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BUSINESS MODEL DESIGN OF ARCHITECTURAL SERVICE FIRMS

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ABSTRACT

Due to significant changes in the architecture, engineering and construction industry, architectural firms have to adapt quickly to stay competitive. They need to innovate not only their products and services, but also make more fundamental changes in the way they create and appropriate value, thereby replacing or innovating their business model design. In this research we address business model design of architectural firms following an activity system perspective. We aim to identify activity systems that are used within the architectural service sector to create and capture value. The research explores possibilities and restrictions within architectural practice to deliver value to actors in the business model and to capture a share of that value. Archival data and 20 explorative interviews with different architects, clients and contractors, contribute to the identification of emergent activity systems for current and future use. Four activity systems were identified: international market approach, BIM services, programming services and partnering. Since the activity systems include new activities, linkages and actors, they require managerial attention to enhance value creation and capture by the firm. By applying the concept of activity systems on the context of architectural services the importance of business model design for the field of architecture is showed. Furthermore, the activity system perspective provides insight in which activities, relations or actors are important for the delivery and capture of value and helps firms to rethink and redesign their business model.

KEYWORDS: activity system, architectural services, business model design, professional service firms, value creation.

INTRODUCTION

Fuelled by our fast changing society and increasingly unpredictable economy, organizations' ability to adapt has become more important to survive. Firms need to develop new business models or alter their existing ones to create and capture value when markets, technologies and legal structures are changing (Teece 2010). Thus, constant innovation of the business model is essential to maintain a healthy business. Together with the financial crisis, global societal changes forced the architecture, engineering and construction (AEC) industry to undergo significant changes during the last decennium. In the Netherlands a shift towards more integrated project delivery and a risk allocation from the demand to the supply side, have resulted in new forms of collaboration, new roles and new responsibilities for all actors in the value chain (Volker & Klein 2010). Driven by their decreasing performance architectural firms

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pursue new roles and even take over roles of other actors. Competition has become widespread and extremely high. Since the end of 2008 the turnover of architectural firms decreased tremendously. While the total turnover of the Dutch architectural service sector was estimated at approximately € 1.7 billion in 2008, in 2012 it was only € 0.7 billion. Employment within architectural firms decreased with 58% in that same period (BNA 2013). Although recent studies show stabilizing trends, many firms expect further shrinkage of their turnover and workforce (Holtackers 2013, Architects' Council of Europe 2014).

As a result of the difficult market situation, the demand for new business models in the architectural service sector is high. If architectural firms want to remain in charge of a substantial part of the AEC process, they have to propagate and substantiate their own added value to clients and other stakeholders in the field. They need to come up with new or adapted business models that are able to create and capture value within the context of changing market demands. But, especially when working in the public sector, architectural firms tend to focus on the architectural quality of the service they provide and largely neglect the entrepreneurial side of their business (Cohen et al. 2005). Insights into business model design of architectural firms could improve managerial thinking by architects and might subsequently increase business opportunities within the sector.

Zott & Amit (2010) present an activity system perspective on business model design. The activity system enables the firm, together with its partners, to create value and to appropriate a portion of that value. The design of an activity system consists of two sets of parameters: 1) design elements that describe the architecture of the activity system, and 2) design themes that describe the sources of value creation (Zott & Amit 2010). In this empirical research we use the activity system perspective on business model design to analyze value creation and appropriation of architectural firms. So far, research on value creation by architectural firms has been mainly explorative (BNA 2011, RIBA 2012). These studies provide insight in activities that might be of importance for architects to secure their current and future workloads. However, interdependencies with the firm's business model - other activities, actors and revenue models - remain underexposed. Hence, our study addresses value creation in the field of architecture by using a systematic approach from business model literature. The research aims to identify and analyze current trends in value creation of architectural firms in order to recognize implications for future business model innovation.

The contribution of our research is twofold. First, we contribute to the AEC literature by translating the concept of business model design to the field of architecture. Our research shows the importance of business model design for the architectural field and demonstrates that business model theory is able to contribute to an analysis of value creation by professional service firms. Second, this research provides architectural firms with an understanding of business model design and a detailed description of activity systems. The activity system perspective helps practitioners to rethink and redesign their business model based on current and new activities.

This paper is organized as follows. First, the theoretical background is discussed, starting with the value creation of architectural firms based on the characteristics of the creative industry and the theory of professional service firms. Then business model design is introduced from an activity system perspective. Next, the paper focusses on our research methods, including research strategy, selection of respondents, data collection and data analysis. Then the findings of the explorative study are presented and analyzed. Finally, concluding remarks and directions for further research will be offered.

THEORETICAL BACKGROUND

Professional service delivery by architectural firms

Architectural firms are part of the creative industry, an industry that is characterized by the input of human creativity. Value creation in the creative industry is divided into economic value and symbolic value, such as appearance and reputation (Van Anandel & Vandembemt 2012). The total value of a creative product or service is strongly subjected to personal judgment and therefore not only difficult to determine, but also unpredictable. Because architectural firms are creative organizations (Winch & Schneider 1993), the creative dimension plays an important role in the value creation and capturing processes of the firm.

The architectural profession also is a well-established profession with a highly professionalized workforce. Architectural firms belong to the category of ‘classical’ professional service firms (PSFs) (Løwendahl et al. 2001). Clients hire PSFs for their expertise and skills to deliver an outcome that can be used or sold (Jones et al. 1998). Firms in the professional service sector create value through processes that require them to know more than their client, either in terms of knowledge or in terms of practical experience (Løwendahl 2005). As Løwendahl (2001) describes, professional services are characterized by a high valuation of the client’s interests and high degree of customization. Since PSFs use their expertise and skills to produce a customized outcome, value creation within professional service firms highly depends on the people involved and requires substantial interaction with client representatives.

Within the scope of Dutch AEC activities, the traditional selection of architectural activities is very broad. This comprehensive amount of architectural activities originates from the time that only client, architect and builder were involved in the building process (Duffy & Rabeneck 2013). As complexity and fragmentation of AEC projects grew over time, the number of actors in the value chain of architectural services increased. Architectural firms, however, were still used to deliver a range of ‘full services’ in architecture, engineering and construction stages. The ‘Standard Job Description’ (BNA & ONRI 2009), which is used by clients and architects in the Netherlands to define their working arrangements, mentions ten stages in which architectural services can be delivered. The activities include programming activities prior to the design in the first two stages, architectural design activities in stage three until five, engineering activities in stage six and seven and engineering, supervision and aftercare activities in the last three stages. Due to scarcity of financial resources, integrated contracts and an increasing competition among actors in the value chain, the scope of architectural activities has declined and become less defined in the last couple of years. However, the business model and revenue structure of most architectural firms is still based on the delivery of ‘full services’ in architecture, engineering and construction stages.

Business model design

Although the concept of the business model is very popular among scholars and business strategists, there is still no general agreement on what the business model is and how it can be used (e.g. Shafer et al. 2005). Starting from different conceptualizations of the business model, certain common themes emerge in literature (e.g. Morris et al. 2005, Zott et al. 2011). The business model can be viewed as a template of analysis on how firms conduct their businesses on a system level. Business models try to explain how value is created and delivered to all stakeholders (e.g., the firm, clients, partners, etc.), and how value is appropriated by the firm (Zott et al. 2011). The emerging consensus is that a business model may be defined as the

rationale of how an organization creates, delivers, and captures value in relationship with a network of exchange partners (Afuah & Tucci 2001, Osterwalder & Pigneur 2010). The business model is a conceptual, rather than a financial model of a business. It outlines the logic to create and capture value, by making implicit the expectations of (changing) customer needs, associated revenues and costs, and competitor responses (Teece 2010). The overall objective of a firm's business model is to exploit a business opportunity by creating value for parties involved, while generating a profit for the firm and its partners. That objective is reflected in the customer value proposition (Zott & Amit 2010). A good business model presents value propositions that are attractive to customers, is specifically designed to deliver that value, and has a profitable revenue model that enables the firm to capture a share of the value that is created (Teece 2010).

Teece (2010) notes that without a well-developed business model, firms will either fail to deliver or to capture value. To stay competitive, firms should re-evaluate their business model design frequently. They need to consider not only how to address changing market demands, but also how to capture value from providing new products or services. Hence, an understanding of business model design may help firms to establish competitive advantage (Teece 2010). The business model design captures how the firm is embedded in its networks and defines who are the firm's potential partners, customers, suppliers and competitors. Zott & Amit (2010: 216) present an activity system perspective on the design of the business model. They conceptualize a business model "*as a system of interdependent activities that transcends the focal firm and spans its boundaries*". An activity can be viewed as the engagement of resources (human, physical, capital) of any party to the business model to create and deliver specific value. Focusing on activities allows concentration on the firm, while considering the relationships with business model participants. It provides a natural perspective for entrepreneurs and managers and encourages the firm to think about the fundamental and integral aspects of their business model. The activity system helps to create value and to appropriate a share of that value in an understandable and well thought out way (Zott & Amit 2010).

Zott & Amit (2010) suggest two sets of parameters that should be considered in the design of an activity system: design elements and design themes. The design elements describe the architecture of an activity system. These are content, structure and governance. The content of an activity system refers to the selection of activities. For example, a secondary market influences the selection of activities and is therefore a content issue. The activity system structure describes the linkage between activities and their importance for the business model. By building on existing knowledge and experience, for instance, new services delivery can be developed. The linkage between established methods and new services is a structure issue. Finally, governance refers to who performs the activities within an activity system. Whether an architectural firm, client or contractor is performing a set of activities is a governance issue. The design themes describe the sources of the activity's system value creation. They detail the main value creation drivers and are configurations of the design elements. Zott & Amit (2010) distinguish four common design themes that are used by firms to create value. In novelty-centered business model design the economic exchange between partners is focused on the involvement of new activities, new connections between activities or new governance mechanisms for activities. Efficiency-centered business models aim to maximize the efficiency of firm's transactions and to reduce the costs of all the partners. When activity systems are designed for lock-in, they are able to retain third parties as evident participants of the business model. Complementarities are present when more value is generated by bundling activities (Zott & Amit 2010).

RESEARCH METHOD

In this research we use Zott & Amit’s (2010) activity system perspective on business model design to identify and analyze emerging activity systems in the architectural service sector. Since service delivery by architectural firms is highly complex and depending on the collaboration with other actors, a qualitative research strategy with exploratory interviews was used to gather a wide range of empirical data from the perspectives of different actors. In our findings, we identify emergent activity systems firms use to maintain or improve their performance in the field. The activity systems are analyzed using the three design elements – content, structure, governance – as defined by Zott & Amit (2010). Due to the limited time-span of this study, we chose to focus on the identification and analysis of design elements, the core ingredients and architecture of the activity system. But, as design elements and design themes of activity systems could be highly interdependent (Zott & Amit 2010), some tentative links with design themes will be made as well in the discussion of our findings.

Research sample

In order to gather in-depth information on current and future business model design of architectural firms and to capture a wide range of perspectives, we used the purposeful sampling technique of maximum variation. We selected architects, clients and contractors to allow various perspectives to arise on architectural value creation and delivery and to address collaboration within the supply chain. Respondents were selected from different types of established project collaborations (e.g. traditional-, team-, integrated collaboration), to explore typical ways of working, and from different types of innovative project collaborations (e.g. bottom-up initiatives, strategic alliances, network collaboration), to include more extreme ways of working.

Architectural firms have different strategies to do business (e.g. Coxe et al. 2005, Winch & Schneider 1993, Canavan et al. 2013). To ensure a good representation of the architectural field in the Netherlands, we selected architectural firms with different strategies. Five of the architectural firms are characterized by their emphasis on the delivery of design services. The other ten firms focus on the delivery of integral services, which for instance may comprise design, engineering and management services. With regard to firm size, three sizes are distinguished: micro-sized firms that employ fewer than 10 persons, small-sized firms with fewer than 50 persons and medium-sized firms with fewer than 250 persons (European Commission 2005). In our sample we included firms of all three sizes. We refer to the respondents as architect A to O, client A to B and contractor A to C. Table 1 presents an overview of the selected respondents.

Table 1: Overview of respondents

Respondent	Type of firm	Firm strategy	Firm size
Architect A - B	Architect	Design	Micro
Architect C - D	Architect	Design	Small
Architect E	Architect	Design	Medium
Architect F - G	Architect	Integral	Micro
Architect H - L	Architect	Integral	Small
Architect M - O	Architect	Integral	Medium
Client A	Public client	Not relevant	Not relevant
Client B	Private client	Not relevant	Not relevant
Contractor A - C	Client /contractor	Not relevant	Not relevant

Data collection

We used 20 exploratory face-to-face interviews to collect data. Archival materials and informal discussions were used to prepare for the interviews, to expand the understanding of each firm's context, and to strengthen or question the findings. All interviews were approximately 1,5 hour in length. For the interviews a semi-structured protocol with open-ended questions was used. To ensure reliability of the data, the interviews were audiotaped, fully transcribed and checked by the respondent. The following topics were addressed in the interviews: roles and activities of the architect, collaboration with client and partners, and future business directions. The semi-structured interview format contained questions about all three design elements. The respondents were asked what activities they perform to enhance their value creation (content), what processes are used to organize the output (structure) and what actors are relevant in the delivery and capture of value (governance). In order to identify activity systems that are important for the entire field of architecture, we looked for activities that were mentioned by multiple respondents or had a strong relationship with aspects mentioned by another respondent.

Data analysis

The data from the interviews were analyzed by the authors and two other members of the research team using the technique of context mapping (Sleeswijk Visser et al. 2005). This is a visual technique and first step in the systematic analysis of qualitative data. Context mapping allows researchers to perform an explorative analysis of themes and enables visualization of relations. Statement cards with paraphrases and relevant quotes have been derived from each interview transcript by one of the researchers. Then, the statement cards were discussed in a group meeting and categorized by themes. Disagreements that occurred were discussed until consensus was achieved. The relations between the themes were visualized and a codebook was created. Different key themes were identified as activity systems for value creation. The research findings were consolidated and validated in a workshop with practitioners to ensure reliability of the data. After this validation, data were re-examined and the key themes were further analyzed and extended by looking for similarities and differences in the data. The codebook went through several iterations.

FINDINGS

In the content analysis four activity systems were identified: international market approach, BIM services, programming services and partnering. Each activity system is introduced shortly. Then we discuss why respondents use these activity systems to create and appropriate value and how they manage to do that. Finally, each activity system is further analyzed using Zott & Amit's (2010) design elements – content, structure and governance.

International market approach

While some respondents believe that international markets provide opportunities to create and appropriate value, others deliberately don't work outside the Netherlands. Eight of the fifteen architectural firms are currently working abroad. Our interview data suggest that an international market approach does not depend on the strategy of the firm. Both design and integral firms work outside the Netherlands. The seven firms that do not work abroad also include firms with both strategies. Firm size does seem to matter. All medium-sized firms work

abroad. With the exception of architect F's firm, that is very active in Belgium, micro sized firms do not work outside the Netherlands and only half of the small firms are internationally active. Important reasons for small or micro firms to work exclusively in the Netherlands are a lack of resources or a lack of international aspirations. Both reasons will be further explained below.

Reasons to work abroad include a higher building activity, available resources and lack of international competition. Some of the firms are asked by international parties because of their specific knowledge in a field that is less evolved in the country in question (architect M). Also Dutch architects are chosen because of other design approaches or working methods. *“That design in Cologne, that we actually got with a motivation ‘we see more creativity in Dutch people, and that is something we look for and have not found in the German market’”* (architect N). The firms of architect B and G are not working abroad because they still have a big workload in the Netherlands. *“It is not that we would not want to work abroad, necessarily. But we are not actively entering that market. (...) that is because we notice that there is a lot of work in the Netherlands for us”* (architect G). Architect H works exclusively in the Netherlands because he believes that the foreign context and combination of parties makes it difficult to play an important role and maintain high quality. Other firms simply do not have enough resources available to focus on international markets. Architect D explained that all resources are needed to deliver a high quality concept in the Netherlands, before entering new markets.

The firms that work abroad regularly are all actively working on increasing their international performance by participating in competitions and networking with other actors. The international activities mainly consist of design or consultancy services in the first stages of the AEC process. The engineering and construction stages are executed by a local partner, because of their knowledge of local legislation and building methods. In addition firms engage in partnerships with their Dutch competitors (architect M), architectural firms with different specialisms or disciplines (architect L), or other actors from the supply chain, for instance contractors or product suppliers. *“We note that the Netherlands is the world top right now in new, innovative work environments. (...) we really have a Dutch export product. Therefore, we have (a collaboration with) a furniture supplier and a concept developer. With those three, we want to create a kind of total project delivery”* (architect K). All forms of collaboration are initiated in order to gain more international projects, maximize mutual benefits and compete with (bigger) international firms. The internationally active respondents expect their foreign workloads to grow in the future. However, for some firms revenues are still lagging behind expectations. The firm of architect O, for instance, is only able to participate in small one-on-one activities in Poland, because of the local price-based procurement tradition. But their good relationship with the embassy leads to multiple lecturing activities at the local university and might eventually improve their position.

Regarding content of the activity system, working in international markets focusses on design or consultancy services in the first stages of the AEC process. Engineering and construction related tasks are executed by a local partner because these activities require knowledge of the local legal context and construction methods. Hence, all respondents believe that the collaboration with local partners is necessary to deliver value to international clients. This means that ‘full service delivery’ is not applicable for architectural firms when working in international markets. However, activities in the first stages of the AEC process might become more comprehensive. Although the linkage of activities is highly project specific and varies per country, the example of architect O illustrates that regarding structure of the activity system, contacts with local authorities or institutes might be beneficial to the acquiring of activities. As

new connections play a vital role in the process of value creation, the activity system's structure relates strongly to the design theme novelty.

Regarding governance of the activity system, three types of actors are mentioned to contribute in international value creation and appropriation. First, as explained earlier, international partners are crucial to understand the market situation and customer needs. Secondly, partnerships with other Dutch architectural firms are initiated to compete with international companies and to expand the scope of service delivery. Finally, other Dutch firms from the supply chain, such as engineering firms, contractors or product suppliers, contribute in a broader and more integrated service delivery. In this way, value creation can be enhanced on both firm level and supply chain level. Since new actors are involved, the activity system's governance is closely related to the design theme novelty.

BIM services

In the last couple of years Building Information Modeling (BIM) has become a new paradigm within the AEC industry. BIM services involve the construction and use of an accurate virtual model to visualize the design, identify possible issues and encourage integration of design and construction (Azhar, 2011). BIM services are delivered by eight of the architectural firms. These firms are all integral practices of small or medium firm size. This suggests that firms need a certain type of integral project or expertise to work with BIM. Design firms that do not work in the engineering or construction phases of the AEC process, might not have the urge to design with BIM or might not benefit from BIM services. BIM could even complicate the architectural design process, as will be explained below.

The firms that provide BIM services have two main reasons. Six of them are driven by a request of the client. For a growing number of projects, BIM is made mandatory (client A & contractor A). *“There are clients that say, you have to do it in BIM, otherwise you cannot do it at all. So you do not have the choice whether you do it or not”* (architect G). Although a lot of clients wish to use BIM in order to reduce costs or complexity, they do not always foresee the implications of BIM. Generating a virtual model of a preliminary and still changing design can require an enormous amount of time and corresponding costs. This is why architect D strongly advised their client not to work in BIM. Not all architectural firms work with BIM simply because their client prefers it. Two of the respondents, architect I and L, strongly believe that BIM is a way to strengthen the core business of their architectural firm. *“All these activities we do, that whole BIM story, we do that to support our architect work and we think we are a better architect because of that”*(architect I). For both of the firms, BIM is a way to deliver optimal value to the client.

The two firms that work in BIM on their own initiative, illustrate that BIM facilitates different AEC stages. Value creation in the architecture stages can be improved by programmed rules that visualize minimum requirements and assess quality. Besides, opportunities to calculate costs and implement information from other actors, make it possible to focus on quality during the entire AEC process. By integrating as many aspects of the AEC process in BIM, efficiency can be raised and costs of failure can be substantially reduced. For this to work, the respondents work together with other actors from the value chain, for instance contractors or product suppliers. Contractor B believes that BIM might be able to provoke a major innovation in the AEC industry. Construction might become more assembly-like and roles and activities of all actors might change substantially. With BIM ‘full service delivery’ by architects will become obsolete. *“That is really old-fashioned, if an architect wants to have the whole assignment. I*

think that if you need to produce something, you will also need to engineer it by yourself.” When involving suppliers in an early stage, the alignment of design and construction can be simplified. Lists of technical specifications and construction drawings that were originally made by the architect, derive directly from the model and reduce the necessity of supervision. But as traditional architectural activities disappear, new ones can emerge. Architect K thinks that coordinating the BIM process could be a new activity that suits the architect. From the ability to oversee and connect all disciplines, coordination by the architect might add value to product, process and partners. The two respondents that believe in BIM to strengthen the core business present their BIM services separately. Architect I is setting up a separate BIM business to assure clients of their expertise. Architect L uses a different label, which enhances workload opportunities and long-term client-commitment. Since BIM services largely consist of consulting activities, architect I is considering a revenue structure that is more suitable for consulting work.

The findings suggest that new activities, new linkages, and new actors are involved in value creation through BIM services. Concerning content, BIM services involve management activities in all stages of the AEC process. By integrating supply-side knowledge in the model or coordinating the BIM process, architects might be able to deliver services during engineering and construction, while the “old-fashioned” division of design and construction work further disappears. In regard to the activity system’s structure, BIM services can be delivered from a separate firm or label. When BIM activities are disconnected from architectural activities, rates can be matched to the consultancy characteristics of the service. Within the governance of the activity system, a collaboration with supply-side actors (e.g. contractors, product-suppliers) is extremely important to encourage integrated project delivery. All design elements of the activity system BIM services contain new aspects and strong drivers for efficiency. This suggests a link with both novelty-centered and efficiency-centered business model designs.

Programming services

With programming services, the architect helps the client to identify, describe and evaluate their wishes and requirements. The program of requirements (PoR) contains functional and technical aspects and is directly linked to the client’s ambitions and budget. Nine architects mention that they have delivered programming services. They include architectural firms with a design strategy or integral strategy and all types of firm size. Therefore, our data suggest that the delivery of programming services does not depend on firm strategy or firm size. Since multiple micro and small firms deliver programming services to private clients, it seems that PoR-help of an architect is of major importance when clients do not possess or hire this kind of expertise.

A PoR is usually made by a consultancy firm prior to the selection of the architect. But as several interviewees mention, the requirements of the client or their implications are not always clear in the beginning of the project and evolve during the process. Hence, architects provide programming services to interact with their client and to accelerate the AEC process. The surplus of these services, when provided by an architect are twofold. First, architects are able to visualize and translate functional and technical requirements into building concepts (architect O). PoR visualizations help clients and users to better understand the possibilities and implications of their requirements. Secondly, by visualizing, the architect is able to question certain requirements and generate a balance between ambition and budget. As architect G mentions, clients tend to ask too much or withhold parts of their budget. In visual requirements all assumptions become open for discussion. Client and/or user involvement is crucial when discussing difficulties between design and requirements.

Programming services are often obtained by architectural firms as part of or in addition to their architectural service contract. The firm of architect N gradually developed the PoR during the architecture process. The firm of architect O provided added value to the client by integrating different disciplines, manufacturability, finances, risks and maintenance aspects in the PoR. They defined performance requirements in an early stage and involved functional and technical requirements only at the end of the AEC process. This ensured up to date user requirements, which didn't need a costly upgrade at the time of construction. During the interview, architect J mentioned that his firm obtained a separate PoR assignment to help the client define the right question before the AEC assignment would be tendered. The enormous amount and diversity of reports that had already been made on the subject, had so far not given the client a clear view of the possibilities of ambition and budget. The firm was able to deliver added value to the client by visualizing and summarizing the PoR. Also architect B was asked by the client to develop a PoR prior to the design to stimulate the client to broaden his view. The firm and two other competitors were paid separately for this service.

Evaluating the design elements of the activity system, programming services can both retain or renew content, structure and governance. In regard to content, programming services broaden existing architectural activities or provide architects with new possibilities to gain work, when performed separately. Concerning structure, programming services are often still connected to the architectural assignment. Disconnected programming services help clients to broaden their perspectives or to visualize and evaluate their requirements. Finally, governance of programming services requires an intensive involvement of client and/or users. Only with close involvement, the balance between budget and ambition can be discussed and improved. The content, structure and governance of the programming services activity system have some links with the design theme novelty. Although these links are currently still quite modest, they might continue to develop in the near future.

Partnering

As architect H articulates, the design process and involved actors, activities and responsibilities are becoming more and more fragmented. *“The design is no longer an entity that requires one party to be involved, it has become a cluster where various parties each have their own input. It has become much more complex”*. Collaboration with other actors is not only important to deliver adequate services, it also enables the firm to capture more value (architect K). The empirical data showed two main partnering strategies: partnering with other architects and partnering with other actors from the field. Five of the fifteen architectural firms have partnerships with other architects. Six of the firms work together with other actors from the field. The findings demonstrate that in partnering firm strategies and firm size do not seem to play an important role. Partnering with organizations outside the AEC industry is done by some architectural practices (architect C), but was only scarcely mentioned by the respondents.

Partnerships with other architects can be helpful to gain large and complex projects. For instance, partnering with architects from abroad increases the opportunity to gain (international) projects. Architect F won a high prestige project because they convinced a famous British architectural firm to cooperate in the competition. Although they had never met, the British architects were willing to participate because they liked the portfolio of the Dutch firm. Partnerships with other architects are also used to create a flexible organization. Temporarily transferring employees to an architect partner allows the firm of architect J to adapt quickly while maintaining firm continuity, knowledge and expertise. Partnering with other AEC firms

enables architectural firms to remain focused on their core business. It also generates a more integrated service delivery and increases the scope of service delivery. *“Our work involves not only a beautiful building, but also if it works, if its good and sustainable, so it involves collaboration with all kinds of people”* (architect L). Partners from the supply side are involved in early stages of the AEC process to improve integration, efficiency and reduce costs. Partnering with other actors from the field can also stimulate innovation. The firm of architect I develops strategic alliances with contractors, construction engineers and research institutes to further innovate their shared BIM expertise.

Which partners are useful or necessary is highly project related. The selection of partners can be of major importance to acquire a project and also highly influences the total value that can be created and captured. However, the selection of partners is often last-minute (architect E), or in contradiction with the established ways of working (contractor C). Partners are often selected on the basis of a will to realize high quality and a same way of working. Incentives, like a success fee, are used to make sure that all partners maximize their input. Trust is very important and can be established by developing and working towards a shared goal or by discussing each partner’s priorities from the start (e.g. architect N & contractor B). Because every project is unique, most of the respondents are used to work with different partners. Several firms, however, are looking for possibilities to engage in long-term partnerships, as a way to stimulate efficiency and increase revenues. At this moment long-term partnerships are still scarce and in development.

Regarding content of the activity system, partnering involves new activities that are not directly linked to the traditional AEC work of the architect. (International) networking activities and the investment in relationships have become very important. Partner selection and the identification and development of joint strategies are able to improve value creation greatly. The new activities involved in the content of the activity system point once again towards the importance of the novelty-centered business model design. When analyzing the structure of the activity system, it stands out that activities of partnering are mainly linked on the basis of trust and common ground. Incentives stimulate high involvement of all partners. Partnering is also used to create resource flexibility. Joint use of human resources allows firms to adapt quickly to changing markets and guarantees business continuity. Most of the respondents are currently working with different partners on each project. But in order to increase efficiency and revenues, long-term partnerships seem to grow in importance. Regarding governance of the activity system, the interviews show that the actors involved in partnering include other architectural firms as well as other AEC firms. Suppliers especially have become important partners to deliver an integrated process and product. Actors are preferably involved in early stages of the AEC process to improve innovation, integration and efficiency. Although structure and governance of the activity system are currently characterized by a high degree of novelty, the aim of many firms is to move on towards an efficiency-centered activity system.

CONCLUSION & DISCUSSION

In this research we aim to identify and analyze current trends in value creation of architectural firms. The research also discusses implications for future business model innovation. Empirical results from 20 explorative interviews with different architectural firms, clients and contractors show four emergent activity systems that are used by architectural firms to create and capture value: international market approach, BIM services, programming services and partnering. Since these activity systems involve new activities, new linkages, and new

governance mechanisms, they point out that business model design of architectural firms should change concurrently. Consequently, to successfully create and capture value with new activity systems, a re-design of current or design of new business models is necessary. The design elements – content, structure and governance – of Zott & Amit's (2010) activity system perspective on business model design are used to systematically analyze the four activity systems.

Our study confirms that the traditional selection of architectural activities, and thus the content of activity systems, is currently changing. International market approach results in a narrowing down of activities to the first stages of the AEC process. On the other hand, the delivery of BIM services generates possibilities to maintain or expand the scope of activities in the engineering and construction stages. The delivery of programming services results in a consolidated role for the architect in the stages prior to or within the architecture stage. Partnering helps firms to provide a joint 'full service delivery' to the client. Partnerships can help to secure activities and revenues for the firm, but require attention to new activities like partner selection and a shared goal definition to optimize collaboration among all actors.

The linkage of activities appears to be highly project related. However, regarding structure of the activity systems, certain topics emerged. For an international market approach the involvement of high level parties can help to generate a stable basis for settlement. Delivery of BIM or programming services, whether performed by a separate firm or linked with regular architectural activities, are managerial by character. Hence, these new activities could be connected to new revenue models. Finally, partnering requires arrangements for collaboration. These arrangements can be based on trust or formalized in contracts. In both cases the development of a common ground and use of incentives can be fruitful.

Regarding governance of the activity systems, all four activity systems present actors from the value chain to be of importance to the business model of the architectural firm. In international markets, actors include local partners, other Dutch architectural offices or Dutch actors from the supply chain. For the delivery of BIM services, supply chain partners are of big importance to encourage integration. The delivery of programming services highly depends on the involvement of client and users. For partnering, other architectural firms as well as firms from the supply chain are important. Firms with different kinds of expertise can be used to provide a 'full service delivery'. When collaborating with contractors or product suppliers for instance, value creation and appropriation can be enlarged for the architectural firm as well as for the partners involved.

The four activity systems all include elements of a novelty-centered business model design. This suggests that future activities of architectural firms will highly depend on novel aspects. We found links with the novelty and efficiency design theme in the activity systems of BIM services and partnering. Especially in partnering, a shift towards more efficiency-centered business model design can be identified. Aspects from the design themes complementarities and lock-in were not mentioned by our respondents. We conclude that both novelty- and efficiency-centered business model designs might have substantial value for future service delivery by architectural firms. When business models of architectural firms are specifically designed for the required amount of novelty and efficiency by the client, the firm and its partners, value creation and capturing by architectural firms will become more visible and manageable.

Based on the fact that several aspects of all four activity systems are mentioned by multiple respondents, we believe that the activity systems are already quite common in architectural practice. However, the tendency towards efficiency with long-term partnerships and

integration of services in the supply chain, could change the roles of architects and other actors in the value chain tremendously. Furthermore, the contradiction between design firms and integral firms might increase, due to the growing importance of managerial services such as BIM or programming services.

LIMITATIONS & DIRECTIONS FOR FUTURE RESEARCH

The theoretical framework of the activity system offers opportunities to gain insight in the aspects that contribute to the design of business models. This research emphasizes the importance of business model design for architectural service firms, but has certain limitations that deserve to be mentioned. First, as mentioned by Cohen et al. (2005) and confirmed by our respondents, the majority of architectural firms is not particularly concerned with their business model. Further research is necessary to understand this phenomenon and to gather insight into possible ways for improvement. Secondly, as pointed out in the section on our research method, this paper focusses on the identification and analysis of design elements in architectural activity systems. To study design themes in architectural service delivery more thoroughly and to provide a broader discussion on the interrelation of design elements and design themes, further research and analysis will be required. Thirdly, value is described from a general perspective in this paper. In the next months, an in-depth study on economic and symbolic value will be performed by the authors as a way to analyze the concept of value (from a client and firm perspective) in the context of architectural service delivery.

As noted by Zott & Amit (2010), the activity system perspective could help to improve empirical understanding of past and current business models and to design new business models for the future. It would be interesting to explore the relationship between firm, business model stakeholders and value creation processes further. For this purpose, a larger sample of firms and combination of empirical research techniques is desirable. Moreover, the theoretical framework of professional services firms and the activity system perspective on business model design could be further expanded internationally or to similar services in the AEC industry. When applying the concept on several sectors of the industry, new sustainable models for collaboration within the supply chain could emerge.

As pointed out in management literature (e.g. Teece 2010), the business model concept and continuous adaptation or altering of the business model design can help firms to maintain a healthy business. Therefore, we expect that firms may benefit from more consciousness regarding their own business model design. But although business models can help firms to stay competitive, extensive thought about the business model logic may also constrain managerial thinking and the capacity to innovate (Baden-Fuller & Mangematin 2013). Further research will be necessary to study whether business model design from an activity system perspective has the potential to maintain current or create new business opportunities for architects.

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