The Emergence of Partnership Networks in the Enterprise Application Software Industry - An SME Perspective

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Abstract: The enterprise application development industry is currently undergoing profound changes. The well established, large system developers (hubs) take the lead in establishing partner networks with much smaller, often young companies (spokes). This paper takes the perspective of these spokes and seeks to understand their motivations for entering into such partner networks. Drawing on research on strategic alliances and product complementarities, a theoretical framework on the determinants of partnering is developed. It is argued that partnering is especially attractive for smaller organizations when it allows them to access capabilities that would otherwise be difficult to obtain. Three broad categories of dynamic capabilities of hub organizations are assumed to act in this role: the capability to innovate architectures, the capability to provide an integrated enterprise application system, and the capability to address broad markets. These are analyzed in eight case studies. The cases represent small and medium sized enterprises (SMEs) that are participating in the partner network of a leading provider of enterprise application systems. The study reveals that while access to market capabilities is a key motivator for all spokes, the other two capabilities do not play an identical role in all cases. Rather, their impact on partnering motivation is contingent upon the type of solution offered by the partner in relation to the large system developer.

1 Introduction

The structure of the enterprise application software (EAS) industry has been subject to continuous change. Generally, EAS are information systems that reflect business-related organizational tasks and processes and the individual roles involved in these processes. The first of these EAS have been developed by hardware manufacturers. Then, during the 1960s, independent software vendors emerged that developed specific EAS for their customers. As more and more of these solutions had been used by companies, the systems integration effort increased significantly. As a consequence, in the 1980s, a trend towards consolidation started in the industry [CK03]. Offering comprehensive functionalities within one system avoided the need for complex, cross-solution integration. The enormous success of the providers of these integrated systems even reinforced the consolidation process [Dav98]. As a result, today the industry is clearly dominated by a few global companies and it has become common practice among customers to focus on a base system from one of these key players in the industry [Mer05]. This *jack-off-all-trades* strategy

[FMS98] is based on generic software. This implies that the basic functionalities provided by the integrated systems are industry best practice but not necessarily best practice for a particular customer [Som04]. The trade-off between generic and bespoke software has opened up the market for SMEs that provide very specific solutions for a small group of customers (*narrow specialist* strategy). Indeed, by integrating various specific solutions from different specialists into a coherent whole, customers may end up with superior systems [FSW00]. A more intense inter-organizational division of labor, which has been adopted in many other industries [BC00], has recently begun to play a more important role in the EAS industry. This has been fueled by the emergence of service-oriented architectures (SOA) which promise to reduce the integration effort between heterogeneous software applications [FSW00]. On the one hand, large vendors started to promote their systems with the ability to integrate third party solutions [Gre03]. On the other hand, SMEs have begun to realize that rather than fighting against windmills, it is more beneficial for them to cooperate with large systems providers [Ten03].

While certain types of cooperations such as joint ventures, strategic alliances, or licensing agreements have been observed in the industry for quite some time [RK94, GI06], more recently a new form of cooperation can be observed. Many of the large providers of integrated application systems have begun to actively foster partnership networks. These partnership networks may be described as loosely-coupled systems where the participants respond to changes in the partner's environment but still stay independent from each other [OW90] in that they are not linked by capital (joint venture) or through joint effort in a specific project or business area (strategic alliance), but by more general agreements which may be based on certifications of the other party's products or resources.

The underlying rationale for the emergence of these partnership networks has been rarely addressed in research. As a first attempt for closing this research gap, this study adopts the position of SMEs (spokes). The question is raised why these SMEs enter into partner relationships with large dominant players in the software industry. Drawing on the theory of *dynamic capabilities* for strategic alliances formation [ES96], three types of capabilities of hubs are identified [Hag93] that are proposed to be key motivators for smaller companies to become partner of a large systems provider [Ahu00]. The proposed reasons are combined in a theoretical framework and empirically examined in a multiple case-study design which focuses on one particular partnership network.

2 Theoretical Foundation

2.1 Networked Industry Structure

It has been argued above that currently a more intense division of labor is emerging in the EAS development industry. On the one hand, this division of labor implies that each company is focusing on its core competency, such as particular well defined software components [STT05]. On the other hand, it results in the necessity of a more intense cooperation between these specialized companies in order to ensure that particular entities can be

integrated into a coherent system. How such cooperation can be achieved has been widely studied. In general, two archetypes of cooperation are distinguished: The *completely intermeshed* and the *hub-and-spoke* network [SMC92]. In the first case, all companies are inter-connected with all others. Partners are dynamically selected as needed. In the second case, a core firm exists that inter-connects with all other organizations in a stable network. This central organization often takes on the role of a platform leader that is assumed to define technologies, markets, strategies, structures, and processes [GC02]. From these two organizational alternatives, the hub-and-spoke network closely resembles the above discussed structure that is currently emerging in the EAS development industry. The network is proposed to emerge around existing strong vendors and their systems (i.e., hubs), that form the network of partners (spokes).

In IS research, cooperative arrangements in the EAS industry have recently been studied more intensely. It has been argued that mergers and acquisitions [GI06] as well as strategic alliances [GI07] are formed in order to create value from complementarities that exist between different types of products and services. In the context of hub-and-spoke partnership networks, the hub was found to be responsible for developing the system's platform, which includes the general functionalities of standardized enterprise software. This platform is then complemented by the spokes, which are supposed to develop specific niche functionalities [GC02]. Through the existence of network externalities, the platform of such a central vendor becomes more valuable if more complementary products exist [SV99]. Thus, the attractiveness of taking on the role of this central platform architect increases with the growth of the network [MF93]. The question is raised, however, whether similar benefits from complementarities can also be realized by the spokes. Their ability to profit directly from network participation through externalities is limited. Thus, it has to be assumed that the key benefits originate from the dyadic relationship with the hub. In order to understand the underlying rationale for the spokes to enter into a partnership with a hub organization, it is essential to understand the unique capabilities that the hub brings into the network. While previous research has mostly focused on studying dynamic capabilities that spoke organizations have to develop on their own [MV07], this study argues that accessing the capabilities of the large partner also plays an important role for the spokes' competitiveness. Thus, in the following, the underlying theoretical foundations for the role of dynamic capabilities in partnership formation are introduced.

2.2   Access to Dynamic Capabilities as Inducement for Partnering

Previous research has predominantly drawn on the resource-based view (RBV) for understanding why organizations enter into cooperative relationships [IHV02]. By viewing firms as bundles of resources, it has been argued that the main reason why firms partner is to gain access to resources which they currently do not possess, but which the partner is offering [ES96]. This fact has also been labeled as the *duality* of inducements and opportunities [Ahu00]. In particular, *dynamic capabilities* are acting as inducements. They refer to the ability of using resources in a way that enables organizations to not only react to changes in their environment but to shape their environment to a certain extent

[TPS97]. This ability is particularly relevant in dynamic contexts, such as EAS development [MMS05]. For instance, the theoretical discussion will show that not only particular products or services are suggested to turn firms into attractive partners, but the capability to constantly invent new products and services and to bring them to market. In the following, we will discuss which dynamic capabilities are relevant in the context of hub-and-spoke partner networks in the EAS industry.

According to a large scale survey by [Hag93], network formation in high-tech industries such as EAS development, is motivated by three types of inducements: Speeding the process of innovation, accessing complementary technology, and gaining access to novel markets.[1] The capability to innovate has been found to be of prime importance for network formation [Fre91]. Historically, many periods of fast-paced technical progress can be explained through such a process of collective innovation across the boundaries of single firms [All83]. It has even been found that those organizations that emphasize innovations as a core part of their strategy are particularly inclined to enter into inter-organizational networks [ES96]. In a similar way, technology integration has often been stated as a prime motive for network formation. The rationale behind this argument lies in the increased complexity of modern technologies. As products have become increasingly complex, single organizations struggle in addressing the entire scope of their development. Thus, joint development of technology has been suggested in order to benefit from synergies between technological capabilities [ES96]. Finally, gaining access to certain markets has repeatedly been brought forward in the literature. This includes both the access to new markets through the augmentation of the product portfolio and the ability to address geographically remote markets [Hag93]. In the software industry, inter-organizational collaboration has been suggested as a key strategy for gaining access to marketing capabilities [RK94].

2.3   An Integrated Framework for Relationship Formation

Drawing on the theoretical insights from the formation of strategic alliances, a framework is developed that explains partnering from an SME perspective. As the discussion on the duality of inducements and opportunities has shown, these organizations can be assumed to enter into alliances because they have a specific need to integrate external resources [WW81]. Thus, the following section discusses capabilities that hub organizations possess and spokes lack. These are assumed to be the key motivating factors for the partnership formation from the spokes' perspective. They are developed based on the three general types of capabilities identified above.

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[1]Although [Hag93] focuses on strategic alliances and thus on the joint deployment of resource, while this paper explicitly states that the here analyzed partnerships between hubs and spokes in the EAS industry usually do not imply such a joining of resources, [Hag93]'s taxonomy is still deemed a well suited starting point for building a research model.

Architectural Innovation Capabilities. Innovativeness plays a key role for organizations in high-tech industries such as the software industry, since they have to constantly cope with new technological advances as well as constantly changing customer requirements [Den04]. However, while innovativeness clearly constitutes one of the key dynamic capabilities of software firms [MV07], it is less clear how an SME benefits from the innovativeness of its large partner. More clarity is achieved through classifying innovations into different categories. As such, for industries that are characterized by a modular mode of operation, the distinction can be made between innovation at the component and the architectural level [HC90]. While component innovations accrue within the boundaries of one module, architectural innovations are affecting the way or the general structure by which the components are bound together to form a coherent system. A prominent and recent example for such an innovation that affects the assembling of different system components can be seen in the already mentioned emergence of SOA.

Architectural innovations require the capability to understand interdependencies between the different components as well as the functionality of the entire system [HC90]. Stated in other words, these architectural innovations are not confined to the narrowly circumscribed components in which the SMEs specialize. Thus, it can be assumed that SMEs face difficulties in developing innovations on the architectural level. Contrary, the capability to innovate on an architectural level is closely aligned with the business of integrating components or modules into systems which is exactly the core business of large hub organizations. Their core competency is to build and maintain integrated systems based on internally or externally developed components. In order to stay competitive in the systems market, they have to constantly innovate their architectural capabilities. Since the components of SMEs need to be aligned with architectural innovations in order to be compatible with other components, access to state-of the art architectural knowledge is crucial for them. It is important to stress that the spokes' prime motive for partnering with a hub is not the access to specific innovations, but to the hub's capability to innovate. Spokes do not actually use the hub's products, but aim at providing a module of an overall system that fulfills the changing customer requirements. This can be achieved by partnering with hub organizations, which is articulated in the following proposition:

> *Proposition I.* Small software producers (spokes) are partnering with large IS producers (hubs) in order to gain access to their capabilities to develop architectural innovations.

Integrated Systems Provision Capabilities. Closely related to the ability to innovate on the architectural level are those capabilities necessary to provide a technological base. In the context of EAS development, this technological base is considered to be the integrated system, which the hubs provide. The capabilities necessary to provide such a system represent the core competency of the hub organizations. As discussed above, the capabilities of hubs are historically rooted in the trend towards systems consolidation and developing comprehensive systems within the boundaries of a single firm [CK03]. The capabilities for developing such highly complex and integrated systems go far beyond what SMEs can provide. They are rooted in a profound understanding of various underlying technological disciplines and their interrelationships, an understanding of the entire system behavior

in terms of relevant parameters, the ability to design the entire system, the ability to design most key components of the system, and the ability to assemble component interfaces [Pre03]. As an example, the capabilities to provide such an integrated system served as the foundation of the success story of large providers of enterprise resource planning (ERP) software during the last two decades. They were the first that enabled a seamless integration of the entire information flows within an organization which was the foundation of their success story [Dav98].

As today the systems landscapes of large organizations are dominated by the solutions of these systems developers, the majority of SMEs in the EAS industry have realized that the success of their business critically depends on the inter-operability of their own solution with that of the large systems providers [Mer05]. In order to achieve this inter-operability of their own solution with the large systems, SMEs need to be well informed about the functionalities and interfaces of theses systems. By partnering with such a large system provider, the SMEs can facilitate their access to this kind of information. Furthermore, the inter-operability of the different solutions can be ascertained. This helps to reduce uncertainty on both the spokes and the hub side. This leads us to the following proposition:

> *Proposition T.* Small software producers (spokes) are partnering with large
> EAS producers (hubs) in order to gain access to their capabilities to provide
> an integrated system.

Notably, these capabilities to provide an integrated system refer to the exploitation of existing product architecture potential, which has been defined by the hub organization. This rather short term oriented "synchronic" capability differs from the long term capability to introduce incrementally or radically new systems architectures which has been referred to as "diachronic" systems integration capabilities [Pre03] (see Proposition I).

Market Access Capabilities. A third set of unique capabilities of the hubs that makes partnering with them attractive for spoke organizations is related to the sheer market power of the hubs. The products and services of SMEs in the software industry are of little value for most customers without being integrated into their existing systems landscape, which is largely dominated by the products of large systems providers. Thus, SMEs critically depend on the market access capabilities of the large providers and their willingness to consider the solutions of an SME as a complementary product in their solutions landscape. Many SMEs also cannot afford to make large investments into marketing activities which makes it particularly interesting for them to profit from the sophisticated marketing capabilities of large providers through a partnership arrangement [RK94].

Also, the strong market reputation of large systems providers can help SMEs reducing customer uncertainty about the quality and long term-reliability of their products and services. As it has been mentioned above, the quality of software is difficult to assess in advance. Through a partnership with a large vendor, SMEs can increase the level of trust in their solutions and their sustainability, in particular when the resources or products of the SMEs are officially accredited by the hub organization, e.g. through a certification [SB04]. The partnership agreement may substitute a direct quality assessment by signaling the trust-

worthiness of the SME to the market [Spe73]. Thus, the SMEs benefit from partnering with established large systems providers by leveraging their own market access through the large installed base of the hubs and by benefiting from the reputation of the hubs. The final proposition therefore reads as follows:

> *Proposition M.* Small software producers (spokes) are partnering with large EAS producers (hubs) in order to gain access to their capabilities to address broad markets.

2.4 Summary

The preceding discussion has evolved around the research objective of why small EAS development organizations are partnering with large system providers. As the underlying theoretical perspective on this issue has been that of dynamic capabilities, it has been argued that especially those capabilities of hubs are of prime importance that are difficult for the spokes to obtain. The discussion has, thus, focused on benefits of the interorganizational approach in the EAS development industry and yielded the insight that three broad categories of benefits promise to be relevant in this context. As such, benefits from the hub's innovation capability, systems integration capability, and market access capability have been identified. The proposed relationships are illustrated in Figure 1.
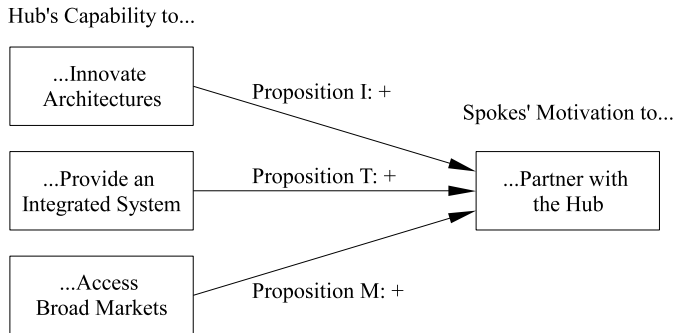

Figure 1: A Model for Explaining the Partnering Motives for SMEs in the EAS Industry.

3 Empirical Analysis

3.1 Methodology and Data Collection

According to [KL00], the choice of an appropriate research design is to a large extend determined by the research question that is intended to be answered. This paper deals

with the question *why* SMEs are partnering with well established large system providers. According to [Yin03], the case study approach is particularly promising to answer such *why* questions about motivations and rationales. The context in which case study research is especially well suited is characterized by two distinctive features. First, the boundaries between the studied phenomenon and its context are blurred. Second and closely related to this, a multitude of both variables of interest and available data covering these variables exist. Both features are clearly given in the above described context of EAS development. Obviously, various stakeholders and influencing factors are involved in this industry, and it is by no means clear which belong to the studied phenomenon and which are context.

Since this study is concerned with the motives of SMEs for partnering, the unit of analysis is the particular organization. Accordingly, a multiple-case study design was chosen [MH94]. It allows to investigate partnership formation by considering the contextual conditions of different organizations and, thereby, allows for an analytical generalization of the study findings [Yin03]. More specifically, generalization is achieved by applying literal replication logic, where each case is treated as a separate study for examining our proposed relationships [Yin03]. In order to enable the comparability of the individual cases, the focus was set on one particular partnership network which was established and is lead by one particular hub. This hub company is a large, global EAS vendor and one of key vendors for standardized solutions (known as enterprise resource planning (ERP) systems) discussed in the introduction of this paper. The recent version of the hub's EAS, however, is offered to customers as a platform based on SOA rather than a standardized, monolithic ERP solution.

Eight SMEs were selected that entered into a partnership with this hub organization. All analyzed case companies build on the hub's platform and, thereby, extend the overall system in a certain way. Each of the eight spoke companies is a certified partner of the hub, i.e., the hub has accredited that the solution of the spokes has the capability to technically integrate with the hub system. Table 1 introduces the case companies and their respective extensions of the overall system. It was ensured that each of the eight case companies represents an independent legal entity and is no subsidiary of any larger organization. Data from the spokes was collected from multiple sources, such as expert interviews, secondary material and personal observation between May and June 2007. Although the character of our analysis is rather exploratory, the expert interviews were guided by the propositions presented in section 2. As some of the case companies had even less than twenty employees, it was impossible to gain more than one interview partner for six out of the eight cases. For the other two cases, two and three interviews were conducted. On average, the interviews lasted one hour and resulted in a total verbatim transcript of 85 pages and more than 50,000 words of qualitative data[2].

For data analysis purpose, *codes* were developed for the three discussed propositions [MH94] by assigning a brief label for each of them: *Innovation*, *Technology*, and *Market*. Using this scheme, the transcripts of the interviews were then coded by assigning text passages to the three partnership motives proposed in the theoretical framework. These extracted interview fragments were then used for a two-stage analysis. First, a rough estimate

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[2]Two interview partners did not give their approval to tape record the interview. Accordingly for these two interviews no verbatim transcript could be made. Rather, comprehensive notes have been taken by the authors.

Case Company A	Integration between the hub's system and various machines such as vending machines or intelligent refrigerators.
Case Company B	Integration between the hub's system and a CAD system of a different vendor.
Case Company C	Integration between the hub's system and a groupware system of a different vendor.
Case Company D	Providing systems for automatic, mobile data recording, used for example for inventory management.
Case Company E	Full-range supplier of IT systems and services for newspaper publishing companies.
Case Company F	Integration between the hub's system and various archiving systems.
Case Company G	Integration between the hub's system and various enterprise output systems, such as high-volume printers.
Case Company H	Providing a product information management system for cross-media publishing.

Table 1: The Analyzed Case Companies.

of the importance of each of the proposed benefits was assessed by counting the frequencies of the relevant fragments [MH94]. Then, a second round of analysis was conducted in which the underlying background of each fragment was carefully considered in light of each proposition [DWH07]. In the following, the findings from this two-stage process will be presented. Since space is limited, we will directly enter into the cross-case analysis. However, whenever necessary, the peculiarities of particular cases will be highlighted.

3.2   Data Analysis

Table 2 provides an overview of the number of relevant interview fragments for each of the proposed partnership motives. As can be inferred from this table, the hub's market access capabilities were the most frequently mentioned motive for entering into the partnership network. Indeed, in each case, this was named as the main motive. The second motive, in terms of frequency of quotes, was the hub's capability to provide an integrated system. Only rarely, the interview partner explicitly discussed the implications of the hub's capability to innovate systems architectures.

	Innovation	*Technology*	*Market*
Number of Quotes	3	13	26
Average per Interview	0.27	1.18	2.36

Table 2: Number of Relevant Interview Fragments.

A closer examination of the interview quotes largely confirmed the picture obtained from the frequency counting. Table 3 illustrates our findings of our qualitative data analysis for each of the three propositions and for each case. The proposed benefits for partnering are either supported (+), rejected (o), or even a reversed relationship could be found (-).

	Innovation	Technology	Market
Case Company A	o	+	+
Case Company B	-	+	+
Case Company C	o	+	+
Case Company D	o	o	+
Case Company E	o	o	+
Case Company F	o	+	+
Case Company G	o	+	+
Case Company H	o	o	+

Table 3: The Spokes' Reasons to Participate in the Network.

In all eight spoke cases, the interviewees unanimously declared that the primary reason for partnering was the expected benefit from the hub's market power. In this context, good support was found for the underlying rationale of this proposition. Essentially, all clients of the spoke companies were found to already possess a system developed by the hub organization. Thus, the value of the spokes' products was inevitably linked to the presence of the hub's system. Indeed, the integration interface of the spokes' solutions with that of the hub was seen as a main selling point for spokes. Through the partnership the spokes hoped to gain access to more customers that profit from the spokes' complementary functionality to the hub's system. In addition, the signaling aspect was also found to be of prime importance. The reputation that small companies gain from the partnering with a large, well recognized organization was confirmed to be crucial. Two spokes explicitly mentioned the fact that customers prefer their organization over competitors because of their partnership with the hub. Thus, clear support for the proposed benefit from the hub's market capability could be found in the collected data.

The examination of the data regarding benefits from the hub's systems provisioning capabilities as a driver for partnering has shown a more ambiguous picture. While for some case companies gaining access to information about functionalities and interfaces of the hub's systems were considered as very important (highlighted by a "+" in Table 3), others either did not even mention that aspect of the partnership or considered it of minor importance (highlighted by a "o" in Table 3). Notably, however, for none of the companies, the hub's capabilities to provide an integrated system were the driving force to enter into the partnership like it was found to be true for market access capabilities. Rather, for those companies that emphasized its importance, these capabilities of the hub were seen as a necessary precondition for realizing the final goal of market access that all spokes did have in common.

Even less support was found for the proposition on architectural innovativeness of the hub organization as a driving force for partnering. For none of the studied case companies,

access to architectural innovativeness was considered as a key factor for joining the partner network. Contrary to our proposition, the innovation capability of the hub was even seen as a potential threat rather than benefit in one particular case (Case B). Other spokes were unsure about the implications of architectural innovations by the hub.

Summing up, the data analysis revealed mixed support for our propositions. In particular, with regard to the benefits from systems provisioning capabilities of the hub, there are strong differences between two particular groups of organizations. These group differences call for a deeper investigation of the underlying reasons and potential theory refinement. This is addressed in the next section.

4 Discussion

When comparing the company profiles, as shown in Table 1, with the main differences between the case companies regarding Proposition T, as shown in Table 3, it becomes apparent that benefits from systems provisioning capabilities by the hub were only emphasized by those companies whose core business is the integration of other hardware or software components with that of the hub system (Cases A, B, C, F, G). In contrast, those companies whose core business is the development of software with business process functionality (Cases D, E, H), did not see the access to the hub's systems provisioning capability as a key benefit. Rather, they saw the inter-operability of their own system with that of the hub as a mere necessity. The integration itself was not seen as a key differentiator for their business model of selling business functionality systems. Accordingly, access to information about functionalities and interfaces of the hub's systems were not seen as providing any value per se. This is nicely illustrated by Case Company D, which develops a solution for automatic mobile data recording for voice controlled warehousing systems. This system allows for a more efficient inventory handling, even if it is not integrated with the partner's platform. Thus, although there is value in integrating the mobile recording system with the hub system by enhancing the efficiency of the inventory handling process through automatic rather than manual data transfer, the core value comes from the mobile recording functionality of the system. The same holds true for Case Company E. The solutions developed by this company are specialized on managing advertisement processes and transforming printed newspapers into online presence. Thus, the main added value for newspaper publishing companies is offered by the system's functionality. The integration with the hub's system, which allows the transfer of advertisement data directly into the standard business applications, only facilitates a better usage of the main solution functionality. The same story can be told for the cross-media publishing solution of Case Company H. Thus, taken together, the integration with the hub's system provides additional value for the customers of the spokes, but the main selling point is still the systems functionality, which is mostly unrelated to the inter-operability.

This completely deviates from the perspective of the second group. Their business model critically depends on their unique capability of providing interfaces between different technological infrastructures. This requires them to gain and maintain a profound understanding of the unique interface requirements of the two entities that they seek to integrate.

Since one of these entities is the system of the hub, the integrators see significant value in the information on functionalities and interfaces. The partnership makes it much easier for them to get access to this information which they need for their integration business.

Consequently, the impact of the hub's systems provisioning capabilities on the spokes' motivation to partner with the hub depends on the nature of the solution that the spokes provide. The key differentiator between the solutions is the focus of their business model. The spokes analyzed in our sample were found to either focus on solution integration or on (stand alone) business process functionality. Thus, each spoke can be placed on a continuum from low-high importance of business process functionality and low-high solution integration capability as depicted in Figure 2.
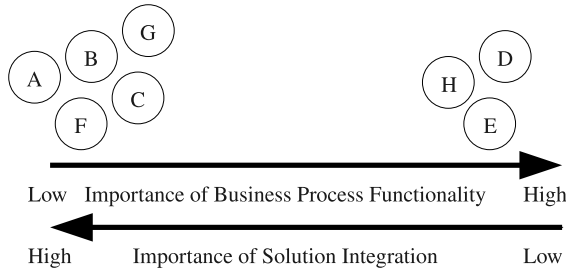

Figure 2: Importance of Business Functionality in the Partner's Solution.

Thus, refining the above sketched model, we introduce this importance of business functionalities as a moderating factor. Our data revealed that access to details about the provided system - especially regarding its interfaces - is of key importance to those partners that focus on integrating this system with another one (left side of Figure 2). In contrast, for those companies that focus on providing business process functionality (right side of Figure 2), this aspect is of minor relevance. This led us to the formulation of the following emergent proposition:

> Proposition BF_T: The higher the importance of business process functionality as opposed to solution integration for the business model of a spoke organization, the weaker is the proposed positive effect of the hub's capability to provide an integrated system on the spoke's motivation to enter into a partnership with this hub.

Taking the distinctive value proposition of the integrators into account, the fact that one of the integrators (Case Company B) actually saw the innovative capability of the hub as a potential threat rather than benefit becomes clearer. As far as the hub adopts a radically new systems architecture that makes the integration with external hardware or software components much easier for the hub, the business model to integrate this hub's system with another solution might be threatened. Thus, the architectural innovativeness of this specific hub might reduce its attractiveness as a partner. Consequently, the move towards more flexible component-based system architectures, such as SOA, may not be beneficial for all partners of the hub organization. Accordingly, Proposition I is modified as follows:

Proposition I$_{ALT}$. The architectural innovation capabilities of a large system developer (hub) are detaining small software companies (spokes) from partnering with this hub.

Notably, however, this reversed link is only proposed for spokes whose business model is based on solution integration. For SMEs that focus on providing systems with business process functionality the innovativeness of the hub plays a minor role for partnering. Accordingly, the following moderating impact is proposed:

Proposition BF$_I$: The higher the importance of business process functionality as opposed to solution integration for the business model of a spoke organization, the weaker is the proposed negative effect of the hub's architectural innovation capability on the spoke's motivation to enter into a partnership with this hub.

The enhanced theoretical framework is illustrated in Figure 3. The described innovation aspects are highlighted with dotted lines in this figure, since they are inherently exploratory in nature. The here collected data is not comprehensive enough to draw conclusions about their analytical generalizability. Thus, these links may viewed as theory emergent.
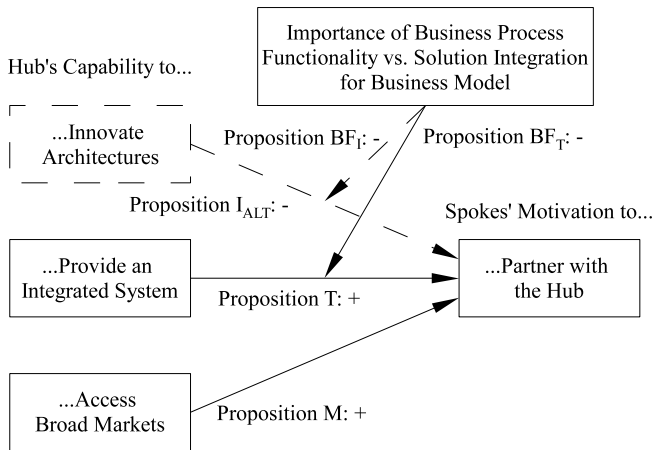
Hub's Capability to...

Importance of Business Process
Functionality vs. Solution Integration
for Business Model

...Innovate
Architectures

Proposition BF$_I$: -

Proposition BF$_T$: -

Proposition I$_{ALT}$: -

Spokes' Motivation to...

...Provide an
Integrated System

Proposition T: +

...Partner with
the Hub

...Access
Broad Markets

Proposition M: +

Figure 3: The Enhanced Model for Explaining the Motives of SMEs to Partner.

5   Conclusion

This paper has addressed the emergence of novel organizational structures in the EAS development industry. It builds on recent work that examined the role of complementarities for explaining inter-organizational forms of cooperation in the software industry [GI06], as well as the role of dynamic capabilities for SMEs in order to stay competitive in the software market [MV07]. The study is unique in that it focuses on new, more loosely-coupled forms of hub-and-spoke partnership arrangements that have emerged in the software industry. For explaining the emergence of these partnership networks, the concept of *duality* of inducements and opportunities for network formation [Ahu00] along with research on the motives of strategic alliance formation [Hag93] were applied. Benefits from three types of dynamic capabilities of large systems providers were proposed to motivate SMEs to enter into partnership networks of large systems providers. The resulting theoretical framework was empirically examined through a multiple case study including eight spoke companies that participate in the same partnership network of a large hub. Our findings revealed that the market access capabilities of the hub are a strong motivation for SMEs for joining the partnership network of the hub. Indeed, this was found to be the dominant motivation. A different picture emerged for the role of the hub's capabilities in architectural innovation and providing an integrated system. The impact of these two dynamic capabilities was found to be contingent on the type of solution that is provided by the spokes. In cases where the business model of spokes was focusing on providing integration interfaces between the hub and other hardware or software components, architectural innovation may even be seen as a threat rather than benefit, while access to the capabilities to provide an integrated system of the hub is seen as being important. In contrast, for spokes that develop solutions with business process functionality, both architectural innovativeness and systems integration capabilities of the hub played a minor role for partnering.

While it should be kept in mind that the findings from this research are based on a limited set of data and that the qualitative nature of our analysis may include some form of bias, we believe that our findings provide an interesting starting point for further research in the area of partnership networks in the software industry. One fruitful avenue for such an endeavor may be the application of the here developed framework from the hub perspective. This seems to be of prime importance, as it not only allows for a comprehensive analysis of the different roles in the network, but also of their interactions. Moreover, a closer analysis of the here developed propositions is promising. Especially a more distinct elaboration on the differences between groups of SME partners and their implications promises to be especially insightful not only for research, but for practitioners alike.

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