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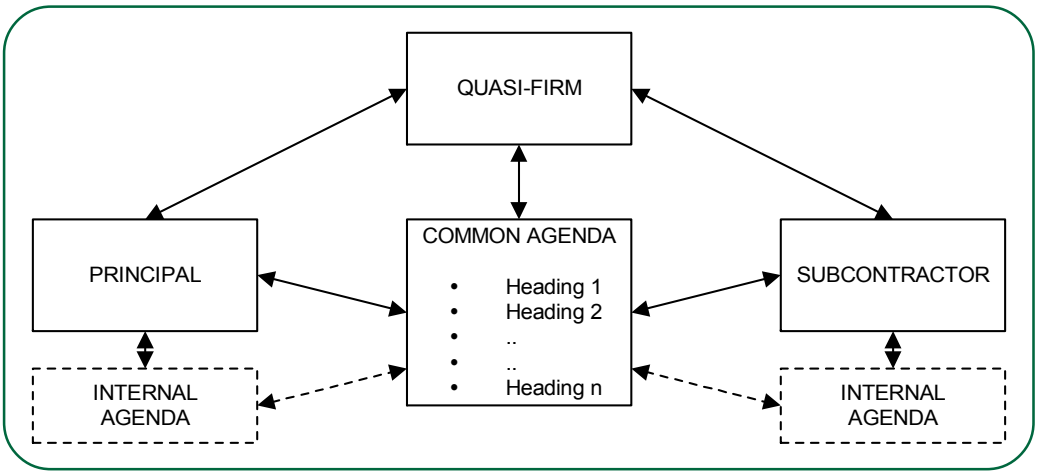

Kai Häkkinen

Managerial approach to subcontract manufacture co-operation in the metal industry

Common Agenda as a management tool between parties

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Keywords subcontract, manufacture, Common Agenda, management, metal industry

Abstract

In this study, a new concept of Common Agenda as a management tool[1] for subcontract manufacture co-operation is introduced and tested. The research problem is formulated by analyzing the theory of the firm. The research problem is the proposal of Common Agenda itself and its usability as a management tool in subcontract manufacture co-operation in the metal industry. The creation of Common Agenda and its testing are undertaken in connection with Finnish metal industry companies.

The nature of this study follows mainly a hypothetic-deductive model. On the other hand, the content of the headings of Common Agenda is created following inductive logic. The proposal of Common Agenda can be seen as a hypothesis, which was tested in the real world. The study is based on the conceptual approach and is carried out using multiple case research design.

The first part of the study is based on the related literature and it is aimed at formulating the research problem. In the second part, the study deals with different kinds of classifications of subcontracting phenomena and introduces a proposal for Common Agenda with headings. The third phase of the study concentrates on the case testing of Common Agenda with headings (content test and functionality test). In the final phase, we analyze the results of the study and make generalizations for the doctrine of business management and practice.

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[1] Arbnor and Bjerke (1997) discuss the methodology using the concepts of methods, techniques and tools. In their context, the tool refers to physical or conceptual means, like paper and pen, instruments, etc. In our study, the concept of the tool as a management tool refers to some kind of platform as a base for a management system.

The proposal for Common Agenda has the following headings, which are called: 1) subcontractor/principal selecting process, 2) concurrent engineering process, 3) quality assurance process, 4) logistics process, 5) manufacturing planning and control process, 6) financial process, 7) contract and order process, and 8) management of the processes.

The content test shows that the proposed Common Agenda with headings can act as a basis for mutual discussion in subcontract manufacture co-operation. Additionally, the functionality test shows that Common Agenda with headings can be used as a tool for a practical evaluation method in subcontract manufacture co-operation.

Considering the research problem, we can state that Common Agenda is a vital theoretical instrument to be placed in the doctrine.

Practical implications based on case testing indicate that Common Agenda seems to function as a managerial tool for co-operating companies in practice.

The analysis of quality evaluation results revealed problems in the subcontract manufacture processes in the case companies. These results are only indicative and require more detailed research in order to localize and understand the problems.

Finally, the study concentrates on the concept of truth and proposes a concept of Common Truth as a base for Common Agenda.

Häkkinen, Kai. Managerial approach to subcontract manufacture co-operation in the metal industry. Common Agenda as a management tool between parties [Johtamisnäkökulma metalliteollisuuden alihankintayhteistyössä. Common Agenda osapuolten välisenä johtamistyökaluna]. Espoo 2008. VTT Publications 676. 131 s. + liitt. 14 s.

Avainsanat subcontract, manufacture, Common Agenda, management, metal industry

Tiivistelmä

Tämän tutkimuksen kohteena on alihankintayhteistyön johtamisproblematiikka. Alihankintayhteistyössä on kaksi osapuolta, joilla kummallakin on omat itsekkäät tavoitteet – kumpikin pyrkii tekemään hyvää tulosta ja minimoimaan riskejä. Tutkimuksessa pyritään osoittamaan, että alihankintayhteistyö edellyttää jatkuvaa yhteistyötä, jota on tavalla tai toisella johdettava yhteisesti sovitulla tavalla.

Tutkimuksessa luodaan uusi käsite ”Common Agenda” alihankintayhteistyön johtamistyökaluksi. Taustateoriana tutkimuksessa on transaktiokustannusteoria, johon esitetty Common Agenda -käsite kiinnitetään. Tutkimusongelmana on käsite Common Agenda sinänsä sekä sen käytettävyys metalliteollisuuden alihankintayhteistyön johtamisen työkaluna. Common Agendan luominen ja testaus tehdään kiinteässä yhteistyössä suomalaisten metalliteollisuusyritysten kanssa.

Tutkimus on luonteeltaan hypoteettis-deduktiivinen, jossa ehdotettu Common Agenda -käsite on teoreettinen entiteetti ja jonka toimivuus testataan käytännössä. Toisaalta Common Agendan sisällön luominen tapahtuu induktiivista logiikkaa noudattaen. Tutkimus noudattaa kvalitatiivisen embedded multiple case -tutkimuksen rakennetta.

Tutkimuksen alussa on teoriaosa, jossa Common Agenda -käsitteelle haetaan perustelut ja muotoillaan tutkimusongelma. Seuraavassa osassa tutkimus käsittelee tieteellisiä tutkimuksia, joissa on erilaisia alihankintailmiön luokitteluita. Näihin perustuen tutkimuksessa esitetään sisältöotsikot Common Agendalle. Kolmannessa vaiheessa Common Agenda testataan todellisessa yritysympäristössä. Testaus jakautuu kahteen osaan: 1) sisältötestiin, jossa jokaiselle Common Agendan otsikolle luodaan käytännöllinen sisältö ja 2) toiminnallisuustestiin,

jossa testataan alihankintayhteistyön laatua erilaisissa alihankintayhteistyötapauksissa. Tutkimuksen viimeisenä vaiheena on tulosten analysointi ja niiden yleistys.

Common Agendan sisältöotsikoiksi ehdotetaan: 1) alihankkijan/päämiehen valintaprosessi, 2) valmistuksen ja suunnittelun yhteistyöprosessi, 3) laadunvarmistusprosessi, 4) logistinen prosessi, 5) valmistuksensuunnittelu ja ohjausprosessi, 6) talousprosessi, 7) sopimus- ja tilausprosessi ja 8) yhteistyön johtamisprosessi.

Sisältötesti osoitti, että ehdotettu käsite Common Agenda sisältöotsikoineen voi toimia osapuolten yhteisen keskustelun pohjana valmistusalihankintayhteistyössä. Lisäksi toiminnallisuustesti osoitti, että Common Agenda sisältöotsikoineen voi toimia käytännöllisenä alihankintayhteistyön arviointityökaluna.

Tutkimus osoitti, että Common Agenda -käsite teoreettisena entiteettinä on järkevä. Lisäksi tutkimus osoitti, että Common Agenda näyttäisi toimivan yhteistyötä tekevien yritysten välisenä johtamistyökaluna.

Toiminnallisuustestin tulokset antoivat viitteitä, että testattujen alihankintayhteistyötapausten laadussa on merkittäviä ongelmia. Tulokset ovat kuitenkin alustavia, ja tarvitaan lisää tutkimusta ongelmien paikallistamiseksi ja ymmärtämiseksi.

Tutkimuksen lopuksi käsitellään totuus-käsitettä ja ehdotetaan uutta Common Truth -käsitettä Common Agendan perustaksi.

Preface

Outsourcing and subcontracting are two popular issues in Finland today. The author (born 1953) has more than 20 years working experience in the metal industry. During his research career since 1998 he has planned and conducted several research studies concerning the subcontract manufacture[2] processes in the metal industry. A lot of prevailing practices have been documented during these research projects. The usability of Internet techniques in subcontract manufacture processes was studied in the INTERALI-project (Häkkinen et al. 1999). An Internet-based manufacturing planning and control system for subcontract manufacture process was constructed and case-tested in the PARTNET-project (Häkkinen et al. 2001). In my licentiate thesis (Häkkinen 2000), the information transfer methods were in focus, especially Internet-based methods, in the subcontract manufacture process. The KONEALI-project (Häkkinen et al. 2002, Häkkinen 2002) focused on the problem of setup-time and its influence on the stocks in the subcontract manufacture process. Additionally, a cost calculation model for the subcontract manufacture process was developed and the co-operation between the product design and manufacturing was analyzed. In the ALILOGI-project (Häkkinen et al. 2004), the possibilities to exploit an external logistics service company in the subcontract manufacture process was analyzed. Furthermore, the cost-calculation model was developed and production-planning-related issues were analyzed.

One of the found problems when carrying out all of the research projects described above was in the discussions with the companies, which were more or less problematic because of the numerous issues to be handled. The companies highlighted different issues, and therefore it was difficult to create a common list of issues to be handled in every company. There were no handbooks available in the book stores and libraries which dealt with the practical subcontract-related questions. Owing to this lack, every company needed to create its own list of

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[2] Subcontract manufacture is the process by which a subcontractor (i.e. an organization with business objectives, which are independent of those of the principal), performs all or part of the manufacture of the principal's product, to a customized specification (of varying detail) provided by the principal. Activities, which support this manufacture (e.g. materials, procurement, production planning, etc.) can be carried out by either party, subject to prior agreement (Webster et al. 1997).

issues for themselves and their parties. Typically, the principals make these lists and the subcontractors may some times contribute to them.

During these research studies, my understanding of the subcontract manufacture process in the metal industry increased remarkably. It was realized that, due to the complexity and diversity of the subcontract co-operation, the standard types of co-operation models were lacking. This understanding was the primary starting point for the research work described here.

At the same time, I was studying the theories of the firm. When I read the article written by Eccles (1981) and found his introduction of the idea of Quasifirm, I got fuel for my engine. Writing about Quasifirm, Eccles stated that: "Williamson's transaction cost approach makes it possible to examine both intrafirm and interfirm organizations with some common concepts". Common concepts – what does that mean? He did not explain this in his article, but I made my own interpretation (right or wrong). I understood that he might have meant the common list of issues to be handled in the company co-operation in the construction industry. The theoretical basis for my research work was laid. What is missing in the subcontract manufacture co-operation in the metal industry? My conclusion was that the missing link is a standard-type common issue list for subcontract manufacture parties in the metal industry. That list is defined as "Common Agenda".

The above story is a brief outline of the basis for the research study described here. Is there a possibility to create Common Agenda to handle various important issues arising in the subcontract manufacture co-operation in the metal industry? And can we find a place for it in theory?

Scientific research can be theory or data-driven. My favourite book is "Scientific Discovery" written by Langley et al. (1992). They say that, in the philosophy of science, all the emphasis is on verification, on how we can tell the true gold of scientific law from the fool's gold of untested fantasy. They continue: "It is often said, that a problem that is well represented is nearly solved, and, hence, that creativity lies in finding good representations of problems rather than in solving them".

This study follows that idea by beginning with the formulation of the research problem.

Several persons have read and commented on the drafts of this thesis. I would like to thank Professor Kalevi Aaltonen who has supervised my work. I also want to thank Professor Esko Niemi who has reviewed the manuscript, and Dr. Raimo Hyötyläinen, Dr. Heli Talja and Prof. Timo Sneck, my colleagues at VTT, who have helped me during the whole research process by giving good advice and hints.

Vantaa,

Kai Häkkinen

Contents

1. Introduction

The focus of this study is on the phenomenon of the subcontract manufacture. In practice, different kinds of industrial companies outsource their manufacturing processes. It is widely acknowledged that there are many kinds of problems surrounding the outsourcing phenomenon in practice. One of the possible problems may be found in the managerial dimension of the co-operation in the subcontract manufacture process.

The managerial approach to subcontract manufacture co-operation in the metal industry is the heading of this study, which highlights the problem of the managerial dimension of this co-operation.

We can get support for this study from other researchers and experts on the field. During the last decade, many of them have focused their attention on the subcontract manufacture phenomenon.

Many world-famous researchers have aimed to create visions of the operation models for the future. For example, Womack et al. (1996) define the vision of the future organizational model of manufacturing, the lean enterprise, as a group of individuals, functions, and legally separate but operationally synchronized companies.

Harland et al. (1999) have also argued that contemporary and future organizational forms for manufacture are increasingly seen to involve vertical disintegration and thus the distribution of the manufacturing activity to independent enterprises.

Webster et al. (1997) argue, however, that studying the literature on outsourcing and related issues has revealed a dearth of work in this area in the manufacturing sector. Consequently, they say that definitions of subcontracting are scarce.

Additionally Hughes et al. (1998) researched the subcontract PCB industry in the UK. They say that the UK electronics manufacturing industry is difficult to describe. The conclusion of the research study was that the UK industry is too fragmented to cope with the twin threats of skill development and capital investment, which are consequences of the rapid pace of new technology development.

Further, Webster et al. (2000) investigated the use of subcontract manufacture by SMEs in the UK electronics assembly industry, where the conclusion was that the majority of enterprises within the sector use subcontract manufacture and that multi-sourcing of such work is common. Additionally, the planning and control of subcontract manufacture are not generally handled systematically. Consequently, they argue that current commercial software systems for subcontract manufacture are underdeveloped.

Moreover, Lehtinen (2001, p. 14) argues that, even though the new manufacturing paradigm, which emphasises outsourcing, co-operation and agility, is much discussed on a general level, very little empirical research has been conducted on these issues. Subcontracting is still quite often considered a form of exploiting small firms rather than a modern way of organizing manufacturing. Furthermore, the special character of subcontractors as manufacturing service providers is seldom highlighted.

Vollman et al. (2005, pp. 665–669) highlight the problematic nature of subcontract manufacture management in the dyad-by-dyad approach. They focus on what they see as the next major area for definitively different MPC[3] development on a dyad-by-dyad approach. The dyad-by-dyad approach means that pairs of organizations jointly develop the new processes and MPC systems that allow them to ever more effectively integrate their detailed operations. They see that state-of-the art improvements in supply chains are achieved by working in dyads – pairs of companies that commit to joint new ways of working, new processes, and new MPC systems. They continue by saying that there are people today, who see supply chain management as an extension of ERP[4], achieved by connecting ERP systems between companies. This is not going to be sufficient. The frontier is to integrate between firms. This requires new thinking – and new transformation (work, processes, and MPC systems). Suboptimal working such as ordering, extensive transaction processing, duplicate inventories, and multiple quality checks are being eliminated. In dyads, new processes are being established, and new information systems support these processes. But there are not yet standard processes and systems available for all to implement. We are still in the early stages, not in the standard software implementation phase.

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[3] MPC = Manufacturing Planning and Control

[4] ERP = Enterprise Resource Planning

The viewpoints above are in line with each other. We see that there is an obvious place for further research in the field of subcontract manufacture management.

Research in the field of different kinds of enterprise networks has been popular during the last decade. In Finland, we have seen the practical development of principal-driven subcontractor networks. The result has often been a dedicated operation model for one principal with his subcontractors. Because most of the subcontractors have many principals, they have participated in many principals' development projects, thus implementing many operation models in their own operation. Commonly, these models cannot be generalized. For this reason, there is a need for more generic operation models to increase the competitiveness of subcontract manufacture companies.

In this study, the development of the generic operation models is based on new theoretical entities with dependencies on the earlier research.

In the next section, we concentrate on the management problem in subcontract manufacture.

1.1 The management problem in subcontract manufacture

The problem of the management in subcontract manufacture co-operation has been recognized in industry. In this section, we present Lockheed Martin's approach to this problem.

Lockheed Martin's Vice President, John N. Hatch, made an interesting presentation in the Veterans' Business Conference on December 7, 2006 (Hatch 2006)[5]. He writes that suppliers bring innovation, speed and agility to the table and that the strong supply chain is critical to success. He further argues that supplier performance is Lockheed Martin (LM) performance. The second interesting view point in the presentation is the managerial approach. He says

[5] Presentation is available on the web-site: http://www.acq.osd.mil/osbp/programs/veterans/index.htm.

that LM's role is a systems integrator which increases the subcontractor's role and criticality. According to his text, this means more responsibility for the subcontractors' technical development and collaboration with LM in early involvement, risk management, EVM[6] and schedule, predictive risk and performance modelling and transacting electronically. Hatch says that "We manage our subcontractors as an extension of our business". Finally he presents this message to the subcontractor candidates saying that "Do Your Homework / Differentiate". He presented the following list of instructions to their subcontractor candidates:

- Research our website. Use industry knowledge.
- Determine our needs and offer solutions.
- Don't expect LM to determine where you fit – tell us how your product can help.
- Mind your business ethics.
- Understand International and US contracting requirements.
- Become a CTPAT[7] supplier.

In this story, there are three important issues:

1. Suppliers are important members of the LM production system.
2. LM manages their subcontractors as an extension of their business.
3. LM sets clear unidirectional requirements for their subcontractors.

Now we can discuss briefly the management issue. Why do only few principals discuss this issue in the subcontract manufacture environment?

Business management is related to people. According to Daft (2005), there are four primary functions of management: 1) planning, 2) organizing, 3) leading,

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[6] EVM = Earned Value Management. See the web-site: http://evm.nasa.gov/definition1a.html.

[7] CTPAT = Customs-Trade Partnership Against Terrorism. See the web-site: http://www.geosbush.com/ctpat.htm.

and 4) controlling. Controlling means the activity where a manager receives feedback on a process in order to make necessary adjustments to the next plan. These adjustments are typically carried out by the organization. This is typically handled in meetings where the feedback information and adjustment possibilities are discussed with the organization. During the meeting different kinds of tasks and responsibilities are agreed with the participants and usually documented in the minutes. After the meeting everybody should have the same information and have a clear task to carry out.

Inside a company which designs, markets and manufactures products for the market, there are typically many kinds of meeting routines. These meeting routines are a part of a company's communication system.

The manufacturing department usually has regular meetings with the sales organization. That routine is needed, because the market demand fluctuates continually and it is important for salesmen to know the factory's delivery capability to adjust the delivery times offered to customers. On the other hand, the factory needs to know the demand to adjust the manufacturing capacity.

The manufacturing department often has further meeting routines with product development and product planning functions. These meetings are needed to handle new product plans in order to provide good products for the market. Meetings with the product planning function are also needed to utilize new technologies and new manufacturing methods to maintain a competitive product and manufacturing process.

Further meetings with the financial department are needed. The factory needs funding for inventories, investments, and working capital, etc. Because the money is a limited resource, there must be a budget for the manufacturing plant to be negotiated with the finance department and top management.

Many other factory-related meeting routines can be found, but these examples above are enough for the following discussion.

Let's now consider the situation where the above described company outsources its manufacturing operation to subcontractors. Can we think that after this extraction there is no more need for regular handling of these issues in common meetings?

At this phase we can return to LM's management idea: "We manage our subcontractors as an extension of our business". This comment shows LM's way of thinking about the co-operation. Furthermore the comment shows that LM has recognized the importance of the management activities of the mutual issues.

We can ask whether LM's idea of managing their subcontractors as an extension of their business is the right way to operate in buyer-supplier co-operation. Caniels and Gelderman (2007) have concentrated on the power and interdependence concepts in buyer-supplier relationships. They observed supplier dominance in the strategic quadrant of the Kraljic (1983) matrix[8]. According to them, the observation indicates that even satisfactory partnerships are dominated by the supplier. They argue that the power symmetry of buyer-supplier relationships in the strategic quadrant seems no longer valid.

The findings of Caniels et al. (2007) may mean that there are co-operation cases where LM's idea does not function. If the supplier's power is higher than buyer's or there is power symmetry, we may think that a more symmetric way to manage mutually the co-operation needs to be found.

In practice, the basic question is whether there are issues to be handled and managed mutually and what kind of issues these are. The mutually agreed management procedure could be a regular meeting process where both parties are allowed to present new development ideas, day-to-day and other problems, etc., which would form the meeting agenda to be handled mutually. The result of this kind meeting could be minutes with tasks for both parties. The same meeting could control the tasks decided in the previous meeting.

A sensible conclusion is that there indeed is a place for this kind of regular meeting procedure between subcontracting parties. On the other hand, it is clear that the management procedure is strongly dependent on the characteristics of the subcontracted product. It is also quite clear that simple and repetitive operations do not need much management effort.

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[8] Kraljic (1983) classified supply strategy to four categories according to the product features, which are: 1) non-critical items, 2) leverage items, 3) bottleneck items, and 4) strategic items.

In this thesis, the concept of Common Agenda is proposed as a management tool for subcontract manufacture co-operation in the metal industry. Common Agenda is aimed as an extension to the static contract defining the pricing, items, delivery times, etc. In the manufacturing subcontract relation, it is aimed as a dynamic management tool to manage several daily issues that have to the mutually agreed upon on a continuous basis.

The aim of this practical introduction was to build a practical base for this study. The managerial approach to the subcontract manufacture needs more attention, especially today, when the metal industry in Finland and in Europe is growing all the time and outsourcing of the manufacturing is increasing continually.

It is widely acknowledged that development of management practices also needs a theoretical base. We need a systematic approach to the management phenomenon. Firstly, we must understand that there is a need for a mutually agreed management procedure. Secondly, we must understand that there is a need for a mutually agreed Common Agenda for the management procedure. Thirdly, we need to understand that there is a need for content for that agenda. The content of the agenda cannot be thought of as a standard one, but a list of actual issues to be handled mutually. Additionally, the items as such are expected to be rather similar but their exact meanings vary strongly from case to case.

In this study, the concept of Common Agenda is theoretically grounded on the ideas of Quasifirm presented by Eccles (1981) and on the transaction cost theory by Coase (1937) and Williamson (1975, 1985). According to Coase (1937), outsourcing is one means to adjust the boundaries of the firm[9]. Williamson (1975, 1985) continued the study of the boundaries of the firm and introduced the theory of transaction-cost economics (TCE). We concentrate on these theories more closely in the Chapter 2.

[9] The firm means a business organization (Langlois and Robertson 1995, p. 1).

1.2 Research problem and the goal of the study

The research problem is related to the idea of Common Agenda in the subcontract manufacture industry in the Finnish metal industry.

The research problem is the proposal of Common Agenda itself and its usability as a management tool in subcontract manufacture co-operation in the Finnish metal industry.

The research problem can be divided to two parts:

1. Whether Common Agenda as such is a vital theoretical instrument to be placed in the doctrine in question.
2. Whether Common Agenda as such can be found in subcontract manufacture co-operation and what the usability of that Common Agenda is.

The goal of the study is to develop and test Common Agenda with headings in subcontract manufacture co-operation in the Finnish metal industry. The test will be made in a practical company environment.

We concentrate only on the management-related issues in the business-to-business environment.

The research questions of the study are:

1. What are the headings of Common Agenda?
2. What is the content of each proposed heading in Common Agenda?
3. What is the functionality of Common Agenda?

The goal of the first question is to operationalize the concept of Common Agenda in the context of this study. This operationalization is based on the previous research. The goal of the second question is to test that operationalization in practical subcontract co-operation. This test is based on empirical data gathered from companies. The goal of the third question is to test Common Agenda as a management tool in practical co-operation between parties. This third question can be seen as the most important for this study.

1.3 Framework of the study

It is evident that the content of Common Agenda needs to meet managerial requirements. Reid and Sanders (2005), for example, state that every business is managed through three major functions: finance, marketing, and operations management. All of them can be managed on the strategic, tactical and operational levels.

The first assumption in this study is that subcontract manufacture co-operation in the metal industry always requires co-operation activities, which have to be managed continually. On the other hand, the co-operative organizations are independent companies with their own goals. Both can choose their partners freely. Therefore, we can think that there is a quasifirm (Eccles 1981) managing the co-operation where Common Agenda can act as a management tool. A quasifirm can be organized by using the personnel of both companies.

The meaning of Common Agenda is to act as a tool to manage co-operative issues. Furthermore, we can think that both companies have their own internal agenda to manage their internal operation. We presume that these internal agendas also involve issues concerning the co-operation activities. These issues affect the content of Common Agenda. Consequently, we suppose that Common Agenda is not a standard one, but needs to be negotiated and accepted by both parties.

The framework of the study is shown in Figure 1.

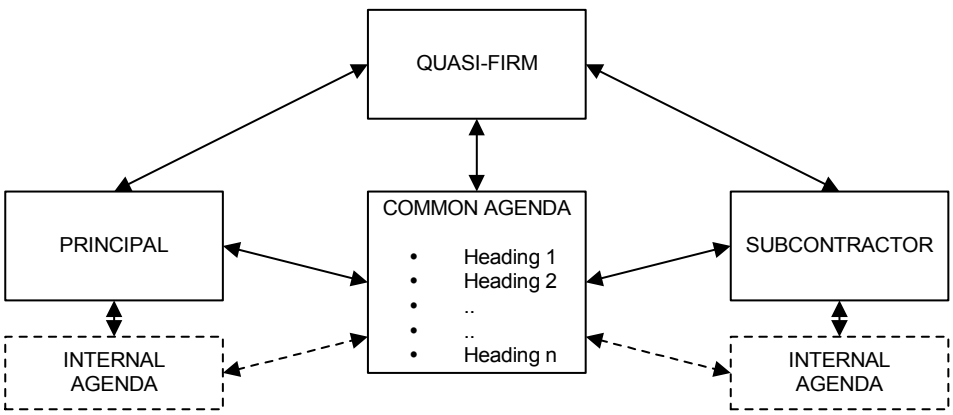

Figure 1. The framework of the study.

Common Agenda highlights the dynamic process viewpoint of the management in the subcontract co-operation.

1.4 Research approach and method

Common Agenda is a proposal for a new kind of management tool, which therefore means that this proposal can be seen as a hypothesis. It is an assumption until it has been tested in the real world.

The nature of this study follows mainly a hypothetic-deductive model[10]. On the other hand, the content of the headings of Common Agenda are created following inductive logic[11].

In order to assure the quality of the research design, we follow Yin's (2003) proposal of four tests: 1) The construct validity, 2) the internal validity, 3) the external validity, and 4) the reliability. We also take into account the validity at the individual level when deciding whether to use group interviews or individual interviews (Sykes 1990, 1991). Additionally, we use the method of non-forcing interviews with strategically well-chosen informants (validity viewpoint) and describe the whole research process thoroughly (reliability viewpoint) (Stenbacka 2001).

In this study we utilize two methodological discussions. The first is called "Methodology for Creating Business Knowledge", introduced by Arbnor and Bjerke (1997). The second one is the Finnish methodological discussion in accounting, presented by Kasanen et al. (1993). The latter one is widely applied in industrial economics related research in Finland.

Methodology for Creating Business Knowledge

According to Arbnor and Bjerke (1997), the methods used in a research study are the "guiding principles for research", and the methodological approach is a

[10] See http://en.wikipedia.org/wiki/Hypothetico-deductive_method.

[11] See http://en.wikipedia.org/wiki/Inductive_reasoning.

set of ultimate ideas about the constitution of reality, the structure of science, and so on. They identify three different methodological approaches: the analytic, the system and the actor approach.

The analytic approach (Arbnor and Bjerke 1997) is the oldest of the three. It is common in business theory research and consulting today. The analytic approach has its origins in classic analytical philosophy and therefore has a deeply rooted tradition in western thinking. Its assumption about the quality of reality is that reality has a summative character, that is, the whole is the sum of its parts. This means that once a researcher, consultant or investigator gets to know the different parts of the whole, the parts can be added together to get the total picture.

The systems approach (Arbnor and Bjerke 1997) came into business theory in the 1950s. The authors argue that it is no exaggeration to say that systems thinking is the dominant point of view in both business practice and business theory today. It is very common in business practice to attempt a rather holistic approach to problems. The assumption behind the systems approach is that reality is arranged in such a way that the whole differs from the sum of its parts. This means that not only the parts, but also their relations are essential, as the latter will lead to plus or minus effects (synergy). Knowledge developed through the systems approach depends on the systems. The behaviour of individuals, as parts of a system, follows systems principles; that is, individuals are explained (sometimes understood) in terms of systems characteristics.

The actors approach (Arbnor and Bjerke 1997) appeared at the end of the 1960s. According to the actors approach the whole is understood by the characteristics of its parts. The actors approach is not interested in explanations; rather, it is interested in understanding social wholes. The actors approach is directed at reproducing the meaning(s) that various actors associate with their acts and the surrounding context. Reality is therefore taken as a social construction that is intentionally created by processes at different levels of meaning structures.

According to Arbnor and Bjerke (1997), the systems approach related study can be historical study or case study.

Because our research problem is co-operation related, there is a management concept present. The management concept means relationships between business organizations in the continually changing business environment. Our idea is based on the assumption that subcontract manufacture co-operation needs dynamic management. Therefore, these two companies constitute a common system where their relations are essential. *So we can position our study on the systems approach as a case study.*

The Finnish methodological discussion

The Finnish methodological discussion consists of five approaches; the nomothetical, the decision-oriented, action-oriented, the conceptual and the constructive (Kasanen et al. 1993).

1) The **nomothetical** approach is closely linked to the tradition of analytical philosophy. The underlying explanation model is causal, and attempts are made to state the findings in the form of general laws. The interest of knowledge is usually theoretical – the aim is to improve our factual picture of the world.
2) The **decision-oriented** approach is usually grounded on the same assumptions as the nomothetical approach. There is, however, a difference in the purpose of the research, which in this case is usually technical – the results are normative and intended to help management in running the firm.
3) The **action-oriented** approach provides a rather distinct alternative to the nomothetical approach. The interest in knowledge is rather similar, but there are considerable differences in the scientific-philosophical background: in the action-oriented approach the explanation model is teleological, and the historical background of the phenomena studied is examined critically. The emphasis may be on understanding, planning, realizing or evaluating organizational change processes.
4) The **conceptual** approach can be understood as a separate methodological approach. In this sense, it is distinguished by the "method of reasoning" and by its aim of creating logically consistent concept systems through analysis and synthesis. On the other hand, the conceptual research can be regarded as contributing to the three previous approaches; its task then is to build hypotheses or conceptual frameworks for the bases of the empirical elements of the studies.

5) The **constructive approach** is a research procedure for producing constructions. In management accounting this research approach is intended to produce managerial constructions. Constructions refer, in general terms, to entities that produce solutions to explicit problems. An important characteristic of constructions is that their usability can be demonstrated through implementation of the solutions.

These five different research approaches are illustrated in Figure 2.

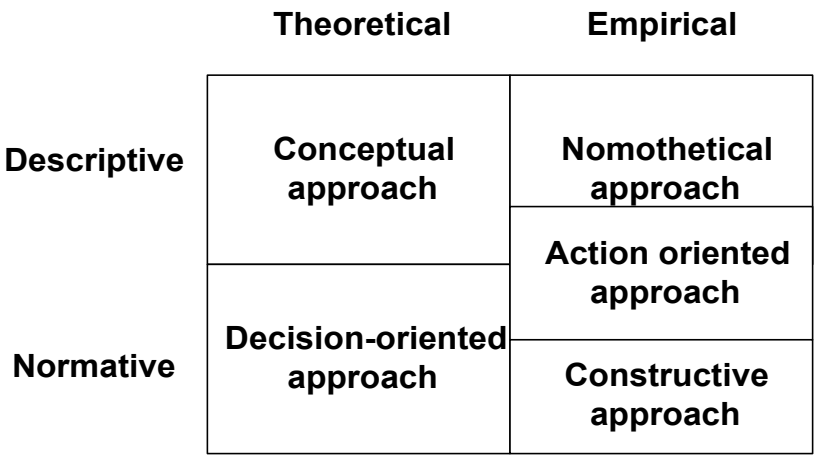

Figure 2. The different research approaches used in business and management sciences (Kasanen et al. 1993).

In this study, a concept of Common Agenda is introduced. That concept is a new one in theoretical discussion. In this study, we show that there is a gap in the theory which can be filled by the concept of Common Agenda. *Therefore we can position our study on the conceptual approach in the Finnish methodological discussion.*

We can see relations to the constructive approach too. Common Agenda can be seen as a "construction", which can produce solutions to explicit problems. But we do not pilot-test Common Agenda in the every day management reality. We see that the first goal of the study is to bring the new concept of Common Agenda to the theoretical and practical discussion. That is the rationale behind why we do not carry out the pilot-test according to the principles of the constructive approach.

Conceptual approach

The conceptual approach is one of the five approaches in the Finnish methodological discussion.

According to Olkkonen (1993), the aim of the conceptual approach is to develop concept systems. New concept systems are needed in order to illustrate or recognize new phenomena, organizing data, as a base for design systems, etc. The concept system can be a totally new one or a more developed version of existing concept system. Furthermore, Lukka (1986) states that the starting point in the conceptual approach is usually based on existing doctrine (the hypotheses, models and theories). Using analysis and synthesis, the target is to create new concept systems and frameworks with logical consistency.

Olkkonen (1993, p. 66, 94) argues that hypotheses are not necessary when using the conceptual approach, and says that, in fact, the newly created concept system can be seen as a hypothesis until it has been tested and accepted in practice.

Näsi (1980, p. 10) argues that the conceptual approach is on the one hand closely attached to real business life with its functions, structures, languages and problems. On the other hand, it is closely linked to the doctrine. Usually it is allowed to use creativity based on the insight of the researcher.

Näsi (1980, pp. 17–20) divides the conceptual approach in to two parts: 1) the meta-level and 2) the basic level. The meta-level comprises the questions about the meaning, essence, existence and formation of the new concept system. The basic-level starts from the real problem in business life and analyses it using an existing concept system as a basis for a new suitable concept system. The conceptual approach in business and management science is most suitable for basic-level research.

The research method

The study is based on the conceptual approach and is carried out by using multiple case research design (Yin 2003).

According Yin (2003, pp. 39), there are four types of case research design: 1) single-case (holistic), 2) single-case (embedded), 3) multiple-case (holistic), and 4) multiple-case (embedded).

Yin (2003, pp. 39–42) continues by saying that a primary distinction in designing case studies is between single- and multiple-case designs. The single-case study is an appropriate design under several circumstances, and five rationales are given below. The single-case study is analogous to a single experiment. One rationale for a single case is when it represents the critical case in testing a well-formulated theory. A second rationale for a single-case is when the case represents an extreme case or a unique case. A third rationale for a single case is the representative or typical case. A fourth rationale for a single-case is the revelatory case. This situation exists when an investigator has an opportunity to observe and analyze a phenomenon previously inaccessible to scientific investigation. A fifth rationale for a single-case study is the longitudinal case: studying the same single-case at two or more different points in time.

Holistic versus embedded case studies (Yin 2003, pp. 42–45). The same case study may involve more than one unit of analysis. This occurs when, within a single case, attention is also given to a subunit or subunits. For instance, a case study might be about a single organization, such as a hospital, and the analysis might include outcomes about the clinical services and staff employed by the hospital. In evaluation study, the single case might be a public program that involves large numbers of funded projects – which would then be the embedded units. No matter how these units are selected, the resulting design would be called an embedded case study. In contrast, if the case study examined only the global nature of an organization or of a program, a holistic design would have been used.

Single versus multiple case studies (Yin 2003, pp. 46–52). The same study may contain more than a single case. When this occurs, the study has used a multiple-case design. The decision to undertake multiple-case studies cannot be taken lightly. A major insight is to consider multiple cases as one would consider multiple experiments – that is, to follow "a replication" logic. This replication logic, whether applied to experiments or to case studies, must be distinguished from the sampling logic commonly used in surveys. The initial step in designing

the multiple-case study must consist of theory development and then show that case selection and the definition of specific measures are important steps in the design and data collection process.

In multiple-case studies, each individual case may be holistic or embedded. The difference between these two variants depends on the type of phenomenon being studied and the research question. When an embedded design is used, each individual case study may in fact include the collection and analysis of highly quantitative data, including the use of surveys within each case (Yin 2003, pp. 52–53).

In this study, we use the multiple-case approach with embedded design. The multiple-case approach is sensible because we do not have: 1) a well-formulated theory, 2) an extreme or unique case, 3) a representative or typical case, 4) a revelatory case, or 5) a longitudinal case.

In this study we follow Yin's (2003, pp. 21) logic of the research design. For the case studies, five components of a research design are especially important:

1. a study's question (Is there place for Common Agenda in the doctrine and in practice?)
2. its propositions, if any (There is a place for Common Agenda)
3. its unit(s) of analysis (Co-operation processes as embedded units of Common Agenda)
4. the logic linking the data to the propositions (Development of a valid assessment form for the interview sessions) and
5. the criteria for interpreting the findings (Handling the interview results from multiple cases in order to judge the confirmation level for Common Agenda).

Embedded design is chosen because of the nature of the study. We have proposed a new concept of Common Agenda, which is difficult to test as such. We need to propose content for Common Agenda and test that content in order to see whether Common Agenda is valid or not. The content of Common Agenda can be seen as units of analysis.

1.5 Logical structure of the study

In this section, the aim is to illustrate the logical structure of the study (Figure 3). The starting point of the study is the author's own cumulative experience from industry and the research world. The concept of quasifirm is the basis for the creation of the idea of Common Agenda. The theory of contractual relations is a gate to connect the concept of quasifirm and the idea of Common Agenda together to define the Common Agenda related literature. On a parallel line, Common Agenda is connected to the transaction cost theory to achieve a scientific justification for Common Agenda. A proposal for Common Agenda is based on both of these lines. Two case tests (content test and functionality test) were made with companies to see whether Common Agenda is a valid managerial tool in practice. Finally, the theoretical and practical implications are discussed.

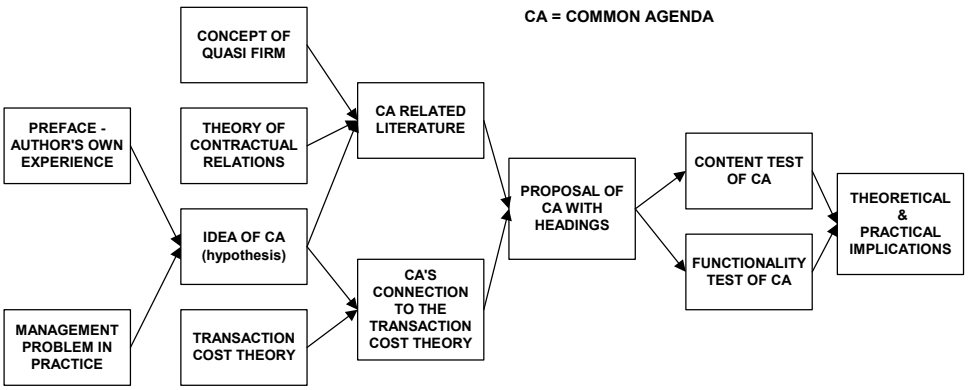

Figure 3. Logical structure of the study.

1.6 The structure of the study

The research process and data collection were carried out as a part of the LAATUALI-project during the years 2003–2004. One of the reports is "The co-operation in subcontract manufacture process in the Finnish metal industry and its quality" (Häkkinen 2004). All of the case-companies were Finnish ones operating in the metal industry. There were four principals and nine subcontractors participating in the research project.

The first part of this study is based on research problem related theories in order to create a theoretical base for the study. The idea of Common Agenda is determined and argued.

The second part of the study is based on the Common Agenda related literature and concentrates on different kinds of classifications related to the subcontracting phenomena. A proposal for Common Agenda with headings is introduced.

The third phase of the study concentrates on the case testing of Common Agenda with headings. The case testing is based on the company material. The proposal of Common Agenda with headings is introduced to the interviewees in the companies. They are asked to comment on the headings and explain the details concerning their company's co-operation with their partners. The aim of this phase is to clarify whether the headings in question are valid and sensible and whether they cover all the important issues encountered in practice. Furthermore, the content of each heading is improved accordingly.

The case-testing phase was continued by asking the companies to rank the quality of a co-operation in every heading. The aim of this phase is to test the functionality of the new Common Agenda with headings in practice. By testing the quality of co-operation, the interviewees needed to concentrate on the heading in question. They were asked to evaluate the quality of the co-operation in every heading using the scores 4–10.

The final phase of the study concentrated on the analysis of the results and on the generalization the doctrine.

The research process is illustrated in Figure 4.

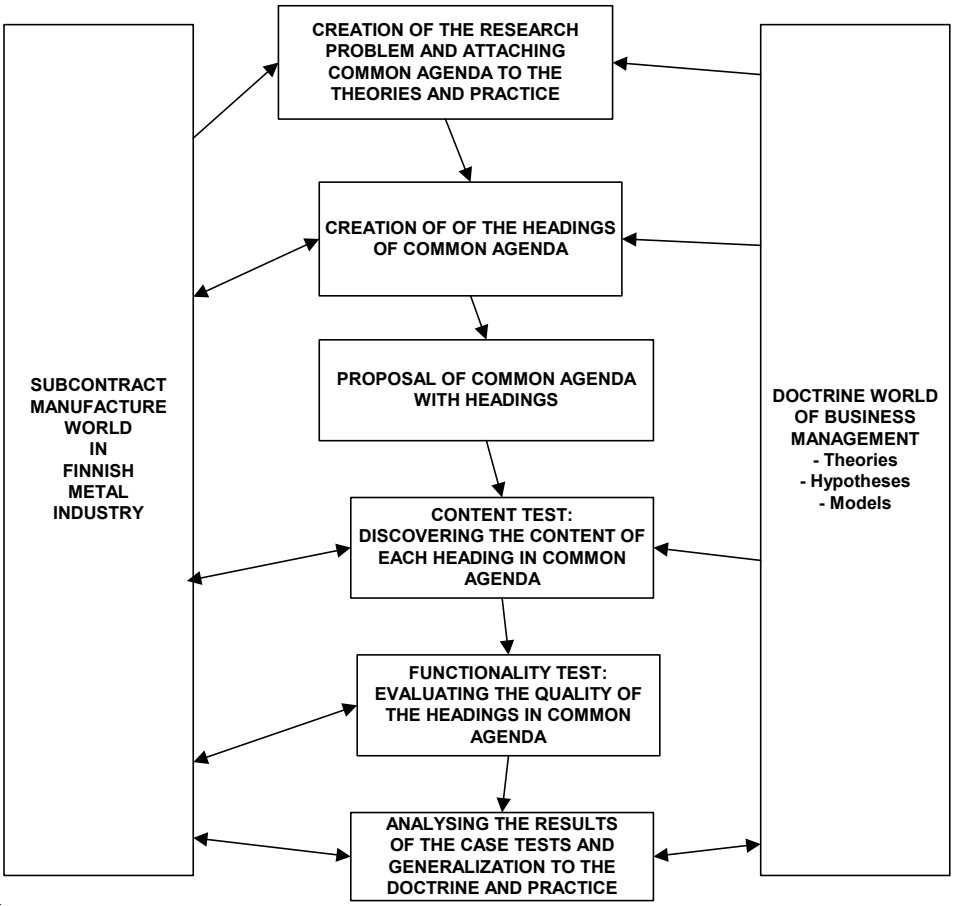

Figure 4. The research process.

2. Theoretical presentation of subcontracting

In this chapter, our aim is to position the new concept of Common Agenda under two discussions. Firstly we discuss the basic concepts of interfirm relation management. The transaction cost analysis (TCA) will be argued to be a sensible theory base for this study. We try to show that the proposal of Common Agenda as a theoretical instrument can be understood as a new link to connect TCA to the theoretical discussion of subcontracting phenomenon.

Secondly, we concentrate on the scientific discussion of the Common Agenda related literature. Our aim is to examine the buyer-supplier relations keeping in mind the idea of Common Agenda. The focus is on such literature that may influence the creation process of the headings in Common Agenda. The literature is close to subcontract practice. We try to show that the proposal of Common Agenda can be operationalized to be used in subcontract manufacture co-operation.

With this discussion, our aim is to describe related work and define a gap to be filled by the current research.

2.1 Basic concepts of interfirm relation management

In this chapter we discuss different governance structure related theories explaining the interfirm relationship. After that, we develop a theory-based construction including the concept of Common Agenda.

2.1.1 Theories explaining interfirm relationships

McCarthy and Colicic (2005) have presented theories explaining interfirm relationships. The following presentation is based on their article.

The literature on formation of interfirm relationships presents both economic and behavioural theories. Three theories that are suggested to explain decisions related to the formation of governance structures are: 1) Transaction cost

analysis (economic based), 2) relational exchange theory (behavioural based), and 3) resource dependence theory/resource based view (behavioural based).

1. Transaction cost analysis (TCA) theories explain choices firms make in organizing transactions and defining the mode of governance. The basic motivation of TCA is minimization of transaction costs through the most efficient governance structure. Under TCA logic, uncertainty and asset specificity are two primary factors contributing to transaction costs and, thus, the choice of governance structure. A key behavioural assumption of TCA presumes that firms engaged in relationships are motivated by economic self-interest and will thus behave opportunistically when an opportunity arises.

2. Relational exchange theory (RET) offers the notion of embeddedness in a relationship, which evokes a "moral control" that diminishes the desire for opportunism between trading partners. The concept of embeddedness in social relationships explains the departure from "pure economic motives" as firms "become overlaid with social content that carries strong expectations of trust and abstention from opportunism. The presence of trust in a dyadic relationship allows partners to focus more on developing and sustaining ongoing relations rather than focusing on the present transaction.

3. Resource dependency theory reflects the importance of dependence on resources. The theory reflects the importance to a firm of obtaining resources from another firm to accomplish objectives. An underlying assumption of resource dependency theory is that most organizations are not self-sufficient, resulting in dependence upon other firms to obtain critical resources. One strategy for reducing environmental uncertainty and managing dependence is to purposively structure bilateral governance forms with other organizations in which co-ordinated efforts enhance the effectiveness of both firms.

Similarly, the Resource-Based View (RBV) of the firm suggests firms possess valuable, firm-specific resources that enable them to achieve relative advantage leading to superior performance. RBV contends the achievement and sustainability of competitive advantage is a function of the firm's core competencies, which are built around resources that are valuable, rare, difficult to imitate, and not easily substitutable.

These three theories are summarized in Table 1.

Table 1. Interfirm Governance Theories.

Theory (key contributors)	**Approach**	**Motivating Variables**	**Assumptions**
Transaction Cost Economics (Coase, 1937; Williamson, 1985)	Economic	Uncertainty Asset specificity	Governance structure is driven by minimization of transaction cost. Firms are motivated by economic self-interest and behave opportunistically.
Relational Exchange Theory (Granovetter, 1985; Macneil, 1980; Thibaut and Kelley, 1959)	Behavioural	Trust Embeddedness	Firms enter into a relationship with the expectation that it will be rewarding. Transactions occur within a historical and social context. Embeddedness in a relationship diminishes the need for formal governance mechanisms.
Resource Dependency Theory (Pfeffer and Salancik, 1978) and Resource Based View (Barney, 1991)	Behavioural	Uncertainty about supply of resources and competencies Dependence	Few organizations are self-sufficient. Firms develop relationships with other firms to obtain needed resource. Firms' core competencies are built around resources that are valuable, rare, inimitable, and are not easily substitutable

In this study, we are concentrated on such a co-operation in subcontract manufacture that is based on economic reasons, which excludes the use of Relational Exchange Theory as a theory base for this study.

Resource Dependency Theory and Resource Based View Theory can be used to explain partially the behaviour of subcontracting parties in our study. Basically the principals seem to construct their subcontract relationships avoiding the uncertainties. The subcontracted products are mostly selected so that there is more than one possible subcontractor for every product.

In this study, Transaction Cost Theory is a base to connect together the concept of Quasifirm, contractual relations and Common Agenda. In the following sections we discuss these concepts and develop finally a new theory-based construction including the concept of Common Agenda.

2.1.2 Outsourcing and the boundaries of the firm

Outsourcing in the metal industry is based on certain reasons. The question is basically about the boundaries between companies.

1. According to Coase (1937), outsourcing is one means to adjust the boundaries of the firm. Williamson (1975, 1985) continued the study of the boundaries of the firm and introduced the theory of transaction-cost economics (TCE).
2. In that same line, Pajarinen (2001, pp. 8–9) writes that the most important factors determining the boundaries of the firm are: 1) the speciality of the production resources, 2) the repeatability of the transaction, 3) the behaviour of the contracting party, and 4) external uncertainty.
3. Furthermore, Langlois & Robertson (1995, pp. 33–35) introduced an idea of the boundaries of the firm based on the cumulative knowledge and learning capability of the organization compared to the market.
4. Additionally, Howard (1990) concentrated on the small company issues. Increased demand for more specialized products, non-stop technological innovation, and cheaper and more flexible computer-based production technologies are inaugurating a decentralization of production (Howard 1990).
5. Consequently, companies are concentrating on their core competencies (Kakabadse and Kakabadse 2000, Vining and Globerman 1999, Prahalad and Hamel 1990), which progresses needs for outsourcing. Suppliers can also be seen as innovators in the subcontract manufacture partnership (Veloso and Fixson 2001, Langlois and Robertson 1995, p. 150).

The co-operation models between companies have been under scientific discussion for a long time, and many researchers have concentrated on the organizational issues. The degree of co-operation between companies can vary largely. For instance McClearly et al. (1995) concentrated on the new organizational forms and states that today's turbulent environment requires a fairly dynamic organization to adjust to the constant challenge of remaining competitive. Miles and Snow (1986) introduced a model of a dynamic network. They define network as being a unique combination of strategy, structure and management process. They state that two benefits result from participation in a dynamic network. First, the organization is able to pursue its individual goals while distinguishing itself in competence from other competitors. Second, the organization is able to complement others within the network – a sort of synergy effect of interdependence.

2.1.3 Quasifirm as an organization model between firms

Originally, Eccles (1981) introduced the idea of the quasifirm as a governance structure (Figure 5). He concentrated on the organization model of the construction industry, saying that the general contractor and special trade subcontractors can form a stable organizational unit when conditions permit. Consequently, he introduced the idea of a common concept, saying that the transaction cost approach (Williamson 1979) can be used to examine both the intrafirm and interfirm organization with some common concepts.

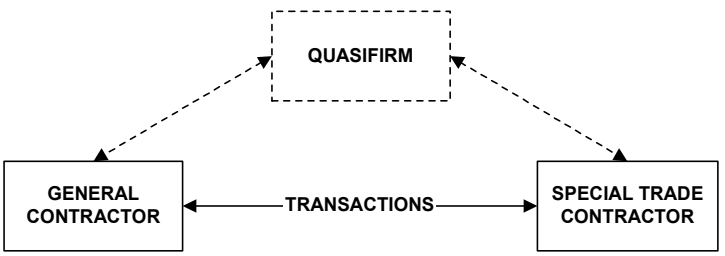

Figure 5. Quasifirm in the construction industry (Eccles 1981).

Later, Luke et al. (1989) used the concept of quasifirm when studying the strategic interorganizational forms in the health-care industry using the idea of quasifirm. They define the quasifirm as a loosely coupled interorganizational arrangement created to achieve long-lasting and important strategic purposes. They classify quasifirm as a network, depending on the degree the strategic

purpose is for a collective effort. They further discuss mechanisms that are essential for maintaining a quasi relationship. Among these are mechanisms for making strategic decisions, ensuring group cohesiveness, determining membership, and identifying organizational boundaries. They differentiate interorganizational forms by the degree to which they function as firms, saying it is essential to distinguish quasifirms from more traditional firms by the tightness of coupling that binds the collaborating organizations together. A second dimension is the degree to which joined organizations serve strategic purposes versus other less strategic purposes. They identify four types of interorganizational forms: 1) firm, 2) latent firm, 3) network, and 4) quasifirm. Quasifirm means a high degree of strategic purposes and low tightness of coupling (Fig. 6.).

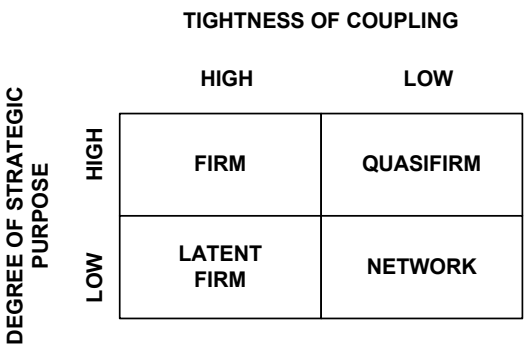

Figure 6. Quasifirm as a specific form of loosely coupled interorganizational relationships (Luke et al. 1989).

Additionally, Darr and Talmud (2003) concentrated on seller-buyer networks in markets for emergent technologies. They introduce an organization model of quasi-vertical temporary integration through the existence and maintenance of ephemeral, yet intensive, cross-firm expert ties. These ties are governed by professional norms and practice, and are maintained as long as a project lasts.

2.1.4 Quasifirm-related management issues

The concept of quasifirm has been widely accepted as a theoretical entity in the scientific discussion. In this section, we discuss the quasifirm related management issues. Our aim is to find literature references which discuss topics close to the dynamic management in company networks. The focus is on the utilization of Common Agenda.

Grandori (1997) pays attention to the **co-ordination mechanisms in networks**. He says that networks can be distinguished from firms on the basis of the allocation of property rights and not on the basis of the other co-ordination mechanisms employed. In fact, all these other mechanisms – including authority and agency relations, group decision-making, negotiation, and the institutionalization of rules and norms – can be found both in interfirm and in intrafirm governance structures. Seven basic co-ordination mechanisms are introduced: 1) price system, 2) voting, 3) authority relations, 4) agency relations, 5) peer group, 6) negotiation, and 7) institutionalization of rules and norms.

Thomassen (2000) for his part concentrates on the co-ordination costs and inter-firm learning within the construction industry. He uses Grandori's (1997) basic co-ordination mechanisms grouped in four pairs and explains them as follows:

- Price and vote co-ordination
- Authority and agency co-ordination
- Co-ordination in teams and by negotiation, and finally
- Co-ordination by norms and rules.

Price co-ordination is based on unilateral decisions and stems from **common codified information**. Voting resembles price co-ordination in the sense that it is based on local information and local decision-making where actors maximize their value by choosing between a number of well-defined alternatives.

In authority co-ordination, based on codified and centralized information, decisions on subordinates' behaviour are made by a central actor. Agency co-ordination uses a mixture of incentives and monitoring mechanisms.

In team co-ordination, all the basic rights are equally shared among a group of actors with homogenous preferences and differentiated knowledge. Communication and knowledge of various kinds are transferred without any "centre" or "top" of this flow. Decisions are made jointly and unanimously. Closely related to this co-ordination form are negotiations that are also based on all-to-all communication between specific actors but where conflicting issues are given direct attention.

Co-ordination through institutionalization of rules and norms is based on previous experience – and consequently it is a result of learning, embedded in

social norms and formal rules guiding behaviour in a non-calculative fashion. Thus, unlike the three other pairs, this pair is not based on calculative decisions. Rule or norm-guided decisions are made unilaterally by using **common knowledge**.

It can be noted that Schumacher (1993[12]. p. 205–209) introduced a principle called "Principle of Identification", which means that each subsidiary unit or quasfirm[13] should have both a **profit and loss account and a balance sheet**. He says that a unit's success should lead to greater freedom and financial scope for the unit, while failure – in the form of losses – should lead to restriction and disability. One wants to reinforce success and discriminate against failure. The balance sheet describes the economic substance as augmented or diminished by current results. This approach enables all concerned to follow the effect of operations on substance. Profits and losses are carried forward and not wiped out. Therefore, every quasifirm should have its separate balance sheet, in which profits can appear as loans to the centre and losses from the centre, which is a matter of great psychological importance.

Furthermore, Nowak (2000) concentrated on the project management problem and learning process in multi-project networks. He says that future activities will have to ask for a broader approach and should therefore be increasingly based on the **concept of co-operation** as a potential form of organization that allows for the integration of different actors and respective views. These new modes of organizations have to be developed to enable corporations to deal with complexity, and which allow for learning processes to take place.

Nowak (2000) continues saying that co-operation among organizations has long been a focus of organizational research. Co-operation is entered by one or more independent organizations in order to supplement each other's key competencies,

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[12] The book was first published in 1973 by Blond & Briggs Ltd.

[13] Schumacher introduced a concept of "quasifirm" in his book saying that: "The large organization will consist of many semi-autonomous units, which we may call quasi-firms. Each of them will have a large amount of freedom, to give the greatest possible chance to creativity and entrepreneurship" Despite his different use of the concept of quasifirm, Schumacher's idea of the "profit and loss account and a balance sheet" is considered in this paper. This idea could be a vital tool for our concept of Quasifirm. This issue is covered later in the discussion chapter.

so the individual organization's shortcomings can be surpassed and/or **common goals** can be reached faster by a combination of resources.

Consequently, Nowak (2000) explores the project management problem in the project networks. The basic project management methodology is optimized to guarantee a single project success. In the project networks, the projects are not only executed within a single organization but usually integrate partners from different organizations. He says that this fact has been rarely discussed in the relevant literature. The rather technical discussion of project management methodology nearly completely omits aspects relevant for the management of inter-organizational projects such as partner identification, interface design, risk and success sharing, and information interchange. Especially the evaluation of project success and the subsequent transfer of gained knowledge to other projects, or to the respective organizations of the individual project members, are a neglected aspect of the project management literature.

Taylor and Levitt (2005) focused on the innovations when studying construction networks. The findings from the three innovations in building information modelling show that an alignment of innovations to networks greatly increases the rate of market acceptance for architectural innovation. They say that one interesting direction for future research would be to observe the role of existing network structures in the design and development of technological innovations. The study continues by saying that technology firms could benefit from an understanding of networks, work allocations within networks, and organizational variety within networks to determine which markets are most appropriate in global marketing and distribution strategies.

Etzkowitz (2002) has also studied the innovation questions and discusses the American style of knowledge commercialization. He says that an American style of knowledge commercialization can be identified in the focus on new firm formation, emphasizing high-growth/high-risk strategies, with a significant role for the entrepreneurial university in the start-up process. He highlights the university research groups as quasifirms. They have many firm-like characteristics such as an entrepreneurial impetus, ongoing fund-raising responsibilities, personnel management problems, and public relations tasks in publicizing the group achievements.

Furthermore, Constantino and Pietroforte (2006) examined the adoption rate of e-commerce in the US and Italian construction markets. Their study is based on transaction cost theory. They note that the information flows (and therefore transaction costs) that are related to the various production situations vary in terms of quantity of information processing and codification level, that is, the description complexity of the product or work to be transacted. The higher the required craftsmanship of a category of work to be purchased, the more its transaction needs the exchange and sharing of **uncodified (or less codified) knowledge and information**. On the other hand, the object of the transaction may be a standard brick that requires the exchange of little codified information because its technical specification and purchasing criteria are widely known. The successful transmission and sharing of uncodified information presents obvious difficulties that can be alleviated through repetitive business transactions between the same parties over time.

They go on to say that long-term business relationships, in fact, foster the development of trust, mutual understanding and a **common language** between firms that aim at coping with these difficulties. The **common language** shared within a small group has unique and personal features and is called "idiolect" in semantic terms. Generally, it is not understandable to outsiders. The need for a shared idiolect and risk of opportunistic behaviour are two of the main determinants of the phenomenon of the quasifirm.

Additionally, Hyötyläinen (2000, p. 16, 68, 85) analyzed the **development mechanisms** of strategic enterprise networks. He investigated three main topics: 1) enterprise network development mechanisms, enterprise network models and enterprise network activity models, 2) learning and innovation processes of enterprise networks and their mechanisms, and 3) strategic enterprise network development processes and models. According to Hyötyläinen, a strategic enterprise group can be seen to have its special co-operation formula, the quasifirm, which has its own strategy, organization and activity mode. The strategy is based on a business plan. Through business planning, the whole of the strategic network, including its products and services, can be seen. The organization of the quasifirm consists of four tiers: 1) management team, 2) development teams, 3) support teams, and 4) operative teams. Activity modes are based on operative team working using work pair thinking.

Kürümlüoglu et al. (2005) concentrated on the concept of Virtual organization (VO). VO is a temporary consortium of partners from different organizations established to fulfil a value-adding task, for example a product or service for a customer. The lifetime of a VO is typically restricted: it is created from the network for a definite task and dissolved after the task has been completed. According to their study, the typical problems for the management and operation were: 1) integration strategy: an overall lack of a common strategic approach between partners; 2) collaboration: language and cultural issues play a fundamental role in collaboration: different languages and working cultures can hinder the daily activities; 3) knowledge sharing: no knowledge management strategy was found in any of the analyzed case studies; 4) technology and information technology: the partners need the same or similar technology levels for all relevant interaction areas; 5) organization: need for common working procedures and wide cross-organizational labour mobility aiming at assimilating common practices; 6) logistics: lack in common planning and warehousing managing, difficulties in coordinating and tracking deliveries, and 7) project management: a strong necessity of improving co-operation and project management processes has emerged, due to insufficient visibility of partner's activities and lack of inter-functional coordination. They continue saying that the development and utilization of ICT is a critical element in the current networking. It can be seen as an enabler for distributed co-operation – even if its potential is currently still underused.

This section has concentrated on the quasifirm-related management issues. There seems to be a great interest in the research in this field of business. We can identify the following issues from the text in this section.

1. **Common goals** are an essential basis of the functioning co-operation.
2. Rule or norm-guided decisions are made unilaterally by using **common knowledge**.
3. **Concept of co-ordination** as a potential form of organization that allows for the integration of different actors and respective views.
4. **Co-ordination mechanisms** vary from very authoritative and explicit to co-operative and implicit.
5. The transaction of high craftsmanship needs exchange and sharing of **uncodified (or less codified) knowledge and information**.

6. Long-term relationships yield to the **common language**.
7. Three different **development mechanisms** can be identified in strategic enterprise networks.
8. **Virtual organization** as one of a new organizational forms.

2.1.5 Contractual relations between firms

In order to find a place for Common Agenda in the theory of the firm, we need to consider different kinds of contractual relations between firms.

Williamson (1979) analyzed the governance of contractual relations in different market transactions. He introduced three critical dimensions for characterizing transactions: 1) uncertainty, 2) the frequency with which transactions recur, and 3) the degree to which durable transaction-specific investments are incurred. Of these three, uncertainty is widely conceded to be a critical attribute; and that frequency matters is at least plausible. The governance ramifications of neither, however, have been fully developed – nor can they be until joined with the third critical dimension: transaction-specific investments.

Williamson (1979) continues by saying that the crucial investment distinction is this: to what degree are transaction-specific (non-marketable) expenses incurred? Items that are unspecified among users pose few hazards, since buyers in these circumstances can easily turn to alternative sources, and suppliers can sell output intended for one order to other buyers without difficulty. Non-marketability problems arise when the specific identity of the parties has important cost-bearing consequences. Transactions of this kind will be referred to as idiosyncratic. Occasionally the identity of the parties is important from the outset, as when a buyer induces a supplier to invest in the specialized physical capital of a transaction-specific kind. The supplier is effectively "locked into" the transaction to a significant degree. This is symmetrical, moreover, in that the buyer cannot turn to alternative sources of supply, since the cost of supply from unspecialized capital is presumably great. The buyer is thus committed to the transaction as well. Idiosyncratic goods and services are thus ones where investments of transaction-specific human and physical capital are made, and contingent upon successful execution, and benefits are realized. Williamson (1979) is concerned with the transactions of a recurring kind, and says that idiosyncratic

transactions are ones for which the relationship between buyer and supplier is quickly thereafter transformed into one of bilateral monopoly. This transformation has profound contracting consequences.

Consequently, Williamson (1979) examines three types of governance structures: 1) market governance, 2) trilateral governance, and 3) relational governance (transaction-specific governance). Market governance is the main governance structure for non-specific transactions. Being standardized, alternative purchase and supply arrangements are presumably easy to work out. Trilateral governance means third-party assistance (arbitration) in resolving disputes and evaluating performance. (The use of the architect as a relatively independent expert to determine the content of a firm's construction contracts is an example). Relational governance structures are bilateral structures where the autonomy of the parties is maintained, and unified structures where the transaction is removed from the market and organized within the firm subject to an authority relation (vertical integration). In the case of bilateral governance, the degree of asset specialization is less complete than in the case of unified governance.

These governance structures are combined with the previously explained dimensions in Figure 7.

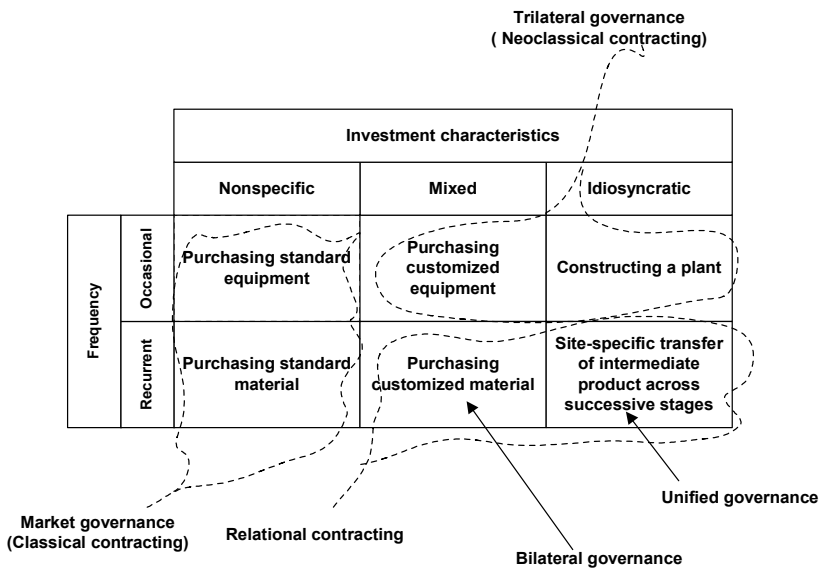

Figure 7. Matching governance structures with commercial transactions (applied according to Williamson 1979).

Considering the categories in Figure 9, we take a closer look at four of the categories:

1. Non-specific transactions are based on market governance. In this category, the items are characterized as standard ones, which can be purchased from many suppliers. Therefore, we can see that there is not necessarily a need for Common Agenda.
2. Trilateral governance can be seen to be based on a one-time contract, which is a part of commercial negotiations. In this category, the items are non-standard ones and are purchased occasionally. In this category, the contract can be seen as Common Agenda.
3. Unified governance means that the transaction is removed from a market and there is no need to make any external contracts. In this category, the items are non-standard ones and the degree of asset specialization is high. In this category there is no place for Common Agenda.
4. Relational contracting can be seen as a long-term co-operation with another independent company. In this category, the items are non-standard ones which are produced according to a customer's specification and they are purchased continually. In the beginning of the co-operation, we can see the place for a contract. The place for Common Agenda can be seen when the co-operation has become stable.

According to Williamson (1979), bilateral structures have only recently received the attention they deserve and their operation is least well understood.

Our idea of Common Agenda can be mainly placed in the box of bilateral governance in Figure 7.

2.1.6 Transaction cost theory

In this section, we discuss transaction cost theory in order to find a place for Common Agenda. The following text is based on Rao (2003).

Rao (2003) argues that the economics of transaction costs (or transaction cost economics – TCE) has remained a largely unexplored area of economics. This results from a number of factors including, but not limited to, the following:

1) limited contributions currently using mathematically fashionable and precise characterizations of economic insights (in a world where it is more impressive to know if one is precisely wrong than approximately right); 2) lack of an all-purpose computable technical methodology leading to quantitative prescriptions of economic parameters, and 3) considerable focus of TCE on the relative roles of institutions and organizations that may generally be less than flexible to the design of an institution or organization as a matter of choice.

Definition of the transaction: A transaction describes one or more of the following: 1) exchange of commodity or service, through market or other institutional arrangement; 2) transfer of rights and/or duties among parties; 3) activity undertaken or chosen to be not undertaken by an entity, whether legal or otherwise, and 4) the largest unit of economic activity that cannot be subdivided for the purpose of transacting between two or more economic agents/entities.

The most important dimensions of transactions may be identified as:

- Complexity
- Frequency of occurrence
- Duration or continuity
- Uncertainty
- Measurement and monitoring features
- Implications on interlinked transactions.

Among these, some features run in parallel: asymmetric information and incomplete specifications of transactions and their commitment implications, and imperfect commitment or strategic behaviour at different stages of transaction implementation (ex ante, ex post, and during negotiation of an agreement on a transaction).

Bounded rationality, opportunism and asset specificity are identified as three main factors that lead to the existence of transaction costs (TC).

- Opportunism refers to the behavioural aspect: “self-interest seeking with guile”. Contractual specifications are often inevitably incomplete in relating

to specific performance requirements of parties to the contract under various known and unknown contingencies. The incomplete contract perspective lays the ground for the prevalence of opportunism, both pre-contractual and post-contractual, in most situations.

- Bounded rationality is "the cognitive assumption on which transaction cost economics relies". The capacity of the human mind for formulating and solving complex problems is very small compared with the size of the problems whose solution is required for objectively rational behaviour in the real world – or even for a reasonable approximation to such objective rationality. Among the reasons for bounded rationality are informational uncertainties and informational complexities.
- Asset specificity refers to the extent to which non-fungible assets are tied to particular transactions specified by contracts or other commitments. Assets are specific to a particular use if the "returns" they provide are much more highly valuable only in that use, relative to any other alternative uses.

What are transaction costs (TC)?

According to Rao (2003), TC are interpreted broadly as the "comparative costs of planning, adapting, and monitoring tasks under completion under alternative governance structures". TC includes the costs of resources utilized for the creation, maintenance, use, and so on of institutions and organizations. TC includes: ex ante costs of negotiating and forming a contract or agreement, ex post costs of monitoring and enforcing a contract or agreement, and search and information costs.

Among the major categories of transaction costs are market-based, administrative and/or managerial, and political costs.

- Market TC consists mainly of costs of information, bargaining/negotiation over transactions, contracting (formal or informal), monitoring and enforcement of agreements, and search and information costs.

- Managerial TC comprise the costs of setting up or establishment and/or adaptation of organizational features, costs of operating an organizational entity, including those of information gathering and processing as well as alternative modes of resource deployment.

- Political TC are quite general, and need to be specified in terms of system characteristics for specific assessment.

TC involves the use of real resources that could be deployed alternatively (more or less productively) elsewhere in the economy or the socio-economic system. TC are pervasive at all levels and types of activity (and inactivity) or transaction: cost of establishing, maintaining, adapting, regulating, monitoring, devising enforcing rules, and executing transactions.

The sources of transaction costs between seller and buyer are illustrated in Figure 8. In order to draw Figure 8, we use a concept of “Communication solution”. “Communication solution” means all of the resource, and information usage related to the transaction in question. As such “communication solution” is near the idea of Common Agenda.

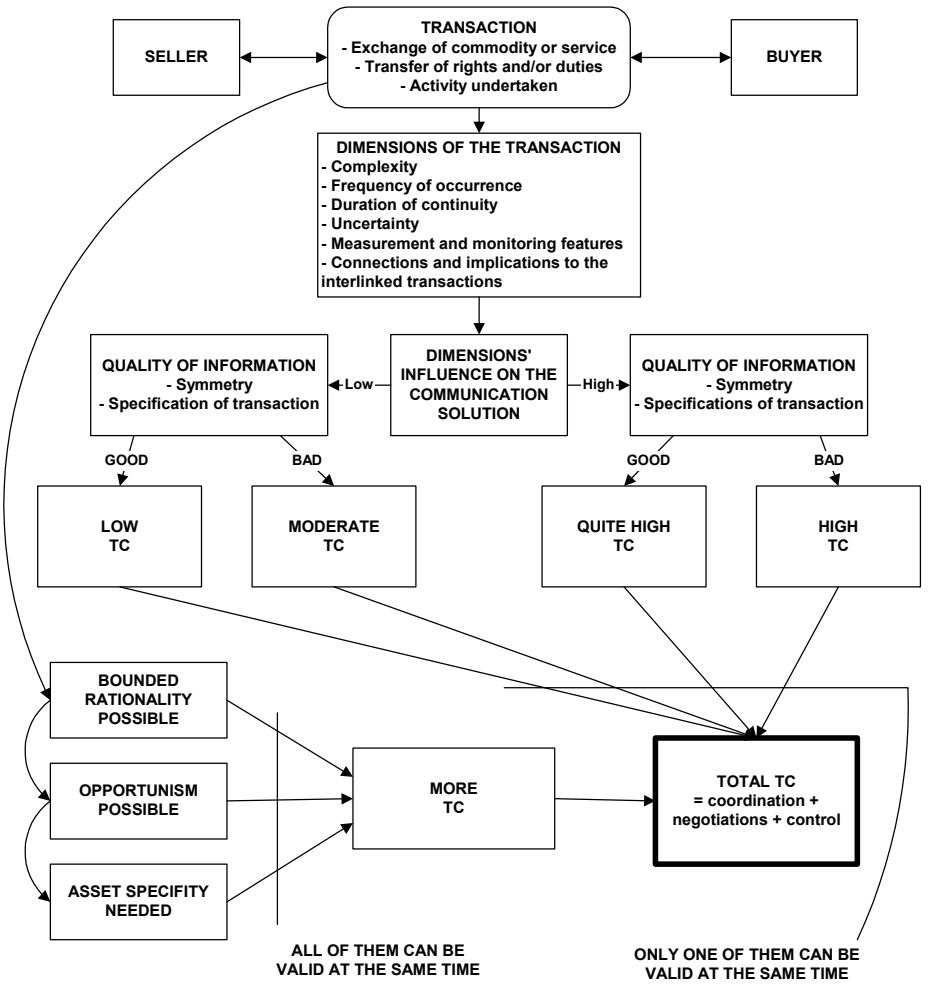

Figure 8. Sources of transaction costs between seller and buyer (applied according to Rao, 2003).

Figure 8 illustrates the sources of transaction costs between seller and buyer. The dimensions of transaction are closely connected to the transaction. Their existence and nature determine the design of the communication solution. The second critical gate is the "quality of information" between parties. If the quality of information is symmetrical and all of the specifications of the transaction are perfect during the contract period, the transaction costs are low. In the opposite case they are high. This difference is illustrated in the middle of Figure 8.

The second path to generate transaction costs is based on bounded rationality, opportunism and asset specificity needed. These three sources can be seen as much independent from the sources which are based on the dimensions of the transaction.

Transaction costs are dependent on the nature of the transaction. In the case of subcontract manufacture we can find many kinds of cases from simple to very complicated ones.

2.1.7 Common agenda and the transaction cost theory

As Williamson (1985, pp. 2–19) says, the transaction cost approach maintains that economic institutions have the main purpose and effect of economizing on transaction costs. Transaction costs are the "costs of running the economic system". Such costs are to be distinguished from production costs, which is the cost category with which neoclassical analysis has been preoccupied. He compares transaction costs to the friction in a mechanical system in which transaction costs are the economic equivalent of friction in a physical system. He continues by asking: Do the parties to the exchange operate harmoniously, or are there frequent misunderstandings and conflicts that lead to delays, breakdowns, and other malfunctions?

Williamson (1985, p. 20) continues by saying that transaction cost economics poses the problem of economic organization as a problem of contracting. A particular task is to be accomplished. It can be organized in any of several alternative ways. Explicit or implicit contract and support apparatus are associated with each. What are the costs?

The transaction cost theory concentrates much on the problem of contracts. The contract can be seen as a basic tool, whose idea is to eliminate the friction in the future as much as possible. But despite of the efforts to eliminate the friction in the future, there may be remaining friction, which needs to be reduced and managed during the contract period.

The dynamic day-to-day game between the parties often seems to be more an ad-hoc type operation. If everything is going fine without problems and troubles, there are seldom any meetings or other communication sessions during the contract period.

In this thesis, the idea is to distinguish the static contract and dynamic operation from each other. The contract can be seen as a static tool as a base of co-operation and Common Agenda as a dynamic tool for managers to manage mutually the day-to-day operation.

We can think that there are two tools to manage subcontract manufacture co-operation:

1. Basic contract with appendices as a static part of the rules of the game.
2. Common Agenda as a separate collection of issues to be managed mutually.

The idea is that Common Agenda could be a dynamic tool supporting the management of subcontract manufacture operation. Common Agenda is a collection of issues to be managed dynamically.

Managerial activities, completeness of the contract, Common Agenda and transaction cost theory are linked together as shown in Figure 9.

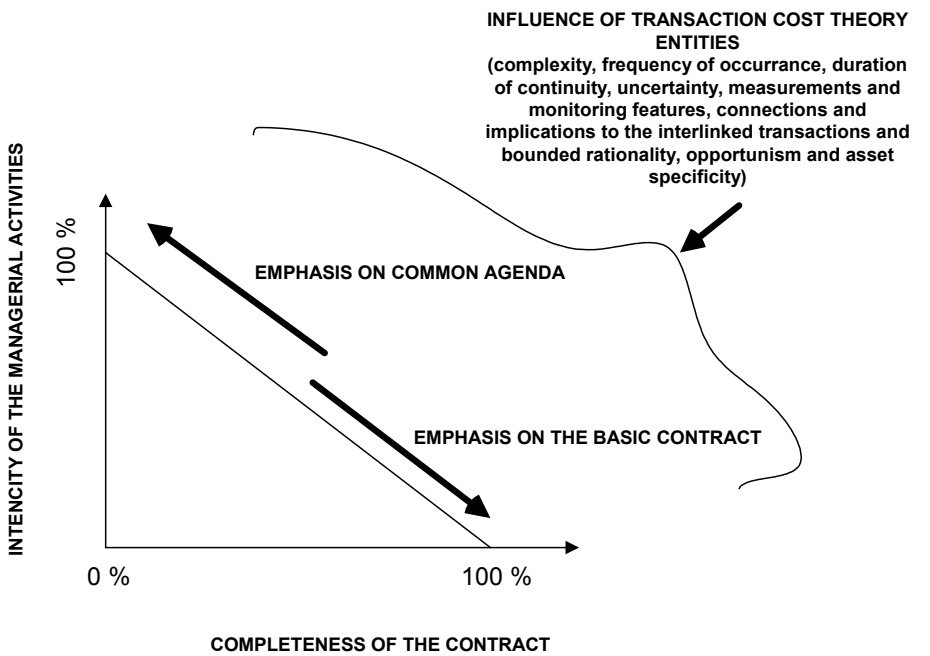

Figure 9. Managerial activities and completeness of the contract.

Managerial activities in subcontract manufacture are dependent on the nature of the transaction between the parties. A simple manufacture part is an example of the simple transaction when the completeness of the contract can be near 100 %. This kind of transaction does not need intensive managerial activities. In the case of a complex manufacture process, the completeness of the contract is probably much less than 100 %. In this case there is a need for more managerial activities and thus some kind of Common Agenda.

As a conclusion to this chapter, it can be stated that the concept of Common Agenda can be understood as a new link connecting transaction cost theory to the theoretical discussion of the subcontracting phenomenon.

2.2 Common Agenda related literature

The aim of this section is to examine the buyer-supplier relations keeping in mind the idea of Common Agenda. The focus is on such literature that may influence the creation process of the headings in Common Agenda.

We assume that there are many factors that affect the headings of Common Agenda. In this context we start the literature investigation by posing questions concerning four topics: 1) what is to be bought (see Figure 7), 2) what kind of supplier (see Figure 8), 3) what kinds of co-operation relationships (see Figure 5), and 4) What are the reasons to outsource or subcontract the production phases (see Chapter 2.1.2).

The literature research process revealed a rich and versatile collection of literature references. They are classified in this study in to four categories based on the four topics outlined above. These categories are: 1) product-related articles, 2) supplier-related issues, 3) co-operation-related issues, and 4) reasons to outsource or subcontract related issues.

2.2.1 Product-related issues

In this section we deal with the literature references concerning the question of what to buy.

According to Kraljic (1983), the purchased items can be sorted into the following categories: 1) strategic items, 2) bottleneck items, 3) leverage items, and 4) non-critical items. Each of these four categories requires a distinctive purchasing approach, whose complexity is in proportion to the strategic implications.

Kraljic (1983) classifies supply strategy types into four categories based on the classification of purchased items (Figure 10).

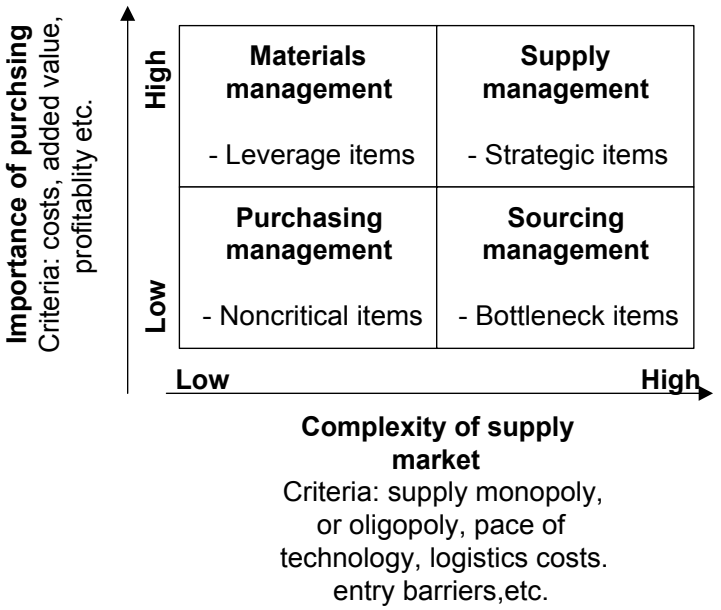

Figure 10. Stages of purchasing sophistication (Kraljic 1983).

Later, van Weele (2002, p. 147) developed further the approach of Kraljic (1983). He introduces a new approach where the purchasing turnover and the supplier base are analyzed based on two variables: 1) the purchasing impact on the bottom line for the company, and 2) the supply risk (Figure 11).

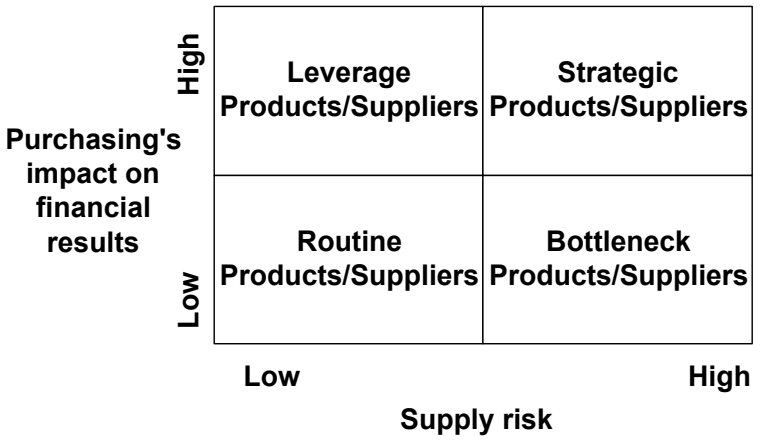

Figure 11. Purchasing product portfolio and supplier portfolio (van Weele 2002, p. 147).

For his part, Gonzales-Benito (2002) defined the independent product variables with measures in order to analyze the JIT purchasing implementation (Table 2).

Table 2. Measures for independent variables (Gonzales-Benito 2002).

Variable	**Measure**
Volume	Percentage of components that would exceed space availability
Specificity	Percentage of components that is especially designed for the purchaser (that cannot be found in markets)
Technological complexity	Percentage of components that is technologically complex and requires experienced, well-trained and competent manufacturers
Essentiality	Percentage of components, without which some or all of the production processes would have to be stopped
Fragility	Percentage of delicate components that require special containers or facilities for storage
Variability	Percentage of components that present different versions which have to be alternated when assembled in the final product
Economic value	Percentage of components whose high price would significantly raise working capital when inventory grows

Asanuma (1989) concentrated on the manufacturer-supplier relationships in Japanese industry. He divides the purchased items into two categories: “purchased goods” and “ordered goods”. Purchased goods are offered to the public, irrespective of the will of the core firm (principal) and are therefore purchasable by merely selecting from the catalogue. Ordered goods mean those goods or processing services which are supplied by outside firms according to specifications issued by the core firm. Ordered goods are subdivided into two categories according to the origin of the drawings: 1) parts manufactured by outside suppliers according to drawings supplied by the core firm, and 2) parts manufactured by outside suppliers according to drawings made by the respective suppliers themselves and approved by the core firm. Since the drawings in (1) and (2) are called “drawings supplied” and “drawings approved” respectively, he call parts (1) and (2) DS parts and DA parts. Additionally, the firms which predominantly supply DS parts are called DS suppliers and those which predominantly supply DA parts are called DA suppliers. DS suppliers provide basically only capabilities for manufacturing of the parts, while DA suppliers provide capabilities for product development as well.

Johnsen et al. (1998) investigate managing issues and say that the product dimensions in the classification of supply networks for the purpose of managing are considered to be significant. The nature of the product in terms of product complexity and uniqueness, manufacturing process, product/service package performance criteria, and contextual features such as market environment and network structure, varies between supply networks.

Imrie (1994) identified three forms of subcontracting: 1) capacity, 2) specialized, and 3) economic subcontracting. Besides, De Toni and Nassimbeni (1996) introduced a classification by the object of subcontracting. The object to be subcontracted can be “product” or “process”. The former is usually characterized by a greater added value since the subcontracted object incorporates more sophisticated and extended capabilities. The latter comprises production phases (metal forming, straining, melting, mechanical working, heat and chemical treatments, etc.) or technical services (design, maintenance, testing, etc.).

Svenson (1968) researched the subcontracting issues looking at the problem from the subcontractor’s point of view. He argues that the subcontractor needs to make clear decisions on the level of the subcontracting. Otherwise, the company may

find itself only a service facility to the prime contractor, having lost its independent status as an innovative member of the business community (Figure 12).

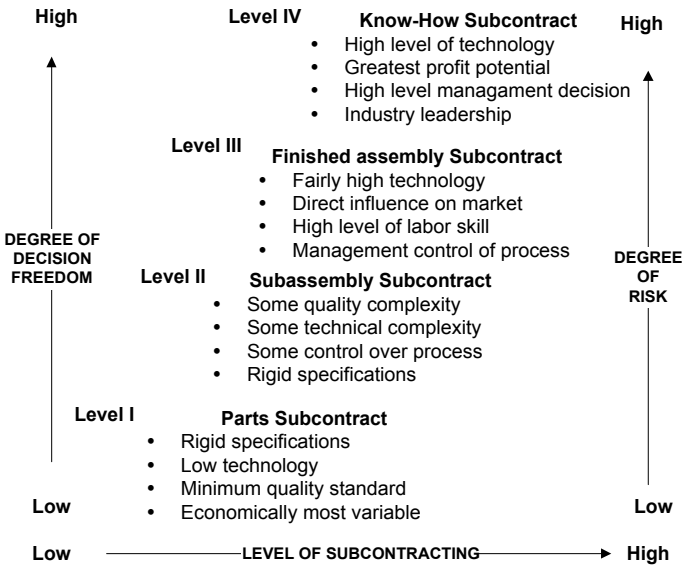

Figure 12. Levels and content of subcontracting (Svenson 1968).

Finally, Lamming et al. (2000) connect together the product features and network features. He proposes two distinct types of supply network: those for "innovative-unique" products and those for "functional" products. Supply networks of innovative-unique products are proposed as focusing primarily on the speed and flexibility to bring the products to market as quickly as possible to benefit from the high initial demand, and which may also be expected to focus on quality and innovation. By contrast, supply networks for functional products are likely to focus primarily on cost and quality. Companies who supply innovative-unique products and who possess unique knowledge and technologies appear to differ significantly from others in the ways they manage their networks in terms of strategy and process priorities. The complexity of the product being supplied is significant: supply networks of complex products are more complex to manage as a consequence of the large number of components and hence actors involved. Their need for information technology therefore seems to be greater in these particular networks.

2.2.2 Supplier-related issues

This section focuses on references in the literature concerning the question of what kind of supplier.

First Lehtinen (2001, p. 50) defines the subcontractors according to Table 3.

Table 3. Type of subcontractors and definitions (Lehtinen 2001, p. 50).

Type of subcontractor	Definition
Jobber	The subcontractor manufactures single parts or does small jobs and uses often free issues[14].
Capacity subcontractor	The subcontractor is used when extra capacity is needed. Capacity subcontractors often use free issues.
Part supplier	The subcontractor produces parts or offers special production phases. The amount of assembly is limited.
Component supplier	The subcontractor also offers assemblies that include some subcontracting.
System supplier	The subcontractor offers complete product modules or systems that always include sub-subcontracting.

Lehtinen (2001, p. 51) goes on to say that lately the capabilities of subcontractors have been used for categorization because the make-or-buy decisions are influenced by the capability profile of the subcontractors. These capabilities include the subcontractor's investments, e.g. capacity and technology, innovation and other specialized capabilities. The innovation of the subcontractor has often been seen as product innovativeness, e.g. describing the supplier's involvement in research and development.

Thaler (1997) investigated the roles of suppliers and says that the traditional role of part suppliers is typically characterized by short-term production following given specifications from the OEM. Figure 13 shows on the horizontal axis the

[14] Free issues are parts supplied free charge by an OEM to its assembly subcontractor (Boswell 1993).

complexity of the product. On the vertical axis, the complexity of the supplier service is shown.

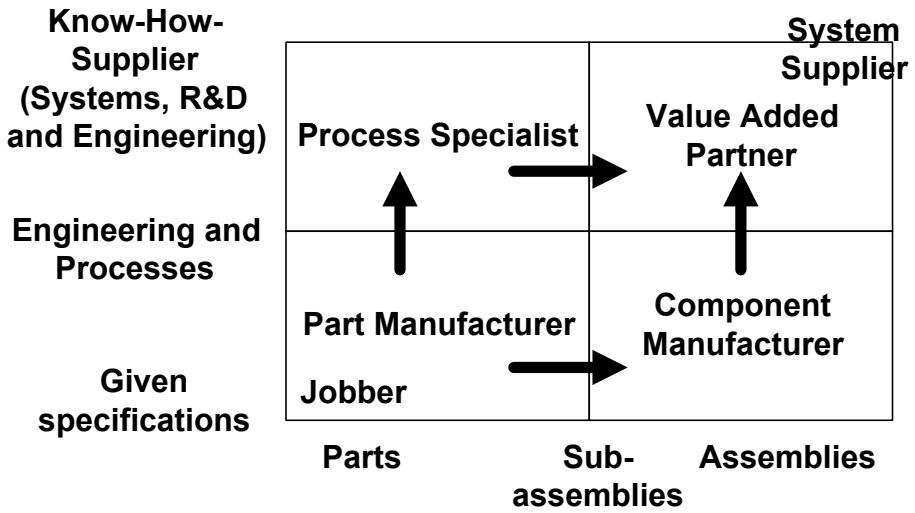

Figure 13. Supplier scenarios (Thaler 1997).

Thaler (1997) continues by saying that, from a strategic point of view, the role of the parts manufacturer in the left lower corner below ("jobber") typically involves major risks and uncertainties, such as low entrance barriers for competitors, cost competition on a possible global basis, replacement effects and day-to-day ordering, and possibly low batch sizes. It is therefore necessary for suppliers to reflect their role in the value chain in detail.

Lilliecreutz (1996) applies this kind of thinking in the automobile and other industry. According to his reasoning, suppliers are commonly divided into system suppliers and part manufacturers.

Wood et al. (1996) used also a portfolio-based approach to categorize suppliers in the manufacturing industry into four classes based on the level of technology and collaboration. They explain that a commodity supplier operates as a traditional spot-market manufacturer, which makes goods according to OEM specifications and competes primarily on price. Like commodity suppliers, collaborative specialists produce according to OEM specifications, but they attempt to differentiate products by developing close customer relationships. The

technology specialist also pursues a differentiation strategy but does not work closely with customers. Instead, technology specialists manufacture unique components that the customer wants. The problem-solver seeks to develop strong technical and collaborative skills so that they can resolve customers' design and production problems. The problem-solver is considered to be in the first tier, while the collaborative and technology specialist resembles first or second-tier suppliers, and commodity supplier resembles the third or fourth-tier material or off-the-self supplier (Figure 14).

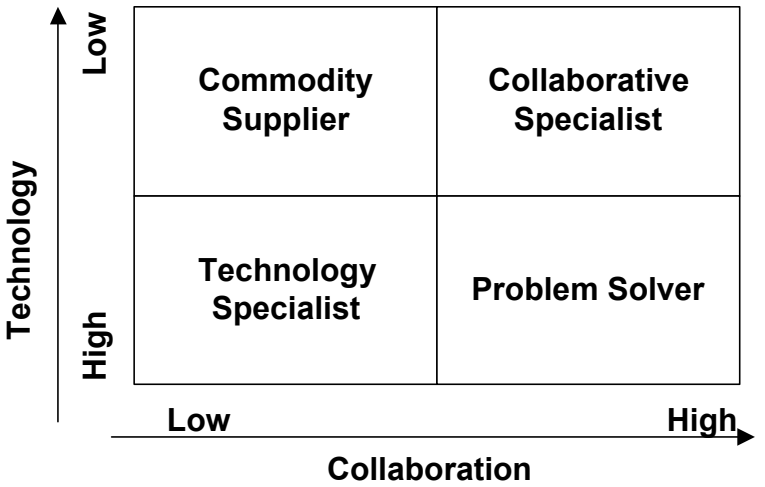

Figure 14. Strategic Supplier Typology (Wood et al. 1996).

Lehtinen (2001, p. 62) developed also a new list of manufacturing competitive priorities using mainly the capability analysis made by Swink & Hegarty (1998). Manufacturing competitive priorities or capabilities of subcontract manufacture can be divided into five main categories: quality, flexibility, innovation, integration and service (Table 4).

Table 4. Core manufacturing capabilities of a subcontractor (Lehtinen 2001, p. 62).

Capacity variable	Definition
Quality[15]	– The quality fits design specification (meet customer needs). – The qualification of manufacturing and logistics processes (rejects, rework and control).
Flexibility[16]	– The ability to efficient handle of changes involving the manufacturing function on long and short term.
Agility[17]	– The ability to efficiently and easily react to changes in input or output requirement over a short time span.
Mix flexibility	– The ability to manufacture a variety of items.
Volume flexibility	– The ability to efficiently produce wide ranges in the demanded volumes of items.
Modification flexibility	– The ability to easily adjust processes to product design changes, new products and special needs.
Innovation[18]	– The ability to create and implement unique product and/or process innovation that improve manufacturing performance and add value for the customer.
Integration	– The ability to integrate new products and processes into the operations and adopt new in-house or outsourced processes.
Service[19]	– The ability to understand customers' needs and to acquire, develop and convey valuable information and insights regarding product and processes.
Consulting	– The ability to assist both internal groups and customers in problem solving (e.g. product development, design for manufacturing, quality improvements).

[15] See Tanskanen (1994, p. 67).

[16] See Swink and Hegarty (1998), Nilsson (1995, p. 2).

[17] The agility is often used to refer to business wide capability that embraces organizational structures, information systems, logistics processes and mindsets (Christopher (2000). In this study the definition is more limited.

[18] Swink and Hegarty (1998).

[19] Swink and Hegarty (1998), used the term "acuity" instead of "service".

Lamming (1993, p. 231) presents a new approach to four strategies for lean suppliers in the automotive industry, depending on industry dependency and technological innovativeness by dividing suppliers into key players or loyal collaborators according to the following, Table 5.

Table 5. Models of strategy and models of approach: lean suppliers (Lamming 1993, p. 231).

	Leader	**Follower**
Key player	– Proactive innovation: selects automotive technologies and leads customer – Sees automotive business as core activity/image – First-tier supplier: direct, systems integrator – Configures company to fit own strategy (in automotive field)	– Proactive innovation: identifies automotive application for technologies developed for other original purposes – Sees automotive business as one (minor) arm of multi-market operation – First-tier, indirect supplier, not systems integrator – Does not necessarily have an automotive division
Loyal collabora-tion	– Innovator/developer: works in response to customer-identified problems – Capable of gaining better expertise in specific technologies than the customer – First or second-tier, direct or indirect: not systems integrator – Potential for key player status may be limited by customer decisions on core technologies	– Developer (e.g. cost reduction through design for manufacture) of customer's ideas – Risk averse: unwilling to develop products without customer undertakings – Second-tier, potentially non-direct, lower tier supplier

Muralidharan et al. (2001) developed a vendor rating method using traditional significant attributes (Table 6).

Table 6. Description of rating attributes (Muralidharan et al. 2001).

Attributes	**Description**
Quality	• Awareness on total quality management concept by the employees • Percentage of rejections • Inspection methods used
Technical facilities	• Product and process flexibility • Adaptability to technological changes
Delivery	• Reliability of delivery • Quantity variations • Frequency of delivery • Flexibility

In their presentation, Cagliano & Spina (2002) say that various classification and typologies of SMEs (small and medium-size enterprise) have been proposed and identified as two main business models: small manufacturers and subcontractors. The companies belonging to the first category are characterized by two main operational processes: production and product innovation/design, and they include original equipment manufacturers or proprietary products producers, catalogue producers, design-to-specification manufacturers, technology specialists and others. The second typology – subcontractors – refers to companies supplying production capacity and process technology skills to produce a component or to provide a specific service according to the design and/or specifications of a given customer. Their key elements for competitive success are their operational effectiveness and their ability to meet quality and delivery standards required by the customer.

According to van Weele (2002, p. 167), buyer-supplier relationships are changed from operational to strategic partnerships: supplier, preferred supplier, supplier partner and design partner, according to Table 7.

Table 7. How buyer-supplier relationships may develop over time (van Weele 2002, p. 167).

Aspects	**Supplier**	**Preferred supplier**	**Supply partner**	**Design partner**
Relationship characteristics	Operational	Operational	Tactical	Strategic
Time horizon	From order to order	1 year	1–3 years	1–5 years
Quality	As requested by buyer Quality control by buyer	As requested by buyer Quality control by buyer and supplier	Sign-off by supplier Quality assessment by supplier (process quality)	Sign-off by supplier Early supplier involvement in design Quality assessment by supplier (design quality)
Logistics	Orders	Annual agreements + call-off orders	Periodical scheduling of materials requirement by buyer	Electronic document interchange
Contract	From order to order	Annual agreement (1 year)	Annual agreement (>1 year) Quality agreement	Design contract Life of type responsibility (pro-duct liability supply)
Price / cost	Price	Price + rebate	Price + cost reduction targets	Price based on open calculation Continuous improvement (design, quality, cycle time)

2.2.3 Co-operation-related issues

This section focuses on references in the literature concerning the question of co-operation relationships between customers and suppliers.

Johnsen et al. (1998) emphasize the network problem and say that the length of supplier networks, i.e. the number of tiers or layers, is an important feature. They argue that the longer the network or chain, the more independent the business, which means that, since these have independent objectives, the chain is more difficult to co-ordinate.

Stuart et al. (1998) also focus on partnership models in the subcontract processes. According to them, two notable best practices are the development of tiered supplier partnerships and *kyoryoku kai* or supplier associations. The tiered supplier partnership links automotive firms to their key subsystem suppliers, while supplier associations diffuse technological development back through the supply chain. However, these approaches have been successful in those industries in which they were developed; they may not be applicable to all firms. They describe one possible alternative called "leveraged learning network". The concept means a consortium of independent subcontractors of quality products and services, who compete and win against the world's best.

Wynstra and Ten Pierick (2000) developed a Supplier Involvement Portfolio for managing development activities (Figure 15). The aim is to provide support for setting priorities with regard to the involvement of suppliers in a new product development project so that it can be carried out with an optimal amount of management capacity while making optimal use of the supplier's expertise. This portfolio distinguishes four types of supplier involvement on the basis of two variables: 1) the degree of responsibility for product development that is contracted out to the supplier, and 2) the development risk.

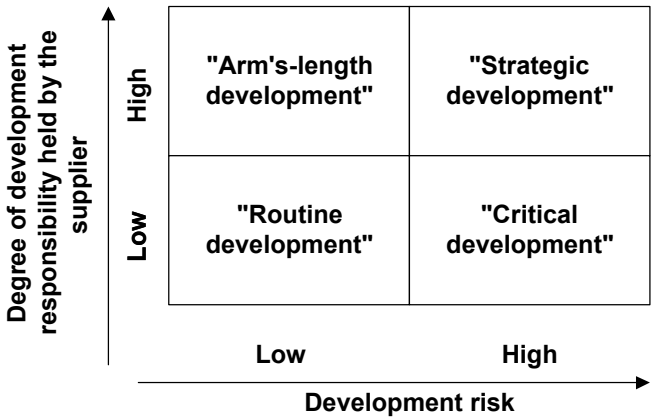

Figure 15. The Supplier Involvement Portfolio (Wynstra and Ten Pierick 2000).

Lamming (1993, p. 194) introduces a lean supply model of customer-supplier relationships, as shown in Table 8.

Table 8. The lean supply model of customer-supplier relationships (Lamming 1993, p. 194).

	Lean supply characteristic
Nature of competition	Global operation; local presence. Based upon contribution to product technology. Organic growth and merger and acquisition. Dependent upon alliances/collaboration.
Basis of sourcing decisions	Early involvement of established supplier in new vehicle. Joint efforts in target costing/value analysis. Single and dual sourcing. Supplier provides global benefits. Re-sourcing as a last resort after attempts to improve.
Role/mode of data/information exchange	Time transparency: costs, etc. Two-way: discussion of costs and volumes. Technical and commercial information. Electronic data interchange. Kanban system for production deliveries.
Management of capacity	Regionally strategic investments discussed. Synchronized capacity. Flexibility to operate with fluctuations.
Delivery practice	True just-in-time with kanban. Local, long-distance and international JIT.
Dealing with price changes	Price reductions based upon cost reductions from order onwards: from joint efforts.
Attitude to quality	Supplier vetting schemes become redundant. Mutual agreement on quality targets. Continual interaction and kaizen. Perfect quality as goal.
Role of R&D	Integrated: assembler and supplier. Long-term development of component systems. Supplier expertise/assembler systems integration.
Level of pressure	Very high for both customer and supplier. Self-imposed. Not culturally specific.

According to Tanskanen (1994, p. 9), the means of JIT-purchasing grouping are given as:

1. The means whose purpose is to create a basis for continuous improvement with the suppliers. These means include single sourcing, criteria for supplier selection, long-term contracts with the suppliers, education and training, open communication and feedback between the customer and the supplier.
2. The means for achieving a fast fluent flow of materials from the suppliers to the production process of the customer. These means are the JIT production system of the supplier, quality assurance at the source, exact delivery schedules, fast data transmission, frequent transportation, an advanced receiving system and finally, reduction of inventory levels.
3. The means for reducing the total costs in the supply chain. Reduction of paperwork and administrative costs, and co-operation in product design are included in this category. Some means can also belong to the total costs in the supply chain.

For their part, Gonzales-Benito (2002) define the characteristic practices of JIT purchasing by using four main categories of practices (Table 9).

Table 9. Characteristic practices of JIT purchasing (Gonzales-Benito 2002).

Practices	**Description**
Operational practices	• Kanban with suppliers • Frequent delivery (small batch sizing) • Reduced inventory • Exact delivery time (or tight time windows) • Standardized containers • Geographical concentration (through plants or warehouses) • Electronic data interchange (EDI)
Relational practices	• Frequent communications • Single source (small numbers of suppliers) • Long-term contracts • Lasting relationships • Relational programmes (initiatives to foster co-operation) • Benefits sharing (risk sharing) • Mutual assistance • Cost information exchange • Cost-based price calculation
Involvement practices	• Supplier involvement in design and development (more collaboration, more autonomy) • Engineering visits • Supplier development programmes (training courses)
Quality practices	• Supplier selection based on quality and reliability • Performance control (quality and reliability) • Quality certification

According to van Weele (2002, p. 165), the major goal in supplier-partnership co-operation is to achieve significant improvements in**:**

- **Logistics**. By giving the suppliers insight into the supply needs and materials schedules for the coming months, they can anticipate much better the future requirements, which will lead to higher level of service and lower logistics costs for both parties.
- **Quality**. Early mutual agreement on quality requirements enables zero-defect deliveries, which in turn result in a reduction of quality costs for the contractor.

- **Product development**. By introducing product and process engineering knowledge and experience of the supplier early into the development process, the time-to-market and start-up costs may be reduced.

For examining the logistics connection points of co-operation, Hoover et al. (2001, pp. 74–79) describe the interaction between the customer's demand chain and the supply chain by introducing two concepts. The customer's demand chain and supply chain are linked in two places – the order penetration point and the value offering point. The order penetration point (OPP) is the point in the supply chain at which customer demand (an order) is allocated to the product. The goods might be allocated from a warehouse once the order is received, or they might be manufactured to order. Each order penetration point has different costs and benefits for both the supplier and customer.

The value offering point (VOP) is the second point that links the demand and supply chains. It is the point that links demand and supply – the point in the customer's demand chain where the supplier fulfils demand. Moving the VOP largely benefits the customer, and requires the supplier to do more work. Besides, Olhager (2003) concentrates on the question of strategic positioning of the order penetration point (OPP). He divides the most important factors into three categories related to 1) market, 2) product, and 3) production characteristics.

Hayes et al. (1988, p. 208) presents the following framework based on comparison of two models for vendor relations (Table 10).

Table 10. Contrasting Views of Vendor Relations (Hayes et al. 1998, p. 208).

	Traditional	**Co-maker**
Selection/qualification criteria	– Buyer wants multiple sources – Suppliers fight for business – Price is primary criteria for selection	– Buyer wants few sources – Best suppliers are sought out and retained – Non-price criteria (delivery, quality, etc.) given equal or higher weight
Vendor's production processes	– Arm's length relationship – Focus is on final test – Stability is the goal	– Works closely with buyer – Focus is on process control – Improvement is the goal
Pricing	– Buyer wants lowest possible price – Leverage-based – Short-term agreements	– Buyer expects to provide fair – return – Trust-based – Long-term agreements
Schedules	– Extreme flexibility expected – Constant changes in schedules	– Realistic commitments that must be met – Credible promises
Quality expectations	– Vendor's responsibility – Acceptance level	– Joint effort – Continued improvement
New products	– Late vendor involvement – Vendor not responsible for design	– Early vendor involvement – Vendor design skills highly valuated
Information transfer	– Minimal: exceptions only – No news is assumed to be good news – Single buyer-vendor contract points	– Substantial and regular – Problem-solving information constantly passed back and forth – Multiple levels, two-way contacts

In the same way, Dyer (2000, p. 118) compares Chrysler's new model of partner process characteristic to an old model (Table 11).

Table 11. Chrysler's Partner Strategy Process Characteristics (Dyer 2000, p. 118).

	Arm's-Length Approach	**Partner Approach**
Supplier selection	Competitive bid low price wins – selection after design	Pre-source suppliers – target cost sets price – selection before design
Accountability	Split accountability for design, prototype, testing, and production	Single supplier for design, prototype, testing, and production
Dedicated Asset Investment	Minimal investments	Substantial investments (e.g. guest engineers, plants, etc.)
Information sharing	Discrete activity focus – no formal processes for supplier input	Total value chain focus – formal process for supplier input
Performance evaluation	Simple – unit price	Complex, multifaceted – "soft" evaluation
Governance/ Contracts	Short term	Long term

Consequently, Zirpoli & Caputo (2002) analyzed the buyer-supplier relationships in co-design activities in the Italian auto industry. They compare the Fiat management model to the Japanese Keiretsu model. Fiat's model emerges as a hybrid one. Fiat is able to reap the positive effects in terms of performance of the early and intense involvement of suppliers in co-design activities, avoiding the risks and reducing the inefficiencies of long-term co-operative relationships.

Furthermore, Kehoe & Boughton (2001) concentrated on the Internet-based supply chain management. They say, that the Internet, and more specifically extranet implementations provide the opportunity for demand data and supply capacity data to be visible to all companies within a manufacturing supply chain.

They introduce the term "Supply-Chain Resource Planning" (SRP). In order to understand the role of SRP, they present the following perspectives:

- A business viewpoint (i.e. a classification of the strategic business orientation)
- A physical viewpoint (i.e. the supply chain configuration)
- A logical viewpoint (i.e. the underlying inventory management logic)
- A system viewpoint (i.e. the planning and control system classification).

To that, Fynes and Voss (2002) add other seven dimensions when studying buyer-supplier relationships: 1) trust, 2) adaptation, 3) communication, 4) interdependence, 5) co-operation, 6) satisfaction, and 7) commitment.

Vesalainen (2004) highlights the process viewpoint in the customer-supplier relationships in subcontract manufacture and divides the co-operation process into three main categories:

1. Production-related co-operation process concerning deliveries, manufacturing methods and product liability.
2. Logistics-related co-operation process concerning information flows and material flows.
3. Product design-related co-operation process concerning manufacturability, prototyping and product design.

Vesalainen (2004) continues by saying that every process needs to be managed mutually by both companies (That is in line with the idea of Common Agenda). According to Vesalainen (2004), every process needs an owner, who is responsible for the management activities.

Consequently Vesalainen (2004) say that a partnership type co-operation has two sides: 1) real process, and 2) commercial process. The real process comprises material flows and information flows. The commercial process means the mechanisms of price determination.

Further, Hines (1994) introduced the supplier development activities matrix, which can be used when benchmarking the potential subcontractors (Table 12).

Table 12. The Supplier Development Activities Matrix (Hines 1994, p. 283).

	Product related	**Process related**	**People related**
Technical capability	Design, new product introduction, feasibility testing, product improvement	Process capability, process design, automation, recon-figuration	CAD, CAM, CIM, FMS, JIT, MRP
Quality capability	Specification limits, incoming materials control	Process capability, testing equipment, workmanship	Quality assurance, S.P.C. programme, worker training
Delivery capability	Product mix, materials lead time	Capacity level, process flexibility, setup times	Order entry system, scheduling flexibility, transportation/ inventory system
Cost capability	Value analysis, R&D expenditure, cost reduction programmes	Process efficiency, capital investment, rationalisation of work place	Work productivity, indirect costs, control

The co-operation between parties in R&D activities can be seen as a very important focus area in cases where the principal has outsourced all of the manufacturing activities. Asanuma (1989) has classified the parts to six categories according to the degree of initiative in design of the product and the process (Table 13).

Table 13. Classification of parts according to the degree of initiative in design of the product and the process (Asanuma 1989).

Class	Explanation
1	The core firm provides minute instructions for the manufacturing process
2	The supplier designs the manufacturing process based on blueprints of products provided by the core firm
3	The core firm provides only rough drawings and their completion is entrusted to the supplier
4	The core firm provides specifications and has substantial knowledge of the manufacturing process
5	Intermediate region between 4 and 5
6	Although the core firm issues specifications it has only limited knowledge concerning the process
7	The core firm selects from a catalogue offered by supplier

2.2.4 Reasons to outsource or subcontract related issues

As Webster & Beach (1999) say, subcontractors have traditionally been classified based on the reason for outsourcing. Those reasons of a prime contractor included lack of capacity in-house, need for expertise or technology, financial reasons, e.g. cost cutting, organizational culture, e.g. union avoidance, product life cycle, e.g. outsourcing of old designs, and organizational changes in operation.

According to Hines (1994, p. 55), the Japanese customers' reasons for using subcontractors are: 1) the subcontractor has specialized technical knowledge not held by their own company (57.6 %); 2) concentrate effort on the most appropriate work (48.2 %); 3) previous business relations with the subcontractor and/or experience of subcontractor's reliability (46.5 %); 4) increased flexibility via size of orders (37.1 %); 5) lower personnel costs and/or lower unit costs (36.5 %); 6) small size of lots and therefore greater efficiency through production by small firms (30.6 %); 7) bypassing the large size of company would reduce operating rate (9.4 %), and 8) competition between subcontractors ensures high quality and lower unit price.

For his part, Imrie (1994) identified three forms of subcontracting: 1) capacity, 2) specialized, and 3) economic subcontracting. Consequently, he conducted a survey of the reasons for using subcontractors (Table 14).

Table 14. Main reasons cited for using subcontractor (Imrie 1994).

Reason cited	**Nr.**	**%**
To maintain costs	27	42
To control capacity	20	31
Access to specialists	12	19
Labour control	3	5
To enhance productivity	2	3
Total response	64	100

2.2.5 Summary of the literature

The literature references above introduced a huge collection of buyer-supplier related issues. Our aim is to use the topics presented in these issues to create the headings of Common Agenda. In this section we summarize these issues in four tables.

The issues in the literature references are summarized in the following, Tables 15, 16, 17 and 18.

Table 15. Product-related issues.

In this table all of the product-related issues and topics are summarized.

Kraljic (1983)	strategic items / bottleneck items / leverage itmes / non-critical items
van Weele (2002)	strategic products/supplier bottleneck products/supplier leverage products/supplier routine products/supplier
Gonzales-Benito (2002)	volume/specifity/technological complexity/essentiality/fragility/variability/economic value
Asanuma (1989)	purchased goods/ordered goods
Asanuma (1989)	classification of parts according to the degree of initiative in design of the product and the process
Johnsen et al. (1998)	complexity, uniqueness, manufacturing process, product/service package performance criteria, market environment, network structure
Imrie (1994)	1) capacity, 2) specialized and 3) economic subcontracting
De Toni and Nassimbeni (1996)	1) product, 2) process
Svenson (1968)	1) know-how, 2) finished assembly, 3) subassembly, 4) parts
Lamming et al. (2000)	1) innovative-unique products (speed, flexibility, quality, innovation), 2) functional products (costs, quality)

Table 16. Supplier-related issues.

In this table all of the supplier-related issues and topics are summarized.

Lehtinen (2001)	1) jobber, 2) capacity, 3) part supplier, 4) component supplier, 5) system supplier
Thaler (1997)	1) part manufacturer (jobber), 2) process specialist, 3) component manufacturer, 4) value added partner (system supplier)
Lilliecreutz (1996)	1) system suppliers 2) part manufactures
Wood et al. (1996)	1) technology specialist, 2) commodity supplier, 3) collaborative specialist, 4) problem solver
Lehtinen (2001)	1) quality, 2) flexibility (agility, mix. Flex, volume flex. Modif. Flex), 3) innovation, 4) integration, 5) service, 6) consulting
Lamming (1993)	1) key player, 2) loyal collaboration / 1) leader, 2) follower
Muralidharan et al. (2001)	1) quality, 2) technical facilities, 3) delivery
Cagliano and Spina (2002)	1) small manufacturers ->production/product innovation/design, oem, proprietary products producers, catalogue producers, design-to-specification manufacturers, technology specialists. 2) subcontractors -> production capacity, process technology, produce or provide specific service according to the design/specs of a customer
van Weele (2002)	1) supplier, 2) preferred supplier, 3) supply partner, 4) design partner

Table 17. Co-operation-related issues.

In this table all of the co-operation-related issues and topics are summarized.

Johnsen et al. (1998)	long supply chain -> independent business -> difficult to coordinate
Stuart et al. (1998)	1) tiered supplier partnership, 2) supplier association
Wynstra and Ten Pierick (2000)	1) routine development, 2) arm's-length devel., 3) strategic devel., 4) critical devel.
Lamming (1993)	1) nature of competition, 2) basis of sourcing decisions, 3) role/mode od data/information exhange, 4) management of capacity, 5) delivery practice, 6) dealing with price changes, 7) attitude to quality, 8) role of R&D, 9) level of pressure
Tanskanen (1994)	1) basis for continous improvement (single sourcing, criteria for suppl. Selection, long term contracts, education, training, open communication, feedback betw. Customer and supplier) 2) fast fluent flow of materials (JIT system of the suppl., quality assurance at the source, exact deliv. Schedules,fast data transmission, frequent transportation, advanced receiving system, reduction of inventory levels) 3) reducing the total cost in the supply chain (reduction of paperwork and administrative costs,co-operation in product design)
Gonzales-Benito (2002)	1) operational practices, 2) relational pract., 3) involvement pract., 4) quality pract.
van Weele (2002)	1) logistics, 2) quality, 3) product development
Hoover et al. (2001)	1) VOP, 2) OPP
Olhager (2003)	1) market, 2) product, 3) production characteristics
Hayes et al. (1988)	1) selection/qualification criteria, 2) vendor's production processes, 3) oricing, 4) schedules, 5) quality expect.,6) new products, 7) information transfer
Dyer (2000)	1) arm's-length appr., 2) partner appr. / 1) supplier selection, 2) accountability, 3) dedicated asset investment, 4) information sharing, 5) performance evaluation, 6) governance/contracts
Zirpoli and Caputo (2002)	1) Fiat management model 2) Japanese Keiretsu model
Kehoe and Boughton (2001)	1) business viewpoint (class, of the strategic bus. Orientation) 2) physical viewp. (supply chain config.) 3) logical viewp. (underlying inventory manag. Logic), 4) system viewp. (planning and control syst. Classific.)
Fynes and Voss (2002)	1) trust, 2) adaptation, 3) communication, 4) interdependence, 5) co-operation, 6) satisfaction, 7) commitment
Vesalainen (2004)	1) product related (deliveries, manufacturing methods, product liability), 2) logistics related (information/material flows), 3) product design related (manufacturability, prototyping, product design)
Vesalainen (2004)	1) real process, 2) commercial process
Hines (1994)	1) technical, 2) quality, 3) deliver, 4) cost / 1) product related, 2) process related, 3) people related
Asanuma (1989)	1) minute instruction for manuf.proc by core f. / 2)supplier designs man.proc.based on blueprints by core f. / 3) core f. provides only rough draw., suppl. Complete / 4) core f. prov. Specs. Having subst. Knowl. of manuf./ 5) intermed. Betw 4 and 5/core f. issues specs. But have only limited knowl. Conc. The proc. 6) core f. selects from a catalogue offered by supplier

Table 18. Reason to subcontract/outsource related issues.

In this table all of the reason to subcontract/outsource related issues and topics are summarized.

Webster and Beach (1999)	1) lack of capacity, 2) need for expertise or technology, 3) financial reasons, 4) organizational culture, 5) union avoidance, 6) product life cycle eg. Outsourcing of old design, 7) organizational changes in operation
Hines (1994)	1) technical knowledge, 2) concentrate on the most aprr. Work, 3) previous business relations, 4) increased flexibility, 5) lower personnel costs/unit costs, 6) small size lots, 7) bypassing the large comp. Reduc.oper. Costs
Imrie (1994)	1) cost, 2) capacity, 3) specialist, 4) labour control, 5) productivity

These summary Tables 15–18 give a rich and versatile picture of the complexity of the buyer-supplier relationships in the industrial context. We can connect these issues to the previously discussed theme of governance structures, introduced by Williamson (1979). Williamson (1979) said that bilateral structures have only recently received the attention they deserve and their operation is least well understood. Today we can see that the interest among scientists has been wide toward bilateral governance in recent years. Also the idea of Common Agenda can be seen as a part of the scientific discussion of that bilateral governance.

As a conclusion to this chapter, it can be seen that the concept of Common Agenda or some close concept cannot be found in the literature above. Consequently, it can be stated that Common Agenda is a new entity in the scientific discussion of the buyer-supplier relationships.

The literature study also helps us to identify the headings of Common Agenda. In the following section we focus on defining these headings.

2.3 A proposal for Common Agenda and its headings

The aim of this section is to fit the selected literature references to the proposed headings of Common Agenda. It is important to recognize that the collection of the proposed headings is only one view to the co-operation. There are probably a number of different alternatives to construct the collection of headings. Our aim is not to find a "final truth" of that collection but a useful one that can be used to test Common Agenda in practice. The proposed headings are constructed with consideration given to the day-to-day operation in subcontract manufacture co-operation in the metal industry.

Originally, the proposed headings of Common Agenda are based on the study of Häkkinen (2004). See also appendix A.

In order to highlight the dynamic management nature of the headings we take the term "process" into use in this context. According to Häkkinen (2004), the proposed processes in subcontract manufacture co-operation in the metal industry are:

1. Subcontractor / principal selecting process
2. Concurrent engineering process
3. Quality assurance process
4. Logistics process
5. Manufacturing planning and control process
6. Financial process
7. Contract and order process
8. Management of the processes.

Here the connections of the proposed Common Agenda to previous literature are explored.

The selected literature references, presented in the previous section, are grouped in four categories. These categories are: 1) product-related issues, 2) supplier-elated issues, 3) co-operation-related issues, and 4) reasons to outsource or subcontract related issues.

Each of the categories is tabulated in Tables 19, 20, 21 and 22. Essential issues presented in each of the literature reference are listed in the middle part of each table. These issues act as a gearbox to connect the literature references to the proposed headings of Common Agenda.

Table 19. Product-related issues and the headings of Common Agenda.

Proposed headings of Common Agenda																							
Subcontractor / principal selecting process	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Concurrent engineering process																							
Quality assurance process																							
Logistics process																							
Manufacturing planning and control process																							
Financial process																							
Contract and order process																							
Management of the processes																							
Product related issues																							
Topics in the issues	strategic items	bottleneck items	leverage items	non-critical items	volume items	specific items	technological complexity	essentiality	fragility	variability	economic value	catalogue product	specification by core firm	capacity	product	process	know-how	finished assembly	sub-assembly	parts	innovative products	functional products
Kraljic (1983)	x	x	x	x																			
van Weele (2002)	x	x	x	x																			
Gonzales-Benito (2002)					x	x	x	x	x	x	x												
Asanuma (1989)												x	x										
Johnsen et al. (1998)															x								
Imrie (1994)						x					x			x									
De Toni and Nassimbeni (1996)															x	x							
Svenson (1968)																	x	x	x	x			
Lamming et al. (2000)																					x	x	

The topics in Table 19 characterize product properties. They play an important role in the beginning phase of the co-operation. They affect mostly the selection of the supplier. The question is about the supplier's ability to produce the needed product.

Table 20. Supplier-related issues and the headings of Common Agenda.

Proposed headings of Common Agenda																													
Subcontractor / principal selecting process	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Concurrent engineering process																													
Quality assurance process																													
Logistics process																													
Manufacturing planning and control process																													
Financial process																													
Contract and order process																													
Management of the processes																													
Supplier related issues																													
Topics in the issues	jobber	capacity supplier	part supplier	component supplier	system supplier	process specialist	technology specialist	commodity supplier	collaborative specialist	problem solver	quality supplier	flexible supplier	innovative supplier	integrative supplier	service supplier	consulting supplier	key player	loyal collaborative partner	leader	follower	original equipment manufacturer	proprietary products producer	catalogue product producer	design-to-specification manufacturer	supplier	preferred supplier	supply partner	design partner
Lehtinen (2001)	x	x	x	x	x																								
Thaler (1997)	x		x	x	x	x																							
Lilliecreutz (1996)			x		x																								
Wood et al.(1996)							x	x	x	x																			
Lehtinen (2001)											x	x	x	x	x	x													
Lamming (1993)																	x	x	x	x									
Muralidharan et al. (2001)							x				x																		
Cagliano & Spina (2002)							x														x	x	x	x					
van Weele (2002)																									x	x	x	x	

The topics in Table 20 characterize the properties of the supplier. They play an important role when seeking suitable suppliers for a certain product. They affect mostly on the selection of the supplier. The question is about the buyer‘s opinion of the supplier’s properties.

Table 21. Co-operation-related issues and the headings of Common Agenda.

Proposed headings of Common Agenda																								
Subcontractor / principal selecting process	X														X									X
Concurrent engineering process					X			X											X					X
Quality assurance process					X		X																	x
Logistics process					X				X								X	X			X			X
Manufacturing planning and control process					X	X																		
Financial process					X								X					X			X			X
Contract and order process											X	X									X	X		X
Management of the processes		X	X	X	X	X	X	X	X					X			X			X			X	X
Co-operation related issues																								
Topics in the issues	tiered supplier partnership / supplier association	routine development	arm's length, strategic and critical development	nature of competition / level of pressure	role / mode of data / information exchange & sharing /open communication / feedback between partners / information transfer & fast data transmission	management of capacity	attitude to quality	role of R & D / co-operation in product design	logistics / delivery practices & delivery schedules / frequent transportation / advanced receiving systems / reduction of inventory levels / VOP & OPP theories / long supply chain ->difficult to coordinate	time horizon	lenght of contract / governance	price / cost / pricing / dedicated asset investments	criteria for supplier selection / qualification / basis of sourcing decisions	education / training	vendor's production processes / JIT production system	reduction of paper work and administrative costs	accountability for design, prototype, testing and prudiction	performance evaluation	business, physical, logical and system viewpoint of supply chain	trust / adaptation / interdependence / satisfaction / commitment	co-operation	operational, relational, involvement and quality practices
Johnsen et al. (1998)									x															
Stuart et al. (1998)	x																							
Wynstra and Ten Pierick (2000)		x	x																					
Lamming (1993)				x	x	x	x	x	x			x	x											
Tanskanen (1994)					x		x		x		x		x	x	x	x								
van Weele (2002)							x	x	x	x	x	x												
Gonzales-Benito (2002)					x		x	x	x		x	x	x	x										
Hoover et al. (2001)									x															
Olhager (2003)									x															
Hayes et al. (1988)							x	x	x				x	x		x								
Dyer (2000)			x		x						x	x	x					x	x					
Zirpoli & Caputo (2002)								x																
Kehoe & Boughton (2001)																				x				
Fynes & Voss (2002)					x																x	x		
Vesalainen (2004)					x			x	x							x		x						
Hines (1994)						x			x			x	x	x	x									

The topics in Table 21 characterize the issues related to the co-operation between the parties. Their role varies much depending on the nature of a certain co-operation case. They affect all of the headings of Common Agenda.

Table 22. Reasons to subcontract/outsource related issues and the headings of Common Agenda.

Proposed headings of Common Agenda											
Subcontractor / principal selecting process	X	X	X	X	X	X	X	X	X	X	X
Concurrent engineering process											
Quality assurance process											
Logistics process											
Manufacturing planning and control process											
Financial process											
Contract and order process											
Management of the processes											
Reasons to subcontract/outsource issues											
Topics in the issues	lack of capacity	need for expertise or technology	financial reasons	organizational culture / labour control	union avoidance	product life cycle	organizational changes in operation	concentrate on the most appropriate work	previous business relations	increased flexibility	small lot size
Webster and Beach (1999)	x	x	x	x	x	x	x				
Hines (1994)		x	x					x	x	x	x
Imrie (1994)	x	x	x	x							

The topics in Table 22 characterize the reasons to outsource or subcontract certain production phases. They play an important role in the decision making phase. They significantly affect the selection of the supplier.

Conclusion

Thus it can be concluded that the headings of the proposed Common Agenda are strongly supported by existing literature. However, the previous writers have a limited view of the whole subcontract phenomenon, having not concentrated on a management problems, while Common Agenda intends to cover all the essential issues and sub-processes of the whole subcontracting management process.

3. Content test of Common Agenda

The aim of the content test is to clarify whether the proposed headings are valid and sensible. On the other hand, the aim is to improve the content of each heading.

The tentative content of the headings of Common Agenda is based on the report of the author's (Häkkinen, 2004) study. That tentative content was used as a basis for the discussions with the companies in this study (Companies and interviewed persons are illustrated in Table 23 in Chapter 4).

The selection of the companies in this study was made among such companies who were participating in the ongoing LAATUALI-project (see Section 1.6) or who had participated in some earlier research project carried out by VTT. The selection was made by the author.

The researcher visited each of the 13 companies twice during the autumn of 2004 (August – September). The interviews were carried out using an individual interview approach (Sykes 1990). The interviewees were persons responsible for the subcontract relations and thus they represented the best understanding of that area.

During the first visit, the researcher presented the basic idea of Common Agenda with the proposed headings as a management tool in subcontract co-operation to the interviewees. The interviewee was asked to explain their co-operation with their partner using the proposed headings and content as a basis.

The interview sessions were carried out using the method of non-forcing interviews (Stenbacka 2001). Each of the sessions lasted about two hours.

The data collection was based on the utilization of a flip chart. The author wrote text and drew pictures on the flip chart during the interview sessions. All of the comments and ideas of the interviewee were documented on the flip chart papers.

The author's pre-understanding (see Preface) about the subcontract manufacture process in the metal industry is important to notice. The nature of this pre-understanding is first-hand (Stenbacka 2001), helping to maintain the discussions with interviewees. On the other hand, the researcher is a part of the study and thus has influenced the results of the study[20].

The second interview session was focused on the functionality test of Common Agenda and will be illustrated in Chapter 4.

3.1 Subcontractor / principal selecting process

Webster et al. (1997) concentrate on the subcontractor selecting issue. They say that a key operational issue for the principal concerns the selection of subcontractor, and this is typically carried out on two levels. On the first level, evaluation of external enterprises – often using formal corporate supplier appraisal procedures – provides information to generate a subcontractor base from which individual organizations can be selected to manufacture individual items. On a more detailed level, the principal then needs to select individual subcontractors to manufacture particular batches of items in accordance with internal planning activities.

Considering the subcontractor selecting process (Häkkinen 2002), it is clear that the first selection criterion is to be sure that the manufacturing methods match the product design. Subcontractors typically use common versatile manufacturing machines and methods. Some of the subcontractors in this study have constructed product-oriented manufacturing lines for their principals.

In this study, the innovativeness was one of the evaluation criteria in every principal's list. The importance of innovativeness seems to be one of the most discussed criteria today. An innovative subcontractor is good assurance for future development.

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[20] According to Stenbacka (2001), the qualitative researcher must reflect upon and make visible the possible pre-understanding and the process of access in the study.

A lesser discussed issue in the literature is the subcontractor's criteria to select and classify principals. In this study, every subcontractor is seeking such principals who are innovative and offer continuous co-operation with low risks. This issue was not analyzed, but it seems to be clear that also the principals need to take into account the subcontractor's needs.

Pajarinen (2001) says that in well-established co-operation, the subcontractor's marketing efforts are very small, because there is no need to seek new principals continually. The subcontractor can use all his resources to develop his own knowledge and manufacturing processes. On the other hand, it is very important to utilize one's own expertise to serve many principals.

3.2 Concurrent engineering process

The most used definition of Concurrent Engineering (CE) according to Prasad (1996) is:

Concurrent Engineering is "a systematic approach to the integrated, concurrent design of products and their related processes, including manufacture and support. This approach is intended to cause the developers, from the outset, to consider all elements of the product life-cycle from conception through disposal, including quality, cost, schedule and user requirements".

It is known that the concurrent engineering process has always been one of the main problems in the manufacturing industry. Because the designer is a professional in the design process, it is quite clear that he cannot understand all of the manufacturing features and options. For this reason, he needs to be in contact with manufacturing personnel continually. Today, the global distribution of manufacturing plants has made it more difficult to maintain the CE process, especially in the subcontract manufacture process.

According to the author's previous study (Häkkinen et al. 2002), there are many possibilities to achieve cost savings by developing a product design and manufacturing processes simultaneously. The research study showed that there is a huge gap between reality and the possibilities. Some products were case-

tested in a mutual meeting with principal's designer and subcontractor's professionals. In every case, a new construction was created with cost savings of about 50–70 %. These savings required changes in product design and manufacturing methods.

Consequently, it was found (Häkkinen et al. 2002) that in many of the cases it seems to be sensible to create a systematic CE procedure between parties. The procedure can be different at the development phase of the new product and in the later phases of the product lifetime. Furthermore, the status of the CE process was studied. The results were discouraging. Only a few of the principals had collaborative CE activities with their subcontractors. No written CE procedure was found.

The degree of concurrent engineering is dependent on the product. Simple products do not require any CE processes, but with more complex products, a CE-process seems to be critical in the long run. Maintaining a good CE process will benefit all of the parties.

According to this study, the CE process seems to be well understood by all companies, who agreed on its importance (see Appendix B).

3.3 Quality assurance process

The appropriate quality of the manufactured product is dependent on the principal's market or the principal's own quality requirements. The principal may operate in a market where the product quality is a key issue. For example, the products used in health-care, aviation, military, pharmaceutical systems, etc. may only be allowed to be manufactured by companies with a certified quality system. The quality system is usually built according to certain standards and it must be audited by an accredited company. In these cases, the subcontractor's quality systems need to be integrated into the principal's quality system. On the other hand, there are a lot of principals who do not have any market requirements on their quality system. Despite this, they can require a quality system of their subcontractor in order to avoid waste and other problems in their own production.

The quality assurance activities can be process-oriented or product-oriented. The principal may require certain structural quality features to be implemented in the subcontractor's production process. Despite good process quality, there is always the possibility of bad product quality. Therefore, there is often a need for quality control activities.

Product-related data files are a part of a quality system. Drawings, other documents, measuring instructions, and manufacturing instructions, etc. can be stored in various places. One of the well-known problems is related to the archiving of drawings and other documents managed by the principal. Typically, the principal manages the official archive and delivers copies of the drawings and other documents to the subcontractor. Updating these archive copies is often problematic. There needs to be mutually developed updating process to ensure that the products are manufactured, handled and quality-inspected according to the right up-to-date drawings and other documents

Outside the production process there can be requirements from principals concerning the security issues. One of the subcontractors in this study manufactures parts for the Finnish army. This principal required fencing around the factory, works passes for the whole personnel, and an internal computer network without external connections, etc.

This study revealed that there are problems in product quality (see Appendix B). The subcontractors were quite satisfied with the prevailing situation, whereas the opinions of the principals were much in opposition. The explanation for this difference of opinion was not identified.

3.4 Logistics process

The logistics processes in this context means all the physical facilities needed to stock, transport and manage the material flow from the subcontractor's plant to the principal's address. The logistics process in repetitive batch production in the SME subcontracting industry was in the focus in the author's study (Häkkinen et al. 2001). Typically, the manufacturing lot-sizes were much greater than the delivery batches to the principal's plant. Additionally, the principal shelved the batch into stock from which even smaller batches were delivered to the assembly line.

In addition, the logistics process includes the decision-making concerning the material flow. This question concerns the person who makes the delivery decision. The decision can be made by the principal's personnel or by the subcontractor's personnel. There are a lot of options available for arranging the information flow to the decision maker.

In this study, the logistics process seems to be important for the principals. Each of them has moved decision making at least partially to the subcontractor's personnel. A popular operative model is one where the subcontractor makes all of the products for their own stock. When the principal's assembly line needs products, they send a manual order using a fax machine. The delivery time is typically short. It can be hours or just some days.

In this study, it was found that logistics issues have generated new challenges for the subcontractors:

- They need to put effort into warehousing technology development.
- The batch optimization is more complex than earlier. The warehousing costs need to be taken into account.
- Pricing the product is more complex than earlier. There is a problem in determining the right price for the logistics service.
- Operative cost accounting is more complex than earlier. There are more indirect cost elements than earlier.
- There is a need to increase the warehouse space. The quality requirements of the warehouse space may differ from the manufacturing space.
- Material transfer and handling systems need to be developed.
- Computer-based warehouse management systems need to be implemented.

The discussions during this study revealed the complexity of the logistics chains and decision-making processes (see Appendix B). One common practice is where the principal buys different kinds of raw materials, components and sub-assemblies from subcontractors and suppliers in other countries, which are then delivered to their Finnish subcontractors.

Additionally, the principals' common opinion was that subcontractors need to integrate closer to their logistics processes.

Storing the principal-related tools and other manufacturing equipment is one part of the logistics process. During this study, we found cases where the principal owns the tools and lends them to the subcontractor in order to use them for the principal's products.

A common discussion topic today is the order-delivery process, which can be seen as a part of the logistics process in this context.

3.5 Manufacturing planning and control process

Manufacturing planning and control process in this context mean balancing both parties' manufacturing capacities with each other. The principal's purchasing department needs to be aware of their subcontractor's capacity-loading status. The subcontractor typically has many principals and therefore has problems in balancing his own capacity to meet every principal's needs. Manufacturing planning can be made for the long run and for the short run. Long-range planning covers investments and other structures of the production process. Short-range planning is typically decision-making concerning the capacity utilization without investments.

It is important to understand that, despite a good capacity-planning process, it is possible to misuse the capacity by making wrong decisions that result in weak delivery performance.

Webster et al. (1997) looked at the manufacturing planning question and say that, typically, the distributed and physically separate nature of the manufacturing process within a subcontract arrangement means that real-time interaction between the principal and the dynamics of operations on the shop floor is reduced. However, there remains a need to maintain contact with manufacturing operations in order to receive feedback on issues that will affect delivery and to update demand requirements.

The manufacturing planning and control issues in the subcontract manufacture process were in focus in the author's earlier study (Häkkinen et al. 1999). The goal was to determine the possibilities to use the Internet as a communication tool in subcontract co-operation in the metal industry. Because there are two manufacturing plants, which are dependent on each other, they need to be managed with a common management system, at least partially. A number of solutions were found to use the Internet in daily operation. One of the problems in exploiting new information technology is that every company has their own management systems, which are intended to support only their own organization.

Webster et al. (1997) comment on the same problem, saying that material control for subcontract manufacture offers a number of options starting at one extreme with the full service type contract in which the subcontractor performs all of the activities in the selection, acquisition and control of materials. At the other extreme is the free issue system, in which all material selection, acquisition and control functions are carried out by the principal. A compromise between these two extremes is possible, and it has been suggested that the optimal balance of control between them can be established in each individual case by carrying out a cost analysis to determine a break-even volume at which to switch between the two.

We can think that the manufacturing planning and control system need to be developed in interaction with the logistics process development. The question is: what information is needed for decision making, from where will it be retrieved and who is the person using the information to make manufacturing decisions? Additionally there can be several control systems depending on the features of the product and its demand in the same subcontracting process.

This study revealed that the most important issue for the subcontractors is demand forecasts from their principals. Typically, the subcontractors make parts for their own stock. There are two main reasons for this: 1) the economical manufacturing of lot sizes is typically bigger than delivery lot sizes, and 2) delivery time is often shorter than lead time. Additionally, the stocks can be used to store work hours and balance the effect of seasonal and other demand fluctuations.

There seems to be a clear gap between thinking among the companies. The principals seem to be quite happy with the prevailing practices, whereas the subcontractors hold much the opposite opinion (see Appendix B).

3.6 Financial process

The financial process comprises all the money-related activities. The most visible every-day activity is the invoicing process. The common practice is to invoice every delivery. The ownership of the delivery changes at that moment. The funding issue is sometimes in focus. Quite common is a solution where the subcontractor's stock is established at the principal's plant. In this case, the invoicing is based on the picked items from stock. The aim here is to transfer current assets from the principal's balance sheet to the subcontractor's balance sheet.

Some companies have made a decision to decrease the number of invoices by combining several deliveries in one invoice. In this case, both of the parties achieve administrative cost savings, but also in this case some part of the principal's current assets is transferred to the subcontractor's assets.

One usual financial issue is the principal-related investments. Some of the products may need product-dedicated tools or other equipment. There are many ways for the principal to pay for the investment. The investment can be paid in total before or after the investment moment. It is common to divide the investment cost into smaller payments and include them in the product price.

In this study, the operational accounting systems were discussed. Every principal was interested in the subcontractor's operational accounting systems, and in particular the pricing mechanisms were highlighted. These mechanisms ought to be transparent and their resolution needs to be good enough. The transparency is needed to control the effects of certain development activities or other operative changes. A good example is the renewal of a product design. The principal may be willing to see the cost savings from the investment in the product design.

The resolution of the product price was discussed. The resolution in this context means a detailed specification of the product price. The question is about the possible services included in the price. Often subcontractors offer services to

their principals. The costs of these services are usually added to the product's manufacturing costs by using overhead cost increments. The manufacturing phase is the simplest part of the subcontractor's contribution. Often the subcontractor has established a stock for principals and many of them participate in the product design phase with their principals. The quality system requirements have often led to dedicated quality assurance and control activities. Additionally, many principals have outsourced the manufacturing planning and control activities to the subcontractor's personnel. In many cases, the subcontractor participates in the concurrent engineering process.

All of these services cause costs to the subcontractor who adds them to the product price in some way. The principals need such a resolution to the subcontractor's pricing mechanisms that they can distinguish the manufacturing portion and other service portions from the whole price.

This study revealed that there is big gap between the thinking of the parties. The subcontractors were quite happy with the prevailing practices, whereas almost all principals held the opposite view (see Appendix B).

3.7 Contract and order process

The contract process is the final phase in negotiating the subcontract manufacture process. The six previous processes have an influence on the product costs and price. When all of them have been discussed, designed and completed, the contract can be negotiated. The contract ought to include the specifications of the previously explained processes.

The contract may include a number of issues depending on the subcontract manufacture process, for example: product prices, order routines, volumes per year, transport means, insurance, responsibilities, contact persons, and risks, etc.

During this study, the prevailing contracts were discussed with the companies. In every case, some kind of written contract had been made. Most commonly, such contracts are some kind of co-operation contract with a 2–3 year term of agreement. A list of the products with prices may be appended and subject to revision during the agreement time.

New products are continually developed during the term of agreement. In these cases, the principal usually invites offers. If the offer is accepted, the product is added to the list of products. The offer-making process is not covered in this study as a separate process.

According to this study, the principals seem to be quite happy to the prevailing practices, whereas the subcontractor's opinions are somewhat opposite (see Appendix B).

3.8 Management of the processes

During this study, the management issue of the previously discussed processes was revealed. In every company, the management issue was found to be problematic. The systematic approach to co-operative processes was not found to be in operation in the companies in this study. However, many of the companies were planning systematic activities to better manage the processes. The question about the management issue is important. But how should it be arranged in practice? Which one of the parties could be responsible for the management process and how often is there a need to handle different kinds of issues? The answers are not clear. The management process is dependent on the character of the companies in question. We can consider the power of the parties. It is clear that the principal has more power than the subcontractor, which indicates that the principal has the initiative for responsibility of the management process. This idea does not exclude the subcontractor from the decision-making process. There are also issues in which only the subcontractor can be the party taking the initiative. Manufacturing methods and production process development can be seen as examples of the subcontractor's areas of responsibility.

The prevailing management procedures in the companies in this case vary greatly. Mainly, the actual issues are handled in an unstructured way during the same discussions on other issues. Mostly, the issues and decisions are not written about in the minutes from meetings.

Some of the subcontractors proposed establishing a continuous meeting procedure at regular intervals. A Common Agenda of the meeting would be

written in accordance with actual questions and problems, etc., and the minutes would be written for every meeting.

The opinion of the principals was that it is impossible to meet every subcontractor and supplier even once a year. The number of all suppliers may be hundreds and there are not enough resources in the purchasing department to meet them all. There is only a certain portion of all suppliers with whom a continuous meeting process can be possible to arrange.

On the other hand, the importance of a regular meeting process was discussed as being dependent on the changes in business. If the principal's business is steady, requiring only minor changes occasionally, there is no need to establish a regular meeting procedure.

The management of the processes seems to be a important topic and may be discussed more in the future. This study revealed that there is a common interest to develop the management process (see Appendix B).

3.9 Summary of the content test

These discussion sessions covered various levels. They were sometimes on the strategic level, sometimes on the tactical and operational levels. Sometimes the sessions dealt with the planning issues, execution issues, follow-up issues and the feedback issues.

The results of the content test show that the proposed Common Agenda can be used as a basis for discussion. Every interviewee understood the meaning of each heading of Common Agenda. The discussions on the content of each heading highlighted some problems. The logistics process and manufacturing planning and control process are close issues. All of the interviewees had more or less difficulties in distinguishing them from each other. In every-day talk, people can cover both issues in one sentence.

The quality assurance process can be attached to each of the proposed headings, which may cause confusion. The concurrent engineering process was understood, and there were no problems in discussing this topic.

The financial process, the contract and order process, and the management of the processes were also understood.

One goal was to find co-operation practices that do not fit the proposed Common Agenda. The discussions did not reveal any such practices.

Based on the content test, we can say that the content of each heading is possible to determine in subcontract manufacture co-operation in the metal industry.

A lot of practical applications of each of the headings can be found. Here, we have described the content of each heading quite briefly, highlighting the main issues.

4. Functionality test of Common Agenda

4.1 The interview process

The companies involved in the interview process are briefly described in Table 23. The abbreviations for the positions of the interviewed persons are: 1) MDR = managing director, 2) PUM = purchasing manager, and 3) PRM = production manager.

The total number of companies involved in this study was 25. Thirteen of them were interviewed and 12 of them were not interviewed. The 12 companies not interviewed are co-operating with the 13 interviewed companies and have been involved in such a way with this study. These 13 interviewed companies were the same ones that were interviewed in the first visit (see Chapter 3).

In Table 23 we have categorized the companies in four groups: 1) interviewed principals, 2) not interviewed principals, 3) interviewed subcontractors, and 4) not interviewed subcontractors.

The interview process was carried out by the author, who visited the companies and made interviews using the assessment form (Appendix A). The author filled in the form during the interview session. The form is based on the results of the content test (see Chapter 3) and was developed by the author.

The scoring system from 4 to 10 was chosen because it is a natural choice in Finland, since it is used in the Finnish comprehensive school and Sixth Form College. Therefore, all Finns understand it and are able to use it as an evaluation system without any specific explanation. In this scoring system, number 4 means same as ‘fail’ and 10 means ‘excellent’. Number 7 is ‘fair’ and is usually the minimum goal for students in schools.

Table 23. Companies involved in the interview process.

Interviewed Principals			
Comp. ID	Number of personnel	Posit. of interview. person.	**Business description**
PR1	101-500	PUM	Luminaries and lightning systems for private and public use.
PR2	101-500	PRM	Composite equipment and industrial applications.
PR3	101-500	PUM	Parts for trucks and industrial vehicles.
PR4	501-1000	PUM	Products for the research, healthcare and industrial laboratories.
Not interviewed principals			
PR5	> 1000	---	Lifting solutions and services.
PR6	501-1000	---	Combustion engines.
PR7	101-500	---	Fine plastic extrusion and reel -handling technology.
PR8	101-500	---	Power, propulsion and motion control solutions for ships.
PR9	101-500	---	Cabin areas for passenger ships and ferries.
PR10	101-500	---	Commercial display refrigerators.
PR11	> 1000	---	Furniture, accessories, bathrooms and kitchens.
PR12	10-100	---	Oil spill recovery products.
PR13	101-500	---	Professional kitchens.
PR14	> 1000	---	Machinery and equipment for pulp, paper and power industry.
PR15	501-1000	---	Welding machines and solutions.
Interviewed subcontractors			
SB1	101-500	PRM	Manufacturer of springs, punched products and deep drawn products.
SB2	10-100	PRM	Manufacturer of injection moulded plastics parts.
SB3	10-100	MDR	Manufacturer of machined metal parts.
SB4	10-100	MDR	Manufacturer of machined metal parts.
SB5	10-100	MDR	Manufacturer of machined and welded metal parts.
SB6	10-100	MDR	Manufacturer of industry reinforced plastic.
SB7	10-100	MDR	Manufacturer of sheet metal parts and sub-assemblies.
SB8	10-100	MDR	Manufacturer of sheet metal parts and sub-assemblies.
SB9	101-500	PRM	Manufacturer of machined metal parts, sheet metal parts and sub-assemblies.
Not interviewed subcontractors			
SB10	10-100	---	Manufacturer of machined metal and plastics parts and sub-assemblies.

The functionality of the proposed Common Agenda with headings was tested with the 13 companies. Four of them were principals and 9 of them were subcontractors. The test was conducted by interviewing the same persons as in

Chapter 3 – one person from every company. The four principals evaluated their co-operation with five subcontractors in five cases. The 9 subcontractors evaluated their co-operation with 14 principals in 16 cases.

The interview chart is illustrated in Figure 16. In four cases both parties of a principal – subcontractor relationship were covered. The cases were P1/S15, P2/S14, P3/S6 and P4/S7.

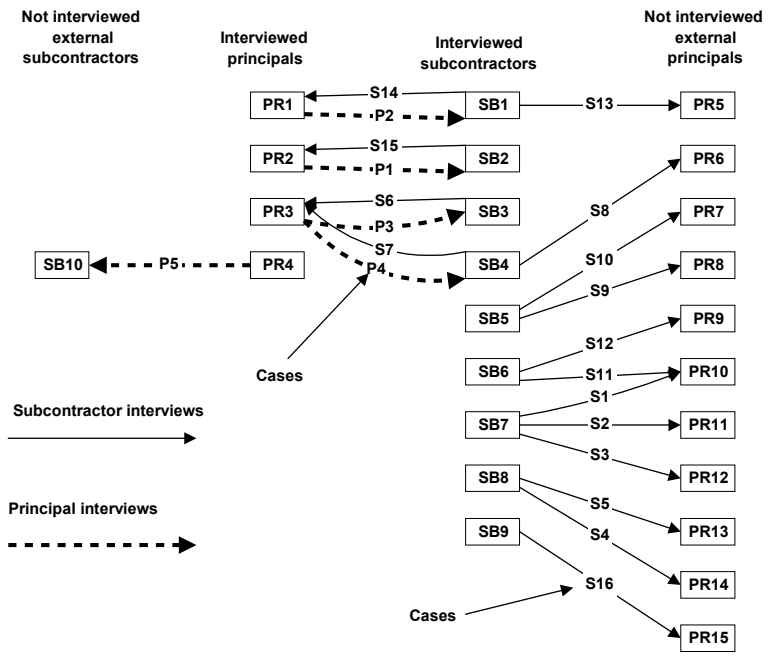

Figure 16. The interview chart.

By testing the quality of co-operation, the interviewees needed to concentrate on the heading in question. He or she had to create a view about that issue. In this study, the most important element was to test the headings and their functionality in practice. Every interviewee was asked to evaluate the quality of the co-operation with his or her partners by giving a score of 4–10 for every heading. Additionally, they were asked to comment on the co-operation process, freely revealing the strengths and weaknesses, and stressing the development activity in the co-operation process. The development activities play an important role in the long run. For example, we can take a present operation with continuous problems. But despite the problems, an active subcontractor can achieve good results with good development activity during quite a short run.

The first heading (subcontractor / principal selecting process) was not tested. Both parties have their own criteria for selecting new co-operation parties and we can assume that this phase is not a co-operational process. The selection criteria are used when new partners are evaluated. If a new partner passes the evaluation test, it can be placed on the accepted partner list.

The functionality test was made in two ways. The first test was the evaluation score test explained previously. The second assessment test was based on the interviewees' opinions and was conducted by the author. The idea is to compare the given evaluation scores to the verbal opinions of the interviewees.

4.2 Results of the evaluation scores

The summary of the evaluation scores is based on the completed assessment forms (Appendix A) from each company. The given scores are summarized in Table 24.

In Table 24, the principals evaluated their co-operation in five cases (P1…P5) and subcontractors evaluated their co-operation in 16 cases (S1….S16).

Table 24. Summary of the all evaluation scores.

	Principals' evaluation scores						← Subcontractors' evaluation scores →														
	P1	P2	P3	P4	P5		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	
						Aver.																	Aver.
Concurrent engineering process	9	7	7	8	5	7,2	7	9	9	8	7	8	8	5	4	7	7	9	9	8	7	9	7,6
Quality assurance process	7	5	6	8	6	6,4	8	8	9	7	7	8	8	8	7	7	9	7	10	9	8	7	7,9
Financial process	8	5	6	6	8	6,6	10	9	10	8	9	8	9	6	4	4	8	9	9	10	8	9	8,1
Logistics process	7	8	7	7	8	7,4	8	10	7	8	8	8	7	8	6	7	9	9	7	9	6	8	7,8
Management of the sub-process	9	6	6	6	7	6,8	8	8	8	6	6	7	8	6	4	6	6	7	8	8	8	9	7,1
Manufacturing planning and control process	8	8	7	7	9	7,8	9	6	6	7	9	7	7	8	4	5	7	9	7	9	7	7	7,1
Contract and order process	9	8	7	8	9	8,2	9	8	8	6	9	8	8	6	5	5	7	9	9	9	7	7	7,5
Average	8,1	6,7	6,6	7,1	7,4	7,2	8,4	8,3	8,1	7,1	7,9	7,7	7,9	6,7	4,9	5,9	7,6	8,4	8,4	8,9	7,3	8,0	7,6

The averages of the evaluation scores of each co-operation process are calculated in two columns in Table 24. These average numbers are used in Figure 18. Additionally, there are average numbers in the bottom line of Table 24. These bottom line average numbers give a picture of the differences between the cases. We can see that the lowest average number is 4.9 in case S9 and the highest average number is 8.9 in case S14. This difference is high, which can be interpreted such that the companies can evaluate their co-operation using these headings of Common Agenda.

4.2.1 General picture of the evaluation scores

The values in Table 24 are used to draw Figure 17, which illustrates the averages of the evaluation scores given by the principals and sub-contractors.

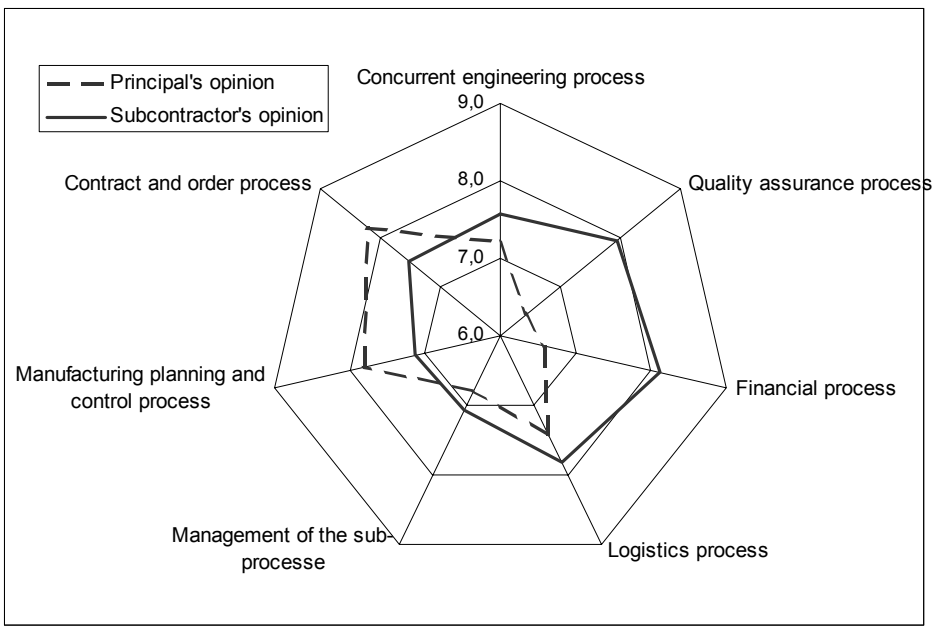

Figure 17. Summary picture of the averages of the evaluation scores.

Figure 17 illustrates the differences in the opinions of the principals and subcontractors. For example, the average numbers of the financial process (6.6/8.1) and quality assurance process (6.4/7.9) differ much from each other.

4.2.2 Cases that were evaluated by both parties

We can take a closer look at the four co-operative company pairs, where both parties evaluated their co-operation. The data source for the following four figures (17–20) is Table 18.

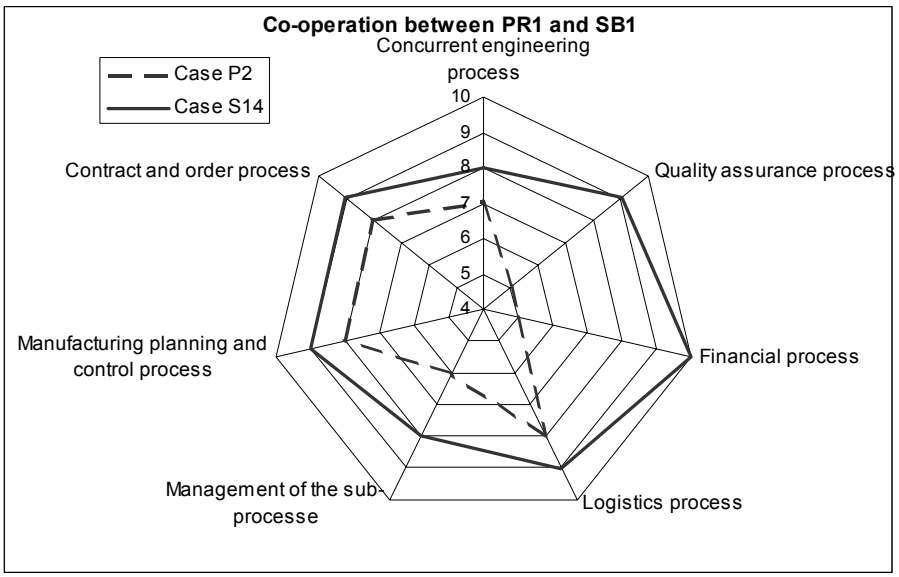

Figure 18. Evaluation scores between PR1 and SB1.

In Figure 18, we can see that there is a huge difference in scoring the financial process and quality assurance process. The subcontractor has evaluated the co-operation by using the scores 9 and 10, whereas the principal has given the score 5 for both processes. The general picture by the subcontractor seems to be much more positive than is evaluated by the principal.

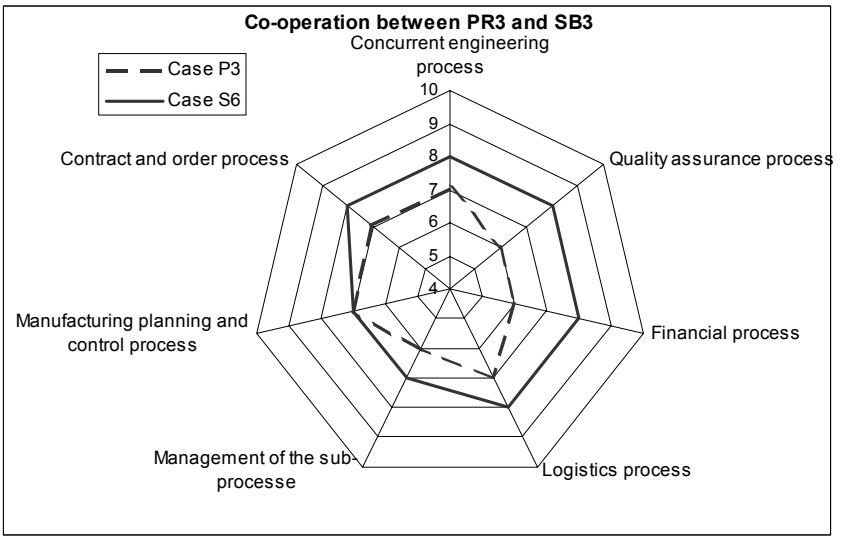

Figure 19. Evaluation scores between PR3 and SB3.

In Figure 19, we can see that the greatest differences are in quality assurance process and financial process. The subcontractor has evaluated the co-operation by using the score 8, whereas the principal has used the score 6. The general picture by the subcontractor seems to be more positive than is evaluated by the principal.

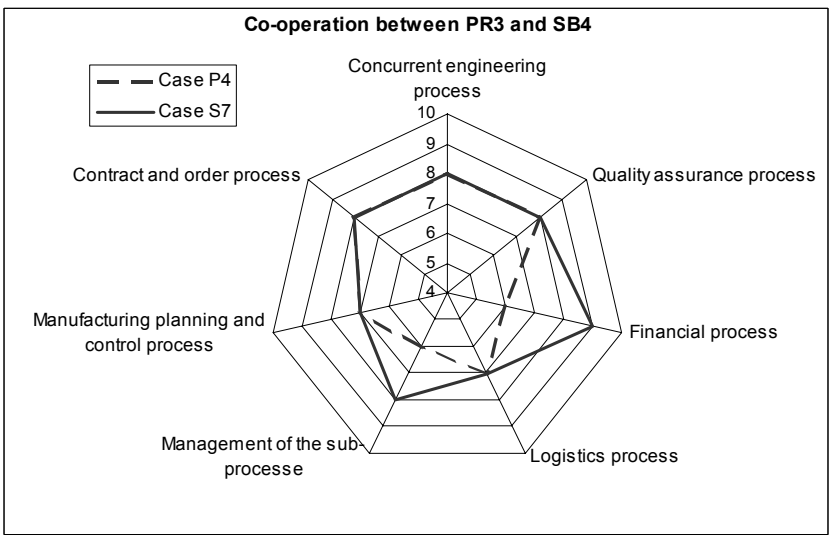

Figure 20. Evaluation scores between PR3 and SB4.

In Figure 20, we can see that the scores are equal along five dimensions. The greatest differences are in financial process and management of the sub-processes. The subcontractor has evaluated the co-operation by using the scores 8 and 9, whereas the principal has used the score 6. The general picture by the subcontractor seems to be more positive than is evaluated by the principal.

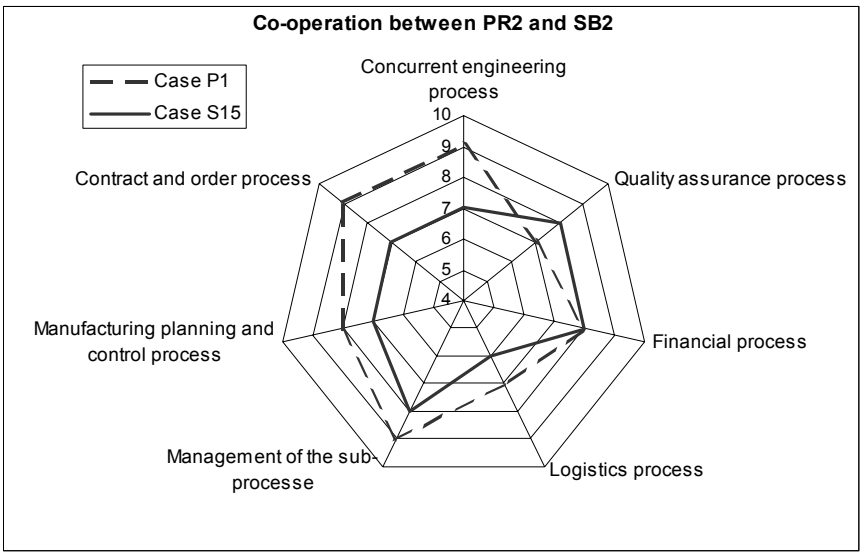

Figure 21. Evaluation scores between PR2 and SB2.

In Figure 21, we can see that the greatest differences in scoring is in the contract and order process and concurrent engineering process. The subcontractor has evaluated the co-operation by using the score 9, whereas the principal has used the score 7. Other processes are evaluated quite closely by both parties. The general picture by the principal seems to be more positive than is evaluated by the subcontractor, which differs from the three above presented cases.

Generally, the views of the manufacturing planning and control processes and logistics processes in Figures 18–21 are more similar for both parties than the other five headings. In these two cases, the scores differ by 1 at the highest. Already in the content test these two processes seemed to be easily understood and also closely connected to each other.

4.3 Results of the interviewees' opinions

The results of the interviews are based on the same completed assessment forms as in the previous section. All of the comments given by each company have been collected using the form in Appendix B. The opinions given by the interviewees are grouped under the proposed heading. The author has grouped the given opinions into two categories. If the opinion is positive, expressing that the quality of the heading in question is at an accepted level, the marking is OK. If the opinion is negative, expressing that the quality of the heading in question does not meet the required level and needs further development, the marking is NOT. The results are summarized in Table 25. The numbers means the amount of the OK comments and NOT comments. The last column is the percentage of the OK opinions.

Table 25. Summary table of the quality opinions.

	Party	**OK**	**NOT**	**OK %**
Concurrent engineering process	Principal Subcontractor	3 12	2 4	60 75
Quality assurance process	Principal Subcontractor	1 14	4 2	20 88
Logistics process	Principal Subcontractor	3 13	2 3	60 81
Manufacturing planning and control process	Principal Subcontractor	5 7	0 9	100 44
Financial process	Principal Subcontractor	1 12	4 4	20 75
Contract and order process	Principal Subcontractor	5 9	0 7	100 56
Management of the processes	Principal Subcontractor	1 9	4 7	20 56

The summary Table 25 of the quality opinions gives an interesting picture of the co-operation processes between parties. The percentage numbers are much in line with the evaluation scores illustrated in Table 24. There are two processes

where the percentage numbers differ a lot from each other. The OK % by the principals in the manufacturing planning and control process is 100 % whereas the same process by the subcontractors is only 44 %. The contract and order process looks almost the same. The OK % by the principals is 100 % and only 56 % by the subcontractors.

The OK % by the principals is only 20 % in the management process, whereas the same process by the subcontractors is 56 %. It seems that the principals are more interested in managing the mutual co-operation processes than the subcontractors. Both parties have been able to evaluate the management process, which might mean that both of them understand the importance of the dynamic managing of the co-operation processes.

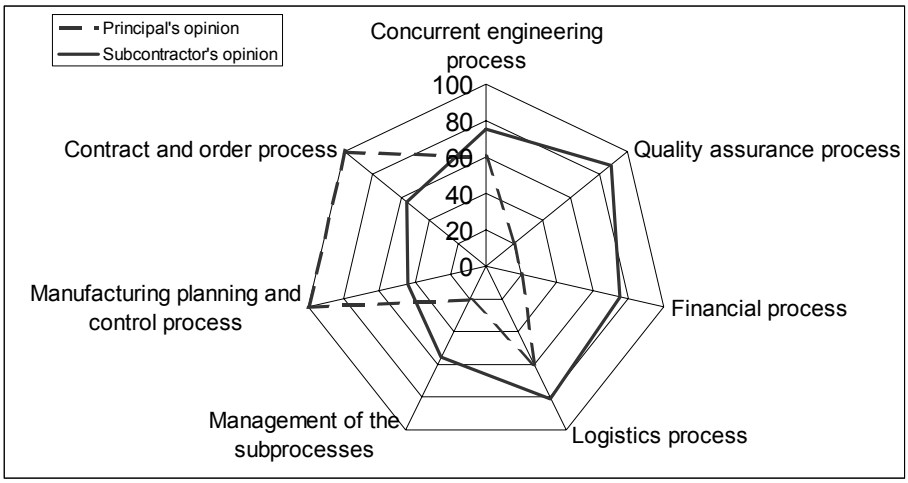

Figure 22. Summary picture of the quality opinions.

Figure 22 illustrates the percentages of the OK opinions given by the principals and subcontractors as illustrated in Table 25.

If we compare Figure 22 to Figure 17 (summary picture of the averages of the evaluation scores), we see a similarity in the forms of the graphics, but here the differences seem to be more pronounced. Compared to the evaluation of the manufacturing planning and control process by both parties to other subcontract relationships, the scores differ significantly. The explanation for this difference may be found in the nature of the different processes. We can think that the

manufacturing planning and control process is a dynamic one linking the end market demand to the subcontractor's capacity via the principal, whereas the nature of the other processes is more static having a collection of rules and procedures. This finding supports our idea of the dynamic management process with Common Agenda in subcontract manufacturing co-operation.

4.4 Summary of the functionality test

The functionality of the proposed Common Agenda was tested with four principals and nine subcontractors. The researcher conducted the test by interviewing the company representatives.

The first part of the test was the evaluation score test. The results are illustrated in Figure 17.

The second part of the test was made by the researcher using the interviewees' comments as a basis to draw Figure 22.

Considering the scores given by the interviewees, we can see that it is not always clear what the interviewee has thought when giving the score. And what precisely has he evaluated? The researcher asked the interviewee to evaluate the mutual co-operation process, not the other party's operation or his own operation. Reading the comments in Appendix B may help us to understand the problem. For example, the comment "Subcontractor's pricing system does not work well……." was given by one of the principals. Saying this sentence, the principal did not comment on his co-operation with the subcontractor. In reality he evaluated the subcontractor's operation, which of course has a significant effect on the quality of the co-operation process, as does the operation of the principle himself.

Consequently, the scoring seems to be a complex issue. Many interviewees probably gave a better score than they ought to have given. The interviewee may have been influenced by the confidence of the researcher and other people, and thus give a good score. For example, the text in this comment "Co-operation is scarce……." is not in line with the given score (8).

The co-operation seems to be a difficult issue. Both parties are independent companies with their own goals. It is not clear what kinds of co-operation different companies are willing to enter.

Thinking of the validity of the data collection method is important. Whether there could be a better method to obtain more precise answers is not clear. On the other hand, we used multiple case study design having totally 25 companies involved in the study, which enhances the validity of the study. The answers describe confusion in the minds of interviewees, which can be an indication of the complex reality in subcontract co-operation. We can assume that this confusion supports our idea to develop better management tools to enhance the subcontract manufacture co-operation with the idea of Common Agenda.

In most cases, both of the tests produced quite similar results. The results give an interesting picture of the co-operation processes. It seems to be such that both parties emphasize the processes that are important only for them. A concurrent engineering process and management of the processes seem to be important for both parties. The greatest differences are in the quality, financial, manufacturing planning and control, and contract and order processes.

The differences in the ways of thinking may be quite significant among the different companies.

The functionality test shows that we can use the proposed headings as a basis for testing the co-operation quality. Different kinds of development ideas were found during the discussions with the companies. Common Agenda helped people to keep focus on a certain issue during the discussions.

In this chapter we do not concentrate on these quality issues more deeply, but return to this topic in the discussion phase of this study.

5. Analysing the research results

The analysis phase is divided in to five phases. First we answer the research sub-questions. Secondly, we consider the results of the study in relation to the research problem. Thirdly, we assess the quality of the research results. Finally, we discuss the theoretical and practical implications of the results.

5.1 Answers to the research sub-questions

What are the headings of Common Agenda?

The headings are formulated using the term "process":

- Subcontractor / principal selecting process
- Concurrent engineering process
- Quality assurance process
- Logistics process
- Manufacturing planning and control process
- Financial process
- Contract and order process
- Management of the processes.

The headings are anchored to the existing literature. The content test shows that the proposed headings can form the basis for mutual discussion in subcontract manufacture co-operation.

What is the content of each proposed heading on Common Agenda?

The tentative content for each heading was based on the literature and researcher's own experience. The second phase was the content test of Common Agenda headings. The test was carried out with the 13 companies. The content of each heading was improved during the discussion sessions with the companies. Because we succeeded in covering co-operative issues and wrote them under the proposed headings, we can say that the proposed headings can be used. However, we cannot state that this collection of headings is the only one that can be used.

What is the functionality of Common Agenda?

Common Agenda with headings can be used for many different purposes. It can be used as a basis for managerial operations in subcontract manufacture co-operation. In this study, the functionality was tested with 13 companies who evaluated their co-operation quality with their partner companies by giving a score of 4–10 for every heading. The functionality test was made in the two ways explained earlier in Chapter 5. Both of the tests gave quite similar results. The functionality test shows that Common Agenda with headings can be used as a tool for practical evaluation.

5.2 Results of the study and the research problem

The research problem in this study is Common Agenda itself and its usability as a management tool in subcontract manufacture co-operation in the Finnish metal industry.

Can we use the results of this study to solve that research problem?

1. The first part of the research problem was to ask if Common Agenda as such is a vital theoretical instrument to be placed in the doctrine in question.

   Quasifirm is a theoretical entity related to the organization models. The managerial approach needs issues to be managed by Quasifirm. We can always find practical issues in subcontract co-operation in the metal industry. These practical issues can be very dedicated and therefore cannot be generalized as such. However, these issues can be generalized by using the idea of Common Agenda. In this study, the headings of Common Agenda were formulated, the content of each of them was determined and the functionality of Common Agenda was tested. This shows that we succeeded in applying Common Agenda as a managerial tool in subcontract manufacture co-operation. Based on inductive thinking, we can state that Common Agenda is a vital theoretical instrument to be placed in the doctrine in question.

3. The second question asks if Common Agenda as such can be found in subcontract manufacture co-operation and what the usability of that Common Agenda is.

   In the case companies of this study, some kind of Common Agenda seems to be always present. It can be in oral or written form. It can be in formal or informal form. We actually discovered that a Common Agenda has always been present but not always in a recognizable form. The usability of Common Agenda can be considered through the content test and functionality test of this study. The content test shows that all of the mutual issues can be categorized under the eight proposed headings. The functionality test shows that the quality of co-operation can be evaluated by using these eight headings. The results of these tests support the usability of Common Agenda.

As a summary we can state that Common Agenda is a vital theoretical instrument to be placed in the doctrine. The co-operative issues in bilateral governance structures can be covered. Consequently, we can further state that Common Agenda can be found and it is usable in subcontract manufacture co-operation in the Finnish metal industry.

5.3 Judging the quality of the research results

According to Yin (2003), there are four conditions to be maximized in case-study design:

- Construct validity; establishing correct operational measures for the concepts being studied.
- Internal validity (for explanatory or causal case studies); establishing a causal relationship, whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships.
- External validity; establishing the domain to which a study's findings can be generalized.
- Reliability; demonstrating that the operations of a study – such as the data collection procedures – can be repeated, with the same results.

Because this research study is not an explanatory or a causal case study, there is no need to analyze the internal validity of the study.

Construct validity

In this study, we involved 13 companies. According to Yin (2003, pp. 32–33), the construct validity is based on the "multiple sources of evidence" tactics. He further says that: multiple cases, in this sense, should be considered like multiple experiments. The mode of generalization is "analytic generalisation", in which a previously developed theory is used as a template with which to compare the empirical results of the case study. If two or more cases are shown to support the same theory, replication may be claimed.

Additionally, we used an individual interview (Stenbacka 2001) approach in order to eliminate the possible disadvantages of the group interview approach.

Each of these 13 companies was able to handle their co-operational issues by using Common Agenda with headings. We can consequently state that the requirements of the construct validity have been met.

The whole research process is described carefully (Stenbacka 2001) in this study in order to maintain acceptable construct validity.

External validity

We started the study from the doctrine of business management. In that doctrine we concentrated on the subcontract manufacture related literature. The proposal of Common Agenda with headings is anchored to that literature.

The results of this research study can be generalized to the doctrine of business management. The case tests were carried out in the Finnish metal industry with 13 companies co-operating in the field of subcontract manufacture. Now we need to ask to what possible degree the results can be generalized. Can we see that Common Agenda is valid outside Finland? Is it valid outside the metal industry? Is it valid outside subcontract manufacture co-operation? Is it valid outside the 13 companies in the study? We do not have definite answers to these questions. What we can say for sure though, is that Common Agenda is valid for

the 13 companies in this study. Considering the whole variety of operations areas of the 13 companies it can be concluded that this holds also for other metal industry companies under similar circumstances. Consequently, as the headings cover most of the important issues in subcontracting, the concept of Common Agenda should suit also for other industrial areas, at least with minor modifications. We can conclude that the construct validity test was passed, which means that Common Agenda can be seen valid in the subcontract manufacture co-operation in the Finnish metal industry.

Reliability

According to Yin (2003, p. 37), the objective of the reliability test is to be sure that, if a later investigator followed the same procedures as described by an earlier investigator and conducted the same case study all over again, the later investigator should arrive at the same findings and conclusions.

The procedure of the research process in this study is precisely documented in this paper. We can therefore state that every data collection procedure can be repeated, with almost the same results. Because there is a case-test in use, the results are at least partially dependent on the researcher

We may be quite sure that the idea of Common Agenda as such could be found by later investigators. But, considering the headings with content there might be differences. In this study we have determined 8 headings. The number of headings may vary. The heading-texts can vary and the content of each heading can also vary. The proposal of the 8 headings in this study is based on the researcher's interpretation of the literature and company discussions, and partly on his own experience.

The conclusion of the reliability could be that the idea of Common Agenda as such could be discovered by later investigators, and the headings with content could be different in some way.

6. Discussion

6.1 Theoretical implications

As we stated above, the idea of Common Agenda can be generalized to the doctrine of business management. Coase (1937) was first to introduce the theory of the firm. Williamson (1975) developed this theory and introduced the transaction cost theory. Eccles (1981) introduced the idea of quasifirm between the co-operative companies in the construction industry. Consequently, he used a common term concept, which he did not explain, but which might have been meant in the same way as our idea of Common Agenda. Luke et al. (1989) introduced the definition of quasifirm and found four types of interorganizational forms. Williamson (1979) introduced the categorization of different governance structures in different market transactions, where the bilateral governance is closest to subcontract manufacture co-operation. Our idea of Common Agenda can be closely attached to that theory development line. Common Agenda is one further step along that road.

Common Agenda as a part of quasifirm-operated co-operation gives a new tool to handle the interfaces between companies. It gives a new foothold for researchers to develop the doctrine further. On the other hand, Common Agenda gives better possibilities to develop practical co-operation between companies. Common Agenda can be seen as a managerial tool to manage mutual issues in practice.

Our proposal for Common Agenda helps the discussion of management issues. Common Agenda gives a good "platform" to which different kinds of issues can be attached.

The results of this study support the idea of Common Agenda as a theoretical entity, but there is still need for further research to establish its place in the theoretical discussion. This study was a cross-study and therefore the results cannot be used to evaluate the functionality of Common Agenda in the dynamic practical management operation. This could be a sensible topic for further research. Using a longitudinal study approach with pilot-testing could produce interesting results.

One of the possible topics for further research would be the concept of a common language, emphasized by Constantino and Pietroforte (2006), as a vital idea for a new research problem. Experience of many subcontract co-operative companies has revealed the language problem. Organizations in different companies often understand the same words and expressions in different ways. One good example is the term quality. One of the principle companies (PR1) said that they cannot understand why one of their subcontractors (SB1) achieves always an excellent quality level. Is that good quality only an accident or is it based on systematic quality procedures? That subcontractor does not have any kind of written quality system nor can the reasons behind the good quality be explained. Therefore, there is a doubt that good quality can be based on the excellence of individual workers. And now the principal thinks that there may be a risk that some day the needed quality level will not be met. It is possible that there is some kind of communication problem between these parties, since they do not understand each other.

In addition, the author proposes a concept of common understanding be attached to the previous introduced concept of common language. The language needs to be understood in the same way by co-operative parties. It can be understood by both parties if there is a common understanding of mutual issues in a certain context.

The results of the functionality test of Common Agenda in this research study indicate that there are many issues where both parties seem to have a different way of thinking. These discrepancies may be explained by the lack of common language and common understanding between the parties.

Consequently, the idea of "profit and loss account and a balance sheet", introduced by Schumacher (1993, pp. 205–209) could be a vital idea for further research. Could it be sensible to develop different kinds of economic business indicators that are results of the co-operation? Normally, every company monitors their own operation by using own business indicators, but they do not monitor the results of the common co-operation by using common business indicators.

The author believes that there may be a need for modelling the subcontract co-operation more deeply in order to create better theories to help industry develop better co-operation practices. The research in that field today seems to be

fragmented. Many kinds of concepts have been introduced and justified, but the whole picture of the subcontract co-operation is not clear at all. Good theory is always an extremely valuable basis for the decision making and development work in any case. Without a good theory, the decision making is more like politics. Political decision making is based on feelings and everyday experience.

6.2 Practical implications

In this study, we have developed a term "Common Agenda" as an interface between subcontract manufacture co-operative companies. Common Agenda provides a collection of headings, which can have different content depending on the context.

For example, we can consider a small company making simple axles. The co-operation between parties may be simple. A telephone order may be "could you make me 100 axles next week, I sent you a drawing by fax one hour ago". The maker says "Yes thanks. I got a drawing, the unit price is 10 Euros. My son can take them for your assembly line next week". The client says, "Ok, bye" and completes the call.

In this case we can find elements of the logistics process, quality assurance process, financial process, and the contract and order process.

The next example could be a big principal operating in the field of cellular phones. One of the subcontractors manufactures huge amounts of phones. He accomplishes all the logistics activities from raw-material vendor through the production process to the end users in the market. He participates in the product design phases and develops the quality practices. His manufacturing planning procedures are integrated to the principal's activities. He makes dedicated investments in order to produce certain phone models for a certain principal. Here, we can easily find many configurations of mutual business. All of the Common Agenda headings can be found in this co-operation.

The practical agendas can be nominated in different ways. In this study, we introduced Common Agenda with headings, which is only one functioning alternative. In practice, the agendas can be created freely according to the

willingness of the co-operative parties. We can identify many different agendas in subcontract co-operation, for example: 1) strategy agenda, 2) quality agenda, 3) communication agenda, 4) research agenda, 5) training and education agenda, 6) financial agenda, and 7) safety agenda, etc.

As we see, there are a lot of options available in constructing a collection of agendas depending on the co-operating parties.

The results of this study show that there is a sensible place for Common Agenda as a tool in the practical management operation. On the other hand, the results of this study show that companies have different ways of managing their mutual operation in practice. It seems that a Common Agenda based management system could benefit the companies.

As a conclusion to this research study, it can be stated that the proposed Common Agenda with headings can be used as a managerial tool for co-operative companies in practice.

6.3 Analysis of quality evaluation results

The goal of the functionality test was related to Common Agenda. The quality test of co-operation was tested using two methods: 1) an assessment form to give a score to every heading, and 2) interviews. The results have been presented earlier in Chapter 5. The results showed that we can use the proposed headings as a basis for testing co-operation quality. In this study, our goal was not to concentrate on the quality issues in co-operation, but we can give a brief overview of these results.

General picture of the evaluation scores

The summary of the evaluation scores indicates that there were three processes where the partners were quite close to each other: 1) concurrent engineering process, 2) logistics process, and 3) management of the processes.

Additionally we can see that the greatest differences between the parties were in the following processes: 1) quality assurance process, 2) financial process,

3) manufacturing planning and control process, and 4) contract and order process. In this context we determine these processes to be problem processes.

These four problem processes generate new questions. Does this kind of differences affect the competitiveness of the Finnish metal industry? And what are the reasons behind these discrepancies? What are the means to decrease these discrepancies? Could Common Agenda be one of the managerial tools to implement in addressing these points?

Cases that were evaluated by both parties

The four co-operation cases, presented in Figures 18–21 give an interesting view of the co-operation phenomenon. The same co-operation case was evaluated by both parties producing quite different scores. The principal was the same in Figures 18 and 19 but the evaluation scores were quite different. The subcontractors evaluated the co-operation with equal scores (8) along four dimensions. Much more variation was seen in the principal's evaluation of these two subcontractors. These four figures (18–21) can be interpreted in many ways. First, we can see that there are differences between the scores meaning that the parties can use these proposed headings to evaluate their co-operation. Secondly, these differences can be a message about the different thinking or different picture of the world or something else, which we are not able to concentrate on in this thesis. Thirdly, we can think of using this kind of evaluation procedure to find problems and development areas in the co-operation processes. Fourthly, we could think that the common understanding is good if both parties give similar evaluation scores for different sub-processes. Fifthly, we could think that the common understanding is not a sufficient condition for competitive co-operation, but it is a necessary condition for successful co-operation.

In general, we can think that the first prerequisite for continuous improvement is to have a similar view of the matters in question. Subcontract manufacture in the metal industry can be seen as quite a complex one. There are a lot of manufacturing methods involved in making a metal part. Additionally, there is manufacturing capacity, which can be machine capacity or man capacity. Consequently, the manufacturing methods are changing all the time. Every year, machine manufacturers introduce new machines for different purposes.

In this analysis, we consider that continuous co-operation is needed in order to utilize all the available manufacturing methods to produce a competent end product for the market.

Looking at the quality evaluation results, we can suppose that the existence or non-existence of the common language and common understanding explains some of the discrepancies. When the data collection in the companies was made for this study, this question was not covered. However, the author has a strong feeling and clear recollection that some of the co-operative parties had a common understanding of the common business goals. Additionally, they seemed to have a common language to communicate effectively.

Based on this study, it can be stated that there are problems in the quality of co-operation in the Finnish metal industry. But the results of this study are only indicative. Further investigation is needed to strengthen the understanding of the problems in the subcontract manufacture industry in Finland and develop more viable practices.

6.4 The concept of truth in managing the subcontract manufacture co-operation

The analysis of quality evaluation results in the previous chapter is interesting. Based on the results, we can think that the basic problem for subcontract co-operative companies is the different understanding of the phenomenon of the subcontract co-operation itself. Some of the companies think that there is not any kind of need for common issues to be handled and managed. They seem to think that good specifications of the products are sufficient condition to co-operate successfully and there is no need for any kind of common management process. On the other hand there are many companies who think that there is need for some kind of common management process.

We can think that these varied opinions differ because of the lack of common truth of the concept of the subcontract co-operation. The common truth is not easy to find or create.

Theoretically we can find five substantive theories of truth[21].

1. **Correspondence theories** claim that true beliefs and true statements correspond to the actual state of affairs. Correspondence theory traditionally operates on the assumption that is a matter of accurately copying "objective reality" and then representing it in thoughts, words and other symbols.
2. **Coherence theories** claim that truth requires a proper fit of elements within a whole system. Some variants of coherence theory are claimed to characterize the essential and intrinsic properties of formal systems in logic and mathematics.
3. **Constructivist theories** claim that truth is constructed by social processes is historically and culturally specific, and that it is in part shaped through the power struggles within a community. Constructivism views all of our knowledge as "constructed", because it does not reflect any external "transcendent" realities (as pure correspondence theory might hold).
4. **Consensus theories** claim that truth is whatever is agreed upon, or in some versions, might come to be agreed upon, by some specified group. Such a group might include all human beings, or a subset thereof consisting of more than one person.
5. **Pragmatic theories** claim that truth is verified and confirmed by the results of putting one's concept in practice. Truth is a quality the value of which is confirmed by its effectiveness when applying concepts to actual practice.

We could argue that there is not one way to tackle the management problem of the subcontract manufacture process. Truth theories can help to understand the problem. Correspondence theory is widely applied in natural science and thus is familiar to engineers. Correspondence theories require the existence of an objective reality, which is difficult to discover in social systems. Coherence theories can hardly explain the truth because of the lack of formal system. Constructivist theories may explain partly the behaviour of the co-operative parties. That is because every company has its own internal culture with values,

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[21] http://en.wikipedia.org/wiki/Theory_of_truth.

norms, and rules, etc. Consensus theories may explain more of the management problem. The co-operation between two companies is basically co-operation between two groups of human beings. Pragmatic theories may explain the working operation models. We can think that during the co-operation people develop and test new models to operate. Some of them survive and some of them die.

We can state that co-operative parties have always found a certain amount of common truth. That is because both of them have a business interest to co-operate. On the other hand, we can think that there can be found a minimum amount of common truth to begin the co-operation. This minimum common truth does not necessarily mean that the co-operation is functioning successfully all the time. We can state that the most successful co-operation is achieved if the common truth of the co-operation of both parties is similar, which means that both parties need to have the same way of thinking about all of the mutual issues.

One good example of the lack of common truth can be seen in Figure 18. The score of quality assurance process by the principal is 5, whereas the score is 9 given by the subcontractor. The discrepancy is so huge that both of the parties seem to have a totally different way of thinking. There is probably not found any kind of common truth about the mutual quality issues at this time.

In Figure 23, the concept of common truth is added to our original framework of the study.

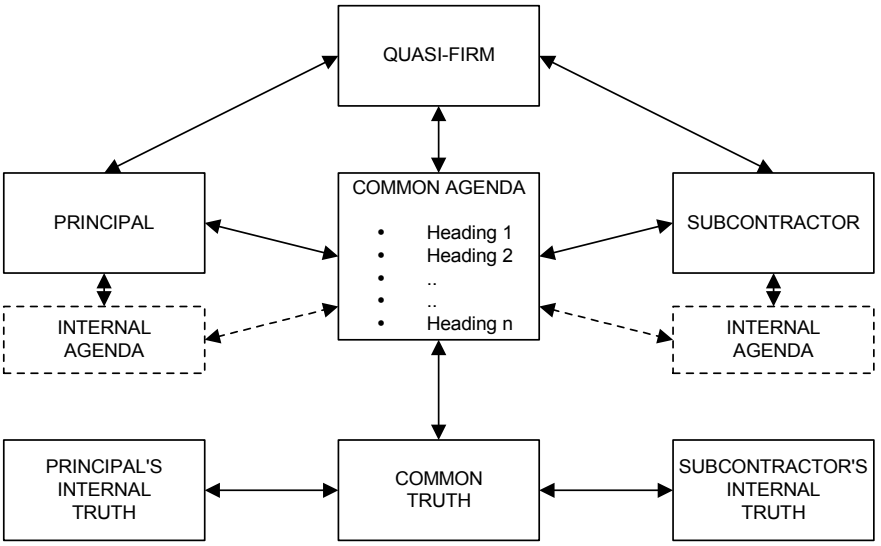

Figure 23. Common truth in subcontract manufacture process.

We can think that common truth is such a truth that is related to the co-operation process. Common truth does not require changes in both parties' internal truths. The common truth can be seen as a compromise one, which can be achieved by discussions and negotiations in the process of time. Different kinds of mutual experiences help to promote the common truth.

At this final phase of this research study, we can think that the concept of Common Agenda requires a certain amount of common truth between parties. Common truth can be seen as a base for Common Agenda, which is probably not possible to create and maintain without common truth about the co-operation.

Additionally, we need to recognize that there is a huge number of companies in the world meaning that there exists even more different kinds of truths. If we think that consensus theory is a base for these truths, it is not possible to create a standard type of common truth for all of the co-operative companies in the world. Consequently, if we accept that Common Agenda is based on the common truth, we can state that there can be found many kinds of Common Agendas in the world.

7. Summary

In this study, a new concept of Common Agenda is introduced and tested. The research problem is formulated by analyzing the theory of the firm. Coase (1937) is the first who succeeded in creating a theory of the boundaries of the firm. The theory explains the world with many companies. Many researchers after him have continued the development of the theory. Eccles (1981) introduced the concept of Quasifirm as an organization model for the construction industry. Luke et al. (1989) continued the development of the concept of Quasifirm. Williamson (1979) analyzed the governance of contractual relations in different market transactions. Grandori (1997) analyzed the coordination mechanisms in networks. Finally, we used Rao's (2003) book to use transaction cost theory to formulate Common Agenda.

The research problem was the proposal of Common Agenda itself and its usability as a management tool in subcontract manufacture co-operation in the Finnish metal industry.

The research method used is based on a conceptual approach and was carried out by using the multiple–case research.

The first part of the study is based on the literature and concentrates on formulating the research problem. In the second part, the study concentrates on different kinds of classifications of the subcontracting phenomena and introduces a proposal for Common Agenda with headings. The third phase of the study concentrates on the case testing of Common Agenda with headings. The case testing is divided to two parts. The first part is the content test, and the second part is the functionality test in practice. The functionality test was carried out by testing the quality of co-operation. In the final phase we analysed the results of the study and made generalizations for the doctrine and practice.

A proposal for Common Agenda has the following headings: 1) subcontractor/principal selecting process, 2) concurrent engineering process, 3) quality assurance process, 4) logistics process, 5) manufacturing planning and control process, 6) financial process, 7) contract and order process, and 8) management of the processes.

The first part of the case-testing was the content test. The tentative content for each heading was based on the literature and author's previous research studies. The content of each heading was further improved with the companies. The second part of the case-testing was the functionality test of Common Agenda with headings. The functionality was tested with companies. They evaluated their co-operation quality with their partner companies by giving a score of 4–10 for every heading. Additionally, the researcher conducted a co-operation quality analysis based on the interviewees' comments.

The content test shows that the proposed Common Agenda with headings can form a base for mutual discussion in subcontract manufacture co-operation. Additionally, the functionality test shows that Common Agenda with headings can be used as a tool for practical evaluation.

Considering the research problem, we can state that Common Agenda is a vital theoretical instrument to be placed in the doctrine.

Practical implications based on case testing indicate that Common Agenda seems to function as a managerial tool for co-operative companies in practice.

Analysis of quality evaluation results revealed problems in subcontract manufacture processes in the case companies. These results are only indicative and need more accurate research in order to localize and understand the problems.

Finally we concentrated on the concept of Common Truth as a base for Common Agenda.

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Appendix A: Assessment form of subcontract manufacture co-operation

Subcontractor _____ Date _____
Principal _____
Evaluator name and company _____

1. Concurrent engineering Process comments:	Evaluation score, 4–10
2. Quality assurance process Comments:	Evaluation score, 4–10
3. Logistics process Comments:	Evaluation score, 4–10
4. Manufacturing planning and control process comments:	Evaluation score, 4–10
5. Financial process comments:	Evaluation score, 4–10
6. Contract and order process comments:	Evaluation score, 4–10
7. Management of the processes comments:	Evaluation score, 4–10

Appendix B: The summary of the comments given by the interviewees

The following summary is organized by the proposed headings. The authentic opinions given by the principals and sub-contractors are grouped separately under the proposed headings. There is one comment from every interviewee for each co-operation case. The subcontractors give a comment for 16 cases and the principals gives a comment for 5 cases. After each comment is the quality score for the case in question.

The comments of the subcontractors

Concurrent engineering process

- New products continually. Co-operation with designers is open and continuous. There is still need for development. (9)
- Some of the products are at the mature phase and there are seldom possibilities to develop them. The principal has his own manufacturing plant and the designers have good understanding of the manufacturing methods. Product development projects are rare: the products are mainly old ones. (8)
- We participate in the product development projects continually. The co-operation could be more intensive than it is today, especially with new materials and related manufacturing methods. (8)
- No co-operation at all. (5)
- Co-operation is not usual. Sometimes it happens. (7)
- Co-operation has increased during the late two years. There is a development collaboration agreement made. The subcontractor arranges courses for the principal's designers concerning the manufacturing methods. (8)
- The principal is moving the manufacturing operations to China. The subcontractor has made an intensive co-operation with principal's designers. If the subcontractor has problems with manufacturing certain products, contact to the principal must be made immediately. (9)

- Co-operation process is well developed. The principal pays separately for the man-hours of the development work. (9)
- Co-operation is scarce. There is much to develop. (7)
- New ideas are accepted by the principals. They even ask for new ideas. Changes to the drawings are made very slowly. The level of co-operation is dependent on the designer. (7)
- No co-operation at all. The proposals are not accepted. Some minor development ideas have been accepted sometimes. (4)
- Manufactured products are mainly old ones. They were designed years ago according to the manufacturing methods of those days. The co-operation is scarce today. (7)
- Co-operation is very intensive. The principal asks for more resources and speed. (8)
- New principal and very little experience of it. But seems good. (8)
- Co-operation is very intensive and successful. The willingness to maintain the achieved good co-operation level has decreased during last years. (9)
- New principal and very little experience of it, but seems good. (7)

Quality assurance process

- Reclamations from the clients of the principal are always sent to us. They affect quickly the practical changes of a certain processes. Quality control routines have been planned and implemented mutually. There is still much to do. (7)
- The principal has delivered some gauges and fixtures in use. Good information is available when needed. (8)
- Not much problems. Proposals of the drawing changes have been accepted always. Designers of the principal are very skilled. (8)
- Co-operation is very scarce. Products and their shapes are simple. (8)
- The measuring routines and gauges concerning the plastic parts have been developed in co-operation. (8)

- Products are very clear to manufacture with traditional manufacturing methods. The common quality practices are in use and do not need upgrading. (9)
- Some of the tolerances, measurement methods and measurement forms have been developed in co-operation. (10)
- The quality system has been developed in accordance to the requirements of the principal's market need. The source of the quality is the product design phase. Changes of the drawings are a very big problem. There is potential for development. (7)
- Co-operation is functioning. The rules of the game have been agreed. (9)
- Co-operation is at a good level. The principal has moved production from an other subcontractor to our plant in order to get better compatibility with the manufacturing methods. Critical measurements have been discovered in co-operation. There is too little time for development. (7)
- Some minor progression has been achieved. The deviation report has been developed. (7)
- The machine directive has increased the requirements for the manufacturing process. The environmental issues affect the product design and manufacturing process. The distance to the end markets has been increased. The quality requirements from the end users have increased. (7)
- The principal requires a written quality system. (7)
- The sub-contractor must make proposals to develop the quality assurance. (9)
- Mutual procedures have been developed. Co-operation works fine. (8)
- There are no special quality requirements. (8)

Logistics process

- The number of stocks has been decreased. The principal is changing his production system, which affects the common logistics process. The

whole logistics process in both companies' production has been developed mutually. (8)

- The sub-contractor makes the orders to the foundry according to the principal's contract with the foundry. The delivery lot sizes and other rules of the game have been agreed mutually. (8)
- Same products are stored in many stocks at the same time. Logistics problems are continually on the board to be solved. Compatibility of both parties' logistics systems is important. (7)
- Same products are stored in subcontractor's stock and in principal's stock. (8)
- The principal orders raw materials to their own stock, from which they deliver to their subcontractors. Delivery time of products from Europe and China is often many months. There are always big problems with these material flows. The logistics process is like a jungle. (6)
- Same parts are stored in both parties' stocks. (9)
- Consignment inventories are in use. Products are owned by the sub-contractor but they are stored in the principal's factory. (7)
- Production is based on the projects. Not stocks at all. Transport company is flexible. Loading is made on Sunday evening and transport starts early on the Monday morning. Transport company combines loads from many companies and seeks back hauls continually. The logistics operation has been developed all the time. (9)
- The logistics solutions have been developed mutually all the time. (9)
- Logistics processes have got worse during recent years. Some details have been developed. (7)
- Co-operation is minimal. The principal is not interested in logistics processes at all. Many products are stored in both parties' stocks. We make products in our own stock at our own risk. We have made several proposals to develop the logistics processes, but nothing happens. There is much to develop. (6)
- Many changes have been made during this year. Documents and transportation need development. (8)

- Mutual development is at the starting phase, but co-operation is very active. (7)
- Logistics is a top job. We have developed an excellent system. (10)
- Logistics is under development at this time. (8)

Manufacturing planning and control process

- Delivery times are shortening all the time. Our inventories ought to be shown to the principal via the Internet. Budgets and forecasts from the principal are very good. The principal has developed an Internet-based information system for the subcontractors. They can see principal's database and utilise that information when making manufacturing decisions. (7)
- We get forecasts, but they are very poor. Demand fluctuations are very high on the principal's market. Better forecasts are needed. There are a lot of problems. Much to develop. (7)
- Better forecasts are needed. There are a lot of problems with the availability of some raw materials. Manufacturing planning systems ought to be more compatible. (7)
- There are some different manufacturing planning and control processes in different product groups. Some of them are functioning well. Some of them need to be developed. (8)
- Some of the product groups can be managed well. Some of them not. (6)
- Forecasts come via fax. The manufacturing lot sizes are decided by the subcontractor. Products are stored in the subcontractor's stock. The availability of every product must always be 100 %.
- The forecasts from the principal are poor. The web-system does not work. The connection to the principal's computer system does not work all the time. (7)
- Principal's orders are based on their projects. But the products are standard parts, so they can be manufactured in bigger lots and can be stored. The principal sends very good delivery lists before the delivery time. (9)

- Very short order book. Products must be manufactured in bigger lots and stored. The forecasts are made by the subcontractor. They are based on many years of delivery history. (7)
- The operation has worsened during recent years. The principal does not make forecasts any more. The products have been same many years. The subcontractor makes a forecast based on many years' delivery history. The products are stored in our own stock and manufactured at our own risk. There is a lot to develop. (5)
- Forecasts are poor. We get information about the principal's offer backlog. That information is difficult to utilize. (4)
- Principal's offer backlog is available. The delivery times are fixed. The service contract is made. The bigger projects are planned and controlled separately. (9)
- The development process was started some time ago. (7)
- Forecasts are poor. There is a lot to develop. (6)
- We have succeeded in mutual co-operation. Planning and control system works fine today. (9)
- Development project is running. (9)

Financial process

- Invoicing routines have been developed and they are functioning very well. The mutual development work has been good. (9)
- The principal owns some of the raw materials. All of the routines are working well. There seems to be very little to develop. (8)
- Invoicing routines are working well. Increases in the raw material prices can be charged from the principal. The prices?? could be higher. (9)
- The price negotiations are very difficult. Increases in the raw materials are very difficult to charge from the principal. The principal is not willing to understand and discuss the financial issues. (6)
- All of the financial issues have been easy to discuss and develop with the principal. (8)

- The principal pays for all of the investments concerning his products. (10)
- The development process has been successful. We use different pricing mechanisms to every principal. (9)
- The principal delivers the raw materials for their products. The principal pays separately for the man-hours used for the product development and design. (9)
- Every delivery is invoiced. No problems. (9)
- Very much to develop. The principal is not willing to develop the practices at all. The errors in pricing cannot be corrected. The principal's opinion is that these errors are the subcontractor's problem. (4)
- Very much to develop. (4)
- Invoicing by EDI-system is under development process. There are many kinds of financial routines. The cost management of the project must work. All of the routines are working quite well. (9)
- Principal's offer-making process could be partially made in co-operation with the subcontractor. 'Methodicalness' is poor. (6)
- Good invoicing and financial systems. There is nothing to develop more today. (10)
- All of the issues are working well. (9)
- The whole financial system is under a heavy development phase. (10)

Contract and order process

- Obsolescence is a problem and is not written on the contract exactly. The storage space could be better taken in to account in the contracts. There is much to develop in the rules of the game. (7)
- Light contracts. The role of the contract is to express the willingness to co-operate. The co-operation is very open. (8)
- Light contracts. (8)
- The rules concerning the switching of the subcontractor could be developed. (6)

- The rules of the game are partially good, but there is still much to develop. (7)
- We have made three separate contracts with the principal: 1) development- and co-operation contract, 2) logistics operation contract, and 3) the price list. (9)
- The contract has come to an end lately. The principal is moving the production process to China. The co-operation has been very successful earlier. (9)
- Exact contracts have been made. Penalty charges from the principal have been transferred to the subcontractor if he is responsible for the problems. Bank guarantees are needed. (9)
- The rules of the game have been discussed mutually and they are written on the contract. (7)
- The contract means mainly the price list without volumes. There is much to develop in the rules of the game. (5)
- The rules of the game have been developed mutually and they are fine working. (9)
- The principal does not give any forecasts and volumes. There is much to develop. (6)
- New principal. (8)
- Deviations difficult to manage. Responsible people often difficult to find in principal's organization. (8)
- The contract process is under development phase today. (9)
- Development project is running. (9)

Management of the processes

- We have meetings regularly with one of the principals. With other principals we do not have any special meetings to handle co-operation processes. Minutes are not written. Verbal agreements work fine. (8)
- The management process ought to be developed. The problem is to decide who is responsible for managing these processes. (7)

- The issues concerning the co-operation processes are handled when needed without any systematic procedure. It could be sensible to participate in the principal's decision-making process concerning the outsourcing issues. The principal could avoid some mistakes. (7)
- There is no management procedure in use. There is much to develop. (6)
- About 1.5 years ago we started a systematic management procedure concerning the co-operative process development. We do not have any formal reporting procedures. There is much to develop. Communication with the principal is quite complex today. There are many persons to communicate. It would be fine, if there was one contact person to communicate with. Strategic and operative issues are important to distinguish from each other. (8)
- Many meetings every year. They can be more or less official meetings. (8)
- The management practices functioned fine some years ago. We had a meeting twice a year. (8)
- Different kind of development issues are handled in the context of other issues. (7)
- There have been many organizational changes in the principal's operation. All of the management practices have died just now. (6)
- There is a need to write minutes in every meeting. There is a need to find a responsible person when needed. In earlier years we had regular meetings, but not today. Different kinds of issues are handled by many persons without any formal procedure. (6)
- No management practices today. There is a huge need to develop the management practices. (4)
- No formal practices in use. At the beginning of the year we have very little contact. At the end of the year we have more contacts. (6)
- We are discussing the management issues with the principal today. (6)
- Different kinds of issues are handled in the context of other issues. (8)
- Informal practices are in use. But co-operation works fine. Either one of the parties can be the initiator. The extent of the co-operation must be

agreed mutually in the following issues: 1) reclamations, 2) warranties, 3) crises, and 4) products. (8)

- The management practices are under development phase just now. (8)

The comments of the principals

Concurrent engineering process

- We have achieved fine results with the subcontractor. The subcontractor needs to develop their manufacturing knowledge. (9)
- Concurrent engineering is very important issue to be developed. The importance of the co-operation will be increased in the future. The issue is one of the issues on the development list. Co-operation in this issue is very scarce today.(7)
- Manufacturing personnel collaborates continually with subcontractor's personnel. We get good ideas from the subcontractor frequently. There is much to develop. (8)
- Co-operation works fine. Products are old and simple. (7)
- Co-operation does not work well enough. There are a lot of problems with different kind of changes in products and documents. There is much to develop. (5)

Quality assurance process

- Does not work well. The whole quality management process needs to be under a development phase. We have made an appendix to the contract where different kinds of responsibilities have been agreed. (6)
- There are many operational requirements for the subcontractor. Some of the products need special quality control activities. Co-operation with the subcontractor works well. (8)
- Subcontractor's prevailing quality systems are good enough. There is still something to develop. (6)
- We have a continuous discussion with the subcontractor about the quality issues. There is need to develop quality assurance processes. (7)

- Subcontractors do not need to develop any special quality procedures for us. The quality of the products has been good. Good quality may have been based on good luck. It is not based on a systematic quality practices. There is a need to make something to assure the quality. Today the subcontractor's factory is like a black box. We do not know the content of it. (4)

Logistics process

- Purchasing and the storing practices are too complex. Responsibilities have been divided partially to the subcontractor. Some of the material flows are very complex and difficult to manage. There is much to develop. (7)
- Logistics works fine. We have no problems in the long run. (8)
- No problems. We have established the logistics development centre to develop co-operation with our subcontractors. There is a lack of development resources. Materials ought to deliver straight to the assembly line without any storing phase. (7)
- There are a lot of problems. Logistics system is too complex today. (7)
- We have put very much resources into developing the logistics system. The results are fine. Even the subcontractors are happy. (8)

Manufacturing planning and control process

- Our assembly program, orders and forecasts are distributed to the subcontractors via the web-based extranet system. The manufacturing planning and control process is a problem for both parties. The operation is under development phase today. It is important to simplify the logistics in order to develop the controllability of the manufacturing process. (8)
- The manufacturing planning and management responsibilities have been transferred to the subcontractor as much as possible. The contracts have been made in co-operation with the subcontractor so that they have more freedom to decide the lot sizes and adjust the manufacturing program. The discussion is continuous. (7)

- The subcontractor makes all of the manufacturing decisions using the history data and forecasts. (7)
- The operation has been developed so, that our marketing department makes new forecasts very often. These forecasts are handled internally and sent to the subcontractors via a web-system. (9)
- Manufacturing planning and control system has been developed continually with our subcontractors. It works well today. (8)

Financial process

- Subcontractor's pricing systems do not work well. We do not know anything about the cost calculation methods and pricing methods. We cannot estimate different kinds of cost savings when making changes to the product or process. We have not seen any actual cost calculations. We have not found a mutual way to understand each other in financial questions. (5)
- We have developed fine working financial systems with the subcontractor. There are some details to develop in invoicing practices. (8)
- The financial status of the subcontractor is important to know. (6)
- There is much to develop. (6)
- EDI-based invoicing is under the development phase. The pricing mechanisms ought to be different for different principals. The price must be higher for the principal whose orders have continuous problems. On the other hand, the price must be lower for the principal whose orders never have problems and co-operation works fine. (8)

Contract and order process

- All of our contracts are at good level. The matrix of responsibilities has been made. Contracts are a very important base for a good operation. (9)
- We have not made a written contract with this subcontractor. The contract process is under development phase right now. Verbal agreements works fine. We have made some written contracts with some subcontractors. (8)

- Contracts works fine. (8)
- Contracts works fine. The contract process needs to develop further on. (8)
- The role of the contracts is important. They are management tools. We have succeeded in developing working contracts. (9)

Management of the processes

- We have a meeting once a month with the subcontractor where we handle the actual issues, problems, etc. Works fine. (9)
- There are different practices. With some subcontractors we have one meeting every year. Some of the subcontractors need more meetings. There is much to develop. (6)
- There is much to develop. The first issue is to find a mutual picture of the co-operation. We have discussed the theme "partnership" without any results. (6)
- There is not any systematic procedure to manage the processes. There is need to have a strategic planning and development process with the subcontractor. (7)
- We do not have any formal management practice. There is much to develop. (6)

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Title

Managerial approach to subcontract manufacture co-operation in the metal industry

Common Agenda as a management tool between parties

Abstract

In this study, a new concept of Common Agenda as a management tool for subcontract manufacture co-operation is introduced and tested. The creation of Common Agenda and its testing are undertaken in connection with Finnish metal industry companies.

The proposal for Common Agenda has the following headings, which are called: 1) subcontractor/principal selecting process, 2) concurrent engineering process, 3) quality assurance process, 4) logistics process, 5) manufacturing planning and control process, 6) financial process, 7) contract and order process, and 8) management of the processes.

The content test shows that the proposed Common Agenda with headings can act as a basis for mutual discussion in subcontract manufacture co-operation. Additionally, the functionality test shows that Common Agenda with headings can be used as a tool for a practical evaluation method in subcontract manufacture co-operation.

The analysis of quality evaluation results revealed problems in the subcontract manufacture processes in the case companies. These results are only indicative and require more detailed research in order to localize and understand the problems.

Finally, the study concentrates on the concept of truth and proposes a concept of Common Truth as a base for Common Agenda.

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Nimeke

Johtamisnäkökulma metalliteollisuuden alihankintayhteistyössä
Common Agenda osapuolten välisenä johtamistyökaluna

Tiivistelmä

Tutkimuksen kohteena on alihankintayhteistyön johtamisproblematiikka. Alihankintayhteistyössä on kaksi osapuolta, joilla kummallakin on omat itsekkäät tavoitteet. Tutkimuksessa pyritään osoittamaan, että alihankintayhteistyö edellyttää jatkuvaa yhteistyötä, jota on tavalla tai toisella johdettava yhteisesti sovitulla tavalla.

Tutkimuksessa luodaan uusi käsite ”Common Agenda” alihankintayhteistyön johtamistyökaluksi. Tutkimusongelmana on käsite Common Agenda sinänsä sekä sen käytettävyys metalliteollisuuden alihankintayhteistyön johtamisen työkaluna. Common Agendan sisältöotsikoiksi ehdotetaan: 1) alihankkijan/päämiehen valintaprosessi, 2) valmistuksen ja suunnittelun yhteistyöprosessi, 3) laadunvarmistusprosessi, 4) logistinen prosessi, 5) valmistuksensuunnittelu ja ohjausprosessi, 6) talousprosessi, 7) sopimus- ja tilausprosessi ja 8) yhteistyön johtamisprosessi.

Sisältötesti osoitti, että ehdotettu käsite Common Agenda sisältöotsikoineen voi toimia osapuolten yhteisen keskustelun pohjana valmistusalihankintayhteistyössä. Lisäksi toiminnallisuustesti osoitti, että Common Agenda sisältöotsikoineen voi toimia käytännöllisenä alihankintayhteistyön arviointi-työkaluna.

Toiminnallisuustestin tulokset antoivat viitteitä, että testattujen alihankintayhteistyötapausten laadussa on merkittäviä ongelmia. Tulokset ovat kuitenkin alustavia, ja tarvitaan lisää tutkimusta ongelmien paikallistamiseksi ja ymmärtämiseksi.

Tutkimuksen lopuksi käsitellään totuus-käsitettä ja ehdotetaan uutta Common Truth -käsitettä Common Agendan perustaksi.

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In this study, a new concept of Common Agenda as a management tool for subcontract manufacture co-operation is introduced and tested. The research problem is formulated by analyzing the theory of the firm. The research problem is the proposal of Common Agenda itself and its usability as a management tool in subcontract manufacture co-operation in the metal industry. The creation of Common Agenda and its testing are undertaken in connection with Finnish metal industry companies.

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