted by Aramo-Immonen and Breite [2011], the main reasons for lack of trust could be: lack of knowledge and control over supply chain,

suppliers reputation, long supply chains, insufficient collaboration model, lack of commitment or short-sightedness. Especially the last characteristic stands in a contrary to the trust strategy which is long-term oriented, so expectation of short-time effects is unreasonable. Lack of trust can have a direct impact on a company. It may increase the costs, weaken the performance and profitability, all contradicting to the expectations attributed to the trust phenomenon (see Figure 3). Managers in those low-trust relationships spend more time, energy and effort, what rises not only transaction, but also agency costs, as willingness to take risk is decreased [Beccerra & Gupta 1999].

One of the main risk of lack of trust is knowledge insufficiency. Companies are expected to add value to the supply chain or network, and to do so they need to have knowledge about their final buyers expectations. Despite the apparent knowledge, they do not know it in details, just have a general knowledge, while to create trust and to add value an extended knowledge is required [Aramo-Immonen & Breite 2011]. According to Breite and Torkkola [2009], the level of expected trust and commitment is linked and correlated with external cumulative value added. The value added level of 100% is reached when buyer pays the asked price and trust is at the same height. It means that due to those weights a place of entity within the supply chain and network are subject to change. Breite and Torkkola [2009] also states, that this type of the relationship depends on the suppliers expected trustworthiness as well as their commitment. Therefore, in the case of beginning of the relationship, when trust and added value are at the 0% level this dynamic is called Adversarial leverage, while as time goes by and those levels reaches 100% this relation becomes Strategic supplier alliance.

According to Atkinson and Butcher [2003], a relationship may be developed in a three-stage model. At the beginning there is a romantic stage when both parties have a positive feelings and believe strongly in the prosperity. Afterwards, they face the evaluative phase when close contacts reveals imperfection, but due to the advantages and disadvantages of relationship continuation, trust value improves. Finally, in the last stage parties solidify their trust in each other. Those stages overlap with the shape of the “c” curve (see Figure 3) what proves the evaluation of trust mechanism over time.

**Figure 3. The interdependence between level of trust and strength of relationship for application for the purpose of Supply Chain Risk Management**



Source: own work

The level of trust and strength of relationship between entities (in this case limited mostly to supplier and manufacturer) are interdependent [Hoffmann 2011]. The strength and length of relationship has influence on the increase of the trust level [Dyer & Chu 2000; Ekici 2013]. It was proved also by the research conducted by Mäkelä, Barner-Rasmussen and Björkman [2008], who focused their work on relation between different units within the same multinational company. This research supported also the hypothesis that national culture distance lowers the level of trust. It is strongly influenced by the culture [Sung & Kang 2012], what is embedded in historical issues and norms [Granovetter 1985; Sako 1992] and cannot be easily changed. Therefore, in different regions or countries, level of trust may vary, like in Japan where according to the research conducted by Dyer and Chu [2003], trust is on higher level when compared with other Asian countries or U.S. When companies begin their trade without any past experience and are not embedded in the same networks or supply chains, then trust phenomenon does not occur so relationship is very weak, not to say hardly exist [Walter, Mueller & Helfert 2000]. It causes the risk that lack of trust will be formed.

Questionable is the form of dependence between mentioned trust and relationship and the shape that would apply to the curve (see Figure 3). It is assumed that there might exist three situations. In situation “a”, trust increases faster than the power of relationship, what means that at the beginning of the relationship there is a relatively high level of trust, which with time rises slower than at the beginning. Such a situation may occur rarely, mostly when entities have some knowledge about themselves. In situation ”b”, the relation is linear, so both indicators rise at the same pace. Finally, situation “c”, which is probably the most commonly observed in business reality, as trust is long term-oriented and therefore rises

slowly [Sung & Kang 2013]. Strength of relationship rises faster than the trust, which according to the previous Figure 2 is created with time. However, invariably in all three assumed situations level of trust increases within the time.

The Figure 3 has a great importance for potential collaboration application for the purpose of Supply Chain Risk Management. It allows to understand the mechanisms of trust phenomenon development, how it is changed over a time and when collaboration is possible to appear [Day et al. 2013]. When both, level of trust and relationship strength are high, it is more likely that entities will start to collaborate and manage risk in supply chains in this form. However, it is concluded that informal collaboration may play a supporting role for formal agreements and therefore lead to a better results [Ratajczak-Mrozek 2013].

The paper is focused on the supply chain and limited mostly to the relation between supplier and the manufacturer. Notwithstanding, except of non mentioning other entities, it should be remembered that the strength of trust and relationship has influence on the further supply chain elements such as a customer and his final satisfaction [Grayson, Johnson & Chen 2008].

## **APPLICATION OF TRUST FOR THE PURPOSE OF SUPPLY CHAIN RISK MANAGEMENT**

The validity of trust has been emphasized in the previous part of the paper. Therefore there is a significant need for application of this phenomenon for the purpose of Supply Chain Risk Management.

Trust is attributed to the role of a risk moderator in decisions taken by organization and individuals [Davis, Schoorman & Hoon Tan 2000]. Therefore, due to the relationship and level of trust, perception of risk might be on the lower level [Galli & Nardin 2003]. Generally it is stated, that the greater is the level of trust, the lower perceived is the risk from partnership [Szczepański & Światowiec-Szczepańska 2012], as uncertainty is also decreased, and formal contracts reduced in their meaning. For Supply Chain Risk Management the greatest importance of trust lies in the concept itself. Trust entails that a necessity for establishment sophisticated control mechanism hardly occurs [Walter, Mueller & Helfert 2000].

Trust, like it was already underlined, is rather a long-term strategy, which eliminates existing barriers, increases knowledge sharing and allows networks to achieve their full potential [Ribeiro-Soriano & Urbano 2009]. Therefore, it might be applicable for the long-oriented strategy of companies. According to the Figure 1, Supply Chain Risk Management between manufacturer and supplier is composed of many aspects. Trust is correlated with the strength of the relationship, what was positively supported by the research [Dyer & Chu 2000] and emphasized in the paper. However, it may vary due to the cultural differences among countries. Uncertainty is another factor that affects risk, which would not exist without it. These two negative elements are the causes of implementation of SCRM methods.

Trust may be a substitute of hierarchical control [Atkinson & Butcher 2003] what plays an important role for management and organization of company. For SCRM it should be determined whether inter-personal or inter-organizational trust is considered. Even though this phenomenon is mostly correlated with personal trust [Blois 1999], and this is thought to be stronger and more important, an inter-organizational trust is the most valid one [Seppänen, Blomqvist & Sundqvist 2007]. Trust built among individuals is afterwards transferred into an organization [Huang & Wilkinson 2013]. Even if those employees stop working for one of the companies, trust between both parties may deteriorate slightly, but would not cease to exist. Enterprises need to develop internal systems which will provide a possibility that trust developed among individuals stays with the company, not the

individuals. Other partner needs to be ensured that what was already developed, whole trust over a time, was made because of the character of the company and its regulations, not particular employee. Trust, that is strongly embedded in organizations will support its long-term character and uniqueness. According to the Figure 2, mechanism of a trust development is done in stages, and due to the increase of both parties commitment, a relationship continuation is permitted and shaped in some kind of a loop, which strengthens this dependency. When loop heads back to commitment, it needs to be provided on the inter-organizational level, not inter-personal. When trust is developed it has to be internally transferred from individuals to their organization.

Critical for the trust development is situation in which a lack of trust occurs, what quoting Luhmann [1979] may imply paralysis. This is a situation when a level of trust is even below zero, the same as strength of relationship (compare Fig. 3). This emphasizes how hard it is to create trust without having past positive experience, and when entities are not embedded in the same network or supply chain. It is then a task for organization to improve the strength of relationship and develop required trust.

Supply Chain Risk Management has a number of objectives, to mention accepting the risk, avoiding it or just transferring to other entity. Trust has a great importance in mitigating risk and incidents such as charlatan behaviour or hostile activities [Gbadamosi, Ndaba & Oni 2007], and therefore might be implemented as a mechanism for reducing uncertainty [Möllering, Bachmann & Hee Lee 2004]. Trust is not imposed attitude, it is a matter of choice [Laequddin, et al. 2012]. Company has to compare a level of trust and a level of perceived risk and then decide to engage in this relationship. It may be assumed by comparison of potential costs with expected benefits and probability of each of them to occur. According to the Figure number 3, trust level and relationship strength are interdependent. The stronger is relationship between entities, the higher is their self-trust.

Some researchers claim that when partners of a supply chain have access to both parties calculations, information and complete knowledge, than trust is not required [Laequddin et al. 2012]. Although to get to this point companies have to take care of their relationship and create appropriate level of trust. For the purpose of Supply Chain Risk Management and to gather and synthesize all data, trust development may be presented in the form of integrated conceptual model based on the work of some researchers [So & Sculli 2002; Laequddin et al. 2012]. The process of trust development as a Supply Chain Risk Management method is as following:

1. Characteristic trust building (propensity to trust).
2. Rational trust (act of trust).
3. Institutional trust (extended trusts).

As it was already mentioned, at the beginning companies mostly have no positive past experience or possess even some negative ones. They require a proof of others willingness to take risk based on the common goals and shared values. Trust begins slightly to be created at inter-personal level as identified risk becomes to be reduced. In the second step, companies are focused at economic relationship and capabilities of their partner [So & Sculli 2002]. They concern their previous experience and are strongly motivated to make an efficient and rational choice as they desire to maximize possible benefits, or at least minimize expected losses. All action is carefully calculated, as decisions have influence on assumed gains. Before taking any action, participants calculate what might be their results [Miles, Miles & Snow 2005, p. 36]. Trust is developed between individuals and groups of them. The higher are expected benefits or lower the risk, the higher is the level of trust among entities [Tan & Thoen 2001]. It is this stage when organizations need to internally implement and transfer trust from inter-personal to inter-organizational level. In the last stage companies deal with

institutional and formal factors such as control mechanisms, contracts, agreements and commercial law. Risk is considered in terms of action that is risk-worthy or not. Therefore to strengthen relationship instead of very formal contracts, penalties may be introduced and act as additional risk. Trust becomes developed at the inter-organizational level and when created between individuals it is adopted to the organization.

Increased level of trust due to the strength of relationship allows companies to collaborate with others. Even though a trust model is not a system model of risk management, it is applicable for the needs of Supply Chain Risk Management. Due to the establishment of strong relationships with other entities located in foreign markets, a company may reduce the risk of dependence on a single economic area and consequences of turbulence that might occur there. Development of those strong relationships among partners increases level of their trust in each other (compare with Fig. 3), so it eases the flow of information and improves a quality of their work what results in their competitiveness [Seppänen, Blomqvist & Sundqvist 2007]. As it was already stated, trust has positive effect on companies performance and makes company more flexible [Hua, Chatterjee & Kang-kang 2009].

In the proposed model, an enterprise that donates a part of its competences to other collaborating company, increases the level of self-flexibility, so may focus on the market needs, demand and take control of the whole process rather than on small parts of it. Creation of such an integrated supply chain requires a high level of trust, what evaluates over a time. Step by step, companies collaborate closer and benefit from both parties activities. It allows to improve a level of final customers satisfaction due to the higher quality (as a consequence of commitment) and lower costs (see Fig. 2). When a particular company collaborate in this way with a number of other companies, this permits a proper risk management. Thus collaboration with only one entity would be even more risky as companies flexibility falls dramatically.

## CONCLUSIONS

Companies develop a trust between them as one of the effective forms of Supply Chain Risk Management. This method does not require very sophisticated system methods such as Six Sigma or TQM implementation, which are more difficult to be controlled by other partner. Supply Chain Risk Management based on the extended relationships and therefore based on the trust, prevents from its lack, causing extra costs and lowering companies revenue [Aramo-Immonen & Breite 2011].

Relationship based on the trust may have a great meaning as a method of Supply Chain Risk Management. A proposed model is focused on a trust as a less costly method of risk management. It lowers the costs of a company, increases its performance and above all is long-time oriented. The main point, is how to transfer trust from inter-personal to inter-organizational level. As relationship is build, trust is firstly developed between individuals. It is the task for a company to implement regulations, norms and complex-extended system that ensures, that when someone from personnel leaves the company, trust and partner company still remains with a company, not individual or even a group of them. It is possible to ensure it during the phase, when commitment becomes higher (see Figure 2). Commitment due to increased trust is attached to other organization, its quality and reputation not a particular person. Company at this moment needs to ensure its partner about its real character.

High level of trust and strong relationship allows companies to collaborate (see Figure 3), what allows for application for the purpose of Supply Chain Risk Management. Companies that collaborate may have better results, extend their network of connections and

become more flexible as they may perceive opportunities in their environment even faster. Suppliers should also offer incentives to develop their trust among partners, and therefore avoid threatening and penalizing them [Jain et al. 2014].

Hence the article does not cover the whole complexity of the matter of this phenomenon. There is still a need to conduct a further empirical research, to confirm the possibility of relationship based on the trust application as a method of SCRM. Further research should be also considered on proving the effectiveness of this particular method and the use of it in relation to different economic conditions. Cause inappropriate trust may result also in variety of risks, it is necessary to recognize factors responsible for such situations [Day et al. 2013]. It needs to be also empirically tested and supported that inter-personal trust can be transferred to inter-organizational level, and at this stage collaboration will be possible.

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