TOWARDS PROFITABLE CUSTOMIZED SOLUTIONS IN SMALL FIRMS: A MATTER OF RELATIONSHIPS, MODULARITY AND EXPERTISE

ABSTRACT

Purpose. The decision concerning the degree of product and service customization is crucial, yet has scarcely been studied for small businesses in B2B contexts. Although such a decision allows relationships with potential customers to be strengthened, it might involve high opportunity costs given the investment required. This paper analyses the profitability of customization undertaken by small businesses in terms of cost-benefit, and examines the drivers of profitable customized projects vis-à-vis the ability to strengthen relationships with clients (relationship investment and customer involvement) and the firm's resources related to processes and technology (expertise and modularity).

Design/methodology/approach. To test the proposed hypotheses, data were collected from 140 small Spanish firms involved in two sectors characterized by the offer of customized solutions: information and professional, scientific and technical services.

Findings. Analysis reveals that customer involvement in the customized solution, even when it requires investing in equipment, time or human resources has a positive effect on customization and, ultimately on profitability, since the cost of this customer interaction is lower than the revenue it provides. Likewise, supplier investment in the relationship allows for a solution that is adapted to the client, although it requires a cost associated with investing in specific assets. Such costs cancel out the positive indirect effect through the customized solution. Finally, expertise enables appropriate use of the flexibility derived from modularity to satisfy customer requirements, with both being key company resources for driving profitability through customized solutions.

Originality/value. This study makes a contribution to the domain of customization. We extend current knowledge on B2B customization by proving that small firms can use their available capabilities and knowledge to achieve a successful customization strategy.

Keywords: customization, small businesses, relationship investment, expertise, modularity.

Article classification. Research paper.

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1. Introduction

Nowadays, customers are increasingly demanding customized products and services, whilst technologies and processes are advancing and making customization possible (The New York Times, 2020). Indeed, customization is common in business-to-business (B2B) markets, where products and services need to be adjusted to the conditions of the customer firm's operational processes (Tu et al., 2004; Ghosh et al., 2006; Zhang et al., 2014; Kleinaltenkamp et al., 2017; Wang et al., 2017; Zhang et al., 2019). Moreover, customization in B2B markets is not limited to industrial goods, but can involve professional services targeted to businesses (Madhavaram and Hunt, 2017; Brotspies and Weinstein, 2019).

The results of companies that have opted for customization seem to indicate that ad hoc responses to customer demands generate sales and profit margins that are significantly higher than the industry average (Oliver et al., 2004). However, although the literature has proven that customization increases revenue through better customer satisfaction, this is also seen to imply an increase in costs (Wang et al., 2017). Indeed, the study of Oliver et al. (2004) reveals that some companies are not successfully trading off the value of customization with the costs involved. The decision concerning the degree of customer service adaptation must, in sum, be seen as a strategic decision that needs to be framed in terms of a cost-benefit trade-off (Wang et al., 2017) and which depends on the firm's characteristics (Madhavaram and Hunt, 2017).

Small businesses face the same competitive environment as large companies and, even if their strategies are often more informal and reactive (Boer et al., 2018), they must also respond to customers who demand solutions tailored to their individual needs. Yet small firms usually operate with fewer customers and fewer resources than large companies. As Tuli et al. (2007) mention, firms face the challenge of offering clients a

customized solution which is profitable, although this challenge seems particularly important in the case of small business, since these firms not only lack a large number of clients but also the substantial financial capacity which large companies enjoy. In these conditions, offering customized solutions may be crucial to strengthening relationships with customers and, eventually, to retaining them. On the other hand, however, every customized project can result in higher opportunity costs (time, resources) than in the case of large firms, since it may take a significant portion of resources away from other clients or may limit investment in more profitable opportunities. In short, small businesses face the paradox of having to offer customized projects in order to keep their customers, while incurring relatively higher costs and running a greater risk than large firms, should the project fail.

Empirical studies on B2B customization have focused on large companies (Tu et al., 2004; Ghosh et al., 2006; Zhang et al., 2019) or have mixed companies of different sizes (Liu et al., 2012; Zhang et al., 2014; Kleinaltenkamp et al., 2017; Madhavaram and Hunt, 2017), while the strategy of customization in the context of small businesses has remained somewhat unexplored. In fact, the relationship between customization and profitability in the case of small businesses is neither obvious nor indeed even proven.

Although some studies have ruled out that company size affects the capacity for customization (Zhang et al., 2014), no analysis has so far been carried out to determine whether the antecedents of this customization, which enables small companies to make their customization projects profitable, are the same as in the case of large companies.

This paper seeks to address the abovementioned gap by analysing the profitability of the customization undertaken by small businesses in B2B contexts and by examining the drivers of profitable customized projects. Drawing on the resource-based view, we

conjecture that, given an adequate use of resources and capabilities, the impact of customization on revenues will be greater than its impact on costs.

In particular, this work aims to evaluate the impact of the different pathways to achieve profitability in customized projects: the firm's ability to strengthen its relationship with the customer during project development, as well as the processes and technology-related resources involved in tailoring a project. Small businesses can use their ability to build more informal and closer relationships with customers and to stimulate their involvement in the project (customer investment and customer involvement). Moreover, they can exploit their knowledge and skills about the products or services they provide in order to design a possible adaptation (expertise) and can use their capacity to modularize products, services, or processes (modularity) in order to offer the solution required by the customer (Boer et al., 2018).

The present research contributes to B2B literature in different ways. Firstly, it finds empirical evidence concerning the determinants of profitable customized solutions for clients in the specific case of small businesses. The efforts and resources devoted to building relationships with customers and the expertise employed to design adapted products or services are the main drivers of the customization strategy. Moreover, customer involvement is critical to the success of a customized project and has a greater impact on the profitability of a customized solution than the resources and knowledge related to process and technology required to adapt the offer.

2. Theoretical and conceptual background

2.1. The resource and capabilities-based view

The resource-based view theory states that owning valuable, rare, inimitable, and non-substitutable business resources is a source of sustainable competitive advantage. A firm's market position depends on the effective use of such unique resources (Barney,

1991; Black and Boal, 1994). Yet firms must find the best way of combining their resources in order to create knowledge and capabilities within the company (Helfat and Peteraf, 2009). The resource-based view has been applied to marketing exchanges. Kozlenkova et al. (2014) highlight that various marketing researchers (Jap, 1999; Samaha et al., 2011; Palmatier et al., 2013) apply the resource approach to dyadic relationships in order to explain, on the one hand, how resources affect exchange as contingent factors and, on the other, the effect of resources in terms of exchange performance. Specifically, within the resource-based approach, relationships and networks between companies are valuable assets insofar as they not only allow access to resources but also their creation and modification (Gulati, 1999).

According to the capabilities-based view, firms possess capabilities that enable them to improve the productivity of their other resources (Varadarajan, 2020). Particularly relevant are dynamic capabilities, those that manipulate and alter the firm's resource base to generate new value-creating strategies, and which explain why certain firms enjoy competitive advantage in situations of rapid and unpredictable change (Eisenhardt and Martin, 2000; Helfat and Peteraf, 2009). These capabilities may involve product development routines, reconfiguration of resources, alliancing, or strategic decision making. Indeed, knowledge creation routines are also considered a dynamic capability (Eisenhardt and Martin, 2000), i.e., sustainable competitive advantages also depend on the creation, acquisition and exploitation of knowledge (Grant, 2002).

Studies have considered companies' dynamic capabilities as antecedents of customization from two approaches. On the one hand, some studies have focused on determinants that can be labelled as capabilities derived from the relationship with the client (Klein, 2007; Wang et al., 2017; Zhang et al., 2019). In contrast, other studies have focused on what we could call companies' own capabilities related to processes and

technology, especially in terms of being able to develop the process required to provide a customization solution (Tu et al., 2004; Ghosh et al., 2006; Zhang et al., 2014; Madhavaram and Hunt, 2017). As regard the results of customization, studies have focused on what effect this has on customer satisfaction (Liu et al., 2012), firm performance (Kleinaltenkamp et al., 2017; Zhang et al., 2019) and, in economic terms, on perceived switching cost (Yen et al., 2011) as well as project revenue and cost (Wang et al., 2017). Table 1 summarizes the main empirical studies addressing customization in B2B contexts.

Insert here Table 1

In the current work, we focus on both relationships with customers and technological processes as the main small business resources and capabilities for customizing projects. Small firms can develop capabilities based on customer involvement and relationship investment. Moreover, they can exploit their knowledge and skills about the products or services they provide (expertise) in order to design a possible adaptation and they can use their capacity to modularize products, services, or processes (modularity) in order to offer the solution required by the customer (Boer et al., 2018).

2.2. Relationships with customers

Studies that have focused on the client relationship have analysed aspects such as customer closeness (Tu et al., 2004), buyer knowledge (Ghosh et al., 2006), shared values and relational commitment (Madhavaram and Hunt, 2017), customer quality integration (Zhang et al., 2019), and customer participation (Wang et al., 2017), among others. In the context of small businesses, we consider that the resources and capabilities provided by the relationship with clients come from customer involvement in a project and through investing in the relationship with the client. In the customer involvement variable, aspects related to interaction with the consumer, such as relational commitment, customer quality

integration and customer participation, are subsumed, with all of them having been studied in the literature. The variable related to investment in the relationship includes the economic implications of the relationship, an aspect that has not been extensively discussed in the literature on customization.

Customer involvement in the project. The term customer involvement refers to the extent to which supplier firms interact directly with a customer in the project's customization (Wang et al., 2017; Carbonell et al., 2009). In this study, the term customer involvement is similar to what other authors have labelled customer interaction (Alam, 2006; Gruner and Homburg, 2000) or customer participation (Wang et al., 2017). Collectively, research on customer involvement has provided valuable insights into the role of customers in several key service marketing issues, such as service specification selection (Swan et al., 2002), customer coproduction (Bettencourt et al., 2002) or customer service perception (Brady and Cronin, 2001), among others. In the case of small businesses, one recognized competitive advantage and component of customer service is personal contact with the customer (O'Donnell et al., 2002), with owner-managers themselves sometimes dealing personally with their customers. Small firms can thus use their ability to build more personal, informal and closer relationships with customers in order to stimulate the latter's involvement in a project.

Relationship investment. Relationship investment refers to the time, effort, spending, and resources focused on building a stronger relationship with the customer (Palmatier et al., 2006). This involves the specific resources needed to exploit the opportunities pinpointed (Zhang et al., 2016). When suppliers wish to provide the customer with different specifications in the service solution that go further than the standard service, or a more complex product with adapted technologies and processes, they will need to make specific investments in that customer. These specific assets, in the context of the

relationships of small businesses with their clients, may consist of physical assets (specialized equipment, tools, and facilities), processes, human resources, or time investment during the execution of a project.

2.3. Small business processes and technologies

Studies that have focused on the processes and technology required to customize a project have also put forward different antecedents of customization. Among the variables analysed are dynamic teaming (Tu et al., 2004), cross-functional coordination (Zhang et al., 2014), human resource flexibility (Kleinaltenkamp et al., 2017), and internal quality integration (Zhang et al., 2019). In this regard, the variable that has undoubtedly aroused the greatest interest is modularity (Tu et al., 2004; Ghosh et al., 2006; Zhang et al., 2014; Wang et al., 2017 and Zhang et al., 2019). In our study, we also consider that modularity will be a necessary capability for small businesses, as will the company's expertise in terms of addressing a customized project.

Process modularity. Following Tu et al. (2004, p. 151), process modularity refers to "the practice of standardizing manufacturing process modules so that they can be resequenced easily or new modules can be added quickly in response to changing product requirements". The availability of rapidly reconfigurable tools is a key factor, as system performance depends on selecting tools and assigning manufacturing tasks to workstations (Lohse et al., 2004). Each process module has a set of functions that form the basis for selecting the module for a given task. Therefore, the process module can be quickly activated or deactivated to adapt to client changes (Erlicher and Massone, 2005). This means that modularity has advantages such as cost savings, the ability to offer product variety, flexibility and simplification of complex systems (van Liere et al., 2004; Pekkarinen and Ulkuniemi, 2008; Bask et al., 2011). Although modularity can be developed over time by any firm, whatever its size, this is a firm-specific capability

recommended for small businesses to achieve flexibility. Zhang et al. (2009) indicate that the main concern of small businesses is costs, such that they should invest in components that ensure flexible infrastructures, such as modularity, in order to reduce costs.

Expertise. Expertise is defined as the firm's understanding of the skills associated with a specific component, including design, production, and marketing knowledge, as well as other skills related to a product (Grant, 1996). Knowledge and expertise are valuable resources for firms (Wright et al., 2001; Collins and Clark, 2003). In the case of small businesses, expertise can be related with experiential learning. O'Donnell et al. (2002, p.213) indicate that the owner-managers of small businesses perceived experiential learning as "a key source of competitive advantage because it enabled all other competencies to be developed to suit the specific circumstances of the SME". Specifically, in small firms, specialization positively affects innovation (Gentile-Lüdecke et al., 2020). Innovation initiatives tend to depend on knowledge and expertise as key inputs in the value creation process (Youndt et al., 1996). Firms that effectively manage and leverage the embedded knowledge and expertise will be able to create more value and achieve superior competitive advantage (Scarbrough, 2003).

3. Research model and hypotheses development

As pointed out earlier, in the current study we consider whether the combination of capabilities based on the company's own resources (processes and technology), and the resources based on the relationship with the client, can lead small companies to develop profitable project customization. Specifically, our unit of analysis is the project, referring to a project developed for another company (B2B) and that has provided a customer solution. By customer solution, we understand the offer of a set of products and services that are integrated and customized to solve that customer's specific problems.

Figure 1 presents the proposed model with the hypotheses. In our research proposal, we contend that customized solutions for specific projects can be associated with a higher income (H1a), as well as a higher cost (H1b). We expect the effect to be greater on income than on costs, such that a customized solution can be a source of profitability for firms (H1c). Such customization can be driven both by relationships with customers during project execution (H2a and H3a) and by resources related with the processes and technologies that this project customization requires (H4 and H5). From the set of variables on customer relations, we also expect a direct impact on project revenues (H2b and H3b) and project costs (H2c and H3c), which will determine the final balance that the impact of these variables has on profitability.

Our model does not explore the relationships between modularity and expertise in costs and incomes. This because modularity and expertise are costs that are already assumed by the supplier, and in which they have already invested, and that are not specific to the project when being computed in terms of income and costs beyond those derived from offering a customized project.

Insert here Figure 1

3.1.Effects of a customized solution on a project's profitability

The literature has provided evidence of the added value of customization efforts, especially when customers demand greater uniqueness (Vanderstraeten et al., 2016). B2B companies can customize offerings to serve customers efficiently, differentiating their offerings from those of their competitors, and locking in customers (Pine, 2015). Customization can ultimately increase the value offered to clients by better meeting their specific needs (Tuli et al., 2007). As long as customers perceive this value, and are willing to pay more in return for it, firms can increase their incomes (Syam and Kumar, 2006).

Customization thus generates a higher level of income for supplier firms (Wang et al., 2017). Therefore:

H1a. A customized solution has a positive influence on project incomes.

A customized project also means designing, developing, and delivering an ad hoc project subject to specific conditions. This specificity requires unique investments that make it difficult to achieve economies of scale, such that the costs incurred by a company offering a customized solution are higher than in mass production (Piller et al., 2004), regardless of expertise and other available resources. Moreover, when a supplier firm ends up with a project of this nature, it may face higher costs than initially expected since the final result is subject to variables that are not controllable by the firm, such as the consumption of the resources required to materialize the solution demanded by the client. Thus:

H1b. A customized solution has a positive influence on project costs.

Assuming that a customization solution increases both a project's incomes and its costs, customization allows the profitability of companies to improve when the latter are able to increase revenues to a greater extent than the costs associated to a customized solution (Wang et al., 2017). On the revenue side, customized projects allow firms to offset costs by requiring the client to pay a higher price for the product or service provided. When the costs incurred in a project exceed those initially planned, the supplier firm is likely to transfer them to the customer, through an increase in the final invoice. The customer, satisfied with the solution adapted to their needs and aware that a higher level of costs has been incurred, will make an effort to pay for the unexpected costs.

On the costs side, customization eliminates a certain number of costs for companies in the sense that a company only produces products when a customer demands them, thereby eliminating the cost of developing products that are not in demand. In addition, customization allows inventory and material waste costs to be reduced, since the inputs

incorporated are those needed and in the specific time period (Pollard et al., 2008). It is therefore not necessary to accumulate a high level of stock, such that the risk of obsolescence disappears. All of this leads us to propose the following hypothesis:

H1c. A customized solution has a positive effect on project profitability due to the effect on incomes being greater than on costs.

3.2. Impact of customer relationship on customized solutions

The literature has analysed the relationship between supplier and customer in the implementation of business solutions (Petri and Jacob, 2016). Supplier and customer interaction is an iterative process in which the customer becomes a key collaborator in creating customer value (Aarikka-Stenroos and Jaakkola, 2012). While developing a project and implementing a business solution, the supplier firm may decide to involve the clients, consult their opinion, and make them contribute to the development process. When customers are invited to participate, they will be able to define their specific requirements, such that the solution provided will be better adapted to their needs (Wang et al., 2017). That is, customer involvement will facilitate customer-oriented project activities (Fang, 2008). Therefore, customer involvement makes the customization more workable.

New product development literature (for example, Alam, 2002 or Gruner and Homburg, 2000) has found that customer interaction is particularly useful during the idea generation and screening stages because these activities are the most information intensive (Zahay et al., 2004). The need for customer information in new product development processes is analogous to information needs during the development of service business solutions. Customers who are invited to participate will attempt to endow the project with ideas that bring greater value to the final product/service. In this quest to improve the solution that is to be received, transforming the basic solution into one that

is adapted to more precise specifications may prove necessary. The initial solution proposed by the supplier firm, filtered by the customer, will evolve towards a solution with ad hoc variants designed for that particular customer. Therefore, during this interaction process the parties will define and discuss together the requirements of the project until a customized solution is achieved. At the same time, an iterative process of interaction between buyer and seller can help to develop both mutual understanding and routines, which in turn can allow for more effective coordination (Gulati 1995; Hoang and Rothaermel 2005) of the customized project. We thus propose:

H2a. Customer involvement in the project has a positive effect on the offer of a customized solution to the customer.

The level of customer involvement in solution development can be more or less intensive. The more intense the customer involvement and interaction with the supplier, the greater the likelihood of customer needs being deeply understood (Grönroos and Voima, 2013). In this sense, several scholars have suggested that customer involvement in a project is important vis-à-vis achieving the best solution (Jaakkola and Hakanen, 2013; La Rocca et al., 2016). In a context of co-creation, i.e., high interaction with customers, Jaakkola and Hakanen (2013) found that customers receive value through a more efficient solution, i.e., a solution that increases benefits (better results, seamless experience) or diminishes sacrifices (less effort). La Rocca et al. (2016) posit that interaction with customers can also result in innovative developments and unexpected outcomes. Customer involvement therefore increases the efficiency of the solution provided and, ultimately, the customer's willingness to pay for it and the project's incomes. Therefore, we propose:

H2b. Customer involvement in the project has a positive effect on project incomes.

Customer involvement in customization is a necessary condition since customers need to give specific information about their needs to the supplier at different phases such as in the design and production of a tailor-made solution (Wind and Rangaswamy 2001; Fogliatto et al., 2012). Following Duray et al. (2000), when customers participate in the design stage, products and services can be modified to suit their preferences and expectations over a wide range. At the development stage, customer involvement means specifying incremental changes to a proposed design. At these stages, customer preferences may require altering the services that make up the solution, all of which will mean an increase in costs for the supplier.

Even if two customers have identical knowledge of their preferences and an identical ability to express them to the supplier, the cost associated with customization could vary depending on customer involvement. This implication can be specified in ad hoc training activities and in the client having more than one contact person to deal with the supplier, among other factors.

Customers with a high involvement in the personalization process will make a greater effort than those who are less involved. Moreover, this greater effort on the part of the customer will necessarily translate into a greater dedication of time and cognitive effort by the supplier, thereby implying a higher cost.

Given all of the above we formulate the following:

H2c. Customer involvement in the project has a positive effect on project costs.

The other aspect of the customer relationship is supplier investment in this relationship. Investing in customized resources for a project implies the ability to offer the client a customized service solution (Buvik and Reve, 2001). The greater the intensity in the use of specific assets the greater likelihood of providing the client with a specific service solution. Kamalaldin et al. (2020) indicate that the provision of advanced services

involves investing in relation-specific investments and co-specialized assets. The authors conclude, in the context of digital platforms, that when the relationship with the client becomes more advanced, the specific assets may be used to continuously identify new solutions that could increase value creation. Thus, we suggest the following hypothesis:

H3a. Relationship investment has a positive effect on the offer of a customized solution for the customer.

The deployment of supplier investments in the customer is assumed to provide added value that is beneficial for both buyer and seller alike (Buvik and Reve, 2001). Relationship investment improves the service offered, such that the premium service will reap greater revenue. Moreover, investment in specific assets also favours the stability of relationships (Williamson, 1985) that can be cooperative to monetize the investments made. The investment in the relationship with a customer can create value, since the investment in terms of time and personal effort may improve the quality of the information shared, coordination in the relationship with the supplier and, eventually, the quality of the service provided. Similarly, investing in equipment or processes allows the supplier to offer a more efficient service, a better quality service or one that solves the customer problem better. The quality of the service provided is thus expected to have a direct impact in terms of higher incomes for the supplying firm.

H3b. Relationship investment has a positive effect on project incomes.

Even if investments in specific assets dedicated to a client can enable a premium service and, therefore, may be a source of higher income, they also undoubtedly trigger an increase in costs. However, the specificity of these assets leads not only to high direct costs but also to high relationship change or breakdown costs, such that any investment in specific assets is at the mercy of good faith and relies on the other party not engaging in opportunistic behaviour (Heide, 1994). Assets thus become a source of dependency

because they make it impossible to replace the other party and create exit barriers. In short, specific asset investment can be a beneficial relational asset just as it can also equally prove to be a burden to a firm (Chen et al., 2017). We thus propose the following hypotheses:

H3c. Relationship investment has a positive effect on project costs.

3.3.Impact of modularity and expertise on customized solutions

Product modularity allows firms to cope with changing customer requirements and increasing technical complexity in production processes (Peng et al., 2011). Firm modularity implies that a firm must know precisely, and in depth, the internal functioning of the product, service or process it is developing so that the modules can function as a whole, even if the modules are developed independently (Baldwin and Clark, 1997). In addition, modularity allows flexibility to make the changes required in one or more modules, and not in the whole process. This is especially important in the case of small firms, since their resources are more limited, and modularity can allow them to respond more quickly to any changes and demands proposed by the customer through optimal use of their resources. Thus, modularity can be seen as a firm's ability to better understand customers' needs and, consequently, to provide them with a more appropriate and specific solution. Given all of the above, we thus propose the following hypothesis:

H4. The process modularity of the supplier firm's service has a positive effect on the offer of a customized solution to the customer.

Furthermore, firms with expertise related to a particular component are able to produce the component more efficiently and effectively because they possess appropriate personnel, equipment, and knowledge (Conner, 1991; Grant, 1996). The customer who has a specific problem and needs a specific solution is subject to the risk and uncertainty of choosing the right supplier. Cooperation with a supplier firm that has a high level of

expertise in the field reduces the risk and uncertainty and increases client satisfaction. Suppliers' expertise (know-how and subsequent implementation) is a sign of their ability to create a solution that is adapted to the customer, i.e., the firm which possesses expertise becomes a creative agent that has the ability to transform a specific need into a customized solution. This solution is materialised through a new product or service adapted to the customer's specifications. Hence:

H5. The expertise of the supplier firm has a positive effect on the offer of a customized solution to the customer.

4. Methodology

4.1. Data gathering

Data for this study were collected from small Spanish firms involved in two sectors characterized by the offer of customized solutions: information (NAIC 51) and professional, scientific and technical services (NAIC 54). The sampling frame was the Sabi directory of Spanish firms, a database compiled by Bureau van Dijk (BvD). We chose companies that had contact information (telephone or email). Of the firms selected, 1,458 were contacted by telephone or email to inform them about our research and to request their participation, if they had developed a project for another company (B2B) in the last two years, which would have been a "customized solution to the customer". We discarded 113 companies because they did not provide solutions to the customer in the terms we defined, while 466 indicated that they did not wish to collaborate and 738 did not answer despite being contacted repeatedly (289 by phone and 449 through a general company email). After a follow-up by telephone and email, we obtained 141 complete questionnaires. One of the completed surveys was ruled out for inconsistencies in the results. The final sample thus comprised 140 firms.

We provided respondents with instructions to fill in the questionnaire. We specified that they needed to select a project developed in their company for another company (B2B) over the last two years, and that provided a solution for the client. By customer solution, we understand the offer of a set of products and services that are integrated and customized to solve that customer's specific problems. In addition, we asked respondents to describe the project. Respondents were required to be owner-managers or top executives with an extensive knowledge of the firm's activity. The average number of years' experience amongst survey respondents was 16.6. All the sample firms have less than 50 employees, except one, which has 58 employees. The average number of employees in the sample is 7.49.

Given the study's small sample size, a post hoc power analysis was performed to determine the statistical power of our sample for testing the proposed hypotheses. Power values were calculated for each dependent variable of the model –that is, customized solution, project incomes, project costs and project profitability– using G*POWER 3.1.9.4 computer software (Faul et al., 2009). For the four independent variables, power values (1- β) for a medium effect size and Type I error (a) of 0.05 exceeded Cohen's (1988) recommended criterion of 0.80. In fact, the lowest value found is 0.93. Hence, we can conclude that the sample size is adequate in statistical terms.

4.2.Construct measuring

Measurement instruments are presented in Table 2. Established multi-item scales previously used in other research were used to operationalize the model constructs. We used self-explanatory scales of project incomes, costs, and profitability. The three scales are measured with two items which, respectively, reflect the degree to which project performance was lower/greater than equivalent projects and lower/greater than firm

expectations. In addition, project income and cost scales include an item relative to the percentage of income or costs associated with customization.

Insert here Table 2

Prior to hypothesis testing, we assessed construct reliabilities by verifying that composite reliability (CR) values are all above 0.7, and that average variance extracted (AVE) exceeds the recommended minimum of 0.5 (Table 3). We applied both Fornell and Larcker's (1981) and Henseler et al. (2015) criteria to establish discriminant validity and we obtained satisfactory results. Following Fornell and Larcker (1981), discriminant validity is evidenced when the square root of the AVE for each construct exceeds the corresponding correlations between that construct and any other constructs. All possible pairs of constructs passed this test. The heterotrait-monotrait (HTMT) ratio of correlations proposed by Henseler et al. (2015) also indicated discriminant validity, as all HTMT ratios were below the conservative threshold of 0.85 (Table 3).

Insert here Table 3

The literature agrees that common method variance (CMV) may be a key concern when self-report questionnaires are used to collect data on both the dependent and independent variables at the same time from the same informants. According to Podsakoff et al. (2003), remedies that may be applied to single source studies can be classified in two categories: procedural or a priori remedies, and statistical or post-hoc analysis. From an a priori perspective, we protected respondent anonymity, and chosen respondents were the firm's top executives who had extensive knowledge of the firm's activity. In a post-hoc analysis, we applied the exploratory approach to Harman's one-factor test. Unrotated principal component factor analysis with varimax rotation showed the presence of seven factors with an eigenvalue greater than one. The seven factors accounted for 72.62% of variance. Since the largest factor only accounted for 24.48%, we can assume that common

method bias is not a major problem. Common method bias exists when only one single factor emerges from exploratory factor analysis. In the same line, confirmatory factor analysis showed that the single-factor model did not fit the data well, $\chi 2=1926.4$, $p=0.000$; NFI=0.26; CFI=0.28; TLI=0.16; RMSEA=0.19. Furthermore, the presence of positive and negative correlations among the model constructs and the relatively low correlations between the variables can be considered as indicators that CMV is not prevalent (Lindell and Whitney, 2001).

5. Analysis and results

The research model was empirically tested using the partial least squares (PLS) approach to structural equations modelling (SmartPLS 3). A bootstrap test (5000 subsamples) is used to establish the t-values of the direct, indirect and total effects. Bootstrapping is a method of mediation analysis that goes beyond the limitations of traditional methods by providing an explicit estimation of the indirect effects, and acknowledges that evidence of a statistically significant association between independent and dependent variables is not required for mediation (Hayes, 2013).

5.1. Results of hypotheses tests

The standardized parameter estimates and the R^2 of the dependent variables found in our analysis are presented in Table 4.

Insert here Table 4

H1a and H1b, respectively, predict a significant and positive direct impact of customized solution on project incomes and project costs. Both hypotheses are confirmed ($\beta= 0.30$, $p<.01$; $\beta= 0.33$, $p<.01$). Table 4 shows the expected effects of project incomes on profitability ($\beta= 0.74$, $p<.01$) and project costs on profitability ($\beta=-0.14$, $p<.05$). The indirect effect of a customized project on profitability is positive and significant ($\beta=0.18$,

p<.01); that is, the unequal effect on profitability of incomes and costs, in favour of incomes, supports H1c.

The results support H2a and H2b. Customer involvement has a significant positive effect on the design of a customized solution (β=0.35, p<.01) and on project incomes (β=0.17, p<.05). However, we find no support for H2c in our data, which proposed that customer involvement in the project has a positive effect on project costs. In addition, the relationship investment variable is also seen to have a significant positive impact on customized solutions and project costs. That is, H3a and H3c are confirmed (β=0.14, p<.05 and β=0.35, p<.01). Finally, H4 and H5 are confirmed. Process modularity and expertise have a positive and significant effect on customized solutions (β= 0.14, p<.05 and β= 0.28, p<.01, respectively). Finally, H3b is rejected. The results do not support the influence of relationship investment on project incomes.

5.2. Additional results

Table 4 shows the specific indirect and total effects attributable to each antecedent. Customer involvement exerts a significant indirect impact on project incomes (β =0.11, *p*< 0.01) and on project costs (β =0.12, *p* < 0.01) through a customized solution. These effects, combined with the direct and significant impact on project incomes (β =0.17, *p*< 0.01), result in a total positive and significant effect on project incomes (β =0.28, *p*< 0.01). However, the total impact on project costs is non-significant. As a result, since there is no negative impact through project cost, the total effect on profitability is positive (β =0.19, *p*< 0.01). As for relationship investment, the results are noticeably different. The positive direct effect of relationship investment on project costs (β =0.31, *p*< 0.01), together with the positive indirect effect (β =0.05, *p*< 0.05), offset the positive impact on project incomes (β =0.14, *p*< 0.05), resulting in a non-significant total effect on profitability.

The direct impact of process modularity on customized solutions, together with the direct impact of a customized solution on project incomes and project costs, implies an indirect effect on project incomes (β =0.04, $p< 0.051$) and project costs (β =0.05, $p< 0.05$). Both effects are offset, resulting in a marginally significant effect on profitability (β =0.03, $p< 0.10$). Similar indirect and significant effects are found for the expertise variable on project incomes (β =0.08, $p< 0.01$) and project costs (β =0.09, $p< 0.01$), although now the impact on profitability is more clearly significant as a result of the greater impact on a customized solution of expertise than modularity (β =0.05, $p< 0.05$).

5.3. Robustness analysis

The sample comprises firms of different sizes (number of employees) and two sectors (information and professional, scientific and technical services). In order to test whether the results are stable throughout these characteristics, we re-estimated the model considering the potential moderator effect of firm size and firm sector (see Appendix). In order to compare our research model, we sequentially introduced different blocks of effects. First, we included the main effects of size/sector on customized solution, project incomes and project costs (models 1 and 4). We then included the interaction terms with the antecedents of customization (models 2 and 5). Finally, we tested the interaction effects with project incomes and costs (models 3 and 6). We chose to incorporate the moderating effects into two separate models so as to control for the increase in Type I error that occurs when correlated moderator effects are examined.

Overall, the results reveal that the model is robust. We found no significant moderating effect. That is, the impact of the four antecedent variables on customization and the impact of customization on incomes, costs and profitability do not change depending on firm size or sector. We only found one statistically significant difference: firms in the professional service sector have lower average revenues per project than those in the

information sector (β= -.14, p<.05). This result is likely explained because technology-related services usually include goods (hardware) that can increase the cost of the invoice for the customer.

6. Discussion

Company interest in customizing its offer of products and services to its customers depends on the impact that such a decision has on profitability. Thus, in this work the following question is posed: is the provision of a customized solution by small businesses profitable for them? Since profitability depends on the balance between revenue and costs, the response to this dilemma will be explained by the greater strength of one effect over another. The results of our work indicate that both effects are positive, i.e., that through customization, the firm increases the value offered to clients, which generates a higher level of incomes, yet also entails the use of important resources to produce the solution required by the client, a circumstance that implies higher costs. These results are consistent with previous studies that confirm the positive effect of a customized project on incomes and costs (Wang et al., 2017). However, our results clearly differ from those obtained by Kleinaltenkamp et al. (2017). Although these authors also concluded that the total effect of customization on firm performance is positive, they found a positive mediating effect through cost-efficiency because, curiously, they found that firms perceived customization to be efficient in terms of costs. Our work demonstrates that customization increases the incomes and costs of small firms but that the impact of the two effects on profitability is imbalanced, as the revenue path is greater than the costs path. As anticipated, customization has a positive effect on profitability, probably due to transferring the costs to the customer through an increase in the final invoice.

Given the positive impact on the profitability of customization, it is important for small businesses to know what makes firms better at customization. In this work, we

studied four antecedents, or variables, that enhance customization, grouping them into two blocks: on the one hand, two variables critical to establishing the intensity of the relationship between company and client – customer involvement and relationship investment – and, on the other, two variables related to the company's processes and technology – modularity and expertise –. The starting proposal on the positive effect of the four variables on customisation is supported, although the intensity of the effect is not the same for the four determinant variables.

As for the variables that characterize the relationship established with the customer, our results are in line with previous studies in other industries and with different size firms, and establish that interaction with customers is essential for customization (Tu et al., 2004). However, we add investment in the relationship as another requisite to provide a customized solution. Moreover, this investment does not reduce project profitability. Comparing these two variables, we find that the impact of customer involvement is greater than that of relationship investment. Investing in specific resources allows a customized solution to be offered to a client (Buvik and Reve, 2001). However, if there is no customer involvement in improving the solution, there is no relevant impact on customization.

Something similar happens with the modularity and expertise variables. The need for process modularity in order to provide customized solutions has been proved in different studies (Tu et al., 2004; Zhang et al., 2014; Zhang et al., 2019) and for different contexts (see Table 1). Wang et al. (2017) found that the incomes of a customized project are higher when team technological capability is high. We show that in the context of small firms both variables also have a positive effect on customization, albeit of different intensity. Modularity gives flexibility, allowing a customized solution (Bask et al., 2011), but expertise is the key input in the value creation process since it permits an appropriate

use of the flexibility derived from modularity. From the high correlation between the two variables, we derive that, although modularity does play its part, expertise is required to take advantage of the positive effects of modularity on customization. Since it enables the project to be divided into self-contained tasks, project modularity even facilitates customer involvement in the design of customized solutions (Duray et al., 2000).

In this work, we also propose that maintaining a high-involvement relationship with the customer and investing in specific assets not only promotes customization but can also have an impact on profitability through paths other than customization. The results obtained partially confirm the theoretical proposal for both variables. Customer involvement has a positive additional effect on income, but not on costs, while investment in specific assets has a positive additional effect on costs, but not on income. Once the direct effects on revenue and costs and the indirect effects through customization have been computed, the resulting balance is that customer involvement has a total positive effect on profitability, which does not have investment in specific assets. This effect on profitability makes this variable – customer involvement – stand out from the other three variables in terms of its explanatory power of profitability. Expertise follows customer involvement as the second variable in importance. Both are what are termed soft skills, i.e., skills about people (firm and customer) interaction.

7. Conclusion, managerial implications, limitations and research lines

Literature on customization, mostly focused on large companies, consistently indicates that ad hoc responses to customer demands increase revenue through better customer satisfaction. However, it also implies an increase in costs (Wang et al., 2017) that is not always successfully managed (Oliver et al., 2004). This sparks a number of doubts concerning the final effect on profitability and, therefore, about how appealing it might be to provide customized services. From a business perspective, it must ultimately

be taken in terms of cost-benefit. The purpose of this paper is to address the abovementioned gap by analysing the profitability of customization and by examining four different variables that can be potential resources to help firms successfully customize their B2B professional service. The study focuses on small firms because the balance between profits and costs is particularly crucial for this type of business.

In light of the results obtained, we recommend that small businesses prioritize the customer's voice by involving customers in designing the best solution, even when this involves investing in equipment, time or human resources. The cost effect of this customer interaction process is lower than the revenue it yields. During this process of interaction with the customer, it is common to exchange technical data and information about the requirements and needs to be met. These recommendations lead us to remember another important decision: choosing which clients or projects merit more resource and greater relationship investment. In this regard, it is worth knowing in advance the customer's capability and willingness to collaborate in the project, and evaluating not only the current and future revenue provided by a client but also the strategic value in terms of attracting other potential customers.

In order to take advantage of this supplier-client exchange, managers must ensure that their employees gather and deploy a broad set of knowledge and skills which, together with preferably modular technology, result in a customized solution that is satisfactory to the customer and profitable to the firm. In this sense, we emphasize the advantages of investing in process modularity to create different product and service configurations and to offer unique designs to each client. However, not all products are susceptible to modular processes, and small businesses might not be able to achieve products that are sufficiently customized by investing in modular technologies. In these cases, small

businesses must trust employee experience and knowledge to provide unique customer solutions.

Our research is not without limitations. From a methodological perspective, the study does not objectively measure project incomes, project costs and profitability but relies on perceptual and self-reported data from a key firm informant. Even though subjective measures of business performance have been found to be strongly correlated with objective measures (Vij and Bedi, 2016), additional research incorporating objective measures is advisable. Second, data were collected using one informant and, therefore, relationships among variables might be inflated by common method variance. Although procedural and statistical remedies used to evaluate common method bias indicate that this is not an important problem in our data, it cannot be completely ruled out. In order to address this concern, future research may seek to gather information from multiple informants. It would also be desirable to work with larger samples. Although the sample size is consistent with other studies (Madhavaram and Hunt, 2017; Wang et al., 2017) and the statistical power of our sample for testing the proposed hypotheses is adequate, the sample size does not facilitate contrasting possible moderating effects. Finally, this study only measured customization from the supplier perspective; that is, the data collected do not include direct information from the client, which is a perspective that future research should take into account.

Beyond methodological issues, as a future line of research, we suggest testing the proposed model by differentiating between young firms and firms with experience in the market in order to compare to what extent the proposed antecedents influence customization and, above all, to ascertain whether there are differences in terms of profitability. Customization costs may depend on the experience effect of firms. In other words, firms that have been offering customized solutions to clients for more years may

have developed coordination mechanisms, and improved communication processes, etc. all of which would reduce costs. On the other hand, young firms can try to attract clients and build loyalty by making an effort in terms of revenue; that is, the price of the customized solutions they offer to their customers can be lower than firms that have extensive experience in the market or an infrastructure to maintain.

Another proposal for future studies involves testing the model by taking into account the impact of contextual and contingent conditions (Bond III et al., 2020) under which relationships among independent and dependent variables of the model could differ, such as digital contexts, environmental uncertainty, or when being under time pressure to develop a customized project. In uncertain contexts, customization decisions may be less efficient in terms of revenue and costs, whilst in situations of time pressure, the relationship with the client may not generate the expected knowledge required to adapt the project to the client.

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Table 1. Summary of empirical studies on B2B customization

Authors (year)	Sample	Firm size	Concepts	Main customization results
Tu, Vonderembse, Ragu-Nathan, and Ragu-Nathan (2004)	303 responses from manufacturing managers and engineers of companies in 11 types of industries (automotive, furniture, transportation equipment, etc.)	Firms of different size (annual sales from less than $10 million, to $1000 million and above).	*ANTECEDENTS of mass customization:* Product and process modularity, dynamic teaming, customer closeness.	Mass customization practices are directly related with: - modularity-based manufacturing practices. - closeness to customers.
Ghosh, Dutta, and Stremersch (2006)	304 responses from sales managers of firms that belong in one of these industries: industrial machinery and equipment, electrical and electronic equipment, transportation equipment, and instruments and related products.	Firms with minimum annual sales of $100 million.	*ANTECEDENTS of customization:* Modularity, technological unpredictability, buyer's knowledge, vendor's customer knowledge mobilization.	The level of vendor control over customization decreases when: - modularity increases in the company. - customer knowledge in the product category increases. - system modularity is high and vendors have high levels of customer knowledge mobilization resources. The level of vendor control over customization increases when: - technological unpredictability increases. - vendors with high levels of customer knowledge mobilization resources deal with expert customers.
Klein (2007)	Logistics services and its business clients. 91 surveys matched supplier-customer dyads.	Specific information on the size of the suppliers is not available. For customers, different size of companies depending on the number of employees (from 1-499 to 50,000 and up).	*ANTECEDENTS of customization: Client's perceptions of trust, information/knowledge exchange*. *RESULTS of customization: client and supplier performance.*	Client customization is positively affected by supplier's information/exchange of knowledge behaviour. Customization is not influenced by service provider's perceived trust in client. Customization positively impacts service supplier and client performance results accrued within the relationship.
Yen, Wang, and Horng (2011)	281 questionnaires from buyers and purchasing supervisors in Taiwanese electronic manufacturing firms.	Information not available on the size of the companies.	*RESULTS of perceived willingness to customize:* Perceived effective communication, switching costs and trust.	The perception of supplier willingness to customize for a buyer: - has a positive influence on the buyer's perceived trust. - has no influence on perceived switching costs.
Liu, Shah, and Babakus (2012)	266 responses. Data from the third round of the High Performance Manufacturing (HPM) project. Specifically, manufacturing plants in 10 countries (Austria, China, Finland, Germany, Italy, Japan, Spain, South Korea, Sweden, and the United States) and three broad industries (electronics, machinery, and automotive suppliers).	The size of the companies is considered a random variable, controlled by the effects of higher resource availability associated with larger companies.	*ANTECEDENTS of mass-customization ability:* Demand uncertainty, competitive intensity, supply chain complexity. *RESULTS of mass-customization ability:* Customer satisfaction.	Firms pursue mass customization ability when they are under competition pressure. The value perceived by customers of the firm's mass customization offering is contingent upon the level of demand uncertainty.

Authors (year)	Sample	Firm size	Concepts	Main customization results
Zhang, Zhao, and Qi (2014)	Data from the HPM project. 317 plants in the electronics, machinery and auto-supplier industries in 10 countries. 21 informants (ten managers, five direct labourers, and six supervisors) in each plant completed the questionnaires.	Information not available on the size of the companies. However, the authors have included the plant size as a control variable.	*ANTECEDENTS of mass customization capability:* Organizational flatness, cross-functional coordination, cross-plant coordination, supply chain coordination, product modularity.	Mass customization capability depends on: - product modularity - cross-functional coordination - supply chain coordination Mass customization capability is not affected by plant size or type of industry.
Kleinaltenkamp, Minculescu, and Raithel (2017)	Data from B2B service firms operating in Germany, Austria, and Switzerland. Specifically, 577 responses from high-level managers of logistics and transportation, consulting, financial and insurance services, IT services, facility services, advertising and marketing services.	Different size of companies depending on the number of employees (from below 50 to over 10,000).	*RESULTS of customization:* Perceived customer value, cost efficiency.	The relationship between customization and firm performance is positively mediated through customer perceived value and cost-efficiency. These relationships are not affected by firm size or type of industry.
Madhavaram and Hunt (2017)	161 questionnaires from American marketing research firms (members of the Marketing Research Association).	Different size of companies depending on the number of employees and revenue in millions of dollars.	*ANTECEDENTS of customization:* Internal social capital, intellectual capital.	Firms' intellectual capital (through employees' knowledge of customers, technical knowledge and abilities, and creativity) has a positive impact on effectiveness in customization B2B professional services. Firms' internal social capital is an antecedent of intellectual capital.
Wang, Lee, Fang, and Ma (2017)	Software suppliers in China and its business customers. 134 surveys matched supplier-customer dyads.	Specific information on the size of the companies is not available. For customers, the average number of employees was 1,200.	*ANTECEDENTS of project customization:* Modularity, team technological capability, customer participation, relational embeddedness, and customer demand ambiguity. *RESULTS of project customization:* Project revenues and costs	Customization increases project revenues. - The impact is higher when project team technological capability, customer participation, and relational embeddedness are higher. - The impact is lower when customer demand ambiguity is higher. Customization increases project costs. - The impact is lower when customer demand ambiguity is higher. - When product modularity and customer participation are higher. Project revenues and costs are significantly affected by customer size.
Zhang, Guo, Huo, Zhao, and Huang (2019)	Data from the HPM project. 317 plants in the electronics, machinery and auto-supplier industries in 10 countries. Supervisors and managers in each plant who were responsible for quality issues, such as inventory manager, product development manager, process engineer, plant manager, quality manager, supervisor, and plant superintendent, completed questionnaires.	Plants each had at least 250 employees.	*ANTECEDENTS of mass customization:* Product modularity, supplier quality integration, internal quality integration, customer quality integration.	Product modularity has a positive effect on mass customization, supplier quality integration and internal quality integration. Mass customization improves internal and customer quality integration.

Table 2. Construct measurement

Construct	Item measurement	Mean (S.D.)
Customer involvement* (Carbonell et al. 2009; Wang et al. 2017)	For this project…	
	The customer was frequently consulted.	5.77 (1.46)
	There were many meetings with the customer.	5.36 (1.61)
	The customer participated actively in the project customization	5.06 (1.77)
	The degree of customer involvement was high.	4.99 (1.83)
Relationship investment* (Adapted from Zhang et al. 2016)	For this project…	
	We made significant investments in equipment/systems.	3.56 (2.04)
	We spent more time than was normal.	4.94 (1.68)
	We devoted more effort than usual.	4.88 (1.70)
	We made personal sacrifices (for example, missed opportunities for other projects, holidays, etc.).	3.89 (2.06)
Process modularity* (Tu et al. 2004; Wang et al. 2017)	In our company…	
	Projects can be seen as several standardized modules.	5.10 (1.66)
	Projects can easily be broken down into modules.	5.22 (1.65)
	It is possible make changes in key components of the modules without redesigning others.	5.07 (1.72)
	The modules can be reconfigured into different forms and functions to attend to different demands.	5.60 (1.58)
Expertise* Wang et al. (2017)	In our company…	
	There is extensive expertise concerning all the aspects involved in the solution offered to the customer.	6.17 (0.84)
	There is all the necessary knowledge required to identify the solution the customer requires.	6.04 (0.90)
	There is extensive knowledge on how to create customer value.	6.02 (0.94)
	We have the technological skills needed to adapt the project to the client's needs.	6.11 (0.99)
Customized solution* (Homburg et al. 2011; Wang et al. 2017)	The project…	
	Was extensively customized for this customer.	6.18 (1.19)
	Fitted the customer's needs.	6.60 (0.62)
	Has many features that are not available in the standard version.	5.09 (1.91)
Project incomes	Project incomes were…	
	Less than equivalent projects / higher than equivalent projects**	4.47 (1.33)
	Less than expected / higher than expected**	4.32 (1.23)
	Percentage of income associated with project customization	62.3 (27.78)
Project costs	Project costs were…	
	Less than equivalent projects / higher than equivalent projects**	4.48 (0.96)
	Less than expected / higher than expected**	4.26 (0.97)
	Percentage of costs associated with project customization	53.28 (30.81)
Project profitability	Profitability was…	
	Less than equivalent projects / higher than equivalent projects**	4.42 (1.28)
	Less than expected / higher than expected**	4.19 (1.20)

* 7-point Likert scales (1: disagree, 7: agree).

** 7-point semantic differential scales (1: statement before the slash, 7: statement after the slash).

Table 3. Zero-order correlations and discriminant validity

	CR	AVE	1	2	3	4	5	6	7	8
1. Customer involvement	0.927	0.761	**0.873**	0.275	0.195	0.358	0.673	0.462	0.286	0.327
2. Relationship investment	0.924	0.754	0.251	**0.868**	0.131	0.173	0.356	0.299	0.498	0.087
3. Process modularity	0.912	0.723	0.194	0.088	**0.850**	0.402	0.431	0.247	0.094	0.112
4. Expertise	0.903	0.699	0.321	0.150	0.354	**0.836**	0.685	0.292	0.171	0.170
5. Customized solution	0.789	0.560	0.505	0.280	0.322	0.466	**0.749**	0.661	0.579	0.371
6. Project incomes	0.818	0.615	0.342	0.213	0.184	0.210	0.409	**0.784**	0.496	0.840
7. Project costs	0.808	0.584	0.223	0.395	0.063	0.113	0.409	0.247	**0.764**	0.112
8. Project profitability	0.947	0.899	0.293	0.064	0.099	0.147	0.274	0.709	0.042	**0.948**

NOTE. CR: composite reliability. AVE: average variance extracted. The diagonal elements (in bold) are the values of the square root of the AVE. The values below the diagonal are the zero-order correlation coefficients and the elements above the diagonal are the values of HTMT ratio.

Table 4. Standardized parameter estimates

	Direct effects	Indirect effects	Total effects
Project incomes → Project profitability	0.74**	---	0.74**
Project costs → Project profitability	-0.14*	---	-0.14*
Customized solution → Project incomes	0.30** (H1a)	---	0.30**
Customized solution → Project costs	0.33** (H1b)	---	0.33**
Customized solution→ Project profitability	---	0.18**	0.18** (H1c)
Customer involvement → Customized solution	0.35** (H2a)	---	0.35**
Customer involvement → Project incomes	0.17* (H2b)	0.11**	0.28**
Customer involvement → Project costs	-0.02 (H2c)	0.12**	0.10
Customer involvement → Project profitability	---	0.19**	**0.19****
Relationship investment → Customized solution	0.14* (H3a)	---	0.14*
Relationship investment → Project incomes	0.09 (H3b)	0.04+	0.13+
Relationship investment → Project costs	0.31** (H3c)	0.05*	0.35**
Relationship investment → Project profitability	---	0.05	**0.05**
Process modularity → Customized solution	0.14* (H4)	---	0.14*
Process modularity → Project incomes	---	0.04*	0.04*
Process modularity → Project costs	---	0.05*	0.05*
Process modularity → Project profitability	---	0.03+	**0.03**+
Expertise → Customized solution	0.28** (H5)	---	0.28**
Expertise → Project incomes	---	0.08**	0.08**
Expertise → Project costs	---	0.09**	0.09**
Expertise → Project profitability	---	0.05*	**0.05***
R^2 customized solution		0.39	
R^2 project incomes		0.20	
R^2 project costs		0.25	
R^2 project profitability		0.52	

** p<.01, * p<.05 (one-tailed test). Significance levels are based on bootstrapped, bias-corrected confidence intervals.

APPENDIX
Standardized parameter estimates

	Model 1	Model 2	Model 3		Model 4	Model 5	Model 6
Project incomes → Project profitability	0.74**			Project incomes → Project profitability	0.74**		
Project costs → Project profitability	-0.14*			Project costs → Project profitability	-0.14*		
Customized solution → Project incomes	0.31**			Customized solution → Project incomes	0.33**		
Customized solution → Project costs	0.34**			Customized solution → Project costs	0.36**		
Customer involvement → Customized solution	0.37**			Customer involvement → Customized solution	0.35**		
Customer involvement → Project incomes	0.20*			Customer involvement → Project incomes	0.18*		
Customer involvement → Project costs	-0.02			Customer involvement → Project costs	-0.03		
Relationship investment → Customized solution	0.15*			Relationship investment → Customized solution	0.14*		
Relationship investment → Project incomes	0.09			Relationship investment → Project incomes	0.09		
Relationship investment → Project costs	0.31**			Relationship investment → Project costs	0.30**		
Process modularity → Customized solution	0.14*			Process modularity → Customized solution	0.15*		
Expertise → Customized solution	0.31**			Expertise → Customized solution	0.28**		
Number of employees → Customized solution	-0.18			Professional service → Customized solution	0.06		
Number of employees→ Project incomes	0.01			Professional service → Project incomes	-0.14*		
Number of employees → Project costs	-0.09			Professional service → Project costs	-0.03		
No. of employees * Cust. involvement→ Cust. solution		0.24		Professional service * Cust. involvement→ Cust. solution		-0.07	
No. of employees * Cust. investment → Cust. solution		-0.07		Professional service * Cust. investment → Cust. solution		-0.08	
No. of employees * Process modularity → Cust. solution		0.00		Professional service * Process modularity → Cust. solution		-0.06	
No. of employees * Expertise → Cust. solution		0.03		Professional service * Expertise → Cust. solution		0.09	
No. of employees * Project incomes→ Proj. profitability			0.03	Professional service * Project incomes→ Proj. profitability			0.09
No. of employees * Project costs → Proj. profitability			0.00	Professional service * Project costs → Proj. profitability			0.03

** p<.01, * p<.05 (one-tailed test). Significance levels are based on bootstrapped, bias-corrected confidence intervals.
NOTE: the information sector is used as a reference group.

Figure 1. Research model