ARCHITECT PARTICIPATION IN INTEGRATED PROJECT DELIVERY: THE FUTURE MAINSPRING OF ARCHITECTURAL DESIGN FIRMS?

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ABSTRACT

Proposal: The construction industry is changing more and more towards integrated project delivery. Most of the research about integrated project delivery focuses on contractors. Architects could however also improve their competitive position and project portfolio by taking on an active role in innovative integrated projects. Based on a survey among 110 Dutch architectural design firms the types of offices are described that show interest in integrated practices as part of their competition strategy. The results of this research reveal critical factors that are drivers for change in current marketing and organisational strategies of architectural design firms. Especially more control over construction processes and product quality makes firms think about changing their strategies. Very small and very large firms seemed particularly interested in competing in integrated project delivery. The office profiles that were found in the survey appear to contrast to the expectations from literature about the organisation of these kinds of firms. This could be a result of their need for flexibility and adaptability in order to deliver creative designs. However, the results indicate that the chances are high that in the future a significant part of the architectural design firms will enact in integrated project delivery.

Keywords: architectural design firms, integrated project delivery, organisational structure

1. INTRODUCTION

According to the Dutch Economic Institute of the Construction Industry (EIB) integrated practice is the fastest growing method of project delivery (Jansen & Sijpersma, 2007). The term 'Integrated practice' refers to a collection of organisational contract structures that include some degree of integration of the traditional design phases of design, construct, and maintain (Elvin, 2007). The most common structures in the Dutch building industry are Total Engineering and Design-Build (Vogels et al., 2007). Total Engineering is a contract and organisation form with a partial integration in which the main contractor is responsible for delivering the complete design and overall coordination of the project. Design-Build is a supply method in which the design and realization are combined in one contract (Quatman , 2006). In the Netherlands the traditional Design-bid-build method is still favoured among large clients (57%), but a decrease of 21% is expected for the future (Jansen & Sijpersma, 2007). Yet, already 22% of the large clients require integrated project delivery for their projects and an additional increase of 14% is expected in the future.

Because the popularity of integrated practice is caused by the single point responsibility for the entire project (Elvin, 2007) increased integrated project deliveries will change the possibilities of market parties and actors to participate in the building project. To preserve and enlarge their financial results firms have to anticipate on the changing market situations (Martens et al., 2003). Since the portfolio of architectural design firms strongly depends on the preferences of clients in developing building projects, this change logically needs to reflect in the strategy of architectural firms in the management of architectural design firms. Choices need to be made, such as diversity in other building disciplines, vertically into development or construction or outside construction in other areas of design (Winch & Schneider, 1993).

At the moment the leading role in integrated practice in the Netherlands is mainly taken upon by large construction companies. However, we believe that architectural design firms would also be capable of taking on this role. The purpose of this research is to create more insight about the mainspring of design firms for participating in integrated practice. The objectives are 1) to describe the type of

design firms which are interested in integrated practice as competition strategy, and 2) to reveal critical factors for developing a competition strategy in integrated practice. This paper reflects the main findings of a survey among 110 Dutch architectural design firms.

2. COMPETITION STRATEGY

How can architects successfully develop a competition strategy for the integrated practice market? According to Martens et al. (1998) a successful competition strategy assumes value creation for customers. The competition strategy refers to the way in which the enterprise creates value for its customers by the allocation, the management, and the mobility of resources. The resources of a firm provide the basis for the competition strategy. These resources can be deployed to develop technologies, products, and/ or services to supply to customers. Martens et al. (1998) indicate that a competition strategy can only be realized if the drivers (company culture, processes and systems) and unique knowledge and skills will extend and incorporate.

Architectural design firms are relatively small compared to contractors. Results of an annually held survey among members of the Royal Institute of Dutch Architects (BNA) show an average yearly net turnover of € 512.417 in 2007 with a net profit of 9.2% and € 610.000 in 2008 with a net profit of 14.7% per firm (van den Hurk, 2008). About 60% of all firms made profit. Large firms (over 40 FTE, average net turnover € 7.4 million) and the very small firms (0-2 FTE, average net turnover € 59.000) were profitable for 94% and 62% respectively. In general the number of employees of an architectural firm increased from an average of 4,5 FTE in 2004, to 6,6 FTE in 2007, and 7,1 FTE in 2008. The clients of Dutch architectural design firms mainly consist of private persons, project developers, business relations and housing corporations. Governmental authorities were responsible for only 8% of the turnover (van den Hurk, 2008). About half of the turnover in 2007 was earned in the housing segment. Offices, health care and education create respectively 11%, 7%, and 4% of the turnover. This image was about the same for 2008, but for 2009 a major decrease of turnover is expected.

For many years half the portfolio of architectural firms has consisted of complete commissions (from initialization to realization) and half of partial assignments but the amount of partial assignments seems to be increasing (Theunissen, 2009). The portfolio still mainly consists of traditional design-bid-build contracts. In 2006 the larger design firms (7%) were sporadically operative within the integrated practice; the medium and smaller firms even less (2%) (Vogels et al, 2008). Yet 70% of the design firms considers cooperation within an integrated design project a good opportunity to distinguish oneself in the market competition.

The increased interest for integrated practice offers both challenges and threats for architectural design firms. If the forecast of the Dutch EIB is correct the position of the design firms will diminish in the construction process. Martens et al. (1998) indicate that when competitive pressure increases, defending an existing competition advantage becomes more difficult and less effective. The enlarged competitive pressure results in a dynamic game in which existing advantages erodes more rapidly and eventually can be destroyed. According to Cornelis (2003) this could have a negative impact for the competences of design firms such as knowledge loss, less focus on quality and usability of the end product, and less continuity in activities. A successful competition strategy must therefore not aim at scrupulously defending a certain advantage, but at creating new competition advantages instead. Hence, only participating in the traditional design-bid-build method does not seem judicious.

3. COMPANY CULTURE

If firms decide to adjust their portfolios to the upcoming importance of integrated practice the current working method within the firm will have to change. This might include adjustments of the organisation structure. Beim and Jensen (2007) found a low strategic consciousness of the organisational setup in architectural firms. As part of their project they formulated four approaches on how architectural offices manage their design processes: the pragmatic, academic, management and conceptual approach. These approaches differ on strategies about the orientation of the internal processes, the perspective of architecture, the working method and the accumulation of knowledge. The results show that these

perspectives offer a valuable perspective on design management. Currently a knowledge gap seems to exist between the type of firms and their marketing strategies. Apart from Coxe et al (1997) only a few scholars investigated the strategies of architects and their firms. Next to that, literature does not yet provide a clear understanding of the factors that contractors or design firms find important in developing a competition strategy for integrated practice. Winch and Schneider (1993) identified four generic strategies for architectural practice that was based on the parameters of project complexity and the client's quality preference: strong idea, strong experience, strong delivery and strong ambition. However, Winch and Schneider also state that the strategic management of architectural practice does not come easily. The main reason for this is the conflict that the partners of a firm often experience between financial and managerial success and artistic expression. Understanding the culture of an architectural design firm is therefore essential.

A company culture is formed by the behaviour of people and the structure of the organisation (Martens et al., 1998). The culture, assumptions, habits, and values as expressed on a symbolic manner influence the events of the firm. A company culture stipulates the degree in which a firm can adapt to the surroundings. According to Mintzberg (1993) an organic organisational structure is the first phase of the development of an organisation. The structure will eventually develop to a mechanical structure. Contrary to a mechanic structure an organic structure can easily adapt to the production of new products and services. In design firms the creative factor takes on a specific position because of its significant importance to create a product. This leads to a discrepancy between the needs of a designer (autonomy) and the characteristics of strategies of the organisation (commercial context) (Coxe 1987, Gutman 1988). Loonen (2004) combines the most important organisational structures of design firms developed by Mintzberg (1993) with the strategic approaches of Winch and Schneider (1993) and Coxe et al (1987). Figure 1 shows the six possible firm types that are based on the combination of the market model and the organisational structures of architectural design firms.

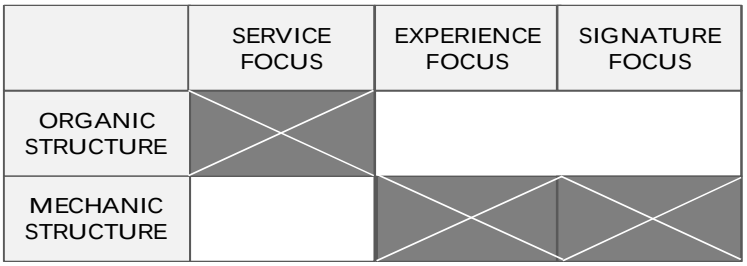

Figure 1: Market model of architectural firms

Loonen (2004) expects to find the following three configurations in practice:

1. Service focus in combination with an organic organisational structure: these types of firms are less able to realize complex projects, but offer a high service level at routine tasks. The activities of these offices aim at repeating solutions that were previously developed with regard to technique, budget and time. The organisational structure can be characterized by low complexity, less formalization, more communication, and more participation with employees of a lower level.
2. Experience focus in combination with a mechanic organisational structure: these types of firms are highly experienced in managing complex projects and meeting the quality standards of clients by sharing the responsibility for the project results. The organisational structure is characterized by a high degree of complexity, low formalization, a restricted communication network, and little participation in decision-making with the lower ranked employees.
3. Signature focus in combination with a mechanic organisational structure: these types of firms with a signature that focuses on aesthetics are able to realize high aesthetic value and quality levels for complex assignments. The organisational structure is characterized by a high degree of complexity, a lot of formal procedures, limited communication, and little participation in decision-making with the lower ranked employees.

4. COMPETITION STRATEGY

A competition strategy can be only developed if a design firm has a horizontal look on the firm. This means a broad look on the organisation and an emphasis on processes. Developments in the market often lead to restructuring the existing activities of a firm. A new development in IT, such as Building Information Modelling, can thus be a `driver' to restructure current activities and structures. In this research the increase of the interest for integrated practice is considered as such driver for change. This past decade, the role of the architect has decreased moreover into tasks that are restricted to delivering the design and relate to obtaining the construction licenses only. Activities, such as briefing activities and supervision on the construction site, have been mostly taken over by other parties (Lourens, 2006). Even in relation to innovation potential architects have no mandate anymore to realize innovations (Rooke et al., 2003; Renier & Volker 2008). Some authors, such as Cornelis (2003), speak of 'erosion' or depreciation of the role and position of the architect. This is worrying in relation to the future existence of the profession. In spite of this situation, design firms still do not make well-considered and deliberate choices in their marketing strategies and positioning in the market. Until now no real intensions are shown by architects to adopt their strategies to changes in society. Lourens (2006) indicates that the current position of the architect elaborates on successes gained and choices made in the past. The office composition and structure generally evolved in the same way without a proper strategy or personnel policy (Loonen, 2004). This could explain why the integrated practice is hardly a component of the current task portfolio. 40% of the offices find the scope of the order portfolio too small to continue their activities on the long run (Lourens 2006). Considering the current weak financial situation of the firms - on average 33% of the architectural firms had to take financial losses in 2006 and 56% of the small offices till 5 FTE knows a negative financial result - a lot of potential for change should exist among the Dutch architectural firms.

5. RESEARCH APPROACH

Based on a literature review we developed a framework about a strategy for architectural design firms to compete in integrated practice that included several

drivers for change, external barriers for participation, and competences of a firm (see Figure 2).

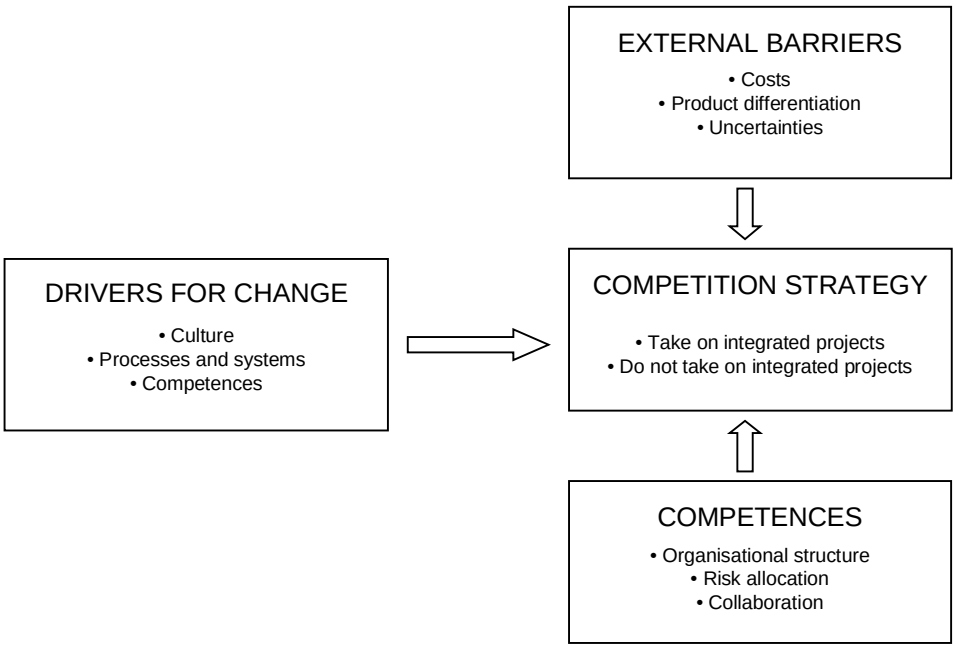

Figure 2: Conceptual framework

Two assumptions will be tested in the empirical study:.

1) Architectural design firms that focus on signature will not extend their competition strategy to the integrated practice because the need for creativity and autonomy of this type of organisation will show a tension with the commercial context of the integrated practice.

2) The current weak position of limited turnover and a lack of future perspective (especially within the traditional design-bid-build method) should motivate architectural firms to deploy a new strategy in relation to integrated practice.

Based on the framework a survey among all members of the BNA was conducted in March 2009. The survey included an inventory of the organisational culture, the current portfolio, the perception of the threats and challenges related to integrated practices, and their potential interest in future integrated projects. At that moment the impact of the financial crisis was already felt among the population. We therefore assumed a certain need for change in order to 'survive'. However, despite

these critical circumstances there was not much interest in participating in research related activities. 1501 Dutch architectural design firms were approached, of which 110 completed the survey. This is a response rate of 7% and can be considered a significant response in this field of research.

The survey was addressed to executive board members and founders of the office. About 50% of the questionnaires was filled in by architects, 35% from the population belonged to the executive board, and 15% belonged to the category `other'. To derive statements for the whole architect population in the Netherlands, deductive statistics were applied on the data of the survey. The techniques used for descriptive statistics were cross tables, item analysis, Mann Whitney U test, and K-means cluster analysis. For explanatory statistics the logistic regression analysis was used.In this paper we present parts of the results from of the full survey that was conducted.

6. RESULTS

6.1 STRATEGY OF THE ARCHITECT POPULATION

First we looked at the current competition strategy of the firms and their potential interest in integrated practices. 50.9% of the population indicated that they only participate in traditional design-bid-build projects and will not focus on the field of integrated practice in the future. Half of this group will continue focusing on the current market and target group, the rest (19.1% of the total population) will specialize more in a specific market group or will apply an another strategy (8.2% of the total population). However, 49.1% of the total architect population indicated that they are interested in integrated practice now or in the future. 14.5% of the architect population is already participating in integrated projects and want to remain this position (8.2% as Design-Build consultant, 3.6% as Design-Build main provider, and 2.7% apply another strategy) and 34.5% wants to focus on the field of integrated practice in the future. Of the population who wants to develop integrated practice in the future, 14.5% wants develop total engineering, 15.5% wants to develop Design-Build (11.8% as Design-Build consultant, 3.7% as Design-Build main provider) and 4.5% wants apply another strategy.

For further analysis of the data the population has been subdivided in two categories: 1) Population NIP (Non Integrated Practices) (50.9%): the population that absolutely will not apply any form of integrated practice; 2) Population IP (Integrated Practices) (49.1%): the population that will apply or already applies integrated practice.

The results of the survey show that currently the architectural design firms are most active in the housing sector, although they indicate they want to be less active in this sector in the future. The office, school and healthcare sector is only a small component of the portfolio but these sectors are perceived as interesting for the future. It is remarkable that there is a significant difference between the population IP and NIP with respect to the sector health care. Population IP wants to perform significantly more health care projects in the future. Most of the commissioning clients are the project developers and the private organisations. Commissions of the government and other construction companies take no important position in the portfolio of the Dutch architectural design firms. It is striking that mainly the smallest and largest design firms in terms of number employees and turnover are interested in developing integrated practice. 61% of the population IP has a small office up to 10 employees and 15.6% of the population has more than 41 employees (see Figure 3). 47.7% of the population IP has a turnover of approximately 250,000 Euros and 16% have a turnover of more than 5,000,000 Euros.

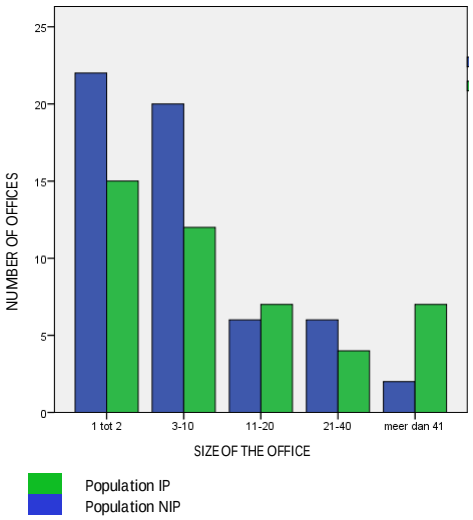

Figure 3: Size of the offices involved in this survey per group

In spite of the large part of the population that want to develop integrated practice, still very little integrated projects are realized nowadays in the Dutch building industry. DBFMO and alliances are still not part of portfolio (<7.5%) and most of the total architect population has never realized a project with Design-Build (>75%). Hence, it is not surprising that the traditional design-bid-build and construction team method is the most important and favoured form of cooperation. There is no significant difference in portfolio of integrated practice between the population IP and NIP.

6.2 COMPANY CULTURE AS DRIVER FOR INTEGRATED PRACTICE

To stipulate which type of offices wants to include integrated practice in their competition strategy, the office profiles as described in the market model (Figure 1) are compared to the results of this survey (see Figure 4). The cluster analysis showed to what extent the theoretical assumptions about the organisational structure are valid and whether a difference exists in organisational structure and market focus between the population IP and NIP. Six clusters were found. The score on the clusters 1, 2, 3, 5 and 6 (N=87) correspond mostly to the characteristics of an organic structure. The organisational structure is characterized by a small degree of complexity, small formalization, more communication and more participation of the lower lines. Cluster 4 (N=9) is a remarkable exception on all other clusters. Cluster 4 seems like a mechanical structure. The organisational structure is characterized by a high degree of complexity, high level of formalization, a limited communication network in the decision making and little participation with the lower ranked employees.

variable	Overview table: 6 clusters					
	1	2	3	4	5	6
Informal	++	++	++	-	+	+
heterarchy	++	++	+	-	+	+
bottum-up	+-	+-	+	-	+-	+-
flexibel structure	++	+	+	-	+	++
specialized tasks	+	+	+	+-	+-	+
multidisciplinary teams	+	+	+	+	+	-
all-round departments	++	++	++	+-	+	++
focus experience	- -	+	+++	-	++	- -
focus Service	- -	- -	- -	++	++	+++
focus Signature	+++	++	- -	++	- -	- -

Figure 4: Results of the cluster analysis in relation to the organisation types

The Scatter plot (Figure 5) shows that offices that want to develop integrated practice especially score highly on the focus on signature and service. Offices that do not want to participate in integrated practice score highly on the focus on experience and service. This means that the following office profiles in architecture act as a driver to develop integrated practices:

1. Focus on service and signature in combination with a mechanical structure (N=9): This office profile has a relatively strong focus on realizing projects with a signature in combination with providing services in relation to technique, budget and time;
2. Focus on signature in combination with an organic structure (N=12): This office profile contains offices that mainly focus on a strong signature. These offices realize primarily progressive architecture with a high level of aesthetic quality;
3. Focus on service and experience in combination with an organic structure (N=21): An office profile with a relatively strong focus on complex projects in combination with a high service level where previously developed solutions are applied.

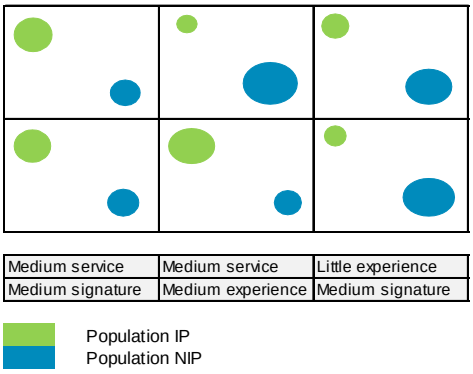

Figure 5: Scatter plot office profiles per group

6.3. PROCESSES AND SYSTEMS AS DRIVER FOR INTEGRATED PRACTICE

In the past decades the traditional design-bid-build project served as standard contract and organisation form for design firms. These projects mainly determined

the current processes and systems of the architectural firm. The current position of the company can act as a driver for developing integrated practice as competition strategy. A cross table was used to measure the extent in which architectural firms currently have enough customers, serve enough sectors and generate sufficient turnover within the traditional design-bid-build projects and collaboration structures. Moreover, also the general perception on the current realisation process and possibilities of integrated projects is measured to retrieve which drivers are important for the architect population.

The majority of the population (> 75%) thinks that they can currently serve a sufficient amount and kind of customers but no significant difference was found (NIP: average rank score 47.85; IP: average rank score 52.80). A large part of the population finds (> 75%) it important to serve a sufficient amount of customers but no significant difference exists between the population NIP (average rank score 31.01) and IP (average rank score 32.09). The majority of the population (> 70%) thinks that they can serve a sufficient amount of sectors and also regarding this issue no significant difference was found between the populations (NIP : average rank score 48.08 and IP: average rank score 51.39). Within the population NIP, 55.9% finds it important to serve a sufficient amount of sectors, for the population IP this is 66.7%. Also in this case no significant difference was found between the population NIP (average rank score 32.04) and IP (average rank score 29.69). Within the population NIP, 58.9% finds that they can generate enough turnover, whereas 69% of the population IP finds that they can generate a sufficient amount of turnover. This is not a significant difference between the population NIP (average rank score 50.35) and IP (average rank score 48.37). The majority of the total architect population (> 75%) finds it important to generate a sufficient amount turnover and no significant difference exists between the population NIP (average rank score 32.32) and IP (average rank score 29.33). Based on these results it can be concluded that no significant differences can be found about the number of customers and sectors and amount of turnover between the firms that are interested in integrated practices and not interested in integrated practices.

To measure the extent to which architectural firms can master the different phases of the design-bid-build process we used cross tables. These tables were preceded

by an item analysis. Although considered as greatly important by both groups, for mastering the initiative and design phase no significant differences were found between the NIP and IP population. 82.1% of the NIP population and 73.8% of the IP populations think that they can master the initiative phase (population NIP: average rank score 47.46 and IP: average rank score 52.21) and they also think that it is important to master the initiative phase (> 88%; NIP: average rank score 28.10 and IP: average rank score 28.93). Within the population NIP, 89.3% finds that they can master the design phase, 73.8% of the population IP finds this too. There is border-significant difference (U=919; p<0.056) between the population NIP (average rank score 44.91) and IP (average rank score 55.62). The greatest part (>92%) finds it important to master the design phase with no significant difference between the population NIP (average rank score 24.82) and IP (average rank score 31.30). The population does not seem to agree about the level of control in the implementing phase. Within the population NIP, 57.1% finds that they can master the execution process, whereas only 35.7% of the population IP thinks they can. There is a border-significant difference (U=908; p<0.054) between the population NIP (average rank score 27.40) and IP (average rank score 29.77). It appears that 58.6% of the population NIP finds it important to master the execution process, whereas 46.2% of the population IP thinks this is important. The difference between the population NIP (average rank score 27.40) and IP (average rank score 29.77) is not significant. The population does not seem to have a unanimous opinion about the process innovations either. 35.7% of the population NIP, and 21.4% of the population IP finds that they can realize sufficient process innovations. In this case a significant difference exists between the population NIP (average rank score 44.19) and IP (average rank score 56.58). It appears that the population IP (U =878.5; p<0.029) realizes significantly less product innovations. 52.9% of the population NIP finds realizing process innovations important while 59.3% of the IP population finds this important. There is no significant difference between the population NIP (average rank score 31.38) and IP (average rank score 30.52). This means that only in the current perception of mastering the realisation phase of a building (actual construction) and enables process innovations significant

differences were found between the firms that are open to integrated practices and the firms that are not interested in these kinds of projects.

Also for measuring the extent to which architectural firms can master the overall quality in the implementing phase a cross table was used. Again these tables were preceded by an item analysis. The architect population of our survey did not agree about the quality (product quality, price quality and financial turnovers) that is currently realized in association with the contractor during actual construction of the buildings. Within the population NIP, 58.9% finds that they can reach the best quality with the contractor, whereas only 34.9% of the population IP thinks this is possible. A significant difference exists ($U = 779.5$; $p < 0.002$) between the population NIP (average rank score 42.42) and IP (average rank score 59.87). The main part of the population (83.3%) finds it important to reach the best possible level of quality with no significant difference between the population NIP (average rank score 31.13) and IP (average rank score 26.63). The population also does not agree about the product innovations that are currently realized. Within the population NIP, 44.6% find that they can realize sufficient product innovations, whereas only 21.4% agrees with this within the IP population. This leads to a significant difference between the population NIP (average rank score 43.38) and IP (average rank score 57.67). It appears that the population IP significantly ($U = 833$; $p < 0.011$) realizes less product innovations. Within the population NIP 67.6% finds it important to realize product innovations compared to 51.9% of population IP. This difference is not significant (NIP: average rank score 28.39 and IP: average rank score 33.61).

Based on these results the reasons why some firms are interested in integrated practice and other are still not clear. Yet it is important to know which factors act as driver for integrated practice. Therefore the most important statistically significant variables of the traditional design-bid-build projects (control over implementation phase and quality of the implementation phase) are examined by a regression analysis. This means that:

> Response (Z) = B1 control implementing phase (control work preparation + aesthetic accompaniment) B2 quality implementing phase (quality subcontractors + product quality construction company + price quality

construction company + cost turnover construction company + realize product innovations) (see Figure 6).

An ideal regression model corresponds with a high value for Cox & Snell `R square' and Nagelkerke `R square' and a low `- 2 Loglikehood' value. Our analysis shows a Cox & Snell R Square with a value of 0.243 and Nagelkerke R call Square of 0.323 which indicates that the model is moderately positive. Another way to stipulate the fit of the model is the Hosmer and Lemeshow goodness of fit test. We examined if significant differences existed between frequencies in the data and if the frequencies could be predicted in the model. The differences are not significant (0.97) so we can again conclude that the model is appropriate moderated at the data. On the basis of a classification table we can conclude that 70% of the Dutch firms are correctly classified, which is a good score.

Control implementing phase		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	control work preperation	,612	,278	4,828	1	,028	1,844	1,068	3,183
	quality subcontractors	-,304	,294	1,069	1	,301	,738	,415	1,313
	control esthetic accompaniment	-,261	,403	,421	1	,517	,770	,350	1,696
Quality implementing phase		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
	product quality construction company	1,076	,408	6,943	1	,008	2,932	1,317	6,527
	price quality construction company	,519	,465	1,246	1	,264	1,680	,676	4,175
	cost turnover construction company	-,495	,498	,989	1	,320	,609	,230	1,617
	realize product innovations	,133	,241	,306	1	,580	1,143	,713	1,832

Figure 6: regression analysis

The population that will develop integrated practice in the future is for 33% explained by the dissatisfaction concerning the variables of: mastering work preparation, mastering the aesthetic implementation, the quality of subcontractors, realizing product innovations, the product quality, and quality and cost turnovers of the contractor. The coefficients of mastering product quality (p<value 0.008) and controlling work preparation (p<value 0.028) exert a positive (significant) influence on the response on integrated practices. These factors therefore positively influence the choice to unfold activities that relate to integrated practices when the demand increases significantly and there are clear possibilities to reinforce the competitive position.

7. DISCUSSION

The paper mainly focused on the office profiles (service, experience and signature) and the extent in which these characteristics act as a driver to develop integrated practice. The results of this research indicates some differences from the work of Mintzberg (1993), Winch & Schneider (1993), Coxe (1987) and Loonen (2004). First of all we did not find a relation between the orientation of the firm (signature, experience and service) and the organisational structure (organic and mechanic). Five out of the six office profiles we found to be organic (90.6%). In relation to the theory of Mintzberg (1993) this would mean that most of the design firms are in an early stage of organisational development. We question if design firms will proceed developing into the 'next' stages of organisational development. An organic organisational structure can be well understood from the issue of adaptability; it can easily adapt to the production of new products and services, which is important for creativity in design.

A remarkable result within the office profiles that were found is profile number 4 with a service signature in combination with a professional bureaucracy. This office profile has an unusual mechanical structure and is strongly formal, hierarchical, and top down with a fixed structure. There is no univocal explanation for this office profile, but the two-sided focus on services and signature projects could be a possible reason for this specific type. Winch & Schneider (1993) noticed that there is a conflict between the company situation and the personal aspirations of an architect. Theoretically this conflict can be found mostly with signature oriented offices. It is therefore surprising that mainly the signature oriented offices want to develop integrated practice.

This research was taken from a perspective in relation to the concerns about the marginal role and position of the architect in the Dutch construction industry (Renier & Volker, 2008; Vogels et al, 2007). The results show that the position and role of the architect are not very liable to fluctuations in the market situation. It becomes clear that design firms are still very satisfied with the traditional design-bid-build collaboration structure. Both populations (interested in integrated projects or not) stated that they are generating enough customers, sectors and turnover. Nevertheless an intriguing difference was found between the population

NIP and the population IP. In contrast to the population NIP the population IP state to currently poorly master the implementing phase, the implementation of design quality enough and the realisation of product innovations. This could be due to the fact that the IP population mainly focuses at signature and service-oriented projects. Because of this profile it is possible that they use a different standard concerning the process control and product quality in the implementing phase. This means that the firms that are willing to develop integrated projects are motivated by the factors that relate to dissatisfaction about the current situation. These drivers, such as dissatisfaction about the issues of mastering work preparation and aesthetic implementation, poor quality of subcontractors, a lack of product quality, and limited financial turnovers are not new. Therefore the question remains when these drivers will actually lead to change.

8. CONCLUSION

This research shows that approximately half of the total population of the Dutch architects is interested in developing activities on the market for integrated practices such as total engineering and Design and Build projects. Especially the substantial amount of small offices that is interested in integrated project delivery is remarkable. We expected these offices to have lesser production capacity, capital and knowledge within their own organisation for developing a new competition strategy that also includes activities beyond the design phase. Although integrated practice has not been the main part of the current portfolio of Dutch architectural firms, it appears that a substantial part of the firms is seriously considering adjusting their organisational strategy for integrated project delivery. It was found that these firms are motivated by the factors that relate to dissatisfaction about the current situation. This means that a new perspective on improved processes, more product control, and a better competitive position are the drivers of architectural design firms for developing a competition strategy within integrated project delivery. However, it remains to be seen if these intentions will eventually lead to a change in current practice. Architects will always experience financial and managerial tensions in achieving their aims about architectural quality. A culture cannot change over one day. However, the results indicate that the chances are

high that in the future a significant part of the architectural design firms will enact in integrated project delivery. If this will be their mainspring remains to be seen.

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