Analysing Performance-based Contracting from an IMP Perspective: Conceptual Development and Empirical Insights[1]

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ABSTRACT

The IMP Relationship Model has been widely used for almost 30 years. Tremendous change has happened in the business world since then. While focusing on their core competencies, companies today require their suppliers to extend their offerings from individual products or services towards providing complete solutions. One way of offering such "solutions" is "Performance-based Contracting" (PBC). Its core elements are a focus on outcomes (as the customer value provided by a solution), and a clear link of provider compensation to achieving these outcomes. This contribution will discuss PBC and its implications on relationships among the parties along the supply chain applying the IMP Relationship Model and related research.

A twofold approach was applied for the paper: first, a conceptual understanding of PBC based on the existing literature was developed and then aligned with the IMP model. Second, initial empirical findings from case-based research were added to illustrate the current practical challenges and to enhance the model by adding the perspective of practical challenges currently existing for PBC providers of involving their suppliers.

The findings show that the IMP Interaction Model matches with the PBC core ideas to a large extent, but also that some aspects should be added ("interest alignment", "flexibility" and "risk transfer"), and that the perspective of the sub-suppliers is currently under-represented. A "double dyad" was developed from this. This was then mirrored against case evidence from typical PBC industries. The empirical results illustrate that many suppliers are not yet ready to get involved in PBC offerings – or providers are not willing to involve them. The transfer of risk seems to be a major issue in that respect.

The study will help both suppliers and providers in the increasingly important field of complex industrial service solutions to better prepare themselves for integrated offerings such as PBC. From an academic perspective, the paper will enhance the applicability of the IMP model in the context of industrial service solutions, increase the knowledge in the field of complex service procurement and respective supplier relationships as well as expand the analysis of PBC as an innovative procurement and marketing concept.

Keywords: Performance-based Contracting, IMP Interaction Model, Industrial Service Solutions, Services Procurement, Supplier Relationships

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INTRODUCTION

One of the most dominant schemes that has evolved over the last two decades in Business-to-Business Marketing and Purchasing is for companies to focus on their core competencies and rely on external suppliers for activities deemed to be "non-core" (Prahalad and Kamel, 1990; Venkatesan, 1992). As a result, these "lean" companies require their suppliers to extend their offerings from individual products or services towards providing complete solutions as a package of products and services (or product-service systems) to solve a distinct problem for the buying company (Davies and Brady, 2000; Meier, 2004; Vandermerwe and Rada, 1988; Vandermerwe, 1990).

The topic has been picked up on a broad basis from a marketing perspective (i.e. the solution provider's view), mainly analysing the advantages of offering such solution packages, one of which is an intensified relationship with the customers (Gulati and Kletter, 2005; Tuli et al., 2007). Several types of how solution can be shaped are possible, ranging from "traditional" product-oriented packages to integrated, result-oriented solutions (Baines et al., 2007; Tukker, 2004). One of these concepts that has drawn peculiar attention is "Performance-based Contracting" (PBC). Its core elements are a focus on outcomes (as the customer desired value), and a link of provider compensation to achieve these outcomes (Kim et al., 2007; Ng and Nudurupati, 2010). While the literature on PBC in general is increasing, very little attention has been paid to upstream activities in the supply chain, such as transfer of PBC to sub-suppliers (Hypko et al., 2010b; Lockett et al., 2011; Selviaridis, 2011). This is despite the advocacy for bundling PBC solutions through a system integrator, the resulting reliance on sub-suppliers and the recommendation of aligning interests in the value delivery architecture of PBC (Geary and Vitasek, 2008; Martinsuo and Ahola, 2010; Ng and Nudurupati, 2010; Randall et al., 2010). What is more is that also research on specifically procuring solutions, but also more generally services, is still scarce (Ellram et al., 2007; Howard and Caldwell, 2011; Nordin and Agndal, 2008).

Based on core pillars such as an integrated perspective on marketing and procurement, cooperative relationships and complex inter-organisational networks, the IMP approach could be used to shed further light on the issue of sub-supplier integration in PBC solutions provision (Ford et al., 2003; Hakansson, 1982; Paliwoda, 2011). As that has not been done to date, this contribution seeks to address this gap. Specifically, the paper will discuss PBC and its implications on providers' supplier relationship applying the IMP school of thought.

The focus of this approach is to introduce the fundamental ideas of IMP research as well as PBC. From this, a conceptual "PBC IMP Relationship Model" will be developed. The results of this analysis and the model will be illustrated and enhanced with findings from several case interviews, validating the deductively developed initial analysis and pointing towards the challenges PBC providers are currently facing.

LITERATURE REVIEW AND CONCEPTUALISATION

The following literature review will introduce the fundamental aspects of PBC as an approach for providing and procuring product-service solutions, but also the potential challenges for the supply chain delivery architecture. Also, the key aspects of IMP research stream will be covered. These review results will then be merged to develop a preliminary model of how PBC provider-supplier relationships can be aligned in the IMP research framework.

Performance-based Contracting

The idea that customers, whether looking to buy a product, service or a combination of the two, are actually looking for the value or result they provide is everything but new. In fact, it has been suggested to be the central aspect of marketing for more than three decades (Kotler, 1977; Levitt, 1983). This suggestion has been retaken repeatedly thereafter (e.g. Prahalad and Kamel, 1990; Gummesson, 1994). Yet, it has been until the end of the 1990s and the early 2000s until the proposition led into dedicated concepts in theory ("Service-dominant Logic", Vargo and Lusch, 2004) and industrial practice ("Performance-based Contracting", Behn and Kant, 1999; Buse et al., 2001).

With companies increasingly focusing on core competencies, they had to rely on external to suppliers to provide activities (and goods) considered "non-core" (Prahalad and Kamel, 1990; Venkatesan, 1992). To reduce the coordination efforts for the buying companies, suppliers were asked to provide bundles of products and services, so-called "solutions" or product-service-systems (PSS; Meier, 2004; Davies et al., 2007). This development was also driven by the potential providers of such solutions, which in their aspiration for generating new revenues in saturated (product) markets developed from mere manufacturers into integrated service providers (Cohen and Whang, 1997; Wise and Baumgartner, 1999; Oliva and Kallenberg, 2003).

However, for long, customers of above mentioned solutions still were charged for products ("initial procurement") and services (e.g. "maintenance, repair, overhaul", MRO) separately, leading to the paradox situation that suppliers of the products would increase their revenues the more often a product needed repair (Markeset and Kumar, 2005). Moreover, especially when buying services or PSS, procurement is thought to be complex and difficult. The reason is usually seen in the specific characteristics of services (traditionally mainly their intangibility; West, 1997). As there are no tangible product characteristics, buyers usually try to overcome this by specifying in detail what service providers are expected to do (Ahlstrom and Nordin, 2006). Yet, this is inefficient, as specifications are costly to develop, require detailed knowledge and limit the provider's ability to fully employ its expertise, as they are basically tell how to perform their service (Ahlstrom and Nordin, 2006). In addition, most services are difficult to evaluate even after having been provided, which is only partly resolved by narrow specifications (Holschbach and Hofmann, 2010). All these challenges are similarly valid for product-service-systems, as here, the provider takes the long term- or life cycle responsibility for a bundle of products and services, whereas the buyer explicitly wants to transfer the efforts required to manage these bundles – including not specifying individual components (Möhring et al., 2011; Stremersch et al., 2001) .

It is that interface between the objective of marketing to provide value for the customer and the challenges of procuring such bundles Performance-based Contracting sets in. First used in public services as a mechanism to allocate compensation based on results achieved, it was then increasingly used in (public) defence, but also in the (civil) capital equipment industry, as a mechanism to offer and procure complex systems as solution bundles (Buse et al., 2001; Hamrin, 1972; Mecklenburger, 1973; U. S. Department of Defense, 2001). Nonetheless, this has not led to the development of a common research stream. Instead, several fields under different terms such as Outcome-based Contracts, Performance-based Acquisition, Performance(-based) Contracting or Performance-based Logistics have evolved (Cipicchio, 2006; Hypko et al., 2010a; Kim et al., 2007; Ng et al., 2009; Randall et al., 2010). Moreover, the research stream of product-service systems has also brought forward specific types of the PSS which are very similar to PBC.

Yet, despite the different terminology, all of the concepts come down to two essential characteristics: that a bundle of services and products are offered to a customer as an outcome-focused solution, meaning to provide the result as the "value in use" desired by the customer (Kim et al., 2007; Mont, 2002). This also means that the provider of such PBC solutions is free in how to achieve the focused result (Randall et al., 2010). The second

commonality among the above mentioned concepts is that the provider compensation is tied to the performance as the degree to which the desired outcome is achieved (Gruneberg et al., 2007; Ng and Nudurupati, 2010). To illustrate this: an airline that requires an aircraft would traditionally buy an aircraft and then internally provide or externally source the service and spare parts to maintain it. In PBC, the airline might not even buy the aircraft, but instead procure its value in use – here flight hours; along the same line, the provider could be compensated by the flight hour with a fixed fee (Phillips, 2008). Other typical PBC indicators are similar to flight hours in a "pay-per-use" approach or availability rates of complex systems. Taking this together, PBC is defined as a concept for marketing and procuring services or product-service-systems with a focus on the result desired and a compensation only for the performance achieved.

It can be seen that PBC takes on the fundamental idea of (service) marketing, as providing the value desired by a customer and at the same time reducing their operational responsibility. The providers of PBC, with the focus on outcomes, obtain the freedom to find the most economic way of performing towards an outcome – but also the "no matter what" accountability for providing the outcome (Sols et al., 2007). Thus, PBC also involves a massive risk transfer from the customer to the provider: it obtains not only the operational risk to operate the solution system, but inherently also the market or utilisation risk (Gruneberg et al., 2007; Spath and Demuß, 2001). Reaching back to the example of the aircraft, this would mean that if the airline did not attain as many passengers and consequently reduce its flight hours, the PBC provider would also receive less compensation.

Several aspects of PBC are seen as offsets for this: First, the compensation mechanism, where fixed prices or additional incentives are a potential source of additional profits in case of efficiency gains (Berends, 2000; Meier et al., 2010). Second, long term contracts, which are commonly recommended for PBC (Doerr et al., 2005; Sols et al., 2007). Third, a closer relationship with the customer by sharing common risks and goals (the outcome), but also operationally, as service provision usually involves an integration of the provider and the customer (Hypko et al., 2010b; Piercy, 2009; Windahl, 2007).

The willingness of a provider to offer PBC will depend on an evaluation of the risks and benefits for each individual contract. The compensation mechanism hereby determines what share of the risks is covered mainly by the PBC customer (especially in cost-plus contracts), the PBC provider (fixed prices for a unit of outcome, with or without incentive premiums) or jointly (e.g. capped cost-plus contract, cost-plus contract with performance-based premium; Berends, 2000; Glas et al., 2012; Sols et al., 2007; Straub and van Mossel, 2005). Allocating these different approaches on the lines of a continuum, several basic types of PBC or more generally, service contracts, are possible. On the one end of the continuum, there would be "no outcome orientation" for the contracted product-service-bundle, i.e. a classical time-and-material contract and compensation independent of the actual performance. Very close to that, there would be "some degree of outcome orientation" for the services in scope (e.g. definition of a service level), but the provider compensation would depend on the resources consumed. Particularly, the provider's profit would not be linked to achieving some sort of performance level, but instead increase with the resources consumed, e.g. the provider puts a certain mark-up on the costs incurred. Both cases would not be deemed to describe a PBC approach ("Non-PBC"), but involve very little risk for the provider. A contract that is focused on the outcome, and involves *some* level of performance-based payment would be in the middle of the continuum ("Partial PBC"). This would be the case e.g. in cost-plus contracts where the provider profit is linked to achieving certain performance metrics, such as maintaining the overall costs under a pre-agreed level, or if some minimum compensation is fixed for the provider, regardless of its performance. Last but not least, there would be "Full PBC" cases, where the compensation is entirely based on achieving a preset outcome, which

imposes the highest risk on the provider. The continuum of these contracting approaches will be illustrated in the following figure:

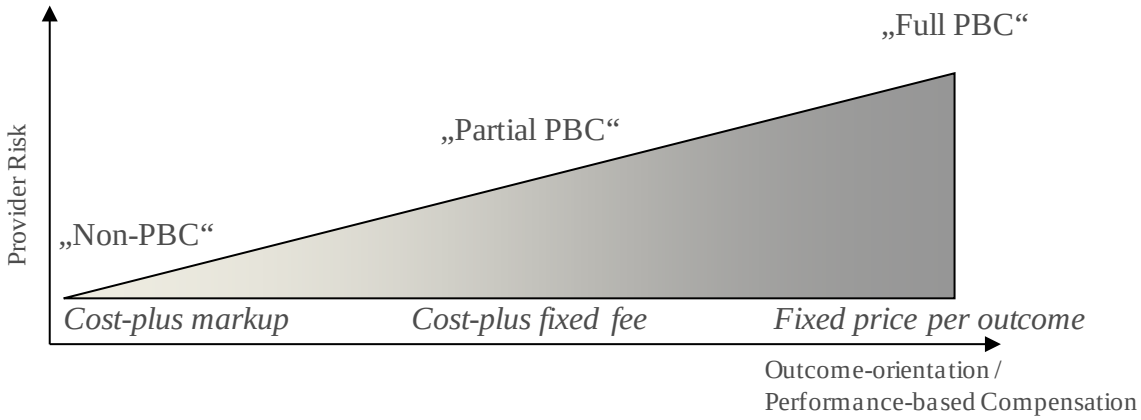

Figure 1: The Outcome-Risk-Compensation Continuum in PBC

As the previous discussion of outcome orientation indicated, risk-reward evaluation is a fundamental decision for customer and providers of PBC. The aforementioned risk aspects can be substantial, especially as there usually is a single company responsible for integrating all goods and services to form the PBC solution, whereas the breadth of these usually requires inputs from a number of companies (Buse et al., 2001; Geary and Vitasek, 2008; Gruneberg et al., 2007; Mahon, 2007; Randall et al., 2010). Thus, the dependency on suppliers is considerable, moreover when considering that an underperforming supplier might affect the performance of the entire product-service-system. Whereas the PBC customer does not have to bother with such problems at first, as it has transferred the “how” of service provision to the provider. The system integrator (i.e. provider) on the other side only gets compensated if the overall performance is delivered. Interestingly, despite this dependency of providers on their suppliers, very little research has been conducted on how to deal with this. In the dedicated PBC research, the importance of (involving) upstream suppliers in PBC is, if at all, commented on a very general level (Geary and Vitasek, 2008; Randall et al., 2010). Only one contribution specifically addresses the issue of supplier management and even here just in a side comment, stating that the customer-sided outcome may not be directly replicated to (sub-)suppliers. Also, the related research fields of product-service-system management, systems integration and the recently increasing focus on “procuring complex performance” do not provide much insight in provider-supplier relationships. Martinsuo and Ahola (2010) emphasise the importance of close supplier integration in complex solutions and suggest long term relationships to cover these. Still, they also identify (sub-)supplier integration in solutions to be a major research gap. Some of these aspects are also brought up by Locket et al. (2011), who further identify interest alignment as a major challenge of supplier involvement into PSS. Based on a single case study, they notice that although this should be different, information exchange between PSS providers and their suppliers is rather low. Another comment can be found for the topic of “Procuring Complex Performance”, which is in large parts overlapping to the ideas of PBC: in the opinion of Lewis and Roehrich (2009), a direct involvement of suppliers into an outcome-oriented complex solution is not feasible. Apart from these few indications, the specifics of the provider-supplier relationship have largely been ignored in research. Moreover, this gap has been explicitly named on two seminal PBC research reviews (Hypko et al., 2010b; Selviaridis, 2011). Thus, it can be said in summary, that it is assumed that many of the relationship implications for the PBC customer-provider relationship (e.g. closer interaction/ cooperation, long term-orientation) are also valid for the provider-supplier relationship, even if not directly transferable. With that, the

next section will briefly introduce key IMP research contributions, before they are matched to PBC's characteristics.

IMP research perspective

As was evolved from the above analysis, relationships and long-term orientation at the interface of industrial marketing and procurement are key determinants of PBC. The IMP Group research set out to cover the same topics, although surely on a broader perspective (Hakansson, 1982; Ford and Hakansson, 2006). Against the traditional view, IMP called for a view on business exchanges from a relational instead of transactional perspective, characterised by more or less intensive interaction between buyers and sellers, instead of isolated one way communication. Industrial markets were suggested to be different from those for consumers, which are typically in the focus of marketing research. The main difference was seen in the stability of actors meaning that although contracts may come and go, actors often cross each other's path again, implying a long term-orientation. Another peculiarity is seen in the buying behaviour, which is different in industrial markets, implying a much closer connection between the procurement actors at the customer company and those in marketing from the seller. These ideas were also used as the basis for the "Interaction Model" that positions interaction between two parties as the relationship into a framework of variables influencing the actors – and thus the relationship (Hakansson and Wootz, 1979; Hakansson, 1982). The interaction process is at both parties determined by aims experiences of individuals (e.g. buyers, sellers) as well as organisational impacts, such as strategy, structure and the available technology. A number of small "exchange episodes" over time leads to the development of common goals, although these are more short-term in the beginning of a relationship. Already at this stage, the relationship usually goes beyond the mere exchange of physical goods, also including information and social adaption. Over the longer term, the atmosphere of the relationship develops to be closer and more cooperative between the two actors. Beyond that, the environment such as the market in which the actors operate is also suggested as an influence on the relationship (Hakansson, 1982, please also see figure below).

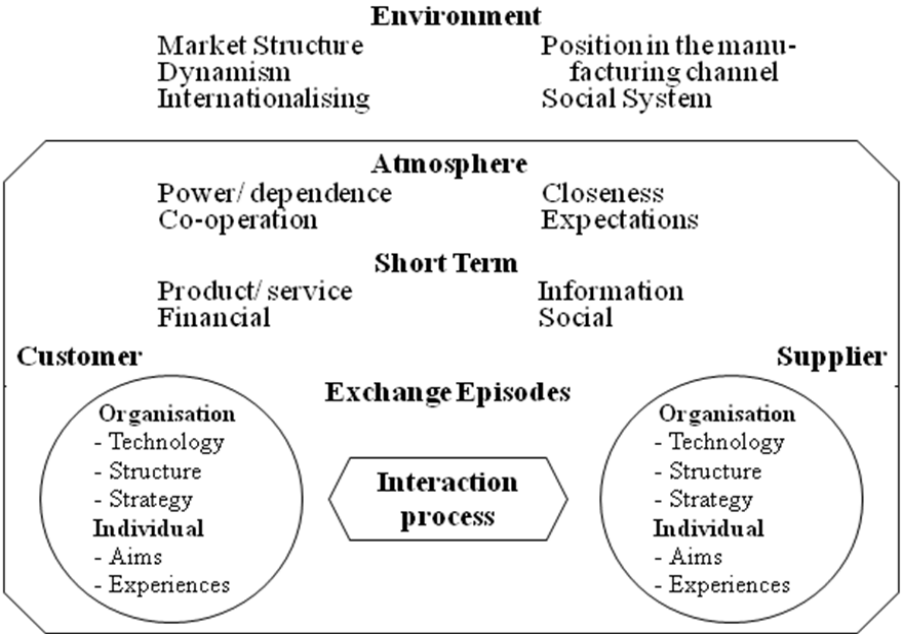

Figure 2: IMP Interaction Model (Source: (Hakansson, 1982)

The model has been popularly applied to analyse business relationships (e.g. Metcalf et al., 1992, Pardo et al., 2011, Wagner, 2001, Woo and Ennew, 2004), yet it is also criticised that the dyadic relationship perspective is not sufficient to grasp today's business complexity

(Brennan and Turnbull, 2002; Golfetto et al., 2007; Olsen and Ellram, 1997). One needs to notice though that this limitation of the model has been recognised in the very publication that also introduced the model itself. Moreover, the dyad is frequently named as the basic unit of analysis also in non-IMP contributions. (Cousins, 2002; Paulraj et al., 2006; Wren and Simpson, 1996). Either way, the IMP research perspective has developed another key idea: that organisations are part of a network, as consequently are all relationships (Ford et al., 2003; Gadde and Mattsson, 1987; Hakansson and Johanson, 1992). As key elements of such a network they define *actors*, that by combining their *resources* carry out value-adding *activities*. The major difference of the network- versus the dyadic view is the claim that no relationship is strictly dyadic, but every actor (i.e. company) is interlinked with a number of other actors. These are potentially affected by activities in (other) relationships that they are not directly involved in (Ford et al., 2003). Although the criticism on the Interaction Model was hardly the reason, the shift towards the network dimension in analysing business relationship clearly was a step towards linking IMP research with other approaches to relationship marketing (Golfetto et al., 2007).

In networks there are specific factors that influence how the individual parties act (in their relationships). These are financial resources (as a mean to acquire resources), the position in the network (e.g. closeness to end customer, resulting ability to exert power over other actors) and skills (product-, process- or marketing related; (Turnbull et al., 1996). While the emphasis in IMP research on networks remained on relationships, the results were clearly impacting supply (chain) strategy (Harland, 1996; Harland et al., 1999). In general, actual supplier management practices may not be that much different in the network perspective as in the dyad. Thus, the trend towards cooperative relationships is also reflected (Araujo et al., 1999; Claro and Claro, 2010). Also, a distinct structuring of the supply base, e.g. categorisation in “tiers”, is explicitly foreseen (Hagberg-Andersson et al., 2000). The main reason can be seen in the effort and investment required for developing and managing close relationships, clearly suggesting that such relationships should be followed only with a few key resources (Anderson and Katz, 1998; Claro and Claro, 2010; Ford et al., 2003; Gadde and Shehota, 2000). As a means of categorisation, portfolios are often suggested to differentiate the supplier base (Caniels and Gelderman, 2007; Gelderman and Semeijn, 2006; Moeller et al., 2006; Roseira et al., 2010; Wagner and Johnson, 2004). Despite the popularity, this is also criticised, as portfolios being too static and thus not capable of capturing the dynamism in complex organisational networks (Dubois and Pedersen, 2002; Gelderman and van Weele, 2005).

Another aspect of IMP research that has not been stressed as much, yet is interesting to note when looking at PBC, is the result- or value focus, or as Ford et al. put it: “Customers are not looking for a product from a manufacturer. Instead, they seek a solution to their problem for a supplier [as] a combination of product, service, advice and logistics” (Ford et al., 2003). This is very close to the idea of PBC and also in line with the recently popular ideas of “Service dominant Logic” (Ford and Mouzas, 2010; Vargo and Lusch, 2004).

What should be recognised in briefly summarising the above is that the key contribution of IMP research is not to simply provide yet business strategy framework, but reinforcing that the perspective of how management is approached should be changed from static units to inherently dynamic relationships (Baraldi et al., 2007). This also means that both the dyad and the network perspective can be applied to analyse business relationships.

A conceptual PBC IMP Relationship Model

It was already indicated that PBC has considerate overlap with the IMP research approach. In the following, the characteristics of PBC will be matched along the dimensions and elements of the Interaction Model as one of IMP’s key contributions. On a more general level, it could be seen that both concepts clearly emphasise the importance of relationships as company

links and that an (intense) interaction between the involved parties is foreseen. Also, the research in PBC to-date was clearly focused on the dyadic relationship between the provider and the PBC customer, playing along the lines of the IMP interaction model; yet, whereas the IMP model has been extended to a network perspective over the last years, research on PBC still largely ignores this change. Another differentiation has to be made concerning PBC and IMP: the first is dedicated contracting concept (i.e. a specific, yet customer-individual approach), with *relatively* clear suggestions of how relationships are governed and what goals drive the parties involved. The IMP research on the other hand far more provides an overarching framework and perspective with some tools, such as the interaction model, for structuring relationships in general. Thus, the following development of the model is an application of the higher level perspective of IMP to the specifics of PBC.

Specifically, we will take the providers' perspective and analyse the relationships to the PBC customer as well as to the sub-suppliers. A differentiation in the relationships will be given as necessary. Along this line, PBC-specific limitations of the model will be identified and added to form a modified "PBC IMP Relationship Model". An empirical validation of the model will follow in the section thereafter.

Looking at the ***Interaction process***, it was already indicated that it is expected that PBC leads to a long-orientation in the exchanges. Concerning the determinants of the interaction, it can be drawn from the literature that *organisations* will have to adopt a new approach when offering or procuring complex service solutions as in PBC (Davies and Brady, 2000; Oliva and Kallenberg, 2003). On the *strategy* level, it is emphasised that offering product-service solutions, particularly PBC, require a strategic shift for providers (Geary and Vitasek, 2008). Engineering- or technology-dominant manufacturers need to turn into customer value-centric service organisations (Baines et al., 2009). While little has been said on how PBC impacts the providers' suppliers (henceforth: sub-suppliers), it is frequently emphasised that they also need to be aligned towards the desired PBC outcome (Vitasek and Geary, 2008; Randall et al., 2010). This leads to the assumption that the sub-suppliers strategy will also likely be affected. For example, as the sub-suppliers now might have to think about two customers: their direct customer, as the PBC provider as the system integrator, as well as the PBC customer, which they may lose direct contact with (van der Walk and van Iwaarden, 2011). For the PBC customer, the change may not be at a strategic level – although PBC may affect Make-or-Buy decisions, which are usually considered to be strategic in nature (Venkatesan, 1992; Kumar and Kumar, 2004; Doerr et al., 2005). The change could be more on the normative level, i.e. the corporate culture, as the integration with and dependency on the PBC provider may be a major change towards prior relationships (Ng and Nudurupati, 2010; Kleemann et al., 2012). Concerning the *technology* and *structure* consequences of PBC, not much can be said based on existing research. Nonetheless, key performance indicators (as a measurement of the achieved outcomes) play a major role in PBC, and IT systems are suggested to support these (Berkowitz et al., 2004; Martin, 2003). Moreover, IT technology is seen as a support tool for managing cost in PBC delivery by providers (Claiborne, 2004; Geary and Vitasek, 2008). From a structural point of view, it is assumed that processes will differ, e.g. product development will rather become a solution engineering (Baines et al., 2009) or value delivery will be performed at the customers' facilities rather than ending at product shipment or the customer "gates" (Ng et al., 2009). Also, the organisational structure at the provider (and potentially sub-suppliers) may change to be more cross-functional, e.g. service operations might be integrated more closely to manufacturing and product development, but even financial engineers (Brady et al., 2005; Davies et al., 2006).

Concerning the ***Short term exchange episodes***, the constitutive characteristics of PBC already give a clear indication on how these aspects of the Interaction Model are affected. First of all, the outcome- or performance-focus clearly suggests a different view on the *Product/ service* element. Although the outcome expectation clearly sets some framework of

how a result can be achieved, the provider is free in determining how to achieve the customer-desired result (Sols et al., 2007; Ng et al., 2009). This also reflects the suggestions of "Service-dominant Logic", that customers are looking for a value or result, and care far less on how this may be achieved (Vargo and Lusch, 2004; Ford and Mouzas, 2010). Concerning the perspective of the sub-supplier, it again cannot be said for sure how PBC affects their offering – the only suggestions on this are side-notes, stating that a direct transfer of the outcome expectation of the customer to the sub-suppliers is not possible for the system integrating providers (Ng and Nudurupati, 2010; Lewis and Roehrich, 2009). Concerning the scope, it should be said here, that although also long-life consumer goods are sometimes discussed in the research on product-service systems, PBC itself is most dominantly seen as a concept for industrial markets (Hypko et al., 2010b; Randall et al., 2010).

The *financial* set-up in a relationship is also affected by PBC, first and foremost due to the compensation mechanism of paying for performance. This provides a relatively good cost control and an inherent "performance warranty" for the customer by aligning its interests (to obtain a certain performance) with those of the provider (to earn revenues; (Hypko et al., 2010b). Still, for the provider and, if involved accordingly, for the sub-suppliers, the pricing mechanism involves major risks due to the performance focus (Gruneberg et al., 2007). Moreover, often PBC replaces a major initial investment purchase with a more or less continuous revenue stream (Ng and Nudurupati, 2010; Araujo and Spring, 2006). While this is by many seen as an advantage, it also forces providers to pre-finance the investment – moreover, as the revenue stream is dependent not only on the providers' performance, but also on the use (or demand) of the customer (Gruneberg et al., 2007; Spath and Demuß, 2001). On the other hand, service provision (in PBC) is often seen as more profitable than mere production, moreover as pricing mechanism (e.g. fixed prices, incentive schemes) in PBC often opens further profit potentials (Kim et al., 2007; Geary and Vitasek, 2008; Neu and Brown, 2008; Nordin and Kowalkowski, 2010).

Concerning the *information* exchange, it is expected that the information flow changes significantly in PBC. Instead of telling providers what to do, customer express a desired outcome and leave it to the provider how to achieve it (Axelsson and Wynstra, 2002). Several iterations may be nonetheless necessary to agree on the performance indicators, as well as the degree of customer involvement in service production (Selviaridis and Spring, 2010; Guo and Ng, 2011). Thus, it can be expected for PBC that the information exchange is rather intense especially in the early phases of a contract, instead of discrete one way communication (Araujo et al., 1999; Selviaridis et al., 2011). At this stage, it can only be assumed that this intensity of information exchange also involves the sub-suppliers (Martinsuo and Ahola, 2010; Lockett et al., 2011). Last but not least, the *social* setting in the PBC interaction is seen. Due to the previously mentioned closeness in PBC delivery, the alignment of goals and mutual dependency, the relationship between the PBC provider and customer is relatively intense, also founded on social values such as trust (Guo and Ng, 2011; Wood and Tasker, 2011). For the sub-supplier perspective, again it can only be judged from a general perspective that such foundations are also sought between sub-suppliers and the provider(s) (Spekman and Davis, 2004; Geary and Vitasek, 2008).

Most of the aspects covered in the ***Atmosphere*** of the ***Exchange episodes*** in the Interaction Model have already been reflected on in a PBC setting. The reason for this could simply be the (inherent) long-term orientation that is often seen in the concept (Buse et al., 2001; Gruneberg, 2007; Hypko et al., 2010a). Thus, a higher degree of *co-operation* and *closeness* is expected between the PBC customer and provider (Windahl, 2007; Piercy, 2009; Ford and Mouzas, 2010; Guo and Ng, 2011). Several authors also suggest this on the upstream supply chain (to sub-suppliers) as well (Lewis and Roehrich, 2009; Geary and Vitasek, 2008; Randall et al., 2010). The alignment of interests between the actors in PBC that is so vitally proposed may be subsumed under the co-operation aspect or impact the closeness of the

Interaction Model. Given the importance of the idea for PBC and that "alignment of interest" is not fully congruent with either of the terms currently used in the model, we propose "Interest alignment" to be independently integrated in the PBC IMP Relationship Model. The *power/ dependence* element in the model has also been touched upon before, with mutual dependence being relatively strong between the customer and the provider, but also between the provider and the sub-suppliers. Surely, the provider is to degree dependent on the customer for obtaining the performance compensation. In case of under-performing, the provider will not receive any payment. On the other hand, it also needs to be seen that a provider may only want to deliver the performance as long as that is profitable for it. Thus, the performance guarantee proclaimed for PBC is not actually "guaranteeing" the performance for the customer as in a 100% certainty – it is aligning the interests more closely (Behn and Kant, 1999; Brown and Burke, 2000; Hypko et al., 2010b). Thus, there clearly is a mutual dependence, another indicator for intense (yet not necessarily cooperative) relationships. The degree of cooperativeness is affected by the *expectations* of the actors. In PBC, the overarching expectation surely is the desired outcome or performance for the customer as the core of the concept (Kim et al., 2007; Ng and Nudurupati, 2010; Randall et al., 2010). This is also impacts the provider-sub-supplier relationship, yet there are some assumptions that no direct link exists between the customer-sided outcome expectation on the one side and what is transferred to the sub-suppliers on the other (Lewis and Roehrich, 2009; Ng and Nudurupati, 2010). Reaching back to the "outcome/ compensation/ risk continuum" developed in the literature review, one could also see the options of involving sub-suppliers along this continuum: the involvement could be in "traditional" consumption-based contracts as well as range up to fully involving sub-suppliers in outcome-orientation and performance-based compensation. Thus, we propose to take "*risk-outcome orientation*" into the interaction atmosphere between the provider and the sub-supplier in the PBC IMP Relationship Model. The reason why this is not directly replicated in the customer-provider relationship is that there, the outcome orientation is constitutive: if there was not at least a partial outcome-orientation, the respective relationship would not be about "PBC" and thus be out of scope of this paper. Still, the risk-reward evaluation is also impacting the customer-provider relationship due to the *risk transfer* and is accordingly integrated in the conceptual model.

Another consequence of the outcome expectation is also the flexibility for the provider – and to some degree also for the customer. Traditional contracts, even or specifically in service procurement, are usually prescriptive and detail-oriented with narrow specifications (Axelsson and Wynstra, 2002; CAPS Research, 2003; Lindberg and Nordin, 2008). Yet, in complex demand objects, such as the systems in PBC, with long life cycles and potential technological advances along them, it is hardly possible to provide all-exhaustive specifications (Smeltzer and Ogden, 2002; Selviaridis and Spring, 2010). In a PBC contract, with relatively little aspects being specified, this means that technological changes could be freely adopted by providers, e.g. to make the PBC more efficient (Buse et al., 2001; Belz and Wuensche, 2007). On the other hand, if the customer (performance) requirements change, it would yield a change to the key performance indicators, instead of entire contracts. This would be beneficial for the customer, to vear for the risks inherent in long-term contracts (Buse et al., 2001). Moreover, the close relationship between the customer and the provider (and potentially the sub-suppliers), are seen as to some degree replacing the need for extensive contracts (Poppo and Zenger, 2002). This means that "*flexibility*" is of very high importance for PBC, and thus should be reflected in the modified (PBC) IMP Model.

In the ***environment*** as the dimension surrounding relationships, the elements are relatively industry-specific. Given the typical industries for PBC (such as aerospace, defence, capital goods), it can still be assumed that the *market structure* usually is rather oligopolistic, both on the customer- as well as the supplier- (provider/ sub-supplier) side (Howard and Caldwell, 2011). Accordingly, the *dynamism* in these markets is rather limited. The products have

decade-long life cycles and the risk of new entrants is low, given the high entry barriers, e.g the capital investment for developing new products (Berkowitz et al., 2004; Rosetti and Choi, 2005; Davies et al., 2006). The *internalisation* and *social system* elements are apparently specific to national circumstances. They should be definitely considered as potential impacts also on PBC relationships. As an example, while PBC is very popular in the defence industry in the US or the UK, there is considerable reluctance in nations such as Germany or France (Frost & Sullivan, 2009; Kleemann et al., 2012). The *position in the manufacturing channel* surely is an influence on relationship structures in PBC, e.g. as a source of power over other actors and a direct access to customers (Cox, 2001; Hakansson and Snehota, 2002; Löfberg et al., 2010). For PBC, the first specificity is the "typical" supply chain, with a system integrator (i.e. the provider) as the single interface to the customer (Randall et al., 2010). This exclusiveness of accessing the customer could make sub-suppliers reluctant to join PBC concepts, as they become entirely dependent on the provider. Drawing from existing research on service procurement, it is assumed that cooperative provider-sub-supplier-relationships are a way to overcome this reluctance (Niranjan and Metri, 2008; van der Walk and van Iwaarden, 2011). Interestingly, it can also be found in existing research that the power is not with the system integrating providers, but further up the supply chain with the subsystem suppliers. For complex systems, supplier decisions are often taken for an entire life cycle as replacement of a supplier along the way would not make sense (again due to product complexity and respective investment requirements). Thus, once a supply source is selected, it cannot be replaced (Farris, II. et al., 2005; Rosetti and Choi, 2005; Lewis and Roehrich, 2009). This is further complicated by the aforementioned oligopolistic market structures in typical PBC industries, meaning that often, there only are few potential suppliers to choose from in the first place. Summing up the above, it could be shown that most aspects of the IMP Interaction Model are reflected in PBC relationships, with some slight additions being made. Yet, it also became apparent that much more has been written about the customer-provider relationship in PBC than for the relationships between providers and their sub-suppliers. It is therefore concluded that relationship management for PBC sub-suppliers may follow the same dimensions and elements as that with the customers, but in a (slightly) different way. Thus, we propose a "double dyad" for the PBC Interaction Model – one for the customer-provider, one for the provider-sub-supplier interaction. They interlock at the provider, which is involved in both relationships, potentially due to the risk-outcome-orientation that cascades from the customer-provider to the provider-sub-supplier relationship and last but not least by sharing the same environment (please see Figure below).

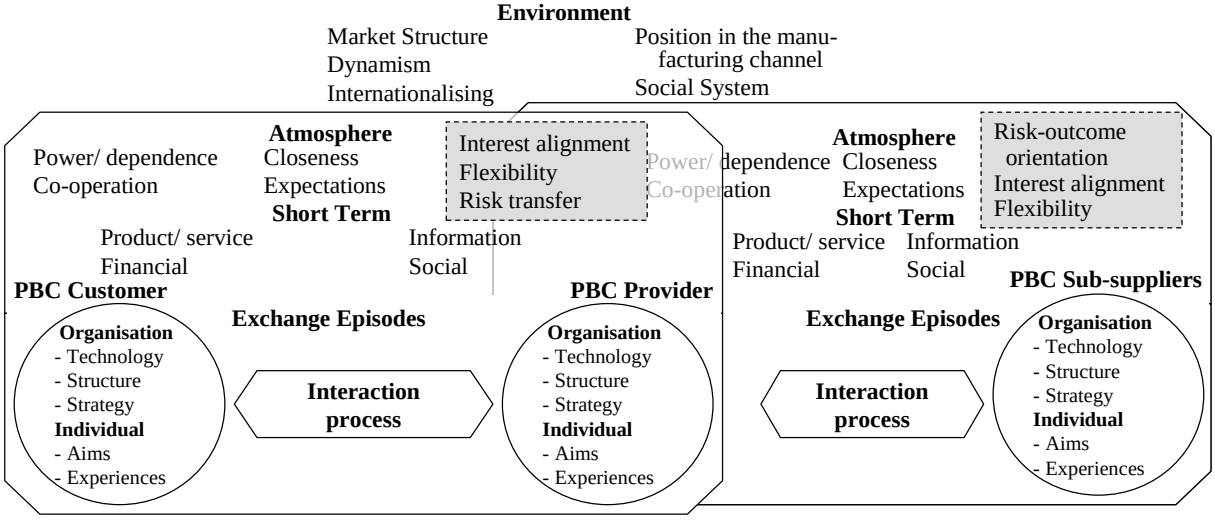

Figure 3: A Conceptual PBC IMP Relationship Model (Source: authors' preparation, based on Hakansson, 1982)

Despite the “interlock”, the model is primarily dyadic in nature. As has been addressed in the literature review, suggestions of viewing relationships from a network perspective have been made. The dyad nonetheless seems to be the appropriate choice for two main reasons: first, the state of research on sub-supplier involvement in PBC demands a reduction of complexity for an initial analysis. Second, as the “double dyad” reflects some aspects of networks, and because the interdependency between the PBC customer and sub-suppliers is close, but not direct, it may be that provider manage customer relationships largely independent from those with the sub-suppliers. The subsequent analysis will shed some light on this – as apart from the few comments on sub-supplier involvement offered in the literature review, there is no indication of how PBC providers currently involve their sub-suppliers into PBC offerings. The following discussion therefore focuses this aspect, first by applying a theoretical perspective on what could determine the decision of how to involve sub-suppliers at PBC providers.

CASE STUDY METHODOLOGY AND FINDINGS

The previous discussions pointed towards a rather cooperative interaction between PBC providers and sub-suppliers. To validate this, insights from a broader empirical study will now be presented. In this section, first the study’s methodology is discussed. Then, the indicative findings are provided and briefly discussed.

Methodical Considerations

The literature review revealed that there are plenty of contributions in most of the individual research fields around PBC, yet with major gaps between them. The conceptual model therefore had to be developed deductively. This was also the case for the theoretical discussion. In order to enhance the model’s significance, an empirical validation seems clearly beneficial in addressing the identified research gaps.

Given the scarcity of dedicated research on supplier relationships of PBC providers, with no empirical work currently being available, an exploratory purpose is followed in this contribution (Creswell, 2003). As case studies are a popular choice for serving such a purpose, these are also adopted for this research (Ellram, 1996).

As the aim of case studies is to provide insights into new phenomena rather than allow a generalisation of findings in a well established knowledge environment, it is also permitted (sometimes even recommended) to consciously select the cases to be studied (Eisenhardt, 1989; Patton, 2002). This research followed a selection approach that considered equally typical and critical cases (Miles and Huberman, 1994). Thus, PBC providers from typical PBC industries (such as Aerospace, Defence or Capital Equipment) were contacted, some of them already known to the researchers, which promises specifically deep insights (Stuart et al., 2002). Within the companies, it was attempted to conduct interviews both with procurement and PBC representatives to get sufficient insight both into the companies’ PBC offerings as well as how the suppliers are involved into these. Yet, the aim of this study is not to differentiate the functional perspectives within the firms, but how they generally act. Thus, a holistic perspective was taken on (Yin, 2009). Eventually, five companies agreed to take part in the research, which also ensures some robustness of the findings (Eisenhardt, 1989; Yin, 2009). A summarised overview of the cases (anonymised with aliases) including some descriptive information is provided in the following table:

Industry	*Industry literature reference*	*Case Company*	*Case Company and PBC Description*	*Number of interviewees*	*Role of persons interviewed*
Aerospace	See above	Turbineus	A manufacturer for major aerospace sub-systems, producing the sub-systems and respective support services "by the hour" and "availability-based" via fixed-price PBC contracts.	2	Head Customer Support; Head Metal Component Procurement
Aerospace & Defence	Baines et al., 2009; Hypko et al., 2010b	Milvus	A system integrator with manufacturing shares and responsible for final assembly; provides flight systems "by the hour" as well as full system support for flight systems based on fixed-price PBC contracts.	3	Head Customer Support Defence; Director Services Marketing; Head of Logistics
Capital Equipment	Hypko et al., 2010b; Kleikamp, 2002; Meier, 2004	Machinator	Capital Equipment manufacturer that integrates sub-systems, materials and staff to operative full production lines and is paid a fixed feed per the unit of production output.	2	Head Business Unit "Operator Models", Head Procurement
Defence	Geary and Vitasek, 2008; Kim et al., 2007; Randall et al., 2010	Defensio	A system integrator, responsible for final system assembly; provides full system support for weapon systems based on PBC availability contracts with incentive payments.	4	PBC Supply Management Team
Railway	(Hobday et al., 2005) ; Hypko et al., 2010b ; (Stenbeck, 2008)	Ferrivia	A service provider of fully operable locomotives and trains that are paid with a monthly fee that again is fixed based on the expected distance driven and with a guaranteed availability.	2	Head Customer Support; Head of Sales

Table 1: Overview and Description of Case Study Companies

Within these companies, interviews were conducted between July and December 2011, usually lasting 60-90 minutes, allowing sufficient time to get an in-depth view. Given that the problem scope could be framed by existing research (as addressed in the literature review), a semi-structured interview approach was determined (Berg, 2007; Gugiu and Rodriguez-Campos, 2007). Based on the research problem identified, more detailed, pragmatic interview questions have been formulated and joined in a interview guideline, that could be expanded in course of the interview discussions (Creswell, 2007; Maxwell, 2005). The interviews were usually tape recorded, which allows the researcher to focus on what is being said and facilitates a later analysis of the data (Creswell, 2003).

The data collected was then reduced and categorised along themes evolving from the transcripts, applying techniques of "Content Analysis" (Boyatzis, 1998; Saunders et al., 2007). Themes developed were along the key pillars of PBC, how and why so sub-suppliers are involved in the case companies PBC offering etc. As graphical display of data is considered highly important for qualitative data analysis, the data was structured in meta matrices and then linked to the IMP Interaction Model (Miles and Huberman, 1994). First however, the case findings are presented in summarised form.

Case Study Findings

Turbineus is an interesting case, as the company is providing a major aircraft subsystem in the role of system integrating provider as well as in the role of a sub-supplier to full system integrators of entire aircraft systems, depending on the scope of the respective PBC contract. The contracts are usually based on a fixed rate per flight hour of the subsystem produced by Turbineus. In some cases, an availability rate of the subsystem is guaranteed instead. Yet, regardless of the contract type, the case company does not involve the sub-suppliers in the PBC offering, but instead binds them in long term agreements that are based on "time and material" – this is neither correlating with result orientation nor with performance-based compensation. When asked for the reasons why sub-suppliers were not involved, the procurement manager claimed that as the sub-suppliers have no insight in the customer-provider relationship, these refrain from joining the respective contract agreements. In the cases where Turbineus tried to engage the sub-suppliers into PBC nonetheless, these reacted by adding risk premiums as a result of the uncertainty. Though, Turbineus also admitted that they would at the moment not know how sensibly cascade the outcome-expectation and compensation down to their sub-suppliers, which in many case provide individual components instead of modules or subsystems. Still, Turbineus claimed to have cooperative relationships, with a sense of sharing of risks and gains. When asked for details, e.g. how sub-suppliers could be motivated to improve their products along a system's life cycle (and thus the overall performance), the interviewees had to admit that they would not expect this to work in the current setting.

Another case from the Aerospace industry was collected at ***Milvus***, which in contrary to Turbineus is clearly active in integrating at system level. Moreover, it has a differentiated approach to also approach the defence market. The customers can select the scope of the PBC, whether they want the entire flight system or a range of subsystems or even spare parts to be covered in a "by the hour" approach, meaning that compensation is usually based on a fixed fee per flight hour. In most cases, Milvus does not involve the sub-suppliers in this offering in a specific way (i.e. no outcome-orientation, no performance compensation), but operates traditional "time and material" agreements. Here, their view is that with the suppliers being "disconnected" the customer, a vital information link is lost (about how the customer uses the product, how often etc.). This lack of information is considered as a major risk by suppliers, which they try to address by adding risk premiums to their prices. These surcharges lead to higher prices which are hardly accepted by the customer. Nonetheless, Milvus has some experience in PBC-like sub-supplier involvement, where critical subsystems were paid for with a share of the hourly rate for the entire flight system. It was recognised that in these cases, the relationships between the provider and the sub-suppliers were characterised by a far higher degree of communication, which then leads to higher trust, and less uncertainty about the actual service requirements.

A totally different setting had to be considered for the ***Operator*** case. First, the capital equipment industry considerably differs from the aerospace industry. Moreover, the integration between the customer and the provider goes way beyond the previous (and subsequent) cases analysed in this paper. Operator does not only provide the equipment, but also operates it on the customer's facilities. However, sub-suppliers do not play a vital role for this PBC mode. Although Operator is specifying parts required functionally, the actual outcome-focus towards the customer is not replicated to the suppliers, nor is the compensation mechanism (fixed rate per part produced on the equipment). The reasons carried forward by Operator were on the one hand the (expectedly high) effort for

coordinating the PBC mechanism towards the sub-suppliers, driven by the desire of PBC to retain control over the complex network of activities. They also brought forward that due to the high integration of Operator and the PBC customers, the distance between the customer and the sub-supplier would be all so big that sub-suppliers would not even be interested in an involvement due to the lack of transparency. Nonetheless, the interviewees claimed to have long term-oriented relationships that are characterised by a cooperative mindset. The xample given that "in an emergency, e.g. major equipment breakdown, we can rely on our suppliers to help us out, even if the specific activity or part required was currently not covered by a contract".

The ***Defensio*** company provides support services in a PBC where the customer is guaranteed a return time for critical MRO parts that is significantly below the times common elsewhere in the industry (8 hours instead of several months). The compensation is based on a fixed base rate, topped with an monetary incentive premium that is linked to the percentage rate of parts exchanges performed within the agreed time frame. The sub-suppliers are not involved in the contract in a PBC mode – actually, they are not at all involved in a narrower sense. There is no long term-contract between Defensio and its suppliers. Instead, these are contracted in individual transactions ("Case-by-case"). Defensio itself takes the responsibility for managing the spare parts inventory, and thus takes the risk of achieving the agreed performance indicators towards its customer. The reasons provided by Defensio for this approach were that their sub-suppliers have no interest in joining the PBC contractual mechanisms, mainly due to the investment necessary and the status-quo in the industry, with comfortable "cost-plus contracts". If "pushed" to make alternative contracting offers in which they join PBC mechanisms, sub-suppliers added significant risk premiums to their prices, which in the result makes in uneconomical for Defensio as the system integrator to involve them. The dedicated view on the relationship aspects touched by PBC revealed that in contrary to the suggestions in the literature, the relationship between Defensio and the sub-suppliers is far from being cooperative. Instead, it was stated in the interviews that "[we] aim at detailing every contractual aspect and manage supplier performance as closely as possible". There was some acknowledgement of long term-orientation, though it was seen as a disadvantage resulting from the limited range of suppliers to choose from, and their "quasi monopolistic" position once selected. All that seems to clearly oppose to the idea of interest alignment in PBC supply chains.

In our sample, ***Ferrivia*** is the only case company that is not producing any shares of the system it offers, but is merely acting as a service provider. There are relationships with the manufacturers of the locomotives and trains, but also with a network of independent service providers, such as repair shops, transport providers or warehouse operators. Thus, the dependency on external sources is considerable in this setting. Nonetheless, neither the suppliers nor the service providers are integrated into the PBC mode offered by Ferrivia. The locomotives and trains are bought "off the shelve". The services such as repair or transport are contracted based on certain "service level agreements", such as maximum repair times, transport times etc. These are common contracting terms for the respective service categories, moreover as the compensation mechanism are in no way "performance-based". The reason provided for this approach was that Ferrivia clearly sees the integration of the individual services and products into a full service package as its core competency. In its view, if it involved the suppliers too closely, it would risk of losing the business to these – especially for the locomotives and trains, where the manufacturers offer PBC-like concepts themselves. The relationships both to these manufacturers as well to the service providers was described of being relatively relaxed, with a clear long term-orientation and open communication. On

the other hand, the relationships were also not overly close; Ferrivia does not even have a dedicated procurement department or supplier management team to take care of these.
With the five case examples presented, the following table provides a brief overview of PBC involvement currently applied by providers with their sub-suppliers:

Case company	***Supplier involvement in PBC "outcome-orientation"***	***Supplier involvement in PBC "performance-based compensation"***	***Reasons provided for current approach***
Turbineus	• None	• None	• Lack of suppliers' interest • Risk premiums charged by suppliers • Problems of cascading the PBC aspects to lower-tier components
Milvus	• Most contracts: none • Some contracts of critical subsystems (engine): flight hour as joint outcome goal	• Most contracts: none • Some contracts of critical subsystems (engine): fixed fee per flight hour	• Risk premiums charged by suppliers due to missing information from user (customer)
Machinator	• None • Some functional specifications for equipment suppliers	• None	• Desire to stay in full control • Lack of transparency between PBC customer and suppliers
Defensio	• None	• None	• Mistrust
Ferrivia	• Mostly none, except for logistics services and some repairs	• Mostly none • For logistics services, some pay-per-use	• Integration effort seen as Ferrivia core competence • Efforts for developing dedicated PBC contracts

Table 2: Summary of Case Studies

Case Analysis and Discussion

Summing up the above cases, it could be seen that sub-supplier involvement into PBC is currently a rare practice among the providers. This is also reflected in the indicative allocation of the cases in the previously developed "Outcome-Risk-Compensation Continuum", as can be seen in the following figure:

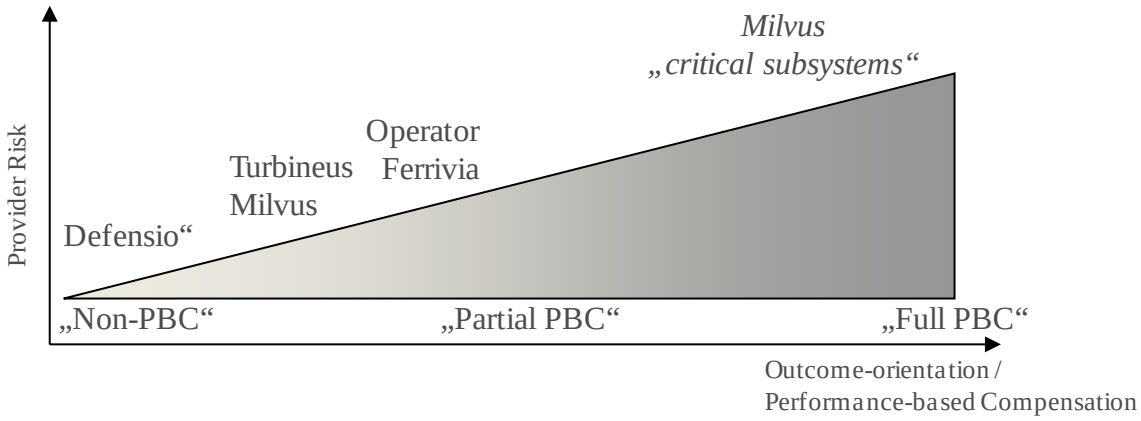

Figure 4: Case Study Allocation in the Outcome-Risk-Compensation Continuum in PBC

While this non-involvement is in clear contradiction to the common suggestion in the literature that PBC should align the parties along the supply chain, the reasons given by the interviewees were rather comprehensive as well. Two clusters of justification for the current

approach evolved. First, in several cases, the non-involvement was justified with the risk-averse behaviour of the suppliers. Second, self interest of the providers was given as a reason to keep the PBC risks and benefits within a company. However, it could also be that the risk aversion of the providers studied is rather high, meaning that sub-supplier involvement is not followed as contracting out is seen as a risk driver. Large corporations, as most system integrators studied in the cases above are, can be seen as specifically sensitive to risks, as they are driven managerial, not entrepreneurial (Pratt, 1964). This reluctance however is supposedly giving away some of the value potential of PBC (Giunipero and Eltantavy, 2004).

Matching the results back to the preliminary PBC IMP Relationship Model, it seems that the integration and emphasis on risk transfer and interest alignment was justified. For the other additions to (e.g. flexibility) as well as the original dimensions and elements of the IMP Model, there was not such a clear indication from the interview results. Given the limited number of cases studied, this in our view does not mean that these should not be part of the revised PBC IMP Relationship Model. Instead, further and more explicit studies may be required. These could also cover another aspect that in our view should be emphasised more strongly in PBC provider-sub-supplier relationships: "communication intensity". The importance lies in the decoupling of the sub-suppliers from the customer, which causes major uncertainties at the sub-suppliers. The provider thus could, with a more proactive exchange of information from the customer to the sub-suppliers, reduce this risk perception by the sub-suppliers and give way to a closer involvement of them. For the empirically enhanced relationship model, we thus propose to emphasise the importance of information and *communication* as a *long term*-determinant of PBC relationships and relocate this aspect within the model as per Figure 3 below. Along with the focus of the case studies, the perspective in this figure will be on the provider-sub-supplier relationship. The customer (and its outcome-expectation) is nonetheless reflected, due to the previously established element of "risk-outcome orientation". Figure 5 summarises the above revisions to the conceptual model and presents the empirically enhanced "PBC IMP Relationship Model", leading up to the summary of this paper.

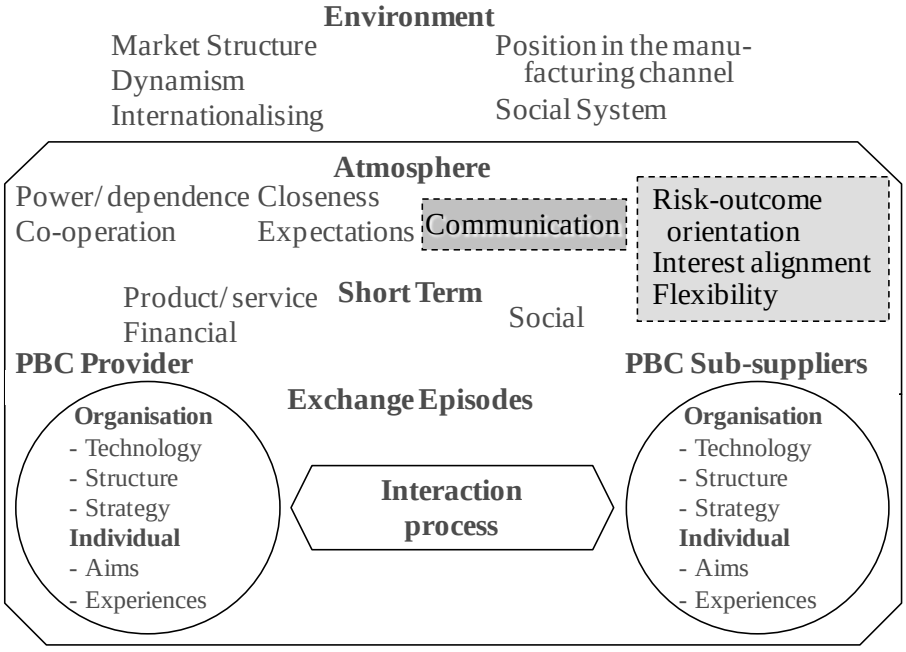

Figure 5: A Model for Provider-Sub-supplier Relationships in PBC (Source: authors' preparation, based on Hakansson, 1982)

CONCLUSION

The aim of this paper was to bridge the gap between Performance-based Contracting as a result-oriented product-service concept at the interface of industrial marketing and procurement, and the key ideas of the IMP Group's research. The literature hereby revealed a dedicated importance of relationships along the PBC value chain, between the PBC provider and its customer, but also, although much less focused and extensively studied, the relationships between the provider and its sub-suppliers.
After a brief review of the key contributions by the IMP Group, the dimensions and elements of their seminal Interaction Model have been discussed in relation to PBC. From that, a conceptual model, blended from PBC's characteristics and the IMP Interaction Model, was developed. While major overlaps could be seen, three aspects of PBC (interest alignment, flexibility and risk transfer) required an adaption of the model. Moreover, it was suggested to view PBC customer-provider-sub-supplier in a combined Interaction Model, the "double dyad". These modifications are intended to reflect the importance of sub-suppliers in PBC, but also that the assumed differences in the interaction between the provider, its customer or its sub-suppliers. The findings from the case studies at PBC providers confirmed the model development to a large extent, whereas the factor of "risk" seems to play an even bigger role in current management practice than expected. In most of the cases, sub-suppliers were not integrated into the PBC core aspects of outcome-orientation and performance-based compensation. Although relationships were described as being long term-oriented and largely cooperative, sub-suppliers were usually contracted in traditional supply- and separate service contracts. The balancing of the sub-supplier inputs and the customer-desired outcome was performed at the providers, which also carry the respective risks. The reasons given were mostly risk-related, again confirming the conceptual findings.

The key contribution of this work can be seen in the detailed and structured analysis of PBC relationships that extended beyond the scope of the typically viewed customer-provider interaction towards the sub-supplier upstream in the supply chain. Using the IMP Interaction Model as the basis, a clear illustration on the links but also differences along the supply chain could be provided, with the double dyad as the result. The empirical findings then revealed that the involvement of sub-suppliers into PBC is still low, and that the reasons provided during the interviews are mostly related to the risks involved. Although these findings remain at a relatively high level, it can be concluded that current approach of PBC providers is giving away considerable efficiency potential in the PBC value chain. Thus, further research could aim at expanding and deepening the empirical insights presented in this paper.

Another limitation of this study was the focus on dyadic exchange, although current relationship research, including IMP's focus, suggests that value is created in networks, not in two actor-relationships. While this limitation was intentional, given the exploratory purpose of this paper, the first suggestion for further research is to extend the scope of analysis to a network perspective. Further case studies for example could also involve the customers' or the sub-suppliers' perspective, which would be an opportunity to challenge the views given by providers. In order to allow providers to better involve sub-suppliers into PBC, further insights from theory (e.g. Agency Theory, Information Economics, Relational Contracting Theory) could be used to generate managerial recommendations. These were not focused in this research, thus the core suggestion at this stage is for providers' buyers (as the interface to sub-suppliers) to consider involving sub-suppliers into PBC on a broader basis. This could be accompanied by an improved risk management for the sub-supplier relationships or striving for more cooperative, actually trustful relationships. In our view, this is the key towards the interest alignment along the PBC supply chain actors that is so vitally proclaimed in most PBC publications.

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