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HOW TO IDENTIFY AND ANALYSE PROBLEMS IN GLOBAL SERVICE SUPPLY CHAINS? – CONCEPT OF A COMPETENCE-BASED TOOL FOR THE LOGISTICS CONTROLLING IN INTERNATIONAL NETWORK STRUCTURES OF THE SERVICE SECTOR

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ABSTRACT
The main contribution of this paper is to show a competence-based tool for the identification and analysis of problems in Global Service Supply Chains (GSSC). For GSSC-Management it is required to systematically identify and analyse logistic service problems occurring in its international network structures. For this reason, a comprehensive concept has been developed based on a sophisticated methodology, which will be applied to movie productions as a global acting reference industry.

NECESSITY FOR DEVELOPING A CONTROLLING TOOL FOR GSSC
International structures of logistics services have significantly evolved, especially during the last decade. Service companies are embedded in service supply chain networks, where they themselves could be service consumer of another service producer and vice versa. Therefore, Global Service Supply Chains (GSSC) have to be characterised by a structure of different service companies (SC) collaborating in a world-wide network (e.g. Hülsmann and Grapp 2007). However, these modern types of logistics structures are confronted with diverse management theoretical problems, e.g. hyper-turbulence, hyper-competition and especially hyper-linking (D'Aveni 1995; Tapscott 1999; Siegele 2002), due to international service logistic processes taking place in GSSC, e.g. increasing communication and data transfer processes. This leads to an increasing complexity as well as dynamics in GSSC (Hülsmann et al. 2008) and for its management.

However, under these current phenomena in GSSC-structures logistics management seems to be burdened with competence deficits to fulfil its competence-oriented task. GSSC notably depends on its own organisational competence and the competencies of service industry companies respectively, which they have to coordinate. In the international network structures of the service sector there exist many different and rapidly changing service needs GSSC-Management has to consider. This means, GSSC-Management has to cope with a two folded competence problem context. On the one hand, it has to focus on the performance of its own organisational competence and on the other hand it has to ensure, that adequate competencies are available to satisfy the needs of its worldwide customers.

But, how can GSSC-Management recognise such general supposed unmanageable competence problems in a more specific way? In the sense of Drucker competence problems are only manageable if they are measurable (Drucker 1954), which is meant here in a qualitative way of using a more systematic approach. To consider specific problems of GSSC, could not an intelligent tool be necessary to understand

its typical problems for the design of its own structures and processes? A goal-oriented controlling of competencies in GSSC definitely needs a sophisticated approach to fulfil its task to organise collaboration among its service partners. Otherwise this competence-oriented task would lack of the original logistic objective fulfilment to bundle, transform and allocate competencies at good quality, in the right quantity, at the exact point in time, at low cost.

According to the above named questions two main goals have to be considered in this paper. Firstly, a competence-based controlling tool due to identify and analyse substantial problems in logistics has to be developed **(Aim no.1)**. Secondly, the developed tool has to be applied to the context of GSSC **(Aim no.2)**. Therefore, in a first step a logistics controlling tool and its different functions to identify, analyse and evaluate competence problems in logistics will be described. In a second step, the developed controlling tool will be adopted to GSSC, especially to the context of movie production logistics as a typical, exemplifying GSSC environment.

CONCEPT OF A TOOL FOR LOGISTICS CONTROLLING

As area of interest, international acting movie productions as companies of the service sector have been chosen. Their specific GSSC-environment compared to ordinary service companies increase the relevance and confirm the need to chose movie production as research objective (Hülsmann and Grapp 2006). As stated before, GSSC-Management has to consider its hybrid role, on the one hand to reflect on the performance of its own organisational competence. On the other hand, GSSC-Management has to ensure availability of competencies to satisfy its own and the needs of its worldwide customers, which is a typical service logistics requirement. But why are movie productions so special and should be focused? Following the general GSSC-perspective, movie productions are service companies which produce movies together with worldwide situated partners. These service partners consist of many different companies or even whole studio complexes responsible for e.g. technical equipment, transportation or administration contributing to a movie production process (Gajic 2008). Locations for shooting a movie are often spread all over the world. Between different service partners or locations (im-) material exchange (i.e. equipment and staff as well as data transfer) processes take place which have to be coordinated in an efficient as well as effective way. However, the optimal fulfilment of this task becomes increasingly ambitious, corresponding to an accelerating internationalisation of the movie industry. It becomes more and more difficult to achieve temporal, spatial, quantitative and qualitative goals for movie productions. It can be stated that the vulnerability to management failures seems to increase (Clevé 2004) and it needs to be controlled in a systematic way. This chapter wants to describe a logistics controlling tool with different functions to identify, analyse and evaluate problems.

There are two main aims of such a tool. The first one is the systematic identification of practical problems by business economic criteria. But, which are relevant problems of the service sector that could be considered, i.e. in the movie industry in specific? To generate an overview of actual logistics problems statements of actors of the movie industry (e.g. of directors, producers, actors) have to be collected. They need to be scrutinised regarding the question if and how far they contain or represent problems of logistics. The second aim is to further examine the identified

problems regarding their overarching character. However, on which basis could this analysis and characterization be executed? To gain cognitions from a theoretical perspective a methodology needs to be developed on the basis of an adequate theory. Therefore, the competence-based view (CBV) as leading paradigm of strategic management has been chosen to analyse problems of GSSC. This management theory seems to enable a strategic analysis of logistics problems in international movie production structures such as GSSC. The management of GSSC organizes collaboration among its global service providers. This corresponds to a view of an organisational competence, which can be understood as „[…] the ability to sustain the coordinated deployment of assets in ways that help a firm achieve its goals" (Sanchez and Heene, 1996; Sanchez, 2004b). GSSC-Management, representing an organisational competence (e.g. producer of a movie production company), is responsible for bundling and allocating competencies of its service companies (i.e. technical, transportation support etc.). This means in general, that logistics excellence is represented by an organisational competence and logistics management in the service sector is responsible for the bundling, transforming, allocating of individual/organisational competencies. Bouncken characterises this ability to coordinate as meta-competence (Bouncken 2003). After showing general conceptual aspects for a tool development its concrete design elements will be explicated.

Former research already generated an approach for a problem analysis in GSSC, focusing on the design of a framework containing first basic thoughts (Hülsmann and Grapp 2007). It is a general attempt for identifying and evaluating problems of GSSC on the one hand. On the other hand it includes a competence-based option analysis for identifying and evaluating new strategic options in GSSC-collaboration. The present paper wants to get beyond an abstract approach and enable a concrete problem identification (Tool Function no. 1) as well as analysis (Tool Function no. 2) for GSSC-Management. The term "tool" is often synonymously used instead of instrument, which is especially applied in the context of sientific analyses (Wahrig-Burfeind, 2004). Kromrey understands a tool as method for a systematic proceeding according to fixed rules (Kromrey 2000).

Problem Identification (Tool Function no. 1)

If it is assumed, that there are problems in GSSC which have to be controlled by its Management, it has to be asked how those deficits can be systematically identified. According to Früh a standardised proceeding for a general problem identification does not exist (Früh 1992). In consequence, a specific one has to be created here for the concrete research context of movie production understood as service logistics, taking place in the structures of GSSC. Out of a pool of statements problems have to be classified and will be clustered. Therefore, first of all statements from actors of the considered industry (e.g. movie production) are collected. The collection of statements could include statements from subject-related literature or could be generated from interviews of GSSC-Managers. The classification process of statements comprises six steps. Each step is based on certain classification rules, standing each for a question that aims at focusing on as well as reducing the pool of statements to the relevant ones that will be analysed later on (see Figure 1). Following the sequence of steps through the classification process every statement is identified regarding its specific problem character with a certain problem code

understood as codification. A problem code consists of the different letters (e.g. "P" for problem, "M" for movie-related and so on) which are answers to the classification questions and rules.

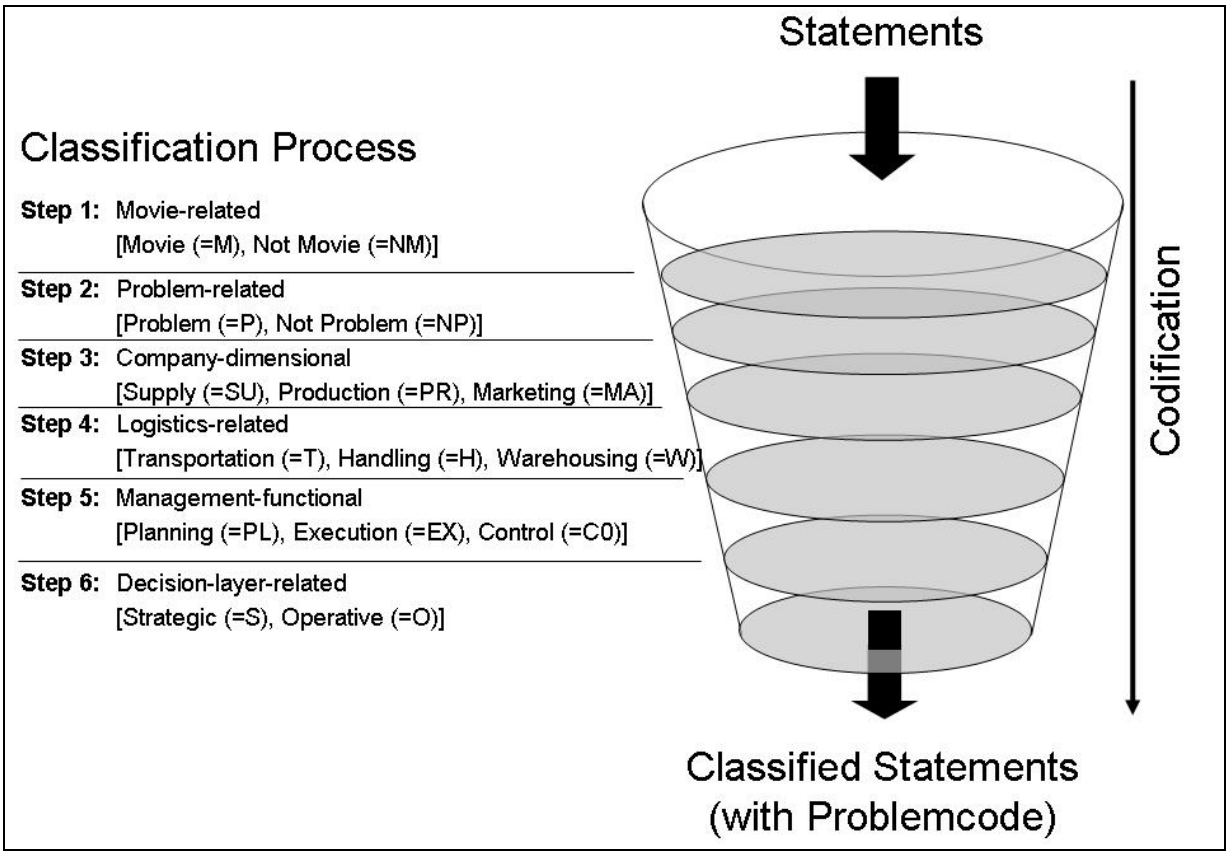

Figure 1. Statement Classification Process

After statements have been classified the question raises in how far the identified logistics problems feature characteristic commonalities and differences. According to Eckes so called cluster analyses could be a method to examine variables regarding their coaction and dependencies (Eckes, 1980). Backhaus et al. describe clustering as a method for group forming out of a multiplicity of objects (statements with different problem codes: e.g. statements with the code "M, P, PR, T, PL, S" meaning strategic movie production logistics related planning problems). Objects belonging to one group should feature the same characteristics, however between different clusters almost no commonalities should exist (Backhaus et al., 2006). The aim of the clustering process is to form problem clusters out of the identified problems from the classification process. Based on the mentioned problem codes for each statement containing a logistics problem, different groups can be build consisting of statements with the same problem character. One homogeneous group with the same problem character corresponds to one problem cluster which is the input for a further problem analysis by tool function no. 2 in the next research step.

Problem Analysis (Tool Function no. 2)

As it has been stated above GSSC-Management seems to be confronted with competence deficits. In how far this is the case will be examined by tool function no. 2 which stands for a competence-based problem analysis. For the intended analysis a framework has been developed that enables, according to Bronner, to explore the identified problem clusters (i.e. movie production logistics) as real facts on the basis of causal facts (i.e. competence-based view) (Bronner, 1999). Tool function no. 2 consists of three layers representing each a certain framework component of analysis: localisation, characterisation and theoretical foundation (see Figure 2). Each layer consists of different analytical parts.

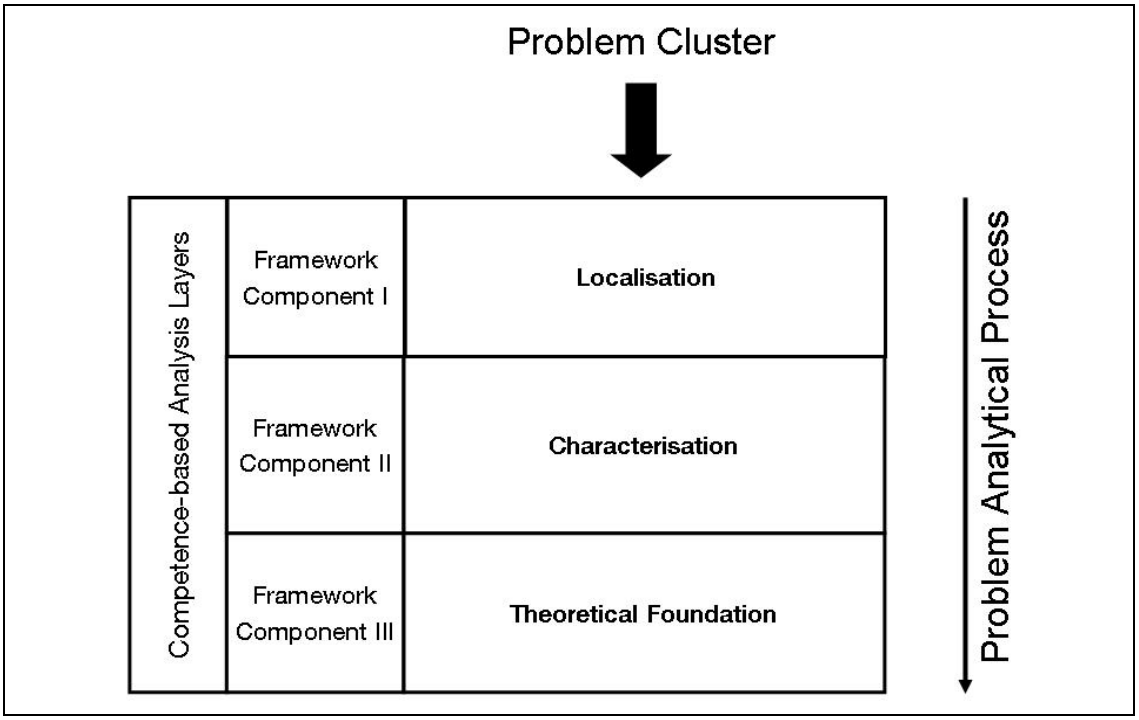

Figure 2. Competence-based Analysis

The purpose of **Framework Component I** is to locate where in movie productions competence problems could occur. Therefore, the open systems (OSV) view as a popular pattern of the CBV is used (Sanchez, 2004a, 2004b). As to Gersch et al. it is a model that allows a systematic and detailed analysis for designing and controlling input, resource as well as competence profiles of companies (Gersch et al., 2005). Amongst others it is examined if and how far for example strategic logic, management processes or operative processes represent spots of competence problems of GSSC. **Framework Component II** aims at examining GSSC problems regarding their competence-based character. As to Sanchez different criteria could be used to achieve this (Sanchez, 2004b). For example, it is examined if and how far a knowledge-related character of competencies (“knowledge basis”) exists. As to Sanchez competencies are based on different forms of knowlegde (Sanchez, 1997). On the basis of **Framework Component III**, consisting of essential competence-theoretical aspects it is intended to identify cause and effects of logistics problems in movie production. Therefore exist different sub-categories with analytical parts.

One of them are the “4 cornerstones” (parts: e.g. dynamic, systemic) which explains competent organisations (Sanchez, 2004a, 2004b). This competence framework consists of 43 parts. Correspondingly, the result of its application is a catalogue of competence problems. As a competence analysis should intend to go beyond a simple listing of problems it is necessary to examine their (inter-)relations. This could be done by a causal net analysis (Bronner, 1989). In consequence, this last step of the developed analysis proceeding examines causes and effects between competence problems to consider their overarching relevance also contextually.

PROBLEM IDENTIFICATION & COMPETENCE-BASED ANALYSIS OF GSSC IN MOVIE PRODUCTIONS

Aim of this paragraph is to show the results of adopting the developed controlling tool to GSSC and especially to the context of movie production logistics as a typical and exemplifying GSSC-environment.

Results of Problem Identification (Tool Function no. 1): A classification of statements (350 qty.) resulted in three problem clusters: problems of (1) supply logistics, (2) production logistics and (3) marketing logistics. Most of the statements seem to belong to the second problem cluster (143 qty.). Besides operative problems especially strategic ones which overarchingly affect movie production processes of GSSC from the perspective of its top management have been identified. These logistics problems are (a) “conflicts” and (b) “communication process interruptions”. They refer to information and knowledge flows among managers involved in GSSC-decision-making processes (Grapp and Hülsmann 2008). In general, information and knowledge is only available in a limited way for the management of GSSC processes. Conflicts result from the fact that persons have different interests (i.e. director: artistic realisation, producer: organisational aspects) and correspondingly differentiating information inventories. Through interactions such person-related deficits consequently result in conflicts. Thus, service companies (e.g. technical support) involved in GSSC have to cope with these opposing objectives. If such conflicts occur these service companies have to ask themselves about the effects on them: do conflicting interests of GSSC-Management affect their own goals and which interdependencies are there, e.g. is it still profitable to work for a movie production project that tends to focus on lowering costs and thereby limit options of efficient service production?

The mentioned communication process interruptions affect the technical process of communicating beween managers of GSSC. Such problems describe a non-materialised or disconnected flow of information. This means that the transfer of information and knowledge does not function. For service companies this could for example cause severe problems if information about the movie production process is not available in time. Thereby, they maybe cannot offer their services in the needed quality as information as a basis for their internal planning is missing. Those strategic movie production logistical problems and correspondingly a strategic perspective (e.g. director, producer of a movie project) features dominance over an operative level of consideration (e.g. crew of a movie project). After Ulrich and Fluri the decisive influence of strategic problems on the whole justifies the focus on them (Ulrich and Fluri, 1995) for a further analysis.

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Results of Problem Analysis (Tool Function no. 2): By every component of analysis diverse competence problems have been identified. Therefore, in the following just one example for each layer shall illustrate the results of the adoption of tool function no. 2. This will be shown for the above stated "conflicts" as problems for GSSC-Management in movie productions. **Localisation:** From a competence-based view "goal conflicts" between director and producer as GSSC-Managers can be assumed. They obviously are not able to balance them and finally build up a common framework for their managerial actions. This means, they have differentiating strategic logics. In consequence, it lacks a basis for decision-making in regard to the deployment of resource and competencies in GSSC-processes. Involved persons or service companies have to cope with diffuse guidelines for their own decisions. **Characterisation:** A further analysis shows that "conflicts" are caused by "competence asymmetry". Especially, in movie productions it lacks of clear competence structures. This could be the reason why each person wants to enforce his own individual competence and no common interest can be found for the realisation of GSSC-Management processes in movie productions. **Theoretical Foundation:** Another cause could be a "learning deficit", because director and producer leave the structures of an only temporal movie production project. This is why learning curve effects cannot be generated. Mostly every project consists of a completely new team that has to build routines about how to cope with conflict afflicted situations. Therefore, it is much more difficult to use and transfer information about conflict situations from one project to another.

CONTRIBUTIONS & LIMITATIONS IN ANALYSING PROBLEMS OF GSSC

On the basis of competence science theoretical considerations GSSC-Management is provided with an intelligent logistics controlling tool. One of its decisive **contributions** is that it allows a systematic identification, analysis and evaluation of management problems (see Figure 1 and 2). Thereby, the developed proceeding is comprehensible and transparent, especially from a science theoretical point of view **(systematic)**. Another contribution is the practice-related character of the tool. On the basis of statements of a certain industry, company or project in logistics it can be applied. This proceeding allows considering directly the existing, specific problems from the point of view of managers as here in GSSC **(practice-related)**. However, also **limitations** of this tool have to be considered. One decisive difficulty is its context sensitivity. The tool could be transferred to different GSSC-contexts (e.g. movie production), but always needs the expertise of an expert coming from the specific industry or someone who has deeper knowledge about its coherences. Using the described logistics controlling tool does not completely function autonomously **(context sensitive)**. A connected limitation is the huge quantity of data that has to be processed by the user of the tool. The methodology is not yet supported by a software or certain programme to process information which would accelerate the proceeding and finally getting a result **(complexity).**

REFERENCES

Backhaus K & Erichson B &; Plinke W. et al. (2006) "Multivariate Analysemethoden" – Berlin et al.: Springer Verlag, pp. 490-555.

Bouncken RB (2003) "Organisationale Metakompetenzen: Theorie, Wirkungszusammenhänge, Ausprägungsformen und Identifikation", Wiesbaden, Germany: Dt. Univ.-Verlag.

Reference: Grapp, J.; Hülsmann, M.: How to Identify and Analyse Problems in Global Service Supply Chains? – Concept of a Competence-based Tool for the Logistics Controlling in International Network Structures of the Service Sector. In: Pawar, K.S. et al. (ed.): Integrating the Global Supply Chain. Conference Proceedings of 13th International Symposium on Logistics (13th ISL), Loughborough, United Kingdom, 2008, 8 pages (forthcoming)

Bronner R (1989) "Planung und Entscheidung – Grundlagen, Methoden, Fallstudien", München et al.: R. Oldenbourg Verlag.

Bronner R & Appel W & Wiemann V (1999) "Empirische Personal- und Organisationsforschung – Grundlagen, Methoden, Übungen", München et al.: R. Oldenbourg Verlag.

Clevé B(2004) "Gib niemals auf: Filmökonomie in der Praxis", Konstanz: UVK-Verl.-Ges.

D'Aveni RA (1995) "Coping With Hypercompetition: Utilizing the New 7S's Framework", in Academy of Management Executive, Vol. 9, No. 3, pp. 45-57.

Drucker PF (1954) "The Practice of Management", New York et al.

Eckes T(1980) "Clusteranalysen", Stuttgart et al.: Verlag W. Kohlhammer.

Früh W (1992) "Analyse sprachlicher Daten – Zur konvergenten Entwicklung 'quantitativer' und 'qualitativer' Methoden", in Hoffmeyer-Zlotnik J "Analyse verbaler Daten - Über den Umgang mit qualitativen Daten", Opladen: Westdeutscher Verlag, pp. 59-89.

Gajic A(2008) "Überall ist Hollywood – Die Globalisierung der Filmproduktion", in epd Film – Das Kino-Magazin, No. 2, 2008, pp. 28-33

Gersch M & Freiling J & Goeke C (2005) "Grundlagen einer 'Competence-based Theory of the Firm' – Die Chance zur Schließung einer 'Realisierungslücke' in der Marktprozesstheorie", Arbeitsbericht Nr. 100 des Instituts für Unternehmensführung der Ruhr- Universität Bochum, Bochum.

Grapp J & Hülsmann M (2008) "Selbstorganisation in International Document Supply Networks – Von einer zentralen Planung zur dezentralen Entscheidungsfindung in dienstleistungslogistischen Prozessen am Beispiel von Filmproduktionen", in Walter S & Kaiser G "Dokumentenlogistik", Berlin et al.: Springer Verlag, to appear.

Hülsmann M & Grapp J (2006) "Service Logistics – Why Do Service Logistics Need Self-Organization? – A Competence-Based Analysis of Global Supply Chains in the Movie Production Industry", in Proceedings of the 4th International Logistics and Supply Chain Congress: Izmir, Turkey.

Hülsmann M & Grapp J (2007) "A Competence-based Analysis of Collaboration in Global Service Supply Chains – Design of a Framework for the Identification and Evaluation of Problems and Options of Logistics Management in the Service Sector", 12th ISL – Sustainable Collaborative Global Supply Chains, 08-10 July 2007, Budapest, Hungary, in Conference Proceedings, Pawar, K.S. et al. (eds.), Loughborough, UK, pp. 299-305.

Hülsmann M & Grapp J & Li Y (2008) "Strategic Adaptivity in Global Supply Chains—Competitive Advantage by Autonomous Cooperation", in International Journal of Production Economics, forthcoming.

Kromrey H (2000) "Empirische Sozialforschung – Modelle und Methoden der standardisierten Datenerhebung und Datenauswertung", Opladen: Leske + Budrich.

Sanchez R (1997) "Managing Articulated Knowledge" in Competence-based Competition – in Sanchez R & Heene A "Strategic Learning and Knowledge Management" Chichester: Wiley, 1997, pp. 163-187.

Sanchez R (2004a) "The new strategic management: organization, competition and competence", New York: Wiley.

Sanchez R. (2004b) "Understanding competence-based management: Identifying and managing five modes of competence", in Journal of Business Research, Vol. 57, pp. 518-532.

Sanchez, R., Heene, A. (1996) "A systems view of the firm in competence-based competition", in Sanchez R& Heene A & Thomas H (eds.), "Dynamics of Competence-Based Competition", Oxford, (United Kingdom): Elsevier, pp.39-42.

Siegele L (2002) "How About Now? A Survey of the Real-time Economy", The Economist, Vol. 362 (Jan 31st), pp. 18-24.

Reference: Grapp, J.; Hülsmann, M.: How to Identify and Analyse Problems in Global Service Supply Chains? – Concept of a Competence-based Tool for the Logistics Controlling in International Network Structures of the Service Sector. In: Pawar, K.S. et al. (ed.): Integrating the Global Supply Chain. Conference Proceedings of 13th International Symposium on Logistics (13th ISL), Loughborough, United Kingdom, 2008, 8 pages (forthcoming)

Tapscott D (1999) "Creating Value in the Network Economy", Boston: Harvard Business School Press.

Ulrich P & Fluri E (1995) "Management – Eine konzentrierte Einführung", Bern et al.: Verlag Paul Haupt.