

# **Intercultural Communication Management and Lean Global Supply Chains**

*- a conceptual approach -*

Prof. Dr.-Ing. Bernd Hamacher  
Faculty of Engineering & Computer Science  
University of Applied Sciences Osnabrueck  
D-49009 Osnabrueck, Germany

**Abstract.** With the development of global value chains misunderstandings due to different cultural habits and rules are a relevant issue. Studies show that lack of intercultural competence results in enormous losses and frictions in negotiations, sales and customer relationships. Despite the merits of training seminars general training will not be sufficient to solve the challenges of intercultural management. What we also need is a different perception of Information Management Systems, which not only provide proper information transfer, but also contextual awareness on cultural differences and ambiguities. The discussion of requirements and consequences of cultural issues on the design of proper communication management is subject of this paper. It will be a conceptual approach exploring findings from psychology, sociology, organisational-anthropology and communication-management, but the paper will also describe appropriate developments in Knowledge-Management Systems.

## **1 Introduction**

Supply chain management usually is understood as planning, executing, and designing across multiple supply chain partners to deliver products of the right design, in the right quantity, at the right place, at the right time. This means integration of manufacturing and logistics along the chain, the integration of the product design, the proper cooperation management between partners and the optimization of the interfaces between customers and suppliers. Lean supply chain management in this context usually means application of lean manufacturing principles, especially the elimination of waste, on the whole chain comprising several layers of tiers. A lean supply chain also means an optimized chain where a seaming less material flow is governed by a reverse material flow (Fig. 1)

---

*Please use the following format when citing this chapter:*

Hamacher, B., 2008, in IFIP International Federation for Information Processing, Volume 257, Lean Business Systems and Beyond, Tomasz Koch, ed.; (Boston: Springer), pp. 365–372.

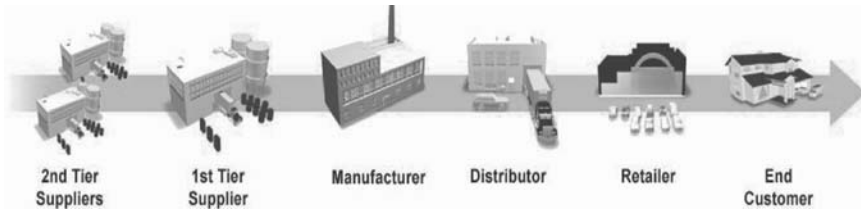


Fig. 1. A typical SCM model

But despite the achievements of information and communication technology the information management concept behind these kinds of the SCM-models are not adequate to map the requirements of global supply chains. This is not a matter of standards, interfaces and IT-performance, but a more fundamental problem that the model of human communication is not adequate. Most of the information management models consider information as a thing, which can be transferred from one place to another. This might work in very simplified situations, where information management just consist of the processing of well defined part-numbers, quantities and delivery addresses. But communication in developed global supply chains cannot be reduced to exchange of part-numbers. But if we talk about complex negotiations, conflict resolution and the set-up of business relationships we have to consider global supply chains as complex socio-technical systems, which must be managed and equipped according to the needs of heterogeneous people involved. Therefore the main two hypotheses of this paper are:

- The metaphor of communication as a transfer process is no longer adequate and should be replaced by a constructivistic concept of human interaction in SCM-systems.
- The role of misunderstandings and emotions rooted in different values, beliefs and cultural procedures must be explicitly captured in SCM-systems.

The inappropriateness of conventional Information-Management-Systems in multicultural environments is not new, but could be compensated by the old Tayloristic principles of simplification and standardization in many cases and for a long time. As long as Information-Management in supply-chains could be handled as transfer of simple and clear defined information between different actors, the deficits of this approach became not so evident. As long as it is possible to drill users to adhere to predefined definitions and procedures, the danger of misunderstanding is tolerable. So lean communication management could be misunderstood as well defined information transfer. But with the shift from Information-Management to Knowledge-Management this approach becomes inappropriate, as it is literally impossible to capitalize all business requirements in simple, predefined processes. Especially in a global environments, where data and symbols may have different meanings, may cause different emotions and may conflict with different values, it is a hopeless attempt to specify standardized glossaries for every piece of information, as the cultural meaning is often hidden from outside. Cultural behaviour is to a wide extend

unconsciously for the actor and invisible to the spectator and this is the crucial point for proper communication management and main reason for misunderstanding.

## 2 The autopoietic model of communication and learning

Proper Information supply is considered as a key element in global supply chain management. But despite the improvements in ICT, this challenge is far away from being solved. Practitioner complain about weak performance of current information systems and users state tha information come often too late, are fragmented or lost in black holes in the process. Is that technically so difficult to model and support a thorough information process? May be. But it is claimed here that not the technology is really the bottleneck. The bottleneck is more likely that we have a wrong model of communication in mind, when we talk about business communication. As we believe that technology can solve the problem we refer to a model of technical communication rather to an adequate model of human communication. Indeed in most articles on communication, the communication model of Shannon/Weaver is employed even to model human communication. This model was introduced 1949 by C. Shannon and W. Weaver on the attempt to construct a mathematical theory for technical communication and signal processing [1] and can be summarized as a transfer process encoding a message to a signal by a transmitter and decoding the signal back to the original message using a receiver. Moreover the model pinpoints the role of noise and redundancy in the transmission process, the necessity that transmitter and receiver are using the same medium, that receiver and transmitter are tuned and that on both sides there is an inventory of same symbols, same meanings and same references from symbols to meanings. This requires standardization on both sides and we know from the ISO/OSI architectures on telecommunication, that reference models and standardization have successfully enabled worldwide telecommunication facilities.

Although this model has been proven to be useful in technical communication it has severe shortcomings to explain human communication, especially the difference between information and communication. With regard to information two conflicting metaphors exists: The metaphor of information as a quantity, like water in the water pipe, but there is a second metaphor, that of information as choice - a choice made by an information provider, and a forced choice made by an information receiver. Actually, the second metaphor implies that the information sent isn't necessarily equal to the information received, because any choice implies a comparison with a list of possibilities, i.e. a list of possible meanings. Many authors in information theory insist that information has an essence and exists independent from reception. According to Stonier information exists as material reality independently of human perception: "*Information exists. It does not need to be perceived to exist. It does not need to be understood to exist. It requires no intelligence to interpret it. It does not have to have meaning to exist. It exists.*" [2]. On the other hand it is obvious that human beings are not forced to perceive any information provided, but have a choice to perceive or disregard offered information's. "Information isn't just information in

itself; it only becomes information when it is information *to somebody*" [2]. This reference to the individual context and to recognition as an active process of the recipient makes the metaphor of information transfer, like transfer of a physical good so inadequate. According to Niklas Luhmann there are at least three reasons to reject this substance metaphor: Firstly, the substance metaphor suggests that the sender gives away something which is received by the receiver. But the sender doesn't lose anything, not even a single bit, by sending information. Secondly, it suggests that the information which has been sent is identical to the information received. Normally, this isn't true. What I wrote is not necessarily' what you read. What you said isn't necessarily what I heard. Thirdly, it suggests that communication is a two-step and thus, a one-way process; the sender sends, and the receiver receives. Again, this isn't true. Just try to phone to somebody who doesn't answer. [3]

Based on the research work of Humberto Maturana and Francisco Varela in the 1970 a new communication paradigm evolved called Autopoiesis. According to this paradigm human beings are not open systems, but must be considered as closed systems, equipped with a personal mental system coined by socialization and learning, which makes everyone to an unique, but lonely resident in the world. In this view communication is not a process of transferring information's from one to another, but a process of mutual triggering for the selection of adequate models in an interaction. "Notions such as coding and transmission of information do not enter in the realization of a concrete autopoietic system because they do not refer to actual processes in it. (...) The notion of coding is a cognitive notion which represents the interactions of the observer, not a phenomenon operative in the observed domain." [4]. "Autopoietic machines do not have inputs or outputs. They can be perturbed by independent events and undergo internal structural changes which compensate these perturbations. What is normally perceived as interaction, seemingly based on the exchange of information, is in reality behavioral coupling of closed, mutually perturbing systems." This model of communication meanwhile is widely accepted by leading social scientists like Niklas Luhmann and Friedemann Schulz von Thun and can be considered as a new paradigm of human communication. This model has at least three practical consequences for proper information management:

1. The perception of information is not a passive, but an active process governed by the recipient. He or she has the authority to accept the information as he or she a difference to former perceptions or a meaning to accept the information. And it is the role of the source in a communication process to issue the right (or wrong) signals to trigger an adequate mental model at the recipient. In any case perception should be considered as an active process of the recipient constructing a new or revised mental model
2. Communication is to a wide extend a process to detect and settle misunderstandings. As information cannot simply be transferred to other persons, but is limited to trigger signals, the participants in a communication process should pay attention that the triggered mental model is in coherence with the sender's mental model. So in general participants of a successful

communication process provide effort and methods (i.e. counter questions) in order to the compatibility of the mutual mental models.

3. The perception of information is a learning process. According to related cognition theory, the mental models of an individual must be considered as schemes which guides behaviour and the exploration of the real world. If an object of the real world fits to the mental model representation than the validity of the model is confirmed to the owner and he will be encouraged to apply this model. This in turn means that human beings will be open for information, if they feel the necessity or a benefit to revise existing schemes or to create new mental models and add it to the asset of exiting schemes. But as there is usually a choice, there is as well uncertainty to make the right choice. The notion of uncertainty is essential for learning processes, as the learner take a risk that the new model is not adequate and will turn out to be not reliable. Therefore the process from a theoretical insight to a new behaviour, supported by a proven schema is associated with uncertainty and the individual tolerance to accept this [5]. Very interesting in this context is than learning should not only consider as a process of knowledge acquisition, but as well an enculturation process to arrive as an accepted member of group. This addresses an important driving for a cultural integrated global supply chain embedding shared ways of thinking and shared ways of common operations.

### **3 The role of culture and intercultural competence development**

The concept of culture usually means the whole body of values, beliefs, symbols, rules and procedures characteristic for a specific group, region or nation. Geert Hofstede defines culture as "the collective mental programming of the people in an environment. Culture is not characteristic of individuals; it encompasses a number of people who were conditioned by the same education and life experience. When we speak of the culture of a group, a tribe, a geographical region, a national minority, or a nation, culture refers to the collective mental programming that these people have in common; the programming that is different from that of other groups, tribes, regions, minorities or majorities, or nations"[6]. Cultures in this sense are the commonalities what bridges the lonely island residents as outlined above and which provide identity as a group. So culture eases the interactions within a cultural group, because the members of the same culture are confident that they share the same values and beliefs, that they share common accepted procedures and that they attribute similar meanings to common symbols. There are numerous cultures in the world and scientists like Geert Hofstede introduced cultural dimensions like power distance, individualism/collectivism, masculinity/femininity and uncertainty avoidance to distinguish and describe cultural characteristics of different nations. These dimensions are very useful to understand, where the differences between countries are and where a preparation is necessary to avoid cultural misunderstandings. Cultural induced misunderstandings are an issue in global value chains and many companies place significant effort in preparation of employees to avoid cultural misunderstandings as far as possible. As there is extensive research and literature to this subject, I

cannot go into details here, but will highlight three issues relevant for the design of information management in global SCM-systems:

1. In normal situations the impact of culture is not visible to members living in a culture. Members of a culture take the values, rules and procedures of a culture as granted. Therefore measures are required to allow members of cultures a view from „outside“, to make the own cultural visible and to create awareness on cultural dependencies.
2. The risk of cultural misunderstandings is not rooted in the objective consequences of the misunderstanding itself, but in the possible emotional power associated with. As we know that cultural misunderstandings can cause strong emotions like shame or embarrassment, which in turn seriously influence decision or relationships, we must carefully consider this in management procedures of information. In western cultures we overestimate in general the role of rationale decision making and underestimate the role of emotions. Here the familiarisation with methodologies like Kensai-Engineering might be useful. But also the existing research on counterfactual thinking that there is a world beyond logical reasoning and decision
3. Despite the importance of cultural coining we should not overlook the individual and his personality in a communication process. Quite often you can observe that cultural stereotypes are applied to communication partners instead adequately taken in account the individual personality. This especially is important in conflict resolution situations.

The immediate consequence out of these considerations is that global supply chain management must intentionally place effort to develop intercultural competence along the chain. This in general is widely accepted and there are many programmes available in this field. Experiences show that successful programmes for intercultural management should contain three elements:

1. A cognitive element providing knowledge on foreign cultures. This addresses the rationale and factual basis of cultures.
2. An affective element providing insights on own and foreign emotional reactions. This addresses the emotional awareness on cultural differences and creates readiness to distrust own emotions in business situations.
3. A behavioral element providing training experiences in foreign interactions. This addresses the development of competences and practice in adequate foreign procedures.

Many programmes are meanwhile available addressing these elements successfully towards the development of intercultural competence. These programmes are usually based on classroom concepts where people come together in a classroom, getting lectures, videos and other materials to extend the knowledge of the target culture and doing role-games and other training exercises to achieve the right emotional awareness and competence in interaction. This way of learning bears a lot of advantages, especially by intensive supervision, close face-to-face communication and extended social communication as a group. Nevertheless these programmes are

usually executed as single or repeated events prior to adventure of foreign cultures. These programmes are usually briefing measures or debriefing measures after return – during the time actually faced with other cultures they usually not occur. This is not a principal problem, it is just a question of effort. It is simply too expensive to call participants from all over the world regularly together or to send frequently trainers to all subsidiaries and construction sites of a company. To make intercultural competence development even for SMEs affordable it is therefore desirable, to provide on-the-job learning facilities to allow continuous reflection and hence a continuous improvement of the intercultural competence. The development and application of e-learning programmes is not only justified by the savings of money, but also recommended by the methodological argument that competence development is a matter of growth, which again is a function of time and continuous work. Therefore I advocate for the development of e-learning facilities for this purpose, although I admit that face-to-face meetings have unbeatable advantages. Therefore I propose to see this as complementary elements rather than alternatives.

## 4 Conclusion

The immediate conclusion from the findings above is that global SCM-systems requiring additional communication capabilities addressing communication as a process creating mutual understanding and acquaintance with thinking and feeling of communications partners in a supply chain. These communication Systems must be capable to support improvements in communication and understanding rather than just exchange predefined data. For an elaborate cooperation simplification seems to be a dead-end strategy. Instead richness of media, richness of communication channels and richness of communication opportunities seems to be more appropriate.

Recent developments show already tools and concepts in that direction. Especially the Business Communities [7] turned out as a very useful tool to create confidence between partners and to allow a communicative exchange between heterogeneous user groups comprising experts to novice. Exactly this is to be supported in an elaborated supply-chain especially under the heading of joint. knowledge management in a cooperative supply-chain. Another example in this direction is the internet based “METRO Business Simulation System”[8]. This system is especially designed for employees of the METRO company, to become more acquainted with the tasks and challenges of neighbored division and business sectors of METRO. Unlike conventional systems it is not rooted in predefined and standardized information units, but employs game-like facilities to support a mutual learning process of different users with different background. The usage of game-like facilities for the communication management in global supply-chains seems to me very promising and I have presented recently a framework for this [9]

Apart from adequate system support allowing rich-media and rich-concept communication it will be essential that global SCM is embedded in an adequate communication strategy and in adequate communication management. Communication management is usually seen as the task of people dealing with advertising and pub-

lic relation management. This might be adequate for single companies. But for supply-chains comprising a number of different partners it is essential that the communication between the partners of a supply-chain is supported by a dedicated communication management strategy. Especially in complex supply-chain it is not sufficient to leave the design of communication between different partners up to single employees. It is the duty of each company to staff their employees with a consistent communication strategy as well as procedures and training to perform communication events successfully and coherent. This is what employees should expect.

## References

1. Shannon, C.E. Weaver, W., *The mathematical Theory of Communication*, Urbana, Illinois (1948).
2. Qvortrup L., *The Controversy over the Concept of Information*. In: *Cybernetics & Human Knowing*, vol. 1, N. 4, (1993, S. 3-24).
3. Luhmann, N, *Soziale Systeme. Grundriss einer allgemeinen Theorie* Suhrkamp Verlag, Frankfurt a. M. (1984, p. 193f. ).
4. Maturana, Humberto R. and Varela, Francisco J., *Autopoiesis and Cognition. The Realization of the Living*, Reidel Publishing Company, Dordrecht (1980).
5. Hamacher B, *Theoriegestützte CIM-Gestaltung*, Shaker Verlag, Aachen (1996).
6. Hofstede, G., *Cultures Consequences: Comparing Values, Bahaviours, Institutions and Organizations accross Nations*, Sage, California (2001).
7. Bullinger J, Baumann T., Fröschle N., Mack O., Trunzer T., Waltert J.: *Business Communities. Professionelles Beziehungsmanagement von Kunden, Mitarbeitern und B2B-Partnern im Internet*. Bonn (2002).
8. METRO Business Simulation <http://www.metro-business-simulation.de>.
9. Hamacher B., *Global Value Chains, Intercultural Competence and Educational Games – Towards an integrative approach*, in: Hussein B.A., Smeds R., Riis J. (eds.) *Proceedings of the 10th International workshop of the IFIP WG 5.7 SIG on Experimental Interactive Learning in Industrial Management*, Trondheim (2006, p 7-18).