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## **Design orientation as a source of sustainable company performance**

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**Abstract:** This paper aims to test the relationships between design orientation and its implementation with customer orientation and, consequently, company performance. Research model and hypotheses were tested on the Croatian market. Data were collected using the computer-assisted web interviews on the population of Croatian companies with at least three employees. The hypotheses were tested using the partial least squares-based structural equation modelling (PLS-SEM). The research results highlight the role of design as one of the important predecessors of customer orientation, and its indirect influence on company performance was confirmed.

**Keywords:** design orientation; design implementation; customer orientation; sustainable company performance; firm size.

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## 1 Introduction

Design is considered as an important part of innovative product strategy (Gemser and Leenders, 2001) and marketing in general (Kotler and Keller, 2018). Such activities concerning products and services have been continuously addressed in the scientific literature, while in the field of design, less research can be found. Design is often viewed only from a narrow point of view, predominantly functional, aesthetic and ergonomic (Srinivasan et al., 2006). In addition, many managers are still insufficiently aware of the potential of design, especially of its role in adding value to the customers, and therefore do not attribute a strategic role to design (Veryzer and Borja de Mozota, 2005; Borja de Mozota, 2010). In the evolution of design, its multidimensionality and multidisciplinary increases (Borja de Mozota and Wolff, 2019) and thus the role of design in companies has also been changed. In the past, the design was primarily in the domain of designers and not so much management. Today its role is completely different and above all embedded in all levels of management. Recently, however, also increase in marketing literature and research on the topic of design orientation can be acknowledged (e.g., Moll et al., 2007; Venkatesh et al., 2012; Cantó et al., 2019) and it seems that authors recognise the role of design and believe that design can be a very important and powerful strategic tool in achieving sustainable competitive advantages.

Customer orientation is one of the main components of market orientation and is an important driver of a company's success (Kirca et al., 2005). Besides, some studies suggest that customer orientation can be even more successful when combined with other strategic orientations (Gatignon and Xuereb, 1997; Voss and Giraud Voss, 2000). As such, customer orientation is a key marketing resource for achieving a sustainable competitive advantage for companies.

Research on market orientation and its subconcept customer orientation is still limited mostly to non-European countries. In line with the definition of internal and external market orientations, design orientation is classified as internal and customer orientation as external orientation, but rare studies examining the entire chain of relationships between internal and external market orientations, and business performance (Milfelner, 2009). At the same time, we are finding a similar situation in the field of design orientation. Research in this area are mostly conducted in developed countries. Also, there is evidence of a positive relationship between design investment and improved business performance (e.g., Black and Baker, 1987; Sisodia, 1992; Bruce et al., 1995; Ulrich and Pearson, 1998; Slater and Narver, 2000; Gemser and Leenders, 2001; Borja de Mozota, 2002; Hertenstein et al., 2005; Kootstra, 2009). However, these studies mostly focused on direct relationships without a broader view of company performance. Despite the growing research interest in the design orientation, it should be emphasised that the design orientation is still a relatively poorly studied construct, with the lack of empirical verification at the forefront. Only recently, some design orientation scales for the concept measurement have been proposed (Rocco and Selinšek, 2019; Cantó et al., 2019). Within marketing discipline, a deeper understanding is needed regarding how variations in product and service design affect key customer outcomes as well as the relationships between the customer and organisational objectives (Ostrom et al., 2010).

Current literature provides some discussion regarding the concepts strongly related to the design concept. Design, regarding company level (e.g., product, service, strategic, inter-functional), should be managed if managers use it as a tool for building or developing a sustainable competitive advantage. Cantó et al. (2019) state that some authors distinguish between design orientation and design management and claim that the concept of design orientation is broader and more innovative than the concept of design management, as it includes not only behavioural aspects but also a cultural vision of design thinking. Therefore, such orientation is essential in the strategic approach when design management is integrated with all other functions and corporate culture within the company and used as an essential strategic tool for achieving sustainable competitive advantages (Borja de Mozota, 2010; Moll et al., 2007; Venkatesh et al., 2012). Nevertheless, that design has always been about influencing the customer behavioural reactions, the relationship between design orientation and customer orientation as a philosophy of management and its influence on business performance still calls for further research (Ostrom et al., 2010).

Even though the question of a design value for customer and business performance has been documented in previous studies in the field of design management and marketing management, this is according to our knowledge the first quantitative study that addresses the relationships between design orientation and customer orientation, which is the essential component of market orientation, and their impact on company performance in the context of Croatia. Researching this issue in the Croatian business environment can have value not only for Croatian managers but also for other managers in the region in similar emerging economies. The paper first provides a theoretical foundation; then, we present the development of a research model and hypotheses. This is followed by the methodology and results section. Discussion, implications for theory, and managers and limitations of the study are provided in the conclusions.

## 2 Theoretical foundations of the customer and design orientation

Customer orientation reflects the essence of the marketing concept and refers to the understanding of the target customers in order to create excellent value for them. It has usually been considered as one of a dimension of market orientation (e.g., Narver and Slater, 1990; Kohli and Jaworski, 1990; Silver Coley et al., 2010).

Standard literature defines superior customer value as a customer's comprehensive assessment of a product or service that compares the perception of differences between giving and getting components (Zeithaml, 1988) and it is perceived as the trade-off between all relevant benefits and sacrifices (Ulaga and Chacour, 2001; Woodall, 2003; Pisnik et al., 2016). In general, authors agree that perceived customer value is a multidimensional concept (e.g., Cronin et al., 2000; Gallarza and Saura, 2006). Lately, besides rational benefits, also emotional benefits are emphasised (Sanchez et al., 2006).

Companies create higher levels of customer value by ensuring durable solutions to customers' needs in many forms of emotional and social benefits. These are potentially valuable but not necessarily articulated by the customer (Slater and Narver, 1998). Some authors (e.g., Atuahene-Gima et al., 2005; Narver et al., 2004) argue that this is where a proactive customer orientation comes into consideration in creating the offering that exceeds customer expectations and consequently leads towards higher levels of perceived value, customer satisfaction and sustainable competitive advantages from the viewpoint of customers (Blocker et al., 2011).

In their study Zhou et al. (2009) research the relationship between market orientation, customer value, competitive advantage, and company performance. On the ground of a demand-based perspective (Adner and Zemsky, 2006), their study examines the relationship from the customers' value heterogeneity perspective. They show that customer and competitor orientations impact innovation and market competitive advantage, which is the foundation for achieving market and financial performance. Customers in the exchange process are primarily looking for benefits, which are perceived very subjectively, and therefore their expectations are diverse, highly specific, and heterogeneous (Monroe, 1990). Therefore, over time, customers become more demanding and are interested only in offers with superior added value and reliability. The findings generally support the fundamental belief of the demand-based view that customer heterogeneity significantly influences a firm's strategic choices. Therefore, customer orientation seems to be the most crucial concept in creating a sustainable competitive advantage related to innovation differentiation advantage and market differentiation advantage.

Customer orientation is organisational philosophy oriented towards its customers and usually encompasses the ability of the company to understand customers' needs and to continuously deliver them superior value (Narver and Slater, 1990). It is one of the most important strategic goals of an organisation (Kohli and Jaworski, 1990; Narver and Slater, 1990; Gatignon and Xuereb, 1997; Wang et al., 2016; Zhou et al., 2005). Several gathering information activities about customer needs, developing products and services with expected benefits to appropriate communication with customers are related to customer orientation (Kohli and Jaworski, 1990). Narver and Slater (1990), see customer orientation as a subconcept of market orientation together with competitor competition, and inter-functional coordination. Some authors claim that customer orientation is the most important part of market orientation (Deshpandé et al., 1993).

Similarly, to customer orientation, also, design orientation can have a central role in achieving superior customer value. Usually, product design is the domain of design that can be easily measured by its benefits to the customers – through style, form, functionality, and emotional experience it offers. Nevertheless, it is not as easy to measure other fields of design implementation, service, process, or strategy design, where a long-term measurement scale system is not yet accepted.

Design influences user behaviour in many ways and indirectly shapes society. The result of a designer's work is not a form of a product but the shaping of social and behavioural rules (Keller, 1975). Recently we have seen a significant improvement in the field of design use, philosophy, and research. Design no longer only means shaping and aesthetics but is understood as a strategic element important for business innovation processes, and other societal development processes. Designers nowadays have the ability and knowledge to include users in the process of design development so that it can become a competitive parameter in new products and services development. Design is an essential driver for innovation, resulting in concepts such as strategic design, design management, and design thinking. Design is closely linked to innovation and, therefore, often integrated into innovation strategies. Likewise, the design is increasingly used as a tool to solve societal challenges, e.g., environmental challenges, challenges of aging, urban development, and health. However, there seems to be a general lack of research to measure design results and study its performance.

According to Best (2006), design plays a crucial role in creating new products and services in response to various market challenges and opportunities. However, different fields of design have different responsibilities, e.g., visual communication design influences the quality and relevance of messages in different media and is of great importance in the era of interactive communication. The design process is subtle, so its openness and reliance on creativity posed a great challenge for researchers to describe and define. Simon's (1970) view of design as a systematic search through the space of a solution has significantly influenced contemporary views of the design. Some authors disagree with this (Schön, 1984) and say that such a view of design is too rational and partial and that it does not explain the complexity of design in different situations (Edelson, 2002).

According to Sun (2012), research in the field of design in new product development has gained much attention in recent years, following the success of Apple and other companies which incorporated design in their strategy. Design development is recognised as a multidimensional team process (Brown, 2008). This includes an understanding of the purpose of the design, the needs of the customers, as well as a broader, social, and ethical aspect of the impact of design in the broadest possible global sense.

The strategic management approach with design as a source of competitive advantage has been recognised and researched for the last 20 years, and a huge step in developing different design models, methods, and skills are acknowledged (Borja de Mozota and Wolff, 2019). Design can be understood as a double-loop process within a company, where the experience of inserting design can lead to better design absorption and to higher maturity level (Wolff et al., 2016).

The new implication of design thinking, however, differs from the original, as it is used on the one hand for the innovation process and, on the other hand, to meet the customers' needs in means of higher product quality and value. In this context, creative approaches are important for developing significant added value through innovation in

design, with the help of which products and services can be designed for different circumstances and different purposes of use. Liedtke (2018) sees design thinking as engagement, dialogue, and learning with customers and stakeholders involved in the process of solution development.

The focus of customer and design is similar in a way that they both wish to improve the quality of consumers' everyday life through the added benefits offered in products and services and from that point of view design management integrate much of brand issues (Borja de Mozota, 2003; Montana et al., 2007).

Venkatesh et al. (2012) define design orientation as the integration of different elements related to the product design in different company levels, oriented on the fulfilment of customers' expectations. It should be the main guideline of the management, to use design at all levels of the company, and to integrate it into other business functions. It covers conscious, reflective and creative ways of conceiving, planning and developing products and services in a way that creates greater value for customers and enables them to achieve higher levels of satisfaction, not only on a functional but also emotional and social level (Venkatesh et al., 2012). Similarly, design orientation can be an integrating factor for decisions at different levels of a company with a focus on customer engagement (Bloch et al., 2003; Moll et al., 2007).

Since design can also be related to entrepreneurship orientation, it has a significant decisive role in business performance. In addition to being an important factor in product differentiation in the market, design orientation can also be used as a strategic tool to achieve a company's sustainable competitive advantage (Borja de Mozota, 2003). From this perspective, it is also important that design-oriented companies integrate design into their business strategy (Moll et al., 2007).

If a design-oriented company is focused on the needs of consumers, this allows them to adapt more easily and quickly to market changes. Furthermore, Venkatesh et al. (2012) argue that the design orientation incorporates design at a strategic level, e.g., its inclusion in the vision. Furthermore, it is important to involve design in the benefits that customers can recognise as added value.

### **3 Research model and hypotheses development**

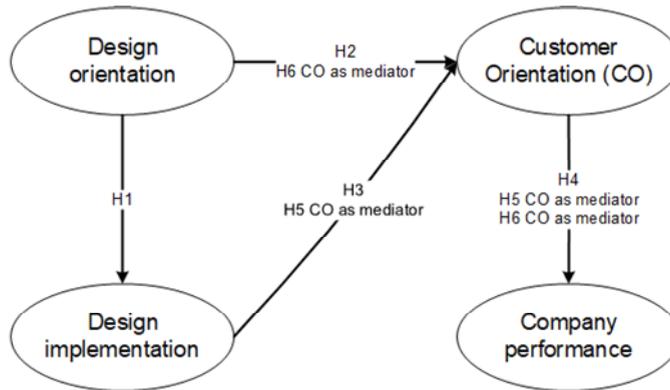
The conceptual framework and hypotheses discussed in this section are presented in Figure 1.

Lately, many companies are looking for market opportunities and business success through design thinking and design management. Many of them are also becoming design-oriented.

However, to successfully establish a design-oriented approach in a company, it must be integrated into the entire company, not only at the structural but also at the organic level (Venkatesh et al., 2012). Although according to our knowledge there is scarce evidence of direct relationships between design orientation and design implementation (Venkatesh et al., 2012), according to the design management literature (e.g., Borja de Mozota and Wolff, 2019) there is a need of management function to strengthen the design with tools for managing the design function. The design implementation should be reinforced with the introduction of clear goals and performance indicators. As such, design orientation should also reinforce information exchange in the field of products and innovation between a company and its customers. Therefore there is a need

to use such information in the design ideas implementation processes in order to bring product design features in line with customer needs. In addition to a design orientation focus that encompasses a strategic approach to customers, design implementation is important, because the emotional value of design is as essential as functional.

**Figure 1** Conceptual framework with proposed relationships and hypotheses



Following the orientation implementation literature (e.g., van Raaij and Stoelhorst, 2007), the different theories and approaches exist on how companies can acquire the necessary practices. This could be through the norm-based approach, strategy, and support, acquiring new capabilities, through the culture change, through the systems-based approach, management behaviour approach, or the cultural transformation approach.

From the marketing point of view, the design should contribute to the achievement of a company's strategic goals. Its role in the company's strategy and in developing brand positions in the market depends on the status and importance of design in the eyes of managers (Moll et al., 2007). Furthermore, Venkatesh et al. (2012) in the case of Swedish companies, find that the focus on design cannot be isolated from other functions in the company, but related to them. Therefore we propose:

H1 Design-orientation positively impacts levels of design implementation.

Understanding customer needs is a necessary condition for successful design (Khalid and Helander, 2004). Only rare qualitative studies have researched the relationship between design orientation and customer orientation (Moll et al., 2007). There research results show that design-oriented companies are strongly customer-focused and continuously research the manifest and latent needs, desires, expectations, and perceptions of their customers. They have proposed a management tool for review of best-in-class design practices that have shown to improve business results under the proposition that design orientation is positively related to market orientation. The main goal of a design-oriented company is to reach customers' hearts more than their minds (Vekantesh et al., 2012). However, companies are not always only customer-driven because they must foresee future trends, and they sometimes invent revolutionary, new-to-the-market products, but despite of that or even because of that the design orientation and implementation force companies to get the appropriate market intelligence through being customer orientated.

Also, Borja de Mozota and Wolff (2019) have acknowledged the importance of design in the reinforcement of customer orientation. This is achieved through the need to

provide the necessary information concerning the customers, such as information about aesthetic, functional, and other design features. Following that, the design should reinforce the market research function and collaboration between customers and the company. Furthermore, through its creative function, the design could change the behaviour and culture inside the company and open more effective communication between the company and customers. Since customer orientation is the business culture or set of beliefs that puts the customer's interest first (Deshpandé et al., 1993), achieving higher levels of design orientation and implementation could potentially also straighten firm customer orientation. According to that, we propose two hypotheses:

H2 Design-orientation positively impacts customer orientation.

H3 Design implementation positively impacts customer orientation.

Many studies have confirmed the relationship between customer orientation and company performance (e.g., Frambach et al., 2016; Pekovic and Rolland, 2016; Feng et al., 2019). Results showed that customer orientation is essential for a better understanding of customers' demands and for achieving sales growth and successful company performance (Ziggers and Henseler, 2016; Pekovic and Rolland, 2016; Feng et al., 2019). Therefore, our next hypothesis is:

H4 Customer orientation positively impacts company performance.

Design-oriented companies develop their products with the design in mind and often use design in the development of new products in order to offer unique benefits to customers. On the other hand, as novelty can be attractive to customers, they can also be perceived as uncertainty or risk from their point of view. Hence to be successful design-oriented company must also be customer-oriented on the market in means of achieving higher market shares and sustainable competitive advantages. According to Moll et al. (2007), companies with design focus respond to customers' suggestions and complaints more formally. Regardless of the industry, the design is one of the determining factors in meeting customer satisfaction and achieving market success. Therefore, more design-oriented companies that are also customer-oriented are also more flexible to market changes and are consequently more successful with their products on the market. Therefore, we propose the last two hypotheses:

H5 Customer orientation mediates the impact of design implementation on company performance.

H6 Customer orientation mediates the impact of design orientation on company performance.

The hypotheses were tested controlling the company's size since it showed to be an important control variable in some of the previous studies, including customer orientation and performance (e.g., Menguc and Auh, 2006). Some of these studies indicate that companies' performance and size are positively related. Accordingly, larger companies could also have better-developed marketing resources, and there is evidence that they could be more customer and market-oriented than smaller (Grewal et al., 2013). In contrast, according to the theory of inertia, larger companies could have more problems to develop and implement customer and market orientation, since growing makes them increasingly vulnerable to various pressures of bureaucratic inertia. Also, other restraints such as limited adaptability, slow responsiveness to the environment factors, problems in

internal communication, and a high degree of formalisation could limit their capacity for being more customer-oriented (Coviello et al., 2000).

## **4 Methodology**

### *4.1 Measurement scales*

The questionnaire consisted of measurement scales for assessing the levels of design orientation, design implementation, customer orientation, and company performance.

The final questionnaire was developed in the pretesting phase using eight experts from the fields of marketing and one from the design management field from Croatia. Expert judges were provided with the initial definitions and commented on the provided items. Most comments were considered to improve the quality of measurement scales. In the second phase of the instrument testing, exploratory factor analysis was deployed, and some items were excluded due to low loadings on all factors or cross-loadings on several factors. The original items from the previous scales have been translated into Croatian and then back-translated into English.

Design orientation was assessed with 13 (4 items were excluded after initial testing) on the scale from 1 – completely unimportant to 5 – very important. The scale was adopted from Borja de Mozota (2002) design management (value) scale and Cantó and Cantó et al. (2019) design orientation scale. Additional items for assessing internal and external communication, working processes, co-creation process, sustainable development, and long-term goals were self-generated according to the expert judges' propositions. Three items for the design implementation construct were adopted from the design value scorecard (DMI, 2015) whose main task was to identify key growth drivers in the development and delivery of design and the transition toward a more practical and experience-driven use of design. Items were measured on the scale from 1 – never to 5 – frequently. Lafferty and Hult (2001) and Narver et al. (2004) adopted scales that were used for the measurement of customer orientation. For that purpose, nine partially adopted items were used and measured on the scale from 1 – completely disagree to 5 – completely agree. For company performance measurement, five items were used. Respondents had to evaluate the overall performance of their business on the scale from 1 – lowest score to 5 – highest score. Additional four performance criteria relative to the competition (performance over the last three years, the sales growth position, satisfaction with sales growth, market share growth rate, satisfaction with return sales) were evaluated on the scale from 1 – extremely unsatisfied to 5 – extremely satisfied. Items are presented in Table 1.

### *4.2 Data collection and sample characteristics*

Data were collected using the computer-assisted web interviews on the population of Croatian companies with at least three employees. 2,184 email addresses of CEOs, general managers or marketing managers were acquired using the most reliable database sources, such as the Croatian Chamber of Commerce and the Croatian Ministry of Entrepreneurship and Crafts (MINPRO). Managers were given the main explanations of the general purpose of the study and provided with a link to the internet web page with the questionnaire. 100 usable responses were received, which represented a 4.6%

response rate. A lower response rate could be attributed to several factors. CEOs were the main informants of this study, and organisational leaders are also the least likely to respond to organisational surveys (Anseel et al., 2010; Baruch and Holtom, 2008). Also, the low responsiveness could be attributed to increasing request of participating in survey studies in a small country of Croatia. The third reason could be a possible non-response bias from companies less interested in design development.

The study sample consisted of 40% of product companies, 33% of service companies and 27 % of combined industry sectors. The final sample characteristics according to the size were as follows: 24% of companies between 3 and 10 employees, 34% between 11 and 50 employees, 15% between 51 and 100 employees, 6% between 11 and 200 employees, and 21% of companies with over 201 employees. According to the analysis of results, 27 % of companies gained some design awards in the last three years, while the rest did not. The general data about the examinees show that there were 42% of female and 58% of male respondents.

### 4.3 Construct reliability and validity

Due to a lower sample size (Hair et al., 2014), the hypotheses were tested using the partial least squares-based structural equation modelling (PLS-SEM) with SmartPLS 3.2 software. In the first phase, dimensionality was tested with exploratory factor analysis for each of the five scales with IBM SPSS 24. Every time the analysis based on the eigenvalues higher than one resulted in a one-factor solution. Kayser-Meyer-Olkin (KMO) coefficient, communalities, and factor loadings were in the proposed intervals. In the second step, the structural model was proposed using the PLS-SEM method according to the conceptual model and hypotheses. Overall all indicator loadings were higher than the recommended threshold of 0.6. Because of the lower loadings, two items were excluded for the design orientation construct, leaving it with the final 12 items. Indicators mean, standard deviations, and loadings are presented in Table 1.

**Table 1** Items its means, standard deviations, loadings, Cronbach's alphas, composite reliabilities (CRs) and average variance extracted (AVE)

	<i>Mean</i>	<i>Std. deviation</i>	<i>Loadings</i>	<i>Cronbach's alphas</i>	<i>CR</i>	<i>AVE</i>
<i>Design orientation</i>						
Design changes the spirit of the firm, which becomes more innovative.	3.97	0.915	0.716	0.932	0.941	0.707
Design improves coordination between marketing research and R&D function.	3.36	1.000	0.810			
Design is a know-how that transforms the processes.	3.55	0.978	0.802			
Design improves coordination between production and marketing.	3.55	1.009	0.679			
Design develops project management of innovation.	3.67	0.995	0.704			

**Table 1** Items its means, standard deviations, loadings, Cronbach's alphas, composite reliabilities (CRs) and average variance extracted (AVE) (continued)

	<i>Mean</i>	<i>Std. deviation</i>	<i>Loadings</i>	<i>Cronbach's alphas</i>	<i>CR</i>	<i>AVE</i>
<i>Design orientation</i>						
Design creates new niche markets.	3.91	0.922	0.779	0.932	0.941	0.707
Design improves the circulation of information.	3.46	1.049	0.773			
Design improves our internal and external communication.	3.79	1.018	0.746			
Design improves our services and working processes.	3.76	1.006	0.798			
Design involves our customers in a co-creation process.	3.38	1.144	0.694			
Design provides sustainable development and benefits to the community.	3.39	0.994	0.773			
Design improves our long-term goals/return-on-investment.	3.65	0.947	0.793			
<i>Design implementation</i>						
We use design for development and delivery of products, services and communications (aesthetic value and functionality).	3.97	1.049	0.784	0.796	0.878	0.573
We use design as a connector or integrator of business functions.	3.56	1.095	0.860			
We use design as strategic resource for new business models.	3.29	1.175	0.875			
<i>Customer orientation</i>						
We measure customer satisfaction systematically.	3.86	1.172	0.812	0.932	0.943	0.650
Our strategy for competitive advantage is based on understanding customer needs.	4.10	1.030	0.896			
We observe how customers use our products.	4.03	0.989	0.856			
We collaborate closely with key users to predict future customer needs before others.	3.96	1.004	0.800			
We collect information necessary for detecting the appearance of new market segments (i.e., customers with new requirements).	3.96	1.024	0.792			

**Table 1** Items its means, standard deviations, loadings, Cronbach's alphas, composite reliabilities (CRs) and average variance extracted (AVE) (continued)

	<i>Mean</i>	<i>Std. deviation</i>	<i>Loadings</i>	<i>Cronbach's alphas</i>	<i>CR</i>	<i>AVE</i>
<i>Customer orientation</i>						
We have full, updated, information on the evolution of the image of our products/ brands by our current and potential customers.	3.59	1.036	0.780	0.932	0.943	0.650
We measure levels of customer loyalty compared to last year and our competition.	3.57	1.121	0.748			
We explore key trends to gain insight into what users will need in future.	4.07	0.987	0.743			
Our objectives and strategies are driven by increasing value for customers.	4.28	0.933	0.817			
<i>Performance</i>						
Firm's performance over the last three years against competing firms.	3.86	0.921	0.769	0.921	0.941	0.762
Sales growth position relative to competition.	3.60	0.910	0.898			
Satisfaction with sales growth rate.	3.41	0.996	0.880			
Market share growth relative to competition.	3.55	0.947	0.921			
Satisfaction with return on sales.	3.47	0.989	0.887			

**Table 2** Cronbach's alphas, CR, AVE and Fornell-Larcker criteria

	<i>DO</i>	<i>DI</i>	<i>CO</i>	<i>CP</i>
Design orientation (DO)	0.841*			
Design implementation (DI)	0.617	0.757*		
Customer orientation (CO)	0.428	0.452	0.806*	
Company performance (CP)	0.314	0.232	0.509	0.873*

Note: \*square root of AVE.

The reliability of the scales was evaluated based on the Cronbach alphas and CR measures. As can be observed in Table 1, all Cronbach's alphas and CRs were higher than the recommended value of 0.6. Also, all indicator loadings were higher than 0.6 and AVE higher than 0.5. This indicated adequate convergent validity. For discriminant validity, two tests were deployed. First, Fornell and Larcker (1981) test (Table 2) showed that the square roots of AVE for all latent variables are higher than all correlations

between latent variables. Additionally, Table 3 shows that heterotrait-monotrait (HTMT) ratios of correlations were below the cut off criteria of 0.85. According to that, we can conclude that the criteria needed for discriminant validity were achieved (Henseler et al., 2015).

**Table 3** HTMT ratio of correlations

	<i>Design orientation</i>	<i>Design implementation</i>	<i>Customer orientation</i>
Design implementation	0.658		
Customer orientation	0.461	0.502	
Company performance	0.264	0.367	0.538

## 5 Results

The structural model was tested with the structural equation modelling (SEM), using the partial least squares estimation (PLS-SEM). The results are provided in Table 4. The overall model fit was assessed with the standardised root mean square residual (SRMR) index, which is the root mean square discrepancy between the observed correlations and the model-implied correlations. Overall fit index SRMR was 0.077, which is in the suggested interval, lower than 0.08 (Henseler et al., 2014). Coefficients of determination of endogenous variables were as follows: for design implementation  $R_{DI}^2 = 0.381$ ; for customer orientation  $R_{CO}^2 = 0.205$ ; and for company performance  $R_{CP}^2 = 0.259$ . Variance inflation factors (VIF) except for one item were all below the recommended value of 5.

As can be observed from Table 4, design orientation has a significant strong positive impact on design implementation ( $\gamma_1 = 0.617$ ;  $p < 0.001$ ), meaning H1 could be confirmed. The direct relationship between design orientation and customer orientation was not significant. Therefore we rejected hypothesis H2. However, there was an indirect positive, statistically significant impact of design orientation on customer orientation through design implementation (indirect impact: 0.279;  $p < 0.001$ ). As expected, the impact of design implementation on customer orientation ( $\beta_1 = 0.452$ ;  $p < 0.001$ ) and the impact of customer orientation on company performance ( $\beta_2 = 0.509$ ;  $p < 0.001$ ) was positive and statistically significant. Hence, we confirmed hypotheses H3 and H4. H5 predicted the indirect impact of design implementation on company performance, where customer orientation was expected to be a mediating variable. The mediation was assessed following the recommendations of Baron and Kenny (1986) and MacKinnon et al. (2002). Results show that customer orientation mediates all impact of design implementation (indirect impact: 0.142;  $p < 0.01$ ). As can be seen from Table 4 all hypotheses with the exception of H5 were supported with more than 99.9% probability. H5 was supported with a lower, but still acceptable level of 99% probability. The relationship was statistically significant, and H5 was confirmed. Also, H6 was confirmed since customer orientation also partially mediates the impact of design orientation on company performance (indirect impact: 0.230;  $p < 0.001$ ).

**Table 4** Hypotheses, path coefficients and R<sup>2</sup> values

Hypotheses	All companies		Medium and large companies		Small companies		Difference between groups significance
	Path coefficient	Significance	Path coefficient	Significance	Path coefficient	Significance	
H1 DO → DI	0.617	p < 0.001	0.721	p < 0.001	0.554	p < 0.001	n.s.
H2 DO → CO	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Indirect: DO → DI → CO	0.279	p < 0.001	0.357	p < 0.001	0.251	p < 0.05	n.s.
H3 DI → CO	0.452	p < 0.001	0.494	p < 0.001	0.454	p < 0.001	n.s.
H4 CO → CP	0.509	p < 0.001	0.800	p < 0.001	0.335	p < 0.01	p < 0.001
H5 Indirect: DI → CO → CP	0.230	p < 0.001	0.396	p < 0.001	0.125	p < 0.05	p < 0.05
H6 Indirect: DO → CO → CP	0.142	p < 0.01	0.285	p < 0.001	n.s.	n.s.	p < 0.05
SRMR = 0.077							

Notes: DO – design orientation; DI – design implementation; CO – costumer orientation; CP – company performance.

In the last step, we assessed the differences in relationships between companies according to their size. Due to the smaller sample size, the companies were divided into two groups of medium and large companies (42) and small companies (58). A multi-group analysis procedure (MGA) was used further to calculate path coefficients for both groups in SEM-PLS. The results are presented in Table 4. Concerning the direct impacts, only the difference in the path from customer orientation to company performance was statistically significant at  $p < 0.001$ . This impact is much stronger for medium and large companies, where we can support the hypothesis at  $p < 0.001$  (99.9% probability). For small companies, the hypothesis can only be supported at a lower probability level (95%). Concerning the mediating impacts, there also exists a difference between medium/large and small companies. The mediating impact is, in both cases stronger and significant for medium and large companies. The differences in impacts show that not only customer orientation but also design orientation and implementation could be more important performance tools in large and medium-sized companies.

## **6 Conclusions**

### *6.1 Theoretical implications*

This research emphasises the role of design as one of the fundamental elements of customer orientation, especially in terms of adding value at the level of emotional benefits. At the same time, the research confirms the indirect impact of design orientation on the company's success in the market. The results show that the concept of design orientation is positively related to the concept of customer orientation, but this influence is mostly indirect, through design implementation. In this way, our study expands the existing knowledge about direct and indirect influences between the researched concepts, especially in the field of design implementation, and suggests that not only the design orientation but also the design implementation itself is important for market success.

Our results support most research findings reported in previous studies (i.e., Borja de Mozota, 2002; Moll et al., 2007; Kootstra, 2009; Venkatesh et al., 2012), where authors confirmed that design is an important antecedent of market success. However, the novelty of our research is that the design variable is introduced as having a positive influence on customer orientation and market performance, while previous studies have mostly linked the design orientation of firms directly to financial success.

Empirical results confirm the positive impact of design orientation on design implementation. It emphasises the importance of being design-oriented at a strategic level, e.g., to incorporate design thinking into the company's vision while at the same time expanding the idea of design orientation from the top down. It indicates that excellent design in terms of creativity by itself does not guarantee success on the market, especially if it is not well implemented. Furthermore, the results show that the design implementation will not achieve the desired effect if the company does not take care of the design culture. It influences the customer orientation only indirectly, through design implementation, which further reinforces the finding that the design implementation should be customer-tailored, according to their expectations. Additionally, we argue that all dimensions of design, design orientation and its implementation should be developed based on customer-related information. If the design is well integrated into all levels and

departments, the stronger the customer orientation will be, and this could lead to success in the market.

It should, however, be highlighted that design orientation does not influence the company's performance directly and positively, be it financial or related to market share. Rather than that, its impact is indirect through customer orientation.

The results of this study further emphasise the importance of customer orientation in achieving company performance, as has been the case in some previous literature (e.g., Zhou and Nakata, 2007; Ziggers and Henseler, 2016). Furthermore, it shows that in order to achieve a higher performance level with design orientation and implementation, companies must be customer-oriented as well. This finding seems to be especially important for larger Croatian companies. In the majority of customer orientation literature so far (Blocker et al., 2011; Frambach et al., 2016; Feng et al., 2019), it has been considered primarily as a predecessor of other concepts (such as innovation, reputation, and others). This study proves that it could also act as a mediator and further emphasises the possible important role of customer orientation as a critical source of competitive advantage of the organisation.

Concerning design orientation and implementation, customer orientations seem to be more critical for business success as a design orientation mediator. As discussed in the literature review section, it is sometimes more challenging to achieve a unified culture of market orientation in larger companies. Our results indicate that the companies being successful at this task can also be more commercially and financially successful and make more use of design potential in conjunction with other long-standing, sustainable resources they may possess, such as reputation, early entry advantage, economies of scale, and others.

## *6.2 Managerial implications*

Managers have long emphasised the importance of design for sustainable company performance, but this study is one of the first to show that design orientation can also be considered for strengthening customer orientation.

Since Croatian companies tend to maximise short-run profitability while at the same time neglecting long-term goals, according to the findings of this study, companies with a higher level of design orientation have more potential to achieve higher market and financial performance scores. That is not only important for larger Croatian companies where the impact on performance is stronger, but also for SMEs that make up most of its economy. According to that, in order to achieve competitive advantages, managers and CEOs should focus on design orientation integration into different levels of the company structures. That emphasises the importance of education and knowledge about the design and the use of creativity.

## *6.3 Limitations and further research*

First, our research was focused on the managers' point of view what could potentially be the source for common method bias. In further research, other aspects, especially the value of design from the customer perspective, could be included in the research. Second, online research had a high drop-out, which was one of the severe problems which caused a relatively small final sample ( $N = 100$ ). Ideally, studies should rely on a multiple key informant approach for the data collection; therefore, in the future, researchers should

collect more objective data from the environment, such as market or technological turbulence, which would allow for more accurate generalisation of the results. Third, the sample of only Croatian companies with more than three employees can be exposed as a limitation. The suggestion for future research is to broaden the work to other countries in the region, to be able to compare the results and assess similarities and differences. Further, it would be useful to show the differences between companies in the sample with (27%) and without design awards to measure the strength of the strategic view of design leadership.

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