

Design and its Impact on The Financial Results of Enterprises (Based on Managers' Opinions)

▪ *Kramoliš Jan, Staňková Pavla*

Abstract

Design and its contribution to business competitiveness plays an essential role in economic prosperity. This paper offers a comparative analysis of the impact of design on the financial performance of intentionally selected companies. The two-part study was carried out in 2014 and 2016. The survey was aimed at managers of various enterprises. The main goal was to investigate the evolution of the opinions of managers regarding a design and its influence on the financial performance (generally, increases in revenue, sales or brand value) of the company. Furthermore, the study aimed to determine whether enterprises earmark part of the budget for design, and whether the issue of return on investment in design is addressed. The statistical analysis was performed with the Pearson's chi-squared test analysis tool. Elementary statistical software was also used for a numerical evaluation of the findings. The results demonstrate the increasing importance of design and prove that investments in design have a positive effect on financial indicators and also on enterprise competitiveness in the Czech Republic.

Keywords: design, payback period, competitiveness, investment in design, marketing, design and competitiveness, design management

JEL: M21, O31, M31

1. INTRODUCTION

The link between design management and financial results is interdisciplinary. Design not only leads to enhanced products and processes but influences the financial performance of enterprises. Design as a smooth production process can significantly reduce costs, but it can also lead to innovative and improved products that can increase sales. Measuring the financial impact of design is a complex and long-lasting discipline. Sometimes it is difficult to get the exact data that proves a direct correlation between design and increased sales. Design is still generally considered an uncertain activity with uncertain results (Bessant, 2002; Trueman and Jobber, 1998). Braga (2016) stated vital questions: What is the value of design? Why should firms invest in design? In this paper, the authors aim to clarify the value of design, its dimensions and its variables (qualitative and quantitative). The paper is based on the premise that firms investing in design increase their competitiveness (Kramoliš, 2015, 2016).

2. THEORETICAL BACKGROUND

The term “*design*” can be found in various studies (Nigel, 2008; Otto and Wood, 2001; Bloch, 1995), and is mostly described by type: product design; architectural design; urban design; com-

munication design; industrial design; interior design; fashion design, etc. Generally, according to Thompson (2011), design is a human activity that combines resources (knowledge, skills, experiences, creativity, tools, materials, etc.) to meet a need, accomplish a goal, or create an artefact.

Design management may be interpreted by Design Management Institute in Boston (2014, p. 1) as the:

“Ongoing processes, business decisions, and strategies that enable innovation and create effectively-designed products, services, communications, environments, and brands that enhance our quality of life and provide organizational success.”

According to Hollins, (2002) design management represents the organisation of the processes for developing new products and services.

The Design Council, an enterprise charity in the United Kingdom that improves people’s lives through the use of design, reports the benefits of design for businesses. Its report (The Design Economy 2015) documents the value of design for the UK economy:

- The design economy generated value added (GVA), equivalent to 7.2% of total GVA.
- Furthermore, between 2009 -2013, the design economy GVA grew at a faster rate than the UK average.
- Workers with a design element to their work were 41% more productive than the average. Each delivers a great output (GVA per worker) compared across the rest of the economy.
- The result also shows that for those who invest in and use design strategically (though not necessarily have a large proportion of designers in their workforce), the average output per employee is greater. (Design Council, 2015)

According to Kathryn Best (2006, p. 12), in the area of design management:

“A wide variety of perspectives exist that reflect the rich array of individuals, professions and contexts involved.”

Design management illustrates three main phases (fig. 1).



Fig. 1 – Three main phases of design management (Best, 2006)

Bruce and Bessant (2002) also state the major benefits of design management:

- **Increase profit** by increasing sales or by decreasing manufacturing costs.
- Increase market share.
- **Gain a competitive advantage.**
- Revamp mature and failing products.
- Provide a strategy for growth.
- Design is a way of launching a new product or service.

Gemser and Leenders (2001) argued that it is very likely that the **impact of design on company performance** will vary depending on the skills and talents of the people involved in the design process. There is another note concerning design and prosperity by Karpissova (2009). She stated selected internal competitiveness aspects (linked to business prosperity). One of many factors influencing prosperity named “brand, visual design and innovation politics”.

The design and an economic value context were published by the authors Kristensen and Gabrielsen (2011). In this study, there were three hypotheses:

1. The quality of product design is positively associated with financial performance.
2. The logo is positively associated with financial performance.
3. The web design is positively associated with financial performance.

According to this research some correlations were significant for the product and logo design which means that the first two hypotheses were supported by important qualification that the correlations for the second hypothesis was negative, but the last hypothesis was rejected.

An almost similar research was done by Chiva and Alerge (2009). Their conclusion is that design management may play an important mediating role between design investment and company performance. The authors set similar hypotheses (The relationship between design investment and business performance is mediated by design management; Design investment is positively related to design management; There is a positive relationship between design management and business performance). All hypotheses were confirmed.

Most studies (Braga, 2016) focus on the relationship between commercial success, competitive advantage, economic performance, and design to demonstrate benefits that design can generate for companies. However, the reasons to invest in design are not reduced to commercial success in firms. Other limitations are that design economic performance is more evident throughout time (Rae 2013, 2014) and that disruptive ideas are not always immediately successful in the market.

Qualitative and quantitative dimensions and variables of the value of design according to the perspective of different stakeholders (users, companies and society) and domains reported (economics, marketing, business, management, design) were also defined by Braga (2016). The details are visualised in Fig. 2. One of the mentioned impacts is just an **ROI indicator**.

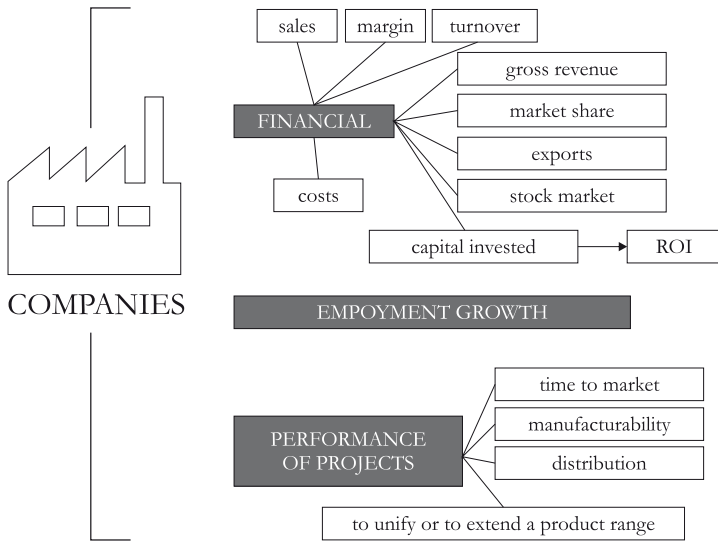


Fig. 2 – The selected dimensions and variables of the value which can be related to design according to the reported studies (Braga, 2016)

A Design value model was defined by Celaschi et al. (2011) including three ways in which it may be possible to create value. The design value model proposed explains various actions that may be triggered through different approaches to design. Understanding the outcomes of these approaches can help companies learn to choose and facilitate particular processes to achieve specific outcomes, enable end users to contribute value themselves, and activate concealed values. Demonstrating the **economic value of complex design activities** and communication it properly to top management and stakeholders remains an area that needs further research. Designers must also design their own system of **measurability** and show results in every step of the projects.

The Design Management Institute in Boston (2014) defines this issue like the art and science of empowering design to enhance collaboration and synergy between “*design*” and “*business*” to improve design effectiveness. The scope of design management ranges from the tactical management of corporate design functions and design agencies, including design operations, staff, methods and processes - to the strategic advocacy of design across the organization as a key differentiator and driver of organizational success. It includes the use of design thinking -or using design processes to solve general business problems.

An important concept is also thinking about the design named “*design thinking*”. According to Brown and Wyatt (2015), design thinking involves creating choices and then making choices. Design thinking depends upon observing how people actually use products. They use design thinking in all disciplines and markets.

According to Dunne and Martin (2006) design thinking combines a generation of new ideas with their analysis and an evaluation of how they apply generally. A designer uses an way to gen-

erate an idea or a number of ideas, deduction to follow these ideas to their logical consequences and predict their outcomes, testing of the ideas in practice, and induction to generalize from the results. Brown and Wyatt (2015) claim, it exists design thinking, which is inherently optimistic, constructive, and experiential; it addresses the needs of the people who will consume a product or service and the infrastructure that enables it. Businesses are embracing design thinking because it helps them be more innovative, better differentiate their brands, and bring their products and services to market faster.

According to Ogilvie and Liedtka (2011), is design thinking an ability to turn abstract ideas into practical applications **for maximal business growth**. Mozota (2006) deals with a payback period regarding the design. The author defines the terms: Controlling design ROI & business performance and brand value. The design leadership/Improve ROI/Improve results versus capital invested in design projects. Also another authors (Almqvist and Wyner, 2001) published the paper about Boosting marketing ROI in a company with design. In his publication (Lenskold, 2002) also attempts to approach design as an important part of marketing.

Cross (2008) defines an strategy from the concept to detail. The author also outlines the nature of design thinking, and sets it within broader contexts of product development and design process management. This is also a philosophy of using the individual stones development of a new product design in order to reach business success. Lidwell et al. (2010) states that design touches on much more than just plain perceived by the human eye. A human motivation is unpredictable and tied to subconscious instincts, perceptions and influences.

“Design thinking as a mechanism for brand ambidexterity” was explained by Beverland et al. (2015). The author highlights two key implications for brand managers centred on recognizing the need for design thinking and organizing in such a way as to encourage the achievement of brand ambidexterity. Although it may be tempting to suggest that brand managers become more like designers or adopt a design thinking approach, he warns against such a view. Moreover, many of the organizations studied had systems and structures ensuring that designers and brand managers interacted regularly and had strong working relationships.

On the other hand, management of small and medium-sized enterprises is directly responsible for their very existence, evolution, development, and termination. The authors, Bilíková and Taraba (2014), deal not only with design management, but an issue of the need for evidence-based holistic competent management in small and medium-sized enterprises. Decisions about investment are also connected with financial risk and risk management. According to Virglerová et al. (2016), is there an intensive financial risk in the business environment of the Czech Republic (eg. poor access to external financial resources, poor payment discipline), which can consequently result in very serious financial difficulties for businesses.

2. PROBLEM FORMULATION

The main purpose of this paper was to investigate how the opinion of manages regarding design and financial performance is changing. The changes of findings in companies were investigated in the period of 2014 - 2016. The first part was to investigate if the enterprises have parts of budget allocated to design. A simple question was asked only to determine whether their corpo-



rate budget include the part assigned to design. The second issue is the question of expectation regarding return on investment in design - “ pBp ” according to Hajdasinski (1993). Concerning this issue, we can also build on the Braga (2016) theory. Understandably, the results may be an estimate based on managers’ experience. And the last objective of this paper is to determine whether the design itself helps companies achieve their own corporate economic goals (based on common financial performance indicators). This issue should discover if the design causes an increase in sales of products and reflects thus generated revenues. Or, if it has any other relationship with the growth of income or the value of the brand or company.

2.1 Research questions and hypotheses

Primary Research Questions (RQ) linked to the formulated topics were defined. Associated with these research questions the hypotheses comparing research results from the years 2016 and 2014 were set. These associated hypotheses were statistically analyzed.

- RQ₁: Have companies set aside a specific portion of the budget for design?
Assigned hypothesis H₁: In 2016, more companies assigned a specific portion of the budget earmarked for design compared to the previous research.
- RQ₂: When do companies expect return on investment in design (payback period)?
Assigned hypothesis H₂: In 2016, more companies believe in payback period within one year compared to the previous research.
- RQ₃: Does the design itself help to achieve the corporate economic goals (improve financial results)?
Assigned hypothesis H₃: In 2016, more companies are experiencing that just design itself helps achieve their economic goals.

3. RESEARCH METHODS

The research file contains two main parts marked by a timestamp. The first part contains the research outputs of the year 2014. The first part was collected by the year 2014. In total 168 entries collected from 305 addressed respondents took part in the research. And the second part was done in the year 2016. This part includes 121 entries. (original research included questions, which were slightly updated for a new research; and addressed the same respondents). The respondents (companies) were selected in cooperation with the experts on design in the Czech Republic. The researches of the years 2014 and 2016 were done from January to March in the Czech Republic. Each research used a method of smart internet questionnaires (Google Spreadsheet). It was designed by the authors of the paper based on the experience from their previous research. The questionnaire form contains 16 questions. The responses were divided into several categories with common features. The results obtained were subjects to a statistical study.

For the data analysis, the method Pearson’s chi-squared χ^2 test of independence was used. The research hypotheses were tested on the level of significance of $\alpha = 0.05$. Excel XLStatistics5 software tool was used for statistical evaluation of the research questions.

The common features of both files were searched using XLstatistics software. Bar charts were

created for each research question. The figures were modeled in the Statgraphics or XLStatistics software. These tests were performed at significance level of $\alpha = 0.05$. In each dataset, the following were measured: p-value, Standard Error of the Difference Between the Means of Two Samples (SE Diff), Margin of Error (ME) and Z value. These indicators provide a quantitative view of the data obtained from individual surveys from the years 2014 and 2016.

Finally, the descriptive comparisons were used. These aimed at describing and perhaps also explaining the invariance of the objects.

3.1 Research File Characteristics

This section shows the composition of companies in the examined periods. The research also portrays the structure of enterprises size included in the research file. That question was determined by the number of employees of enterprises. The distribution was compiled as follows: Micro (1 - 10 employees); Small (11 - 50 employees); Medium (51 - 200 employees); Large (more than 201 employees).

Composition of the research file characteristics according to the size of a company displays the following Tree maps figures (Fig. 3), where the left is 2014, the right is the year 2016. Both figures were processed using Google API TreeMap visualization online tool.

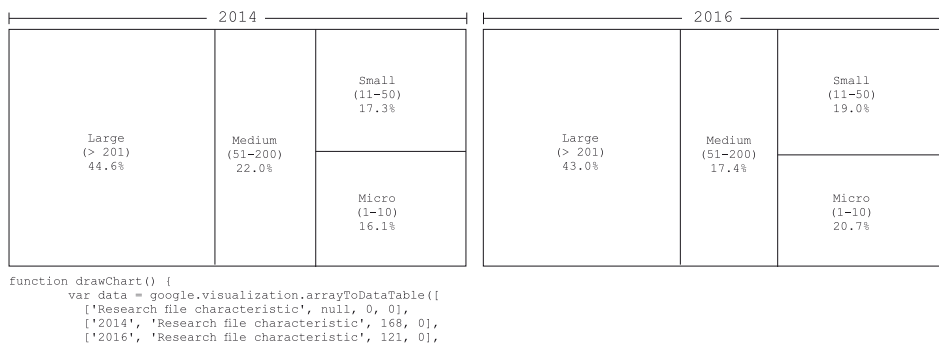


Fig. 3 – Research file characteristics - Three map chart (source: own)

The representation of enterprises surveyed in both years was very balanced. Therefore, it is suitable to compare the results of both periods. The questionnaires were addressed to the same companies file.

It should be taken into account that the research in 2016 is of a smaller file than the research file in 2014.

4. PROBLEM SOLUTIONS

4.1 RQ₁: Have companies set aside a specific portion of the budget for design?

This issue aimed to find out whether enterprises set aside a specific portion of the budget for design (in general).

Due to the simplicity of the question, it was possible to state the size of the company in the individual segments. These results are shown in the table (Tab. 1) where the columns indicate measured values and a company size. Data is presented in absolute (n) values. The table also contains checksum of individual values. The last row shows aggregated data (relative frequency), which draws the relative proportions of the measured values in both periods studied.

Tab. 1 – A budget assigned to design 2014 - 2016 (source: own)

Company size	2014			>	2016		
	yes	no	Don't know		yes	no	Don't know
1 - 10	2	23	2		25	17	1
11 - 50	4	24	1		4	16	3
51 - 200	11	25	1		6	12	3
201 +	21	36	18		18	26	8
Total (n)	38	108	22		35	71	15
Relative (%)	22.6	64.2	13.1		28.9	58.6	12.4

$n_{2014} = 168; n_{2016} = 121$

The results show that at both investigated periods, there is a relatively balanced output. The largest share is the answer “no”. A minor part of the answers is “yes” and a slightly weaker share has answer, “no”. The answer “I do not know” can be connected with the answer “no”. This logic is valid provided that if the manager of the company does not know whether the company has a budget for design, probably it does not have.

Simply stated, both examined periods are very similar. If we adjust the results in this manner, the result will be the ratio of these values as follows: 2014 = 38 (yes): 130 (no); 2016 = 35 (yes): 86 (no). The calculated value of the relative ratio would therefore, be the year 2014 based on 0.29. While in 2016, it shows the value polarity to 0.41 where in the calculation of the number 1 would mean that 100% of companies have a set budget for design and a value of 0 would mean that 0% companies have a budget assigned to design.

The assigned hypothesis H_1 testing: In 2016, more companies have a specific portion on the budget earmarked for design compared to the previous research.

The result of testing χ^2 shows $p\text{-value} = 0.223, p > \alpha$. (SE Diff. = 0.052, ME = 0.103, Z value = -1.217) and statistically disproves of the hypothesis H_1 .

In the research results from 2016, subtle shift can be found when more enterprises have a proportion of budget assigned to design than in 2014. The findings, however, indicate that more companies used a sophisticated approach to design. Certain amount of budget was to design. Many companies in the past would not have been able to estimate how much it would cost to develop a new design, or also simply considered this item to be a residual part.

Another possible interpretation is, that the economic crisis from 2009 onwards made, the companies cut costs. This means that design is one of the items that had to be removed from the budget (probably at the time of the last economic crisis).

4.2 RQ₂: When do companies expect return on investment in design?

This issue contained only four possible options in the research form. In this way it was possible to obtain more accurate data and avoid the estimates if it were a common text open form. Managers had a choice in standard intervals. Firstly, it was a short-term period - this is defined as “within one year”. Secondly, a moderately short-term consists of the value between one to two years. A medium-term denotes the value of three to five years. The last option (long-term) represents a return longer than five years. The table below (Tab. 2) contains the studied periods and results in columns. Each option was assigned a variable pBp_d , which is based on abbreviation “payback period in design”, enriched by the component “a design”. The results are presented in absolute proportions (n) as well converted into relative proportions (%). The last row shows the median, which represents the most frequently occurred finding.

Tab. 2 – Combined table of pBp_d indicator (source: own)

pBp_d in Years	Year 2014 (n)	%	Year 2016 (n)	%
< 1	29	17.3	33	27.3
1 - 2	68	40.5	41	33.9
3 - 5	48	28.6	34	28.1
> 5	23	13.7	13	10.7
The median of pBp_d	3 - 5 years		1 - 2 years	

The box plot below then generated from a statistical software shows the relative proportions of the measured values in both periods studied. Namely Fig.4 graphically displays the layout of calculated relative values results.

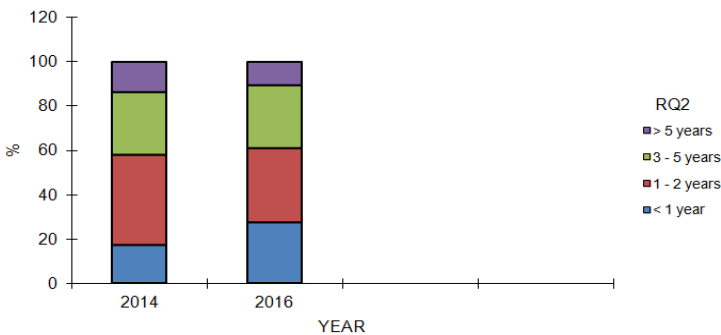


Fig. 4 – Bar chart of relative shares (RQ₂) (source: own)

The assigned hypothesis H_2 testing: In 2016, more companies believe in payback period within one year compared to the previous research.

The result of testing χ^2 shows $p\text{-value} = 0.041$, $p < \alpha$. (SE Diff. = 0.050, ME = 0.098, Z value = -2.045) and indicates a statistically significant finding that confirms the hypothesis H_2 .

There is a minor shift of supposed pBp_d regarding the investigated issue RQ₂. Compared to previous results, more managers optimistically believe that an investment in design will return within one year.

At the same time, the pBp_d has very a similar result in a long-term period. In this matter, less managers believe that the invested funds will return in long period (more than five years).

The results also draw more optimistic estimates in shorter intervals.

If we look closer at the results from the research, the most frequently occurred (the median) was during two years shifted from an interval of 3-5 years to shorter values, namely 1-2 years.

This shift can be interpreted by lowering interest rates (assuming that firms are likely to invest the borrowed money) and simultaneously, due to the advanced technologies that are able to significantly shorten the design process of a new product being launched in the market.

4.3 RQ₃: Does the design help to achieve corporate economic goals?

Due to simplicity of the issue, it was possible to specify the company size in individual segments. These results are presented in the table (Tab. 3) where the columns represent the measured values and the company size. The data are presented in absolute (n) frequencies. The table also contains a checksum of individual values. The last row shows the aggregated data (relative frequency), which draws the relative proportions of the measured values in both periods studied.

As a corporate economic goal is to be generally considered: increase in revenue, increase in sales, and increase in brand value or any increase in investment performance through the above-listed issues.

In the calculations, a adjustments were made according to the following logic. It is assumed that if the manager fills in the empty answer in the research form, he or she has probably insufficient knowledge of this issue. Therefore, this item has been totalized with “don’t know” option. Specifically, this data adjustment was applied in 2014 only.

Tab. 3 – Does the design help to achieve corporate economic goals? (source: own)

	2014			>	2016		
	no	yes	Don't know		no	yes	Don't know
Company size							
1-10	1	7	2		3	13	9
11-50	0	7	1		1	13	9
51-200	2	14	6		1	13	7
201+	3	23	10		4	23	25
Total (n)	6	51	19 + 92		9	62	50
Relative (%)	3.6	30.4	66.1		7.4	51.2	41.3

$n_{2014} = 168; n_{2016} = 121$

The assigned hypothesis H_3 testing: In 2016, more companies experienced that just design helps to achieve their economic goals. The result of testing χ^2 shows $p\text{-value} = 0.000, p < 0.001$. (SE Diff. = 0.058, ME = 0.114, Z value = -3.589) and indicates a statistically significant finding that confirms the hypothesis H_3 .

The results quite clearly show that companies feel noticeably the impact of design. It supports the fact that already the research in 2014 showed that almost a third of businesses feel a positive impact of design on financial statements. On the other hand, many of these could not identify that if was the design itself, that helped to increase business performance. The fact that the design did not influence the financial goals of the company positively, was confirmed by less than four percent in 2014.

In the research from 2016, the situation become quite different. Indeed, the results indicate, that the design has a far greater impact on the economic performance of firms compared to the previous period. More precisely, nearly half of the companies know that design directly promotes positive corporate economic goals. Indeed, this issue was dropped to only one-third. However, it is surprising that about 7% of companies reported that design is not the factor that causes the achievement of economic objectives of companies.

The interpretation of these results may be different. Either firms still did not measure the effects of design and therefore they did not have an idea about benefits of design. This explanation would indicate that companies are progressing, becoming more sophisticated and also measuring each component, which contributes to the business prosperity. Another possible explanation could be that the investment in design have not return yet, and managers are likely to be skeptical when the investment will return in the future. It can be caused by a tougher competitive market struggle, or output orientation at B2G contracts where design is usually not in public procurement criterion.

This finding contributes to the fact that governance investments in 2014 were due to a recession heading off very high. Currently, there has been a reduction in these investments (which can cause a negative effect of crowding out private investment) in the economy.

4.4 Comparative analysis

This section compares the values observed in both surveys. In each dataset, the percentage change and variation were measured. These indicators provide a quantitative comparative view of the data obtained from individual surveys from the years 2014 and 2016.

Tab. 4 – A brief quantitative comparative study (source: own)

		percentage change*	Variation**	
RQ ₁	Yes	+27.90%	+	6.31
	No	-8.71%	-	5.61
	I don't know	-5.34%	-	0.7



RQ ₂	< 1 year	+57.80%	+	10.01
	1 - 2 years	-16,27%	-	6.6
	3 -5 years	-1,64%	-	0.47
	> 5 years	-21,53%	-	2.95
RQ ₃	Yes	+68.75%	+	20.88
	No	+208.40%	+	3.88
	I don't know	-37.37%	-	24.75

* The Percentage Change quantized the change from one relative frequency (2014) to another (2016) and expresses the change as an increase or decrease.

$$[(V2 - V1) / |V1|] * 100]$$

where: V1 is a relative frequency of research 2014; V2 is a relative frequency of research 2016

** simple change of two values

$$[V2 - V1]$$

where: V1 is a relative frequency of research 2014; V2 is a relative frequency of research 2016

The table (Tab. 4) provides a simpler view of the change in the attitude of managers and approaches to issues. RQ₁ and RQ₂ possess moderate change values within ten percent. Therefore, an evaluation of the two previous issues (RQ₁ and RQ₂) between 2014 and 2016 reveals only minor changes. The most dramatic changes can be observed in RQ₃, where the values are from 20% to almost 25%. Consequently, the RQ₃ issue involves a significant change.

5. DISCUSSION AND CONCLUSION

The main purpose of this paper was to investigate how the opinions of managers regarding design and financial results is changing. Minor changes were investigated in the period 2014 - 2016. For the first objective, to determine whether the enterprises have budgeted for design, a simple question was asked. The second objective concerned expectations regarding return on investment in design - payback period (pBpd). This objective was built on the Braga (2016) and Hajdasinski (1993) theory. Understandably, the results may be an estimate based on managers' experiences. The last objective of this paper was to determine whether the design itself helps companies achieve their own corporate economic goals (based on common financial results indicators). This should determine not only which investment in design causes an increase in sales of products and thus generates revenues, but also if there is any other relationship regarding the growth of income or increased brand value.

The result of the issue, whether a company earmarks **a portion of its budget for design**, is as follows: in both investigated periods, there is a relatively balanced output, meaning both examined periods are highly similar. That said, in 2016, enterprises allocated a slightly higher proportion of the budget to design than in 2014. The researched findings, however, also indicate that more companies are likely to use a sophisticated approach to design. Their budget has allocated a certain amount to design. Many enterprises in the past were not able to estimate how much it would cost to develop a new design, or simply considered this item to be the residual part. Another possible interpretation, from a macroeconomic view, is that the global economic crisis starting in 2009 caused companies to cut costs, and design was one of the items removed from the budget.

Our results regarding **return on investment in design - payback period** (pBp_d) could be explained as follows: There is a minor shift in the pBp indicator. Compared to previous results, more managers are optimistic that an investment in design will provide a return within one year. The results also point to more optimistic estimates in shorter intervals. If we look closer at the results from the research, the median shifted between 2014 and 2016 from an interval of 3-5 years to 1-2 years. This shift can be explained by lowering interest rates (assuming that firms are likely to invest the borrowed money) and simultaneously by the development of advanced technologies that are able to significantly shorten the design process of a new product.

The results quite clearly reflect how managers feel about the impact of design. This impact can be seen in the business economic results. Previous research already has shown that almost one-third of managers feel that design positive impacts their financial statements. On the other hand, many of these research results could not specifically identify the design itself as the reason for the financial gain. However, the research from 2016 demonstrates that the situation has changed. Indeed, the results indicate that design itself has **a far greater impact on the economic results of firms** compared to the previous period. As such, companies in the Czech Republic increase their competitiveness by investing in design. The economic results include increases in revenue, sales, and/or brand value. More precisely, nearly half of the participating companies realize that design directly supports the accomplishment of corporate economic goals. However, surprisingly, about 7% of companies reported that design itself does not directly help the achievement of corporate economic goals. Even so, Kristensen, Gabrielsen and Zaichkowsky (2012) concluded that the useful product design is linked at financial performance.

The interpretation of the results of this study may be different. Although some firms still did not measure the effects of design and therefore did not have an idea about the benefits of design, the results of this study indicate that companies are progressing, becoming more sophisticated, and therefore, measuring each component, which contributes to the business prosperity. Another possible explanation could be that the investment in design has not yet produced returns, which could cause some managers to be skeptical about pBp in the future. This could be the result of increased competition or the output orientation at B2G contracts, where design is usually not a public procurement criterion.

The statistical results provide a quantitative view of the data that were obtained from research and compared to each other. The most dramatic change was recorded in RQ_3 (design had a significant impact on the financial results of companies).

Limitations

The primary focus of the research was not to identify detailed information about the quantity of investment or the effect on a particular financial indicator (because of company data protection). Moreover, the research questionnaire structure does not provide detailed information about the increases in sales, profits or brand value of the company. Companies addressed in both surveys are based on the same number, size and structure of companies. However, various companies could have answered both surveys (see Return of the questionnaires). Nevertheless, a general awareness of the market in this field obtained from the questionnaires can be considered meaningful despite certain imperfections in the comparative analysis. The research contains different



companies (regarding type of industry). Most of them belong to the food, automotive, construction or machine-building industries.

Future research

Research could be used to explore which economic indicator (profit, sales, brand value) was most important and how much it could be influenced by investment in design. Moreover, further research could identify the percentage of the company budget assigned to design.

References

1. Almquist, E., Wyner, G. (2001). Boost your marketing ROI with experimental design. *Harvard Business Review* 79(9): 135-141.
2. Bessant, J., Bruce, M. (2002) *Why design? Design in business: strategic innovation through design*. London, England: Financial Times Prentice Hall.
3. Best, K. (2006). *Design Management: managing design strategy, process and implementation*. AVA publishing.
4. Beverland, M. B., Wilner, S. J., Micheli, P. (2015). Reconciling the tension between consistency and relevance: design thinking as a mechanism for brand ambidexterity. *Journal of the Academy of Marketing Science*, 43(5), 589-609.
5. Bloch, P. H. (1995). Seeking the ideal form: Product design and consumer response. *The Journal of Marketing*, 59(3), 16-29.
6. Braga, M. (2016). The value of design: an issue of vision, creativity and interpretation. In *2016 Design Research Society 50th Anniversary Conference*. 27-30 June 2016. Brighton. UK. DOI: 10.21606/drs.2016.129.
7. Brown, T., Wyatt, J. (2015). Design thinking for social innovation. *Annual Review of Policy Design*, 3(1), 1-10.
8. Bruce, M., Bessant, J. R. (2002). *Design in business: Strategic innovation through design*. Pearson education.
9. Celaschi, F., Celi, M., García, L. M. (2011). The extended value of design: an advanced design perspective. *Design Management Journal*, 6(1), 6-15.
10. Chiva, R., Alegre, J. (2009). Investment in design and firm performance: the mediating role of design management. *The Journal of Product Innovation Management*, 26(4), 424-440.
11. Cross, N. (2008). *Engineering design methods: strategies for product design (4th ed.)*. Wiley.
12. Design Council (2015). *The Design Economy: The value of design to the UK economy Executive summary*. London.
13. Design Management Institute (2014). *What is design management? - design management Institute*. Available at: http://www.dmi.org/?What_is_Design_Manag. [Accessed 05 February 2016].
14. Dunne, D., Martin, R. (2006). Design thinking and how it will change management education: An interview and discussion. *Academy of Management Learning and Education*, 5 (4), 512-523.

15. Gemser, G., Leenders, M. A. (2001). How integrating industrial design in the product development process impacts on company performance. *Journal of Product Innovation Management*, 18(1), 28-38.
16. Hajdasinski, M. M. (1993). The payback period as a measure of profitability and liquidity. *The Engineering Economist*, 38(3), 177-191.
17. Hollins, B. (2002). Design management education: The UK experience. *Design Management Journal (Former Series)*, 13: 25–29. doi: 10.1111/j.1948-7169.2002.tb00315.x.
18. Karpissova, E. (2009). Environmental management and its influence on a company performance. *New Economic Challenges*, 420.
19. Kramoliš J. (2015). Design as a Condition for Prosperity in Czech Businesses - A Comparative Study. *Journal of Competitiveness*, 7 (4), 33-47. doi:10.7441/joc.2015.04.03.
20. Kramoliš J. (2016). The Attitude of Czech Companies towards Design – Comparative Study of 2012 and 2014. *Marketing and Management of Innovations*, 2016 (2), 11-21.
21. Kramoliš, J., Staňková, P., & Richtr, M. (2015). The importance of design in business practices of czech companies. *E a M: Ekonomie a Management*, 18(2), 151-164. doi:10.15240/tul/001/2015-2-011.
22. Kristensen, T., Gabrielsen, G. (2011). Design Economy-Value Creation and Profitability. *The Handbook of Design Management*, 345-365.
23. Kristensen, T., Gabrielsen, G., & Zaichkowsky, J. L. (2012). How valuable is a well-crafted design and name brand?: Recognition and willingness to pay. *Journal of Consumer Behaviour*, 11(1), 44-55.
24. Lenskold, J. D. (2002). Marketing ROI: Playing to win. *Marketing Management*, 11(3), 30.
25. Lidwell, W., Holden, K., & Butler, J. (2010). *Universal principles of design: 125 ways to enhance usability, influence perception, increase appeal make better decisions, and teach through design*. Beverly, MA: Rockport Publishers.
26. Mozota, B. B. (2006). The four powers of design: A value model in design management. *Design Management Review*, 17(2), 44-53.
27. Nigel, C. (2008). *Engineering Design Methods: Strategies for Product Design* (4th ed.). Wiley
28. Ogilvie, T., Liedtka, J. (2011). *Designing for growth: A design thinking toolkit for managers*. Columbia University Press.
29. Otto, K.N., Wood, K.L. (2001). *Product design: techniques in reverse engineering and new product development*. Pearson Education Asia Limited.
30. Rae, J. (2013) Design-Conscious Companies: What Is the Real Value of Design?. *Design Management Institute*, 30-37.
31. Rae, J. (2014) What is the real value of design? *Design management institute and motive strategies*, 1-9.
32. Taraba, P., Biliková, J. (2014). Gender view on the requirement of social maturity of managers in the selection process in SMEs in the Czech Republic. *Proceedings of the 24th International Business Information Management Association Conference - Crafting Global Competitive*



Economics: 2020 Vision Strategic Planning and Smart Implementation, 394-400.

33. Thompson, M.K. (2011). Establishing design as a discipline in civil and environmental engineering. *Proceeding of the 1st international workshop on design in civil and environmental engineering*.
34. Trueman, M., Jobber, D. (1998) Competing through design. *Long Range Planning*, 31(4), 594-605.
35. Virglerová, Z., Kozubíková, L., Vojtovič, S. (2016). Influence of selected factors on financial risk management in SMEs in the Czech Republic. *Montenegrin Journal of Economics*, Vol. 12, No 1. 21-36.

Contact information

Mgr. Jan Kramoliš, Ph.D.

Tomas Bata University in Zlín, Faculty of Management and Economics

Mostní 5139, 76001 Zlín, Czech Republic

E-mail: kramolis@fame.utb.cz

doc. Ing. Pavla Staňková, Ph.D.

Tomas Bata University in Zlín, Faculty of Management and Economics

Mostní 5139, 76001 Zlín, Czech Republic

E-mail: stankova@fame.utb.cz