

## **Customer involvement and organizational design: Different configurations of project business firms**

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### *Abstract*

Although there is, until now, a considerable amount of academic literature cumulated on project business firms, the diversity of the firms is not well recognized. Knowing industrial business relationships to be typically based on wide variety of interactions between buying and selling firms, we emphasize the influence of customers on the implementation of projects and the design of organizational structures in project business firms. On one hand, we illustrate the diversity of project business firms and, on the other hand, synthesize empirically grounded configurations of four ideal types of project business firms. In the configurations we emphasize the influence of customer involvement on the project organizing and on the overall organizational design of the selling firms. These three differentiating dimensions include eight elements that can be used to describe configurations named as product-like project business, successively operating adhocracy, standard project business and extreme project business.

*Key words:* Project business, customer involvement, adhocracies, organizational design

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### *Abstract*

Although there is, until now, a considerable amount of academic literature cumulated on project business firms, the diversity of the firms is not well recognized. Knowing industrial business relationships to be typically based on wide variety of interactions between buying and selling firms, we emphasize the influence of customers on the implementation of projects and the design of organizational structures in project business firms. On one hand, we illustrate the diversity of project business firms and, on the other hand, synthesize empirically grounded configurations of four ideal types of project business firms. In the configurations we emphasize the influence of customer involvement on the project organizing and on the overall organizational design of the selling firms. These three differentiating dimensions include eight elements that can be used to describe configurations named as product-like project business, successively operating adhocracy, standard project business and extreme project business.

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### **Introduction**

Project business, i.e. business built around discontinuous, unique and complex project deliveries, has attracted considerable research interest especially during the two last decades (see reviews in Skaates & Cova 2005; Cova & Salle 2006; Tikkanen et al. 2006; Whitley 2006). Attention has been paid to the special characteristics of the firms, such as the fluid, temporary nature of the organizational structures and the memberships in multiple networks. As the kind of universal features of project business are often noted the uniqueness, task complexity and time-limitedness of the projects (Cova, Mazet & Salle 1996; Söderlund 2004).

Although there is, until now, a considerable amount of academic literature cumulated on project business firms (e.g. Mattsson, 1973; Bansard, Cova & Salle 1993; Cova & Holstius, 1993; Hadjikhani, 1996; Söderlund 2004), the diversity of the firms is not well recognized (cf. Whitley 2006). Knowing industrial business relationships to be based on wide variety of interactions between buying and selling firms (e.g. Håkansson 1982; Ford, 1980; Ford, Håkansson & Johanson, 1986), we emphasize the influence of customers on the implementation of projects and the design of organizational structures in project business firms. We argue that the extent of customer involvement in project planning and implementation has strong effect on both the organizing of individual projects and through that on the overall structure of the selling firms. The needs of the customers are translated into, for example, job descriptions, roles of individuals, mutual adjustments and other project management practices.

In the present paper we aim to illustrate the diversity of organizing in project business firms. We synthesize internally consistent configurations of ideal types of project business firms with respect to the influence of customer on organizing of single projects and organizational design in selling firms. Our research questions are as follows:

- What the main differentiating dimensions characterizing project business firms are?
- What kinds of organizing logics in relation to customer involvement can be identified in design of project business firms?

To answer the above questions we, firstly, build on the configuration approach of organization theory (Mintzberg, 1980, 1983) and previous characterizations of project based firms (e.g. Eccles, 1981; Lundin and Söderholm, 1995; Payne, 1995; Powell, 1996; Whitley 2006). Organization literature has gone deeply into the interwoven nature of organizational structures and the characteristics of business environment. The earliest thinking about organizational structure was dominated by the 'one best way' approach; in other words, there was a 'wrong' and a 'right' way to design an

organization. The later theory moved towards an ‘all depends’ approach, known as a contingency theory. According to the theory, organizational structures reflect the organization’s situation – for example size, type and nature of environment. In the present study, we follow the third phase of organizational theory development, the so called configuration approach which concentrates on the interrelated dynamics of organization structure and business environment change. On the basis of the previous literature we propose a conceptual typology of project business firms.

Secondly, we elaborate on the conceptual typology through a multiple case-study. We examine the organizing of business in four project business firms within process technology industry. The firms are a provider of capital goods in the metal industry, manufacturer of heavy equipments for logistics operators, a solution provider in filtration and a manufacturer of automatic roll wrapping systems. Within these four firms we identified twelve differently organized units that we used as the cases. As a result of the analysis, we present four empirically grounded configuration of organizing logics in project business firms. In the configurations we emphasize the influence of customer involvement on the project organizing and on the overall organizational design of the selling firms. These three differentiating dimensions include eight elements that are in interaction and can be used to describe configurations named as product-like project business, successively operating adhocracy, standard project business and extreme project business. In the end, we suggest some development paths to the different types of project business firms and their customer relationship management.

### **Research on project based firms**

As a starting point for our study it is important to make a distinction between project management (single projects), projects as management tools (management by projects) and management of project business (multi-project organizations) (cf. Söderlund, 2004). Project management concerns the management of individual projects. Originally, for example, the International Journal of Project Management has served the needs of managers of individual projects. The discussion has had a strong technical emphasis with various types of planning techniques, e.g. PERT, Gantt charts and critical path method. Thus the intellectual roots of this tradition are in engineering and applied mathematics. The second discussion concerns projects as a management tool. It examines situations in the “normal” business where projects are used as vehicles of internal development. Nowadays both large multinational corporations and even small technology-based firms are organized by projects and can be described as project intensive organizations.

The third discussion concerns industry logic, strategy and organizational structure when selling and delivering more or less extensive projects (e.g. Van der Merve, 1997; Dvir, Lipovetsky, Shenhar & Tishler, 1998; Sandhu & Gunasekaran, 2004). Typically they use the perspective of executive level management. The present paper focuses on the third discussion concerning the management of project business. In other words, we analyse multi-project organizations, i.e. project based firms operating in project business (cf. Söderlund, 2002, 2004).

Project business firms (or temporary organizations) have, especially during the two last decades, attracted considerable research interest as new forms of organizing business activities (see e.g. Lundin & Söderholm, 1995; Whitley, 2006). Attention has been paid to the special characteristics of the organizations, such as the fluid, temporary nature of the organizational structures and the memberships in multiple networks. As the kind of universal features are often noted the uniqueness, task complexity and time-limitedness of projects (Cova, Mazet & Salle, 1996; Söderlund, 2004).

Mintzberg (1980) suggests two types of adhocracies, namely administrative and operating, the latter including typical features of project business firms. The operating adhocracy innovates and solves problems directly on behalf of its customers. It fuses experts from different specialties into smoothly functioning teams. It has an organic structure with little formalization of behaviour, extensive horizontal job specialization based on formal training, a tendency to group the professional

specialists in functional units to deploy them in small market-based teams. It relies on the liaison devices to encourage mutual adjustment – the key coordinating mechanism – within and between the teams. The power is delegated unevenly according to expertise and need. Therefore, the structure becomes selectively decentralized both horizontally and vertically. The administrative and operating work tends to blend into a single effort. Strategy is not imposed from above, but emerges from the stream of ad hoc decisions made for all the projects.

Operating adhocracies (Mintzberg, 1980) act in environments that are both dynamic and complex demanding sophisticated innovation. The more dynamic an organization's environment, the more organic is its structure. The more complex an organization's environment, the more decentralized its structure. Consequently, the only organizational structure in this type of hostile environment is a project based organization. On the other hand, project based organizations can, compared to other organizational structures, choose these types of business environments. Furthermore, many of them tend to simultaneously attempt to find business environments allowing more bureaucratic structures and actions. Adhocracies are typically young, because time encourages an organization to bureaucratize.

Lundin and Söderholm (1995) summarized the central features of a project based organization to the concepts of time, task, team and transition. The importance of time horizons and time limits is seen in the need for highly organized way of dealing with time problems and of acting according to the perception of time pressure and seeing it as scarce, linear and valuable. Organizations are in practice built around tasks that in turn can be defined to be either of once-in-a-lifetime or more standardized type of projects. Lundin and Söderholm (1995) divide these tasks to two fundamentally different ones naming them as unique or repetitive. Tasks in project based organizations are carried out by teams. With respect to acting in teams Lundin and Söderholm (1995) emphasize behaviour in two directions. On one hand, teams involve commitment building between different kinds of individuals and on the other hand legitimacy building between the team and the surrounding environment. Transition covers all the activities through which the project goals are achieved.

In addition to defining the universal features characterizing project business firms, a few researchers have searched for differentiating dimensions along which the diversity of organizational structures and logics of organizing in project business firms can be examined. Although Mintzberg (1980) sees project business firms primarily as adhocracies, the dimensions he uses to differentiate the organizational configurations can also be utilized to describe the diversity of project business firms. In the following, when looking for the strategic dimensions characterizing project business firms, we build especially on Mintzberg (1979; 1980, 1983) and Whitley's (2006) recent typology.

### **Characterizing project business firms: A conceptual typology**

According to Mintzberg (1979, 1980, 1983) all organizations can be described in terms of six parts: operating core, strategic apex, middle line, techno-structure, support staff and ideology. In relation to the context certain parts are more important than others. Among Mintzberg's organizational configurations innovative adhocracies are very close to project business firms. When generally speaking of innovative organization, the key part of organization is support staff that pulls individual experts and units to collaborate. We argue, however, that the diversity of project business firms makes the reality of organizational design more diversified.

Mintzberg (1979, 1980, 1983) also distinguishes six different coordinating mechanisms: mutual adjustment, direct supervision, standardization of work processes, standardization of outputs, standardization of skills and standardization of norms. Important point is that organizations favor one mechanism over the others. Mintzberg argues that adhocracies rely for coordination especially on mutual adjustment. However, the different situations of project business firms are likely to encourage the adoption of the other coordination mechanisms too.

Thirdly, Mintzberg lists the main parameters of design as following: job specialization, behavior formalization, training, indoctrination, unit grouping, unit size, planning and control systems, liaison devices and decentralization. These parameters determine the division of labor and achievement of coordination in the organizations.

Whitley (2006) presents a typology of project based firms in which the firms are divided into so called hollow, craft, organizational and precarious forms. Project business firms vary considerably in the kinds of projects they produce, the level of market and technical uncertainty they have to deal with, and their organizational complexity (cf. Cova, Ghauri and Salle, 2002). Projects can differ in terms of their customization, ambiguity of specification, and the extent to which customers co-produce them. They are also more or less discrete, interchangeable, predictable, and technologically continuous (Tushman & Anderson, 1986; Breschi & Malerba, 1997). Furthermore, the variety, interdependence, and stability of knowledge and skills differ considerably between project firms, as does the uncertainty of their work environments (Whitley, 2006).

The differentiating dimensions by Whitley (2006) concern, firstly, the extent to which firms focus on developing unusual, sometimes one-off, products and services for varied, and often uncertain, markets and, secondly, the extent to which the organization of expertise, tasks, and roles is predictable and stable over projects. Such variations have significant implications to the management of firms.

The first differentiating dimension of project business firms Whitley (2006) names as the singularity of the goals and outputs. Singularity contrasts those producing a single or small number of quite different kinds of results for different customers or markets from those conducting a series of related projects producing similar kinds of outcomes. The more singular are outputs, the more likely organizations will have to deal with exceptions to their routines and adjust to variations in materials and the work environment. Singularity of goals and outputs in projects converge the concept of uniqueness that is used very much in project marketing literature (see e.g. Cove & Hoskins, 1997; Mandják & Veres, 1998; Cova, Gauri & Salle, 2002). Therefore, we have chosen the variety of uniqueness as the basic differentiating characteristic of project business firms.

The second differentiating feature of project business firms proposed by Whitley (2006) concerns the distinctiveness and stability of work roles, professional identities, and skills within project teams and over the course of several projects. Also, the continuity of patterns of work coordination and control across projects is considered. In some craft-dominated sectors roles and skills are clearly separated throughout projects, and skill-based identities remain stable over a succession of projects, if not indeed entire working lifetimes. This enables project teams to be quickly assembled and to work effectively together at short notice. We have chosen to use 'the nature of adjustment within projects' as the second basic differentiating dimension of project business firms. By using this concept we want incorporate both the ad hoc nature of work roles and the level of job specialization of individual experts. The more job specialization exists, the less ad hoc work roles usually are involved, and the more sequential nature of adjustment within projects tend to be. In Figure 1, we present a typology to describe different types of project business firms.

		<b>Uniqueness of projects</b>	
		<b>Low</b>	<b>High</b>
<b>Nature of adjustment</b>	<b>Parallel</b>	<p><b>Product-like project business</b></p> <p>Projects are pretty similar, only incrementally changing.</p> <p>No stability of work roles, experts chosen based on current work load, work roles not very specialized, tasks relatively simple.</p> <p>High general skill level demanded throughout expert level, everyone has to know each other's expertise area.</p>	<p><b>Extreme project business</b></p> <p>Projects are always unique.</p> <p>No stability of work roles, experts chosen based on current work load.</p> <p>High general skill level demanded throughout expert level, everyone has to know each other's expertise area.</p>
	<b>Sequential</b>	<p><b>Standard project business</b></p> <p>Projects are pretty similar, only incrementally changing.</p> <p>Work roles are stable, everyone has own distinct role in every project</p> <p>Everyone's expertise area is specialized.</p>	<p><b>Successively operating adhocracy</b></p> <p>Projects are unique.</p> <p>Work roles are stable, everyone has own distinct role in every project</p> <p>Everyone's expertise area is specialized.</p>

**Figure 1.** Typology of project business firms.

The typology enables us to identify four ideal types of project business firms. *First*, we call as the ‘standard project business firms’ companies that have pretty similar, only incrementally changing projects. Typically, in these projects work roles are stable; everyone has his/her own distinct role in every project and everyone’s expertise area is specialized. The *second* type of project business firm is labelled as the ‘product-like project business firm’. In these companies the projects also tend to be pretty similar with only incremental changes. However, there is no stability in work roles, and experts are chosen based on their present work load. Work roles are not very specialized, since the tasks are relatively simple, but high general skill level is demanded throughout the expert level. Every expert has to know each others expertise area. *Third*, ‘successively operating adhocracy firm’ has unique projects. In these projects, work roles are relatively stable and everyone has his own distinct role in every project. Everyone’s expertise area is typically specialized. The *fourth* type of project business firm proposed in the typology is the ‘extreme project business firm’. This type of firm has very unique projects and there is no stability of work roles. The high general skill level is demanded throughout the expert level, and every expert has to know each others expertise area.

As Whitley (2006) argues the general level features cover a wide variety of different kinds of project business firms. This variety is not well described in previous research. Moreover, majority of previous research pays limited attention to the involvement of customer in project implementation and customer influence on overall organizational design of project business firms. For example, the nice characterization by Lundin and Söderholm (1995) well describes the time related effects of project-based organization for organizational structure and activities. The aspect of task, however, is one-sidedly reduced to cover the internal organizing without conceptualizing the complex interactions with customer organizations. The team aspects of project organizations are, in turn, simplified into commitment and legitimizing behaviours whereas we want also to remind the role of customer in organizing project teams. The needs of the customers are translated into, for example, job descriptions and roles of individuals, mutual adjustments and project management practices. The

transition from goals to accomplished projects, as well, is typically to a great extent influenced by different interactions with customer organizations (see also Tikkanen, 1998; Skaates et al. 2002).

Whitley (2006) defines singularity of the goals and outputs and stability of work roles and tasks as the differentiating features of different kinds of project-based organizations. Therefore, the typology focuses on the issues internal to the project business firm. In contrast, we aim to describe in depth the influence of customer involvement in design of organizational structures and project organizations. We argue that the extent of customer involvement in project planning and implementation has strong effect on both the organizing of individual projects and through that on the overall structure of the selling firm.

In the following we elaborate on the theory by using empirical data from four firms. We use the differentiating dimensions of organizational structure, management of projects and customer involvement to characterize project business firms of the typology.

### Research design and empirical data

The purpose of the empirical part of the present study is to elaborate on the typology of the project business firms. The methodology used follows abductive research logic (Kovács & Spens, 2005), where both theoretical propositions and empirical material are used as a source of knowledge for further development of the conceptual typology of project business firms. The study represents a qualitative methodology and includes a multiple case study setting.

The research at hand is a part of a larger research project, which focuses on multiple aspects of project based and customer reference driven business. At its extreme form any customer reference driven industrial business is very close to customer-driven project based business (Salminen & Möller, 2006). The topic of the present study was discovered within the ongoing research project. According to Gephart (2004), this kind of qualitative research setting is likely to produce substantial new insights, because large research projects typically enable us to discover new research gaps relevant to both practice and theory. The four companies (see Table 1) well represent project business firms whose business, by definition, is built around discontinuous, unique and complex project deliveries. The companies are of different sizes varying in terms of their annual turnover as well as the number of personnel. The companies represent different types of process technology industry equipment manufacturers but all the companies design and implement long-term investment projects to industrial customers. In financial terms, the magnitude of the projects varies greatly within the companies due to different product and delivery ranges. Therefore, examining the organizing logics in these companies makes sense from the point of view of the objectives of the present study.

**Table 1.** Basic information on the four project business firms under examination.

Company	Cranes Plc.	Mining Technology Plc.	Filtration Plc.	Roll Wrapping Inc.
<b>Description</b>	Manufacturer of heavy material handling equipment for logistics operators such as ports, harbours, shipyards and offshore industry	Provider of process technologies for the mining and metals industry	Provider of filtration equipment and related services to the mining and metals industry and chemical process industry	Provider of paper roll wrapping and handling systems for the paper industry
<b>Size</b>	7500 employees in about 40 countries	1800 employees in 18 countries	450 employees in 40 countries	70 employees
<b>Duration of</b>	From over a year to	10-36 months	Up to 2 years	Around 2 years

<b>projects</b>	several years			
<b>Magnitude of projects</b>	Big variation between product lines, cranes up to 20 million euros	Technology packages between 3-70 million euros and large turnkey deliveries up to 200 million euros	Contract values range from 300 000 euros up to 5 million euros	1-3 million euros
<b>Business units</b>	Standard lifting Heavy lifting Service	Minerals processing Base metals Metals processing	Mining and metallurgical technologies Chemical process technologies After sales services	Not divided to smaller units

When getting acquainted with the four project business firms under study we noted the organizations to consist of several business units whose way of doing business differed significantly from each other. Altogether we could see twelve embedded units to be examined (see Table 2). Therefore, the four companies actually provide us a wide platform for researching different organizing logics in project business.

In the empirical analysis we found four units following the organizing logic of a product-like project business. All these units belong to Cranes Plc. Two units follow the logic of a successively operating adhocracy; one from Mining Technology Plc. and one from Cranes Plc. Standard project business logic is found from Filtration Plc. and in Cranes Inc. The remaining three units, two from Mining Technology Plc. and the whole Roll Wrapping Inc. follow the logic of extreme project business.

**Table 2.** Cases analysed according to their organizing logics.

<b>Company</b>	<b>Cranes Plc.</b>	<b>Mining Technology Plc.</b>	<b>Filtration Plc.</b>	<b>Roll Wrapping Inc.</b>
<i>Product-like project business</i>	Heavy duty lift trucks Harbour cranes Shipyard cranes Light crane systems			
<i>Successively operating adhocracy</i>	Process cranes	Turnkey deliveries		
<i>Standard project business</i>	Industrial cranes		Filtration solutions	
<i>Extreme project business</i>		Technology deliveries Equipment deliveries		Roll wrapping systems Modernization

The empirical material used in the present study is composed of interviews of managers of the selected firms, focus group interviews and workshops and more informal discussions in relation to research project (see Table 3). The different data collection methods enabled us to have different types of data. Firstly, the personal interviews provided us with individual perceptions of the main determinants of interviewees' work and the nature of the business in the units or business areas which they represented. In focus group interviews we were able to get an understanding of the common determinants of project business. Workshops were organized in order to present our

preliminary findings to the company managers. The managers reflected upon our ideas providing new insights and feedback on the fit between our theory and managerial reality. In addition we have used archive material, company documents and professional articles dealing with the companies to get the important details of the companies and their business.

The analysis of the data was started straight away as the first cooperation discussions and personal interviews were conducted. The empirical data was analyzed through a stepwise process as described in the following. Firstly, the archive material and the transcripts from the initial interviews were carefully read through by all the researchers to get a general understanding of how the managers see the business of their firm. Secondly, the early interpretations by the researchers were discussed in the project group meeting to form a common understanding of their business logics and central determinants of their business making. Thirdly, the data was analyzed in further depth to define the primary features of the case companies in comparison to each other. Fourthly, along further data collection in project workshops, case-specific seminars and project management group meetings we went back to the literature. We reviewed especially Mintzberg's configurations to utilize the dimensions he uses to differentiate organizational configurations in further depth and brought in the dimension of customer involvement. This enabled us to identify the twelve embedded units which were used to construct the four internally consistent configurations of the organizing logics of project business firms.

**Table 3.** Empirical data collection and types of data.

<b>Company</b>	<b>Type of data</b>	<b>Interviewees/Participants</b>
Cranes Inc.	Cooperation discussion	Director, Marketing & Business Development
	Personal interviews	Director, Marketing & Business Development Director, one product line Director, one product line Product Management Manager Marketing & Sales Manager
	Company-specific seminar	Altogether 10 case firm managers and researchers
Filtration Plc.	Cooperation discussion	CEO
	Personal interviews	Director, Sales, Marketing, Service Vice-President, one product line Vice-President, Sales Marketing Director
	Company-specific seminar	Altogether 10 case firm managers and researchers
Mining Technology Plc.	Cooperation discussion	Senior Vice-President & Vice-President, Technology
	Personal interviews	Vice-President, one product line Vice-President, sales & product line Vice-President, one product line Vice-President, sales & product line
	Company-specific seminar	Altogether 8 case firm managers and researchers
Roll Wrapping Inc.	Cooperation discussion	Managing Director
	Personal interviews	Vice-President, Sales Sales Manager Chief Automation Engineer Financial Manager
	Company-specific seminar	Altogether 8 case firm managers and researchers
All companies	Project's management group meeting	Representatives of all case companies
	Project workshop	Altogether 19 case firm managers and researchers
	Focus group interviews	Two groups with one manager from each company
	Management group	Representatives of all companies
	Management group	Representatives of all companies
	Project workshop	Altogether 17 case firm managers and researchers
	Management group	Representatives of all companies

	Management group meeting and seminar	Altogether 15 case firm managers and researchers
Three companies	Project workshop	Altogether 21 case firm managers and researchers

### Cross-case analysis

In the following we present the cross case analysis focusing on the three differentiating dimensions of the organizing logics in project business firms: organizational structure, nature of project management and customer involvement (see Table 4). As a result we present four empirically grounded configurations of project business firms.

#### *Organizational structures*

Firstly, the project business firms differ with respect to their overall organizational structure. Generally speaking all the studied project business organizations seem to be organic structures. However, in comparison to each other the configurations can be seen to differ. The most organic structure is followed by extreme project business firms where the dynamism of project flow is hectic and complexity of individual projects for the organization is very high. The most bureaucratic structure can be found in successively operating adhocracies. Since their project flow is more easily predicted and individual projects follow predetermined procedures and timetables. Two other configurations are more or less in the middle of the two extremes.

Compared to Mintzberg's (1980) configurations all the project business organizations tend to emphasize the role of experts in operating core. This typically flattens the vertical hierarchy of the organizational structure. However, the project organizations differ with respect to role of technostructure, support staff and middle management.

In case of product-like project business technostructure of the organization is in the key role when standardizing project outputs. Since projects are like products they can be grouped into the profit centers under the middle line managers. The middle line managers are the leaders of various product lines. In case of successively operating adhocracies projects are relatively similar following predetermined procedures and timetables controlled by project managers. The similarity of the projects makes it possible to group them in profit centres led by middle line managers. In comparison to product-like project business the middle line management is not supported by technostructure because the projects can not be defined beforehand. Therefore, we can argue that in successively operating adhocracy the middle line management is a more central part when compared to other confirmations of project business firms.

In standard project business projects consist of modular parts. Therefore, customer-tailored solutions are possible to implement in a cost effective way. However, in standard project business inter-project communication is a crucial coordinating mechanism to enhance learning and transferring tacit knowledge for standardizing projects through creation of modules. For this purpose support staff is bigger in number and helps to stimulate communication within and between projects. In extreme project business companies operate primarily on ad-hoc basis because of very volatile and unpredictable customer demands and needs. The life of this type of organization is built around selling and implementing projects of various size and kind. Therefore, business making is to a great extent of responsive nature.

#### *Nature of project management*

With respect to nature of project management in the different organizing logics we argue that each one has a different main driver and primary focus of attention. The projects of extreme project business center on individual customers with whom the project team interacts intensively and

continuously throughout the project. In the case of standard project business the role of project managers is the most central because he/she intermediates between the customer and the project team being responsible for the adaptations throughout the projects. As mentioned before in the product like project business technostructure defines the outputs which diminish the role of both customer and project manager in individual projects. In the case of successively operating adhocracies projects consist of sequential, predetermined tasks and carefully planned timetables.

In product like project business horizontal specialization of team members is low, since the team members have no stability of work roles and work load is distributed on ad hoc basis. It is possible because of the skill level demands being relatively low. In successively operating adhocracies, in turn, horizontal specialization is high. Team members are specialized in their expert areas and professional skill level demands are high. Specialized skills are mainly acquired through formal, external education. In extreme project business horizontal specialization is low. The team members have no stability of work roles and therefore high general skill level is demanded. Typically in this type of configuration work load is distributed on ad hoc basis because planning and predicting beforehand is difficult and the organization tends to be young and small.

In standard project business horizontal specialization is, as well, high the team members being very specialized in their expert areas. However, instead of formal education, the specialized professional skills are acquired through internal education and learning by doing. In successively operating adhocracies project managers coordinate pretty similar projects, concentrating especially on the time table of the project tasks. The similarity of the projects makes it possible to group the projects under the profit centre (middle) management.

With respect to vertical specialization, the independence of team members in product like project business and extreme project business is limited because of either technostructure or customer giving instructions and controlling the performance of their tasks. In successively operating adhocracies and standard project business team members tend to be independent and control their own jobs and tasks.

### *Customer involvement*

Third important differentiating dimension of organizing logic identified in this study is the customer involvement. This can be analysed through uniqueness of customer demand on one hand and the role of the customer within projects on the other hand. By the uniqueness of customer demand we refer to the extent of specifications given by the customer in the request for proposal. By role of the customer within the projects we mean the intensity of interaction between the customer and the supplier throughout the project implementation.

Involvement of customer varies across different organizing logics of project business logics. In product-like project business the level of uniqueness is low and customer's role indirect because of standardization and concentration in the customer industries. For example, in harbours, the lifting of containers is quite a standardised task and few operators operate the business worldwide. In the cases of successively operating adhocracies and standard project business the uniqueness of customer demand are intermediate and the role of customer indirect. In the first one project manager defines and leads the project rather independently. In the latter, customer needs are defined and adjusted in interaction with the project manager. With respect to customer involvement extreme project business gives the customer the most central role. The unique projects are in fact led by customers.

Figure 2 illustrates the customer involvement in organising logics presenting especially the nature of interaction between customer and project business firm. In product-like project business the role of customer is reduced because of technostructure defining the characteristics and ensuring quality of the projects. For example, in practice this could mean that the customer presents its needs to the product manager of the supplier firm and the manager then suggest appropriate products from its

existing product range. The width of the product range is typically based on the long history of the supplier in the business and experiences of implementation of different types of customized projects. The interaction between the customer and the project business firm is characterised by moderate mutual adjustment. The role of the customer is strongest in the beginning at the point of the purchase when it negotiates the product specifications with the sales personnel and product managers.

In successively operating adhocracy the customer typically outsource the project to the specialised project business firm. The project business firm acts as a professional service provider on the basis of its expertise in the needed technologies and processes. The interaction between the customer and the project business firm can be described as moderate mutual adjustment. The customer gives the context for the needed solution and the timetable and budget for the project giving the responsibility of the design and implementation to the project business firm. Project managers act as links between the customer and the project team.

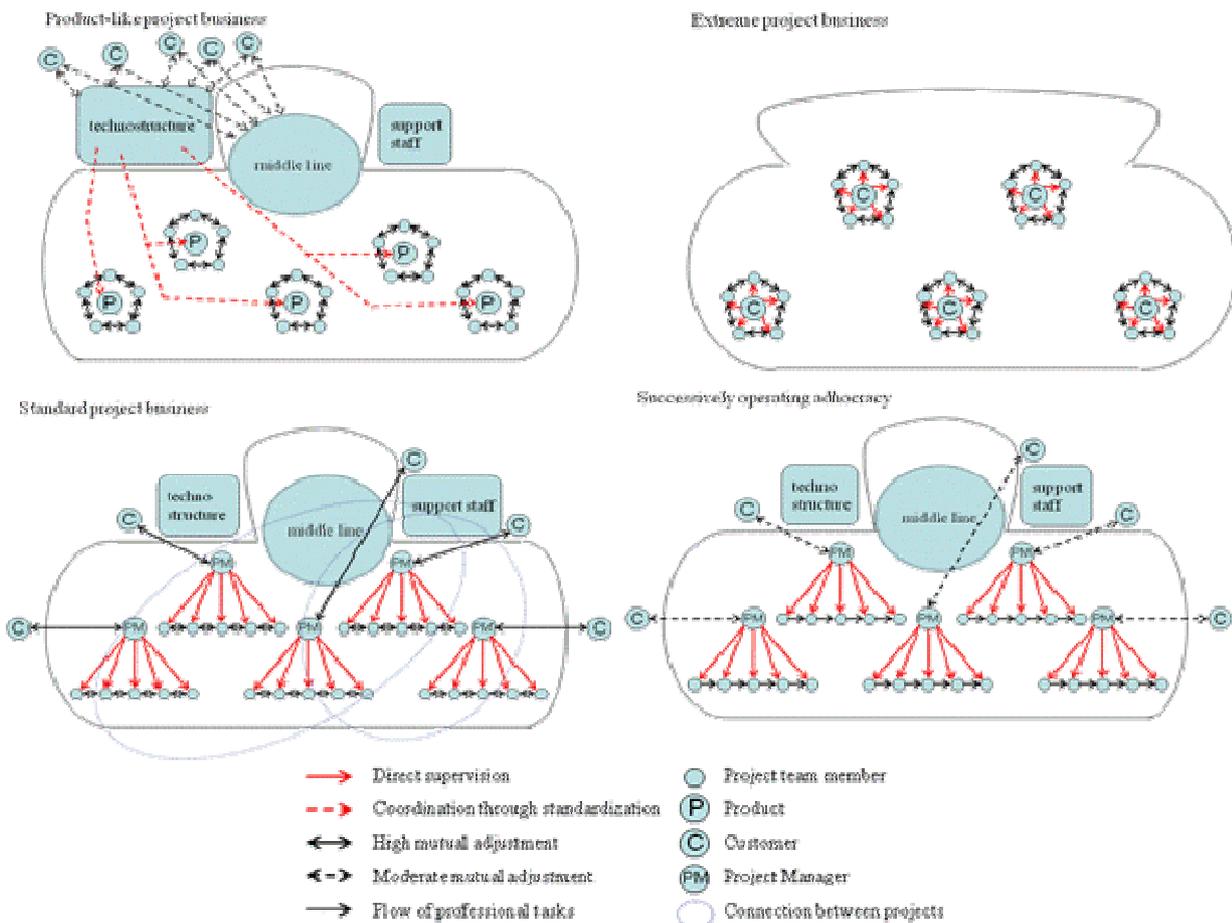


Figure 2. Illustrations of the four different types of organizing in project business firms.

In extreme project business the projects themselves are unique, although there is a limited amount of technological solutions available. The customer business environment is well-known and the technologies are developed all the time, but at a slow pace. Customer's role is central in project design and implementation, because the technology becomes directly a part of the customers existing technologies and processes. Customer tends to be in intensive interaction with the whole project team during the project implementation.

**Elaborating on the typology: Empirically grounded configurations**

In the above description we have presented the three dimensions and their central elements in relation to each firm type. In the following we elaborate on these dimensions to form logical configurations of the four types. The underlying assumption in our configurations is that the nature of customer involvement has a significant influence both on the organizational structure and the management of single projects in project business firms. The configurations are summarized in Table 4.

In product-like project business customers are central in defining and providing the product specifications to the supplier. From the supplier point of view the existing industry standards for the products make the market more homogenous and make it possible to develop specified product range. Due to the relatively high level of standardization supplier's organizational structure can be relatively bureaucratic. For example, a matrix organization combining product lines with market areas can be utilized. The project management is also concentrated on the output, i.e. the achievement of the specified product characteristics determines the success of the project. Key drivers in this kind of a business are the standardization of products and development of a strong brands because the supplier is not willing to tailor or significantly adapt the offerings to single customers.

In successively operating adhocracy the customer actually buys the project as a turn-key delivery and thus is mainly focused on monitoring the budget and timetable. Because the customer does not have a central role in the implementation of the project, the supplier is able to develop a bureaucratic organization on the basis of job specialization and division of responsibilities. Due to high job specialization, the nature of the project management is task centric. Everyone has their own expertise area and responsibilities on that basis in a sequential project implementation process and this enables the project manager to monitor the timely progression of the tasks of the project. In this kind of project business, it is essential to have the needed expertise in-house and to plan and coordinate the overall project. Customers are typically big global players and the projects can be very extensive. The role of the middle line is to form a unified interface towards the customer.

In standard project business the customer interacts intensively with the project manager of the supplier. This involvement is characterised by high mutual adjustment. The organizational structure can be described as relatively organic because the teams need to be able to form rather freely in each customer project according to specific customer needs. The role of the project manager is emphasised because they define the needed expertise and collect the team members. The management of modular offerings and project portfolio forms essential management challenges.

In extreme project business the customer has a direct influence on the organizing of the business. Projects are built around the customers and based on joint development. Extreme project business firms are typically rather small and thus they may only have one or two customer projects at a time. This makes the whole organization live on a project basis which necessitates highly organic organizational structure. The lack of formal structures and importance of knowing each others' expertise areas emphasizes the effectiveness of informal information flows. The management of knowledge inside the organization is an essential management challenge in these kinds of businesses.

Table 4. The four empirically grounded configurations of project business logics.

<b>Dimensions of organizing logics</b>	<b>Product-like project business</b>	<b>Successively operating adhocracy</b>	<b>Standard project business</b>	<b>Extreme project business</b>
<b>I Customer involvement</b>	Focused on product specification	Focused on budget and timetable	Focused on interaction with project manager	Focused on interaction with whole project team throughout the project

a) Uniqueness of customer demand	Low	Relatively low	Relatively high	High
b) The role of customer within projects	No direct role, technostructure ensures the quality of products	Indirect role, project ordered by the customer, project manager defines and leads the project rather independently	Direct role, customer needs defined and adjusted in interaction with the project manager	Direct and central role when defining and controlling the projects
<b>II Organizational structure</b>	Intermediate, relatively bureaucratic	Bureaucratic	Intermediate, relative organic	Organic
a) Key coordinating part of organization	Technostructure defining the outputs	Project managers coordinate pretty similar projects, projects are grouped in profit centres led by middle managers	Project managers and support staff, since projects are pretty similar but consist of modular parts, inter-project communication and learning are crucial	Experts in the operating core in lead; no clear technostructure or support staff.
b) The role of middle line managers in the organization	Remarkable, middle managers lead profit centres/ market areas	Remarkable, middle managers lead profit centres and take part in planning and defining the projects	Intermediate, similar projects grouped under middle management	No middle line, project directly led by top management
<b>III Nature of project management</b>	Output centric	Task centric	Project manager centric	Customer centric
a) Project team focus	Product characteristics	Time table of project stages	Customer needs transmitted by the project manager	Customer needs communicated by the customer
b) Horizontal specialization of team members	Low	High	High	Low
c) Vertical specialization of team members	Relatively low, outputs are in focus	Relatively high, experts control their own job	Relatively high, experts adjust mutually their own job	Relatively low, customer in control
d) Coordinating mechanism within projects	Standardization of output by technostructure	Standardization of skills by external education	Moderate mutual adjustment and direct supervision by project manager	Direct supervision by customer and mutual adjustment of project team

## Conclusions and Discussion

In the present paper we have aimed to illustrate the diversity of organizing in project business firms. We have especially emphasized the influence of customer on organizing of single projects and organizational design in selling firms. Firstly, we developed a conceptual typology of project business firms on the basis of previous research. This resulted in identification of four different types of project business firms: product-like project business, successively operating adhocracy, standard project business and extreme project business. These types differed in terms of uniqueness of projects and nature of adjustment within projects. Secondly, we determined organizational structure, nature of project management and customer involvement as the main differentiating dimensions characterizing the logics of organizing in project business firms. These dimensions were then used in elaborating the typology to four empirically grounded, internally consistent configurations of organizing logics in project business.

Our study emphasizes the interactive nature of project business; interaction between the supplier and the customer is a central element of business making. Customer has a significant role in the design and implementation of projects. The organizing of single projects, in turn, determines to a great extent the design of the organizational structures. The varying roles of the customer in project business have not been thoroughly examined in previous research. The involvement of the customer can be most active before the project implementation when focused on product specification or budgeting and scheduling issues. On the other hand, customer may have very active role throughout the project when constantly interacting with the project manager or even the whole project team.

The dimension of customer involvement in the presented typology can be seen as consistent with previous classifications of resource interfaces in buyer-seller relationships, such as supplier interface category model (Araujo, Dubois & Gadde, 1999). According to the model, from the perspective of the industrial buyer, the supplier interface can be described through four different categories based on the access to supplier resources. Similarly, in our typology, the customer involvement is centrally related to the way resources of the project firm are accessible and adapted towards customers. In product-like project business, the customer involvement is focused on product specification and thus the resource interface between the supplier and the customer can be described as standardized interface (Araujo et al. 1999) where the connection between user and producer context can be minimal. Similarly, in extreme project business, the customer involvement is characterized as extensive interaction throughout the whole project which can be labelled as Interactive interface according to the Araujo et al. (1999) model. Characteristic to this kind of interaction is joint development based on combined knowledge of the use and production contexts.

An interesting issue is also related to the development or change in the identified organizing logics. For example, in order to grow, companies in extreme project business may need to be able to develop their operations towards product-like business where productization and standardization are eligible management objectives. In the software industry, for example, there has been a lot of research on the way software companies develop from small project business firms towards large product business firms (e.g. Alajoutsijärvi, Mannermaa & Tikkanen, 2000; Sallinen 2002). According to this literature, managerial challenges related to the growth of small software firms include management of customer relationships and understanding of the different business logics. Managing different ways of operating such that they enhance company learning represents a significant dynamic capability in the development of software firms (Sallinen, 2002). Thus we can argue that understanding the varying business logics in project business may help companies in management challenges related to business growth. Interestingly, however, in our study also the large multinational companies had extreme project business type of businesses as well. Thus tailoring and close co-operation with the customer are likely to be the kinds of business logics that are needed despite the existence of product-like business logics parallel to organizing logics with more intense interaction with customers.

With respect to the managerial implications our typology can be used to help managers comprehend the variety of behaviours in project business firms. Especially the questions how structures emerge, why certain problems occur and why and how they can be managed over time (cf. Mintzberg, 1980). We argue that the extreme project business is the most challenging to manage. These companies are typically small and young with insecure business horizons. To stabilize the business they strive towards the three other types of project business firms. To stabilize the business they can rely on standardization either of projects (outputs), tasks and/or modules. Naturally, a fundamental prerequisite for this is constant flow of project orders. As a consequence, the customer involvement with the project team throughout the project reduces. The three other types of project business firms rely on one type of standardization in their business. If these companies are to expand their business to new business areas or customer industries they have to accept to logic of extreme project business in order to learn the customer requirements.

An interesting confrontation in management of project business is between standardization and tailoring. All the firms examined in this study perceived their projects and offerings as very unique. On the other hand, for efficiency reasons, they put a lot of effort into decreasing uniqueness in their internal processes. However, in the sales processes the same companies emphasized uniqueness by promoting their customer-specific solutions and tailoring ability. Typical actions for strengthening the uniqueness were turn key deliveries, combining products with value-adding and after sales services.

We feel, however that illustrating the challenges of management of these project business companies by using the developed ideal types would be beneficial, except for the development of the companies themselves, also for the advancement of theories of management project business. In the present study we have shed some light on how the four case companies cope with the challenging business characteristics by designing their organizational characteristics more or less conscious way.

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