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CONTENTS

EXPLOITING FIRM CAPABILITIES BY SENSING, SEIZING AND RECONFIGURING CAPABILITIES: AN EMPIRICAL INVESTIGATION

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ABSTRACT: *The aim of this paper is to study the exploitation of firm capabilities as dynamic capabilities through sensing, seizing and reconfiguring capabilities. Such a perspective enables us to better understand the logic behind the exploitation of dynamic capabilities. This study proposes that firms need to exploit all relevant firm capabilities according to the dynamic capabilities view. We also provide insights into positive practices that underpin dynamic capabilities, as well as negative practices that cause rigidity in their deployment. Our paper highlights the importance of ensuring a continuous commitment to the sensing, seizing and reconfiguring capabilities.*

Keywords: *firm capabilities; dynamic capabilities view (DCV); sensing, seizing, reconfiguring capabilities; information technology (IT industry); case study*

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1 INTRODUCTION

Strategic management consistently faces the task of identifying ways to maintain the competitive advantage/s of a firm. To become and remain competitive, firms need to continuously exploit their capabilities. Exploiting firm capabilities is critical for firm growth, especially for firms in high-tech industries, such as information technology (IT). The use of IT has not only changed the way firms do business but also improved their existing products, services and processes. Given their nature and degree of integration into various other industries, IT firms can impact other firms in either a direct or indirect manner. This makes such firms some of the most dynamic in society. Recent years have highlighted the IT industry's considerable role by enabling business activities and acting as a critical force in economic growth (Turban et al. 2006; Banuls and Salmeron 2008). In addition, the IT industry has been facing high demand for customisation and short

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product life cycles. IT firms are thus required to regularly exceed their boundaries and alter their strategies to suit the latest technological changes and opportunities. In these circumstances, such firms must therefore be agile and rapidly modify their behaviour to allow them to continue to prosper. In 1997, Teece et al. introduced the dynamic capabilities view (DCV) to help disentangle the issue of a sustainable competitive advantage in multifaceted environments that are dynamic (also see Eisenhardt and Martin, 2000). The DCV states that firms which can sense and seize fresh opportunities and then reconfigure their capabilities and resources, are according to the environmental change, as well as recognised opportunities, able to establish and maintain their competitive advantages (Teece, 2012, 2009). We suggest that fine-grained case studies of firms which have been able to hold the competitive advantage, can offer strategies and tactics on how to exploit firm capabilities as dynamic capabilities (Ambrosini et al., 2009). A recent review of the research reveals that most contributions in this field remain chiefly conceptual (Schilke et al., 2018).

Our motivation for conducting this study arises from two main reasons. First, there is a dearth of evidence on how to apply Teece's dynamic capabilities model to build and exploit firm capabilities as dynamic capabilities. That model divides dynamic capability into three types: sensing, seizing and reconfiguring. Several studies in the last few years (e.g. Fainschimdt et al., 2016; Wilhelm et al., 2015), including systematic reviews and meta-analyses, have highlighted that this area of study falls short when it comes to describing the conceptual consequences (Peteraf et al., 2013) and providing robust empirical evidence. We believe that this research is a step forward in being able to understand how dynamic capabilities may be both introduced and used as a source of a sustainable competitive advantage. Second, despite the literature giving empirical evidence showing firms' capabilities may become dynamic capabilities in some industries, such as pharmaceuticals (Bruni and Verona, 2009), the manufacturing sector (Protogerou et al., 2011), magazine publishing (Jantunen et al., 2012), a market-based social firm (Vezina et al., 2018) and the media industry (Jantunen et al., 2018), researchers have yet to more deeply investigate one of the most demanding sectors, the IT industry. In addition, studies primarily look at capabilities of just one or two firms. To our knowledge, this paper is one of the rare reports building on carefully selected case studies of firms which are able to stay competitive in the IT industry and investigating several capabilities of the firm as dynamic capabilities. As mentioned above, IT firms represent a desirable setting for inductively developing a theoretical model of dynamic capabilities and helping organise the framework for the future empirical research. The fact that one of the authors of this paper is an expert with ten years of experience in the IT-industry has helped us better understand the subject matter and conduct a deeper research.

Our main objective is to investigate the composition of sensing, seizing and reconfiguring capabilities in terms of their considerable value for firms. We recognise that six capabilities are relevant for firms in the IT industry: managerial capability as the primary capability that plays the dominant role in exploiting firm capabilities as dynamic capabilities; marketing capability; technological capability; R&D capability; innovation capability; and human resources capability. This paper investigates these capabilities as dynamic

capabilities in line with Teece's model of dynamic capability disaggregation (2007). The central question in our study was: How have these firm capabilities been exploited by way of sensing capability, seizing capability and reconfiguring capability? We also asked the following: Do any common activities and practices help in taking advantage of firm capabilities as dynamic capabilities and hold potential for sustained competitiveness?

The paper is organised as follows. The first section briefly introduces the dynamic capabilities perspective and the model of dynamic capability disaggregation. It also gives an overview of relevant firm capabilities that are further studied as dynamic capabilities. The next section describes the method, a comparative case study. A qualitative analysis is conducted since we believe this will shed light on the ways dynamic capabilities are deployed in practice. Following that, we present and discuss our findings, resulting in a model of sensing, seizing, and reconfiguring capabilities. To clarify the manners in which sensing, seizing and reconfiguring capabilities work in reality, a review of one case study firm's routines that lead to its excellent performance by facilitating the power of its dynamic capabilities is provided. Furthermore, the firm's key capability, that is, its managerial capability, is then described (Helfat and Peteraf, 2015). The findings are used to derive both theoretical and practical implications. The managerial implications incorporate an overview of positive and negative practices while efforts are made to exploit the firm's capabilities. The final section is the conclusion that includes some ideas for future studies.

2 LITERATURE REVIEW

The DCV is the latest perspective that extends on the resource-based view (RBV), which has been recognised as one of the most relevant concepts in the strategic management field (Zott, 2003). The resource-based literature was placed within a comprehensive framework in 1991 (Jay Barney, 1991), where it was contended that in the short run, firms are able to achieve a competitive advantage and increase their performance if they have resources which are of value and scarce. This research by Barney (1991) was called into question for its unvarying nature. Priem and Butler (2001), for instance claimed that despite the RBV's initial dynamism, "much of the subsequent literature has been static, and the concept of competitive advantage still remains in a black box" (Priem and Butler, 2001, p. 33). Teece, Pisano and Shuen introduced the dynamic capabilities framework in 1997 "to explain how combinations of competences and resources can be developed, deployed, and protected" (Teece et al., 1997, p. 510). Their explanation of a dynamic capability was 'the firm's ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments" (Teece et al., 1997, p. 516). Their thinking chiefly relied on a firm's ability to make changes to its resource base to ensure the firm is able to endlessly vary its behaviour in response to changes. This work by Teece, Pisano and Shuen (1997) is now regarded as the first pivotal contribution to the area of dynamic capabilities. It spurred over 1,721 articles on the subject between 1997 and 2008 (Peteraf et al., 2013) in various journals on management, and had been cited more than 1,900 times by December 2009 (Di Stefano et al., 2010).

Literature reviews in the last two decades (e.g. Ambrosini and Bowman, 2009; Baretto, 2010; Peteraf et al., 2013; Schilke et al., 2018) have shown the field still mostly focuses on theoretical issues (Winter, 2003; Helfat and Peteraf, 2009), with limited empirical evidence. The critical and detailed overview by Peteraf et al. (2013) reveals the dynamic capabilities field has developed in two separate directions, as strongly influenced by two research papers (i.e. Teece et al., 1997; Eisenhardt and Martin, 2000). These two divergent approaches now make different assumptions concerning the nature of dynamic capabilities, and lead to different conclusions. The latest extensive review by Schilke et al. (2018) considers 300 well-cited articles in top management journals and highlights important gaps that call for future research in many areas of the dynamic capabilities view. They note "the need for significantly more attention to integration of underused theories" complemented by empirical research, such as trying to provide in-depth accounts of how dynamic capabilities are deployed in practice.

In this research, we build on Teece's model of the microfoundations of dynamic capabilities. Teece broke dynamic capability down into three types of capabilities (see Table 1) (Teece, 2009): sensing capability (ability to explore the firm's environment in order to identify opportunities), seizing capability (as soon as opportunities are sensed, they must be addressed), and reconfiguring capability (to address new opportunities, firms need to reconfigure their resources). Yet there are differences between sensing and seizing capabilities on one side and reconfiguring capability on the other. The first two encompass relatively basic functions, whereas reconfiguring capability entails greater complexity and might at times require a business model to be fully redesigned (Teece, 2009). The main premise of this breakdown of dynamic capabilities is to shed light on how dynamic capabilities deploy, develop and manifest. In this sense, dynamic capability is a "meta-capability" that transcends an ordinary firm capability (Teece, 2009, 54).

Table 1: *Dynamic capability composed of sensing, seizing and reconfiguring capabilities*

The composition of dynamic capability		
(1) sensing capability	**(2) seizing capability**	**(3) reconfiguring capability**
Firms need to explore their internal and external environment in order to identify opportunities.	**As soon as opportunities are sensed, they must be addressed through new products, services, processes, etc.**	**To address new opportunities, firms need to recombine and reconfigure resources and capabilities as environmental changes.**
Common practices/activities are: • identifying new technologies, • identifying new ideas, • scanning for new markets/ customers.	Common practices/activities are: • activities to select the "right" new technology or a business model, • activities to build commitment and loyalty.	Common practices/activities are: • activities to stimulate open innovation, • activities to managing strategic fit, • deploying knowledge management.

Source: Adapted from Teece (2009).

From the strategic management perspective, a firm's capability may be understood as its capacity to perform a function or activity (Helfat and Peteraf, 2015), although the performance level of each capability is "a matter of degree" (Winter, 2000, 981). We distinguish firm capabilities from dynamic capabilities because dynamic capabilities operate on these capabilities and allow them to change and reconfigure in line with environmental needs. Firm capabilities can be viewed as a resource base that comprises a bundle of heterogeneous capabilities that each firm deploys and develops individually (Breznik & Lahovnik, 2014). We recognise six (6) capabilities as being relevant for firms in the IT industry: (1) managerial capability; (2) marketing capability; (3) technological capability; (4) R&D capability; (5) innovation capability; and (6) human resources capability.

For analytical purposes, our study presents how these capabilities can be disaggregated into sensing, seizing and reconfiguring capabilities.
(1) Managers have a central role in exploiting firm capabilities and dynamic capabilities (Augier and Teece, 2009; Rindova and Kotha, 2001; Teece, 2007; Helfat and Peteraf, 2015). Kor and Mahoney (2005) investigate 60 technological firms and find out that managers have a dominant role in exploiting the firm's capabilities as dynamic capabilities. It is important to acknowledge that a manager's perception of opportunities might generate the exploitation of dynamic capabilities that are not balanced with the environmental needs (Adner and Helfat, 2003; Ambrosini and Bowman, 2009; Harreld et al., 2007) and that a mix of managerial capabilities may add to differences in firm performance (Helfat an Peteraf, 2015).
(2) Kor and Mahoney, 2005, 494 stated that marketing capability is a vital source of a long-term competitive advantage. It provides for the creating of links and nurturing of relationships with customers (Protogerou et al., 2011; Song et al., 2005), enables us to (out) compete by predicting customer preferences (Day, 1994), and enables us to successfully address the rapidly changing environment by developing and exploiting market knowledge (Bruni and Verona, 2009).
(3) Technological capability and (4) R&D capability are closely linked. Technological capability can be seen as a core capability for IT firms. Considering the high technological turbulence, technological capabilities enable firms to develop, produce and use the "right" technology (Wind and Mahajan, 1997). On the other hand, R&D capability helps us identify, recognise and exploit knowledge. It also enables us to create a firm-specific capability (Helfat, 1997) and engenders potential of innovation, which is very important for firms in the IT industry (Verloop, 2004).
(5) Innovation capability has been recognised as a dominant capability in the IT industry (Breznik and Lahovnik, 2014). Based on the literature review, innovation capability is extremely important for being able to survive in today's dynamic environment.
(6) Respected scholars in the strategic management field (for instance, Barney and Clark, 2007; Lado and Wilson, 1994) have recognised human resources as vital and dominant resources of creating and sustaining the competitive advantage. Not surprisingly, human resource capability is today one of the most widely studied capabilities in the strategic management field, especially when considering studying the phenomenon of competitive advantage (Newbert 2007; Breznik and Lahovnik, 2014).

3 METHODOLOGY

To meet our study's purposes, six key performing SMEs in the Slovenian IT industry were chosen, noting that most research has considered large, well-established firms, not SMEs (Zahra et al., 2016). SMEs have certain benefits and drawbacks with respect to larger companies (Rothwell/Dodgson 1991). In the EU and the USA, 99% of all firms in the market are SMEs (Jie et al. 2009, 46; Eurostat, 2015; 2018). The IT industry in Slovenia is particularly competitive and challenging, with leading firms like Microsoft, SAP and Oracle holding considerable market shares. The time before former Yugoslavia collapsed is seen as the 'halcyon days'. The firms included in the case study were then forced to face the transition from socialism to a market economy and, given that they are still the good performing IT firms in Slovenia, it is clear they have generally been successful in today's tough environment.

We selected six firms according to six indicators: (1) the firm is an SME; (2) the firm must have been active in the market for over 10 years (firms should share similar historical issues like globalisation and the transition); (3) the firm must be established in the home country, have local owners (have an independent capital structure); (4) the firm's programmes and business orientation should be comparable (namely, IT industry firms can supply a range of services and products in reflection of their various strategic directions; such differences do not allow a comparison of the case study firms); (5) the firm must be acknowledged as a relevant market player (it accounts for a relevant market share); and (6) the firm must be willing to participate. When considering just SMEs, the sample was reduced to 19 firms, from which the firms not active for a minimum of ten years, as well as foreign-owned firms and the ones being branches of foreign firms, were excluded. The sample was then further reduced to ensure the firms had comparable programmes and business focuses. Subsequently, the firms' sales programmes were assessed (the firms' IT solutions may be an outcome of their own development and innovation activities, or they might provide the IT solutions of foreign firms that are customised for the local market). In the end, the sample consisted of six firms. Eisenhardt (1989) states that while there is no ideal number of cases, a figure between 4 and 10 appears optimal. The selected six case study firms appear to constitute a suitable sample for cross-case analysis, particularly when looking for and identifying common patterns and differences regarding the use of dynamic capabilities.

Oral and written invitations to take part in the research were sent to the chosen firms. We then arranged meetings to describe the study's goals and data collection. We explained the qualitative nature of our study and the related potential benefits and deficiencies, also noting that it would thus be more resource-intensive and time-consuming when it came to collecting and (re)analysing the data. We engaged in an analysis of the content, entailing three phases (Yin, 2009): (1) the analysis and report of individual cases; (2) the analysis and report of cross cases; and (3) the conclusions and implications of the cross cases for both theory and practice (see Appendix, Figure A1). We as the authors were involved in all analysis phases, through individual reports and findings, which we subsequently checked together and came to an agreement on. The various and unstructured data required a database of the cases that allowed us to increase the study's reliability. Important ethical

principles were considered in our research, with respect to the ethical dilemmas that may arise in qualitative research. We chose a multiple case study approach (Eisenhardt and Graebner, 2007; Yin, 2009) as our research design, given that our research is exploratory in nature, as well as detailed interviews from 2011 and 2012, to gather empirical data. The recommendations and measures set out by Rouse et al. (1999) were used because they may be regarded as providing guidelines for research into resource-based competitive advantage in an individual industry. We considered the processes involved in R&D, human resources, sales and marketing, and strategic management. We therefore formulated four questionnaires for the main respondents: R&D/innovation managers, human resources managers, general managers, and marketing/sales managers (see Appendix, Figure A3).

The not unusual situation of certain tasks and responsibilities overlapping in SMEs was evident. The target respondents of the interviews, which were narrative in nature, informal, tape-recorded (with consent) and subsequently transcribed, were primarily the general managers of a group of SMEs that constituted our research focus. In sum, we carried out 16 interviews (with the key respondents), with each interview taking approx. 60 to 90 minutes to complete. In the analysis of the data, we conducted several Internet and telephone communications to clarify certain dilemmas and aspects from previous research phases. We note that one of the authors' of this paper who is an expert with ten years of experience in the IT industry has helped us understand the subject matter better and carry out the research at a deeper level. For each SME, the data were then triangulated with additional secondary sources (financial and annual reports, internal firm documentation, various published materials, and public databases) to reduce bias in the qualitative research. We continually cross-referenced the literature in line with the inductive research approach. For coding and categorising the data, we employed thematic analyses/networks (Stirling-Attride, 2001), together with the process of coding (Rubin and Rubin, 2005; Saldana, 2009) (see an example of the pattern and focused coding methods used in the Appendix, Figure A2; also see Figure A3), the NVivo9 qualitative analysis software was used to retain some of the connections among the interview transcripts and the data collected through the coding process.

4 EMPIRICAL DATA AND ANALYSIS

4.1 Exploitation of firm capabilities as dynamic capabilities

To be able to better understand the logic behind the DCV, we present an overview of practices that support the development of firm capabilities as dynamic capabilities by all six relevant capabilities in Firm A (Table 2, Table 3, Table 4, Table 5, Table 6 and Table 7). When comparing the overall performance of the selected firms, Firm A is one of the best performers (see Appendix, Table A1). As the findings show, Firm A was able to sense and seize opportunities and exploit those opportunities through reconfiguration of its resource base, namely, by all six capabilities (see Appendix, Table A2).

Table 2: *Practices that underpin managerial capability*

Managerial capability as a dynamic capability		
(1) sensing capability	(2) seizing capability	(3) reconfiguring capability
Managers practice and promote open communication. Managers are open to novelties. Systematic sensing of what is happening in the environment.	Managers build, promote and nurture long-term partnerships with customers, partners and employees. Demonstrating leaderships. Recognising and designing mechanisms to capture value. Managers promote networking. Managers form special networking teams for straightforward and focused networking activities. Managers accept diversity and are open-minded.	Managerial and leadership capabilities are being developed at all firm levels The firm builds on a winning strategic orientation – In the right place, at the right time, being the first-mover. Adapting/reconfiguring its business model. Attractive, simple and straightforward reward systems. Managers include key employees in the decision-making process. Building an appropriate organisational structure and culture: a flat, flexible and permeable organisational structure. A team-based work environment (shared goals, equal opportunities for all, treating all employees equally). The firm appoints a new management team.

Source: Our own.

Table 3: *Practices that underpin marketing capability*

Marketing capability as a dynamic capability		
(1) sensing capability	**(2) seizing capability**	**(3) reconfiguring capability**
Networking activities are a vital part of gathering information about target markets, customers, etc. Employees understand their role within the marketing process. On-going industry and competitor benchmarking.	Goal-oriented networking activities are a vital part of gathering information about target markets. Goal-oriented networking activities are a vital part of gathering information about clientele – additional projects, potential/new customers – new business projects, etc. Employees play an active part in marketing activities/ processes (especially employees working as business analysts and project managers): recognising the changing costumers' needs.	Constantly improving customers' loyalty and satisfaction. Constantly establishing, building, promoting and nurturing long-term partnerships with key customers, partners, employees and competitors.

Source: Our own.

Table 4: *Practices that underpin technological capability*

Technological capability as dynamic capability		
(1) sensing capability	**(2) seizing capability**	**(3) reconfiguring capability**
Networking activities are a vital part of gathering information about technology trends in general. Employees closely follow technological development and new trends in the IT area.	Networking activities are a vital part of selecting information and knowledge about key technology trends, strategic vendors/ suppliers' strategies, etc. Employees objectively seize opportunities related to technological development and new trends and knowledge in the IT area. On-going technology benchmarking: recognising/ selecting the "right" technology and product architecture.	Reconfiguring the resource base: new and improved products/services in line with technological development and market demands. Know-how integration.

Source: Our own.

Table 5. Practices that underpin R&D capability

R&D capability as a dynamic capability		
(1) sensing capability	**(2) seizing capability**	**(3) reconfiguring capability**
Activities to direct internal R&D. Networking activities are a vital part of gathering information about potential R&D partners/ projects, etc. Employees closely follow technological development and science and technology in general. On-going benchmarking.	Recognising and selecting the "right" market opportunity (tapping the potential synergy). On-going competitors benchmarking: searching for diversity and recognising/ selecting the "right" technology. Recognising new opportunities outside the firm's boundaries.	Adopting new/improved knowledge and technologies, and transforming them into market-oriented solutions (knowledge transfer). Improving the effectiveness of business processes.

Source: Our own.

Table 6: *Practices that underpin innovation capability*

Innovation capability as a dynamic capability		
(1) sensing capability	**(2) seizing capability**	**(3) reconfiguring capability**
Innovation activities as a key and dominant part of business processes (non-formalised innovation processes that allow room for creativity and emergent innovation in dynamic IT industry).	Time for creativity: the firm gives employees the time and space to think innovatively.	Establishing a group of more innovative employees (the so called "innovation team"): innovation as a natural part of the business and their work.
On-going industry benchmarking.	Market-oriented innovations.	Transforming new ideas into new/improved market-oriented innovations.
Activities to identify customers and competitors' innovations.	Customers play an active part in innovation activities.	Stimulation/development of creativity and innovation.
	Recognising more innovative employees (the so-called stars).	Well-defined and accepted reward systems.
		Reward systems with non-financial benefits, e.g. extra holiday time.

Source: Our own.

Table 7: *Practices that underpin human resource capability*

Human resource capability as a dynamic capability		
(1) sensing capability	**(2) seizing capability**	**(3) reconfiguring capability**
Employees identify their knowledge deficit (at professional conferences, in collaboration with clientele, partners, universities, etc.).	Employees seize the lack of specific knowledge deficit.	Human resource strategy is clearly defined and communicated.
	Test recruiting as a practice of identifying the "right" employees for their firm/environment.	Knowledge and experiences transfer.
	Employees' self-directed learning: continuous in-house knowledge tests/evaluations.	Established mentorship at the corporate level.
	Time for creativity: the firm gives employees the time and space to think innovatively.	Internal learning system: promoting the transfer of knowledge between the older and more experienced employees and the younger and less experienced employees.
	Effective communication (on-time, face-to-face and open communication).	Established practice of learning by doing and learning from failures.
	Utilising outside staff/human resources (more flexibility, inside-out knowledge transfer, outside-in knowledge transfer).	

Source: Our own.

4.2 Manifestations of exploitation of managerial capability

For a better understanding of how Firm A exploits capabilities as dynamic capabilities, we present its manifestations in sensing, seizing and reconfiguring capabilities with regard to managerial capability. Hence, managerial capability and the role of managers have been recognised as a key component in developing dynamic capabilities. Managerial capability as a dynamic capability is a capability by which the level of deployment of sensing, seizing and reconfiguring capabilities is less developed among the case study firms. In Firm A, the level of deployment of managerial capability is at the highest level (Breznik and Lahovnik, 2016; Breznik and Lahovnik, 2014). Accordingly, Firm A is an example of how dynamic capabilities can be successfully deployed and developed. A deeper investigation of the manifestations of managerial capability allows us to present some of the practices and activities that undergird managerial capability in Firm A.

Managerial capability is the ability to sense opportunities primarily as a result of effective communication. Namely, managers at all levels have adapted face-to-face and open communication. Consequently, the use of effective communication techniques enables managers to sense opportunities inside and outside the firm. Moreover, these skills allow them to tap and receive the right information at the right time. We recognised that managers in Firm A are able to systematically sense their environment, not simply observe it. In fact, their sensing capability is strongly linked with the ability of open mindedness and critical judgment, which can be recognised as the foundations for more systematic sensing. In Firm A, the ability to seize the right opportunities is a result of the firm's business model. Gathering the information and knowledge that enables the firm to recognise opportunities is primarily a result of its networking activities and long-term and trust-based partnerships with customers, employees and other partners. Moreover, practising face-to-face and open communication, the ability to look beyond and promoting diversity in the workplace are practices that enable opportunities to be more quickly recognised than its competitors. Particularly, accepting diversity at the firm level helps Firm A generate new, sometimes radically new ideas. These ideas or opportunities have incorporated knowledge outside and beyond the firm's boundaries. However, recognising opportunities is by itself not enough, as they have to be further developed. After the opportunities are recognised as potential opportunities, they have to be exploited through a recombination of the firm's resource base.

In recent years, Firm A has successfully implemented new approaches and has been moving itself toward becoming a continuous learning and changing organisation. However, if Firm A wanted to accomplish that vision, changes in its business processes had to be made. The first step in the reconfiguration process was to make changes in the top management team, namely, the firm appointed a new management team. With this new team in place, a new strategy orientation was set. Firm A's strategy can be described as "Being the first mover in the right place at the right time." The second step in the reconfiguration process involved the following activities. They completely remodelled two key business processes, i.e. the project management process and the decision-making process. The remodelling phase continued; first, with establishing and promoting project-based work within and

outside Firm A to create and spread its project (knowledge) networks; and second, with implementing changes to the reward system where the focus was on achieving a non-transparent but accessible award scheme. Firm A's activities in the reconfiguration process continued with one of the toughest tasks, changing the organisational culture in line with the new business strategy. To ensure a successful start in making the changes, they first focused on how to promote selected practices, such as teamwork, knowledge transfer, mentorship, effective communication, and internal and external relationships at all levels. As we found out during our research, managers in Firm A took an initiative in exploiting dynamic capabilities by sensing, seizing and reconfiguring capability. Their commitment could be seen in leading by example and vision, which had a great impact on the employees. Namely, it encouraged them to follow and take more initiative.

5 RESULTS AND DISCUSSION

As indicated by theory, the DCV permits firms to respond to changes. The firms under study operate in the IT industry environment, which has seen tough international competition and fast-paced technological changes. Our results reveal that the firms are more or less successfully developing their dynamic capabilities. They are thus able to successfully survive in the dynamic IT sector, even amidst very challenging market conditions, given that the industry analysis demonstrates that companies in Slovenia's IT sector have a relatively low survival rate . Renewing the resource base does not need to require considerable inputs. For example, scanning the environment does not have to incur high costs. In contrast, while a firm can engage a highly-skilled employee simply because it has sufficient funds available, the costs (e.g. of labour) would be greater than the benefits (for instance unexploited knowledge/abilities) if that employee's potential did not grow according to the DCV. Such findings agree with the contention that exploiting dynamic capabilities in response to erroneous cause-effect assumptions can bring negative effects for a company's performance (Zahra et al., 2006; Breznik and Lahovnik, 2014).

As we find out during our research, managers should take an active role in sensing, seizing and reconfiguring dynamic capabilities. Their commitment could be seen in leading by example and vision, and that had a great impact on employees. Moreover, it encourages employees to follow and take more initiative. These findings are in consonance with Rosenbloom's (2000) qualitative research. His research shows that managerial capabilities have indeed played a crucial role in the firm' successful competition in a high technological market for several decades. A deeper investigation of the manifestations of managerial capability allows us to present some of the practices and activities that undergird managerial capability in the presented case study firm. For instance, managerial capability is the ability to sense opportunities primarily as a result of effective communication, e.g. face-to-face and open communication. Brown and Eisenhard's (1997) qualitative study reveals some practices which are preconditions to being able to successfully navigate in a continuously changing environment, such as communication intensity and the ability to exploit opportunities. We can affirm that managers in Firm A are able to sense their environment systematically and not just observe it. In fact, their sensing capabilities

are strongly linked to the ability of open mindedness and critical judgment. It can be recognised as the foundations for more systematic sensing. The results of our study show that managerial capabilities and human resource capabilities seem to be the most difficult and complex in terms of their deployment and development (Breznik and Lahovnik, 2014). Not surprisingly, both capabilities deal with people, i.e. human resources have a dominant role in dynamic capabilities exploitation. Breznik and Lahovnik (2016) found out that a strongly developed human resource capability is related to the recognised practices in the human resource area, e.g. applied mentorships, high job satisfaction, an effective reward system, time for developing new ideas, etc. On the contrary, a weak/moderate evaluation is related to no systematic mentorships, low job satisfaction, an unattractive reward system, a lack of creativity, the unexpected resignation of key employees, etc.

Our case analysis revealed that deploying marketing capability as dynamic capability enables us to better and more quickly understand customers' needs. This is especially important in the IT industry that encounters short product and service life cycles and strong demand for customisation. Additionally, building active long-term partnerships with customers enables to perceive new opportunities that often begin rudimentary development activities. These findings are in line with Bruni and Verona (2009) argumentation that marketing capabilities as dynamic capabilities enable to transform market knowledge to successfully adapt to the changing environment. In Firm A, the ability to seize the right opportunities is an outcome of the firm's business model. Gathering the information and knowledge that enables the firm to recognise opportunities is primarily a result of its networking activities and long-term and trust-based partnerships with customers, employees and other partners.

Verona and Ravasi (2003) argue that a firm must first build dynamic capabilities that allow to continuously generate and integrate knowledge, hence that is the basis for innovation capability deployment. Our findings show that acquiring and adopting new and improved knowledge and further transforming it into market-oriented solutions (i.e. products and services) is the main factor of success in the case study firms. Consequently, we also note that deploying relevant capabilities as dynamic capabilities is crucial for innovation processes, i.e. to innovate profitably and be able to exploit technology opportunities. We can suggest that technological capability is a fundamental dynamic capability in the IT industry, moreover, it enables adapting to rapid technological changes. We argue that the technological changes themselves shape the industry structure. This finding is in consonance with Tripsas' (1997) study of surviving a radical technological change through dynamic capability deployment.

Athreye (2005) argues that the fast-growing demand in the IT industry forces firms to develop abilities to differentiate themselves from competitors. This is in line with our findings; the differentiation is evidently the most selected strategy focus. Our case analysis revealed that sensing capabilities seem to be more alike and comparable across firms in a single industry. On the other hand, seizing capabilities and reconfiguring capabilities may differ more. These findings are in consonance with Jantunen, Ellonen and Johansson's (2012) study. As the results show, all of the case study firms systematically

sense their environment and even use similar communication techniques. We noticed that commonalities in dynamic capabilities, especially by sensing capability, do exist between the case study firms. However, there are more differences when considering the seizing and reconfiguring capabilities. For instance, in Firm A managers at all levels have adapted face-to-face and open communication. These skills allow them to tap the right information at the right time. Evidently, effective communication enables Firm A to recognise and exploit opportunities more quickly than the competitors. Consequently, Firm A has become a continuous learning and changing organisation.

This study can help scholars to move toward the consolidation of empirical support in a more focused way and pay greater attention to the DCV as a source of a competitive advantage. Our study provides evidence for further development of the dynamic capabilities view. First, we have employed Teece's (2009) conceptual typology of dynamic capabilities in order to study the exploitation of firm capabilities as dynamic capabilities. This research takes part in development of the dynamic capabilities view towards empirical evidence. Second, our paper focuses on dynamic capabilities through detailed cross-case studies of firms operating in a turbulent environment. We have shown how deployment of capabilities can be explored through sensing, seizing and reconfiguring capabilities. Such a perspective enables us to better understand the logic behind the DCV. We propose that managers have an important impact on the exploitation of firm capabilities as dynamic capabilities.

Table 8 shows activities – positive practices – that can help firms exploit their capabilities as dynamic capabilities, and activities – negative practices – that firms need to minimise in order to exploit their capabilities as dynamic capabilities. These practices emerge from the comparative analysis of the firms under study. The results may assist managers in comprehending the ways in which dynamic capabilities function and provide guidance while seeking to deploy and take advantage of their firm's capabilities in their particular environment.

Table 8: *Managerial implications for exploiting firm capabilities as dynamic capabilities*

Area	An overview of activities that help exploit dynamic capabilities ("positive practices")	An overview of activities that impede the exploitation of dynamic capabilities ("negative practices")
Strategic orientation implementation	Managers involve key employees in the decision-making process, in some cases all employees participate in management decisions. Open, informal, day-to-day and face-to-face communication. Bad/negative news/information is given face-to-face, immediately and clearly. Willingness to take risks at all levels. Accepting changes and novelties inside and outside the firm's boundaries. Accepting diversity. Promoting respect, loyalty.	Managers do not involve key employees in the decision-making process. Weak communication between the management team and employees (lack of communication in the workplace). Employees do not take responsibility for their work and actions – a lack of proper labour discipline and trust.
Organisational Structure	A flat, flexible and permeable organisational structure. A team-based work environment (shared goals, equal opportunities for all, treating all employees equally).	A flat organisation is not really flat in practice (hierarchical boundaries, special 'unfair' treatment of some employees: bonuses and benefits).
Organisational Culture	Open-door policy. Relationships based on respect and trust.	A lack of open and direct (informal) communication. A lot of rivalry among employees.
Continuous knowledge transfer& absorption	Promoting knowledge transfer between employees. Test recruiting as a practice of identifying the "right" employees for their firm/environment. Employees' self-directed learning.	There is no need for knowledge management implementation. A lack of proper training and development. Managers do not understand the importance of test recruiting as a practice of identifying the "right" employees for their firm/environment. Employees are afraid and usually hide their knowledge and important information.

Area	An overview of activities that help exploit dynamic capabilities ("positive practices")	An overview of activities that impede the exploitation of dynamic capabilities ("negative practices")
Managerial capabilities and leadership	Managers continuously identify their knowledge and experience deficit. Managers are open minded. Managers are willing to transfer their knowledge and expertise, especially to high-performing and ambitious employees/co-workers. Managers identify perspective/ outstanding co-workers/employees. Managerial and leadership capabilities are being developed at all firm levels. Promoting (and planning) networking activities at all levels, inside and outside the firm's boundaries.	Knowledge and experience deficits of the managers are not identified – poor development of managerial capabilities. Managers are not able to effectively exploit networking, unfocused networking.
Human resources	A clearly defined and communicated reward system: employees recognise it as "fair". An established and highly valued/ promoted non-financial reward system. A balanced mix of financial and non-financial rewards.	"Status quo" is a common perspective/ notion. Managers do not recognise the real or added value of each employee. Managers do not identify their experience deficit. A poorly defined and non-communicated reward system: employees recognise it as "unfair". There is "no need for mentorships".

Source: Our own.

6 CONCLUSIONS

Firms that exploit capabilities as dynamic capabilities were shown in this study to have the potential for a sustainable competitive advantage. Our findings indicate that firms must continually exploit their capabilities consistently with the DCV, a view that today provides several challenges to academics. Yet, this study has a number of possible limitations that need to be addressed. Our study is explorative and qualitative and considers a sample of six representative firms in the IT industry. We did not intend for the findings to be generalised to a population or other settings but to provide empirical insights which expand the DCV's framework. This study of the DCV adopts a pragmatic approach. Our aim was to describe the results and implications for practice in such a way that allows practitioners to understand and apply them in their day-to-day activities.

The future might endeavour to examine firm capabilities as dynamic capabilities at a greater depth, particularly the trajectories and circumstances impacting their exploitation and development. Moreover, it would be of a considerable value to be able to better understand the ways how the routines that support a given firm capability interrelate and interlink. Longitudinal research is welcomed because the outcomes arising from taking advantage of dynamic capabilities are typically only visible in the long run. Other industries might provide a good target for related studies. A comparative analysis of various industries may show differences and common areas vis-à-vis the harnessing of capabilities as dynamic capabilities. Other qualitative approaches like observation methods or focus groups might yield important findings, while incorporating quantitative empirical testing might also be a useful inclusion in a research framework.

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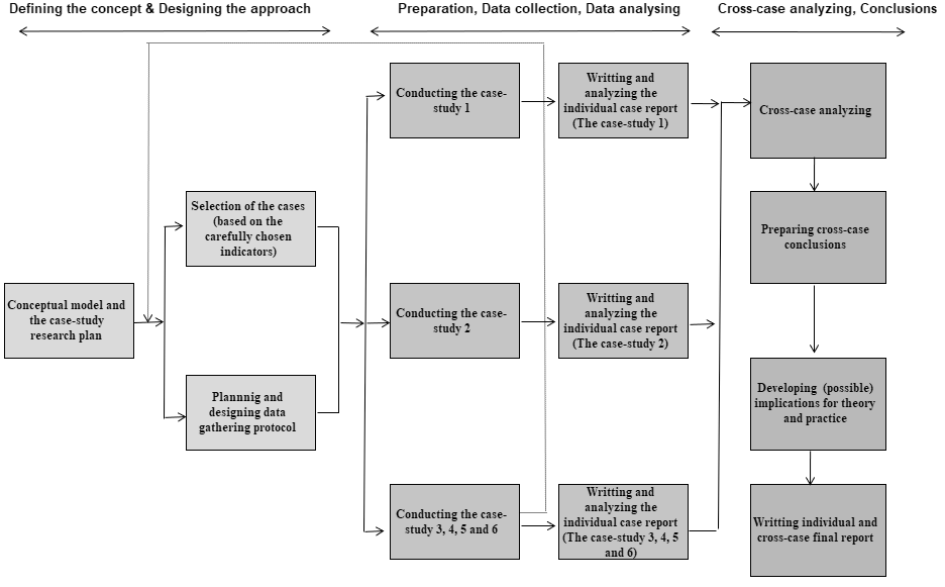
APPENDIX

Figure A1: Protocol for the case study



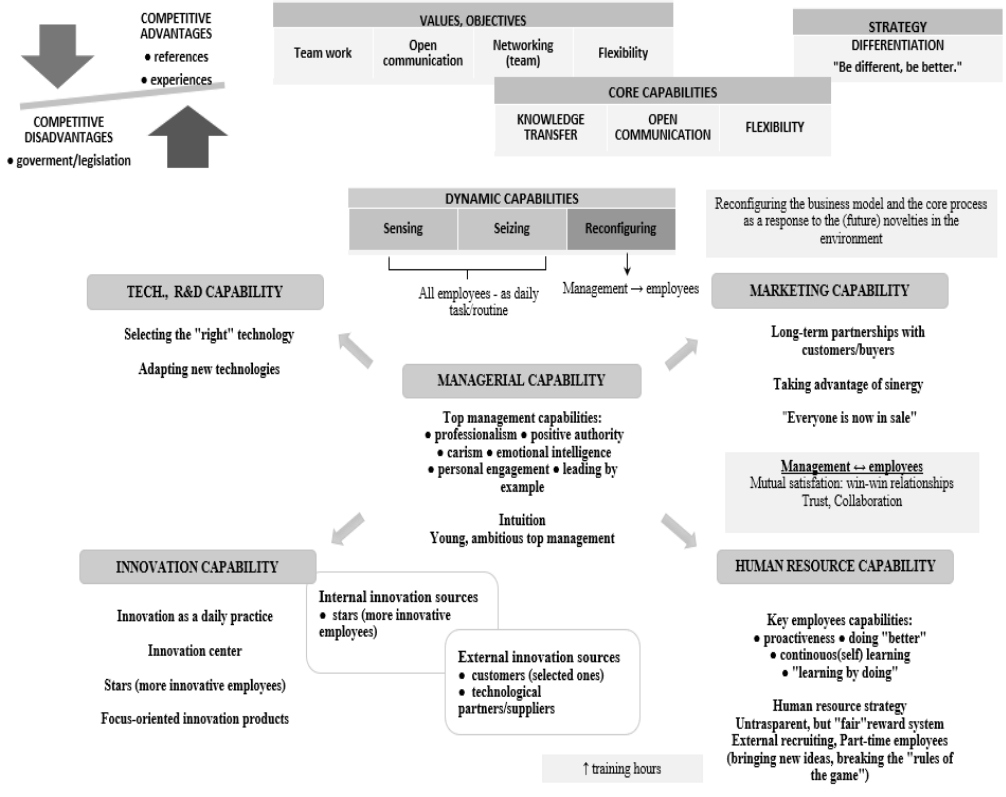
Source: Yin, 2009.

Figure A2: An example of the second cycle of the coding process using pattern & focused coding methods

Components of dynamic capability	Examples indicating the development of dynamic capabilities
Sensing capability	"Let the competition explore new things, we will use and exploit what is already known." (Sales Manager, Firm A) "Friday's internal tea/coffee party – a great way to get information you need." (General Manager, Firm B)
Seizing capability	"If a competitor shows you the solution but you don't know what to do with it, what's the point?" (General Manager, Firm D) "When we recruit, we don't recruit the best on the market but what is the best for our firm." (General Manager, Firm C)
Reconfiguring capability	"When you reward people, the reward has to be employee-oriented." (General Manager, Firm A) "Innovations really do just happen." (General Manager, Firm B)

Source: Our own.

Figure A3: An example of the results for Firm A (after the second cycle of the coding process employing thematic networks)



Source: Our own.

Table A1: Selected indicators and results for the 2006-2011 period

Selected indicators and results	Case study firms					
	Firm A	**Firm B**	**Firm D**	**Firm C**	**Firm E**	**Firm F**
Number of employees in 2011	110	55	74	70	63	140
Earnings in 2011 in €	11 million	4 million	6 million	7 million	4.5 million	25 million
ROA: average value 2006-2011	33.78	9.73	42.16 the highest value	4.7	4.66	1.45 the lowest value
ROE: average value 2006-2011	75.13 the highest average value	13.46	50.36	11.25	9.35	6.56 the lowest value
Average value added per employee: average value 2006-2011 in €	55,063	51,054	69,952 the highest average value	37,050 the lowest value (40% lower than the highest value)	37,049 the lowest value (40% lower than the highest value)	50,361
Ratio: total revenues / total expenses: average value 2006-2011	1.19	1.14	1.56 the highest value	1.04	1.02	1.01 the lowest value
Average salary income: average value 2006-2011 in €	2,323	2,522	2,670 the highest value	1,515 the lowest value: below the industry average	2,130	2,614

Selected indicators and results	Case study firms					
	Firm A	**Firm B**	**Firm D**	**Firm C**	**Firm E**	**Firm F**
Value of shareholders' funds to assets: average value 2006-2011	45.98	71.15	85.40 the highest average value	38.62	43.98	18.51 the lowest value
Sales growth, ROS: average value 2006-2011	continually increasing by 4% per year	continually increasing by 2% per year	decreased by 5% in the last five years	negative	decreased: sales dropped by more than 30% between 2008 and 2009	decreased: sales dropped by more than 20% between 2009 and 2010
Number ratio of new employment:average value 2006-2011	the highest ratio (the number of employees rose by 44% in the last five years)	continually increasing	increased by 70% during 2006-2010	decreased by 22%	negative	increased by 60%
EBIT: average value 2006-2011 in €	1,152,925	322,864	1,457,394	259,516 decreasing	93,636 decreasing: dropped by 70% between 2008 and 2009	196,072 negative in 2010
Employee turnover: 2006-2011	positive	positive	positive	negative	negative	negative
	High-performing case study firms based on the results of the overall performance (financial and non-financial data)			**Low-performing case study firms** based on the results of the overall performance (financial and non-financial data)		

Source: Our own.

Table A2: An overview of the dynamic capabilities deployed by the case study firms

	Case study firms					
Capabilities	**Firm A**	**Firm B**	**Firm D**	**Firm C**	**Firm E**	**Firm F**
Managerial capability						
(1) sensing	strong	strong	strong	**moderate**	**moderate**	strong
(2) seizing	strong	strong	strong	**moderate**	**moderate**	strong
(3) reconfiguring	strong	strong	strong	strong	**weak**	**moderate**
Marketing capability						
(1) sensing	strong	strong	strong	strong	strong	strong
(2) seizing	strong	strong	strong	strong	**moderate**	strong
(3) reconfiguring	strong	strong	**moderate**	**moderate**	**weak**	**moderate**
Technological capability						
(1) sensing	strong	strong	strong	strong	strong	strong
(2) seizing	strong	strong	strong	strong	strong	strong
(3) reconfiguring	strong	strong	strong	strong	**moderate**	strong
R&D capability						
(1) sensing	strong	strong	strong	strong	strong	strong
(2) seizing	strong	strong	strong	strong	strong	strong
(3) reconfiguring	strong	strong	strong	**moderate**	**moderate**	strong
Innovation capability						
(1) sensing	strong	strong	strong	strong	strong	strong
(2) seizing	strong	strong	strong	strong	strong	strong
(3) reconfiguring	strong	strong	strong	**moderate**	**moderate**	strong
Human resource capability						
(1) sensing	strong	strong	strong	strong	strong	strong
(2) seizing	strong	strong	strong	strong	**moderate**	strong
(3) reconfiguring	strong	strong	strong	**moderate**	**weak**	**moderate**

Source: Our own.

Particular ways of deploying pertinent dynamic capabilities for all case study firms were analysed. With the aim of determining the dynamic capabilities level of deployment, namely weak, moderate and strong, each capability was viewed as containing sensing, seizing and reconfiguring capabilities. A cross-case analysis enabled each capability's evaluation. The level of deploying the capabilities was established after comparing the results for each case study firm.

Table A3: Questions found in the interviews with the key informants, divided into four sections/target respondents

RESEARCH: Exploiting firm capabilities as dynamic capabilities					
Empirical part – Case study research: Interviews with the key respondents					
	Subject areas/Questions	**Primary respondent**	**Secondary respondent**	**Add. respon. 1**	**Add. respon. 2**
1	**Basic information about the case study firm**				
11	**Ownership structure**				
111	What is the ownership structure? How has it been changed over the past years and why?	GM			
112	What is the relationship between the role of the owner(s) and the manager(s)?	GM			
12	**Organisational structure**				
121	How is your firm organised (functional, matrix, divisional, process, etc.) and the reasons (+/-) for such an organisation form?	GM			
13	**Performance evaluation model**				
131	How do you measure your performance (financial, non-financial perspective, personal goals...)?	GM			
133	What is your comment on your financial performance over the last 5 years?	GM			
2	**Developing competitive advantage**				
21	**Attractiveness of the IT industry**				
211	Is the IT industry more or less attractive in comparison with other industries? Why?	GM	SM	R&D M	
22	**Strengths and weaknesses**				
221	What are the advantages and disadvantages in comparison with your (in)direct competitors?	GM	SM	R&D M	
222	Why do customers buy from you and not from your competitors? What can you offer them in comparison with your key competitors?	GM	SM	R&D M	
23	**Building core capabilities**				
232	Have environmental (or any other) changes caused any major/minor changes in your core capabilities and strategies? Give an example.	GM	SM	R&D M	
24	**Sensing capabilities**				
241	How does the process of sensing, taping new opportunities take place?	GM	R&D M	SM	
242	Are there any areas with more/less opportunities?	GM	R&D M	SM	
25	**Seizing capabilities**				

RESEARCH: Exploiting firm capabilities as dynamic capabilities					
Empirical part – Case study research: Interviews with the key respondents					
	Subject areas/Questions	**Primary respondent**	**Secondary respondent**	**Add. respon. 1**	**Add. respon. 2**
251	How does the process of recognising the "right" opportunities/ideas/models take place?	GM	R&D M	SM	
252	On which areas have you been able to adapt most of the opportunities and why?	GM	R&D M	SM	
253	How does the process of choosing the "right" opportunity take place? Who is the decision maker and why?	GM	R&D M	SM	
26	**Reconfiguring capabilities**				
261	How do you follow the new knowledge and technological advancement in your area/ industry and beyond the boundaries?	GM	R&D M		
262	Are you successful (enough) in imbedding the new knowledge in your products/services/ business models (grade 1-5)?	GM	R&D M	SM	
263	How does the process of reconfiguring, implementing, adapting the new opportunities/ ideas/models take place?	GM	R&D M		
264	Have you been forced to make any major changes in your firm? Why?	GM	R&D M		
3	**Managerial capability**				
31	**Accepting and implementing changes, risk-oriented behaviour**				
311	What are the biggest risks in your business and how do you cope with them?	GM			
312	How successful is the management team in implementing the changes (speed, results, grade 1-5)? (What would improve their performance?)	GM			
313	Would you say that you are more or less risk-oriented than your co-workers?	GM			
314	Is being more risk-oriented a precondition to sustain (and be able to compete) in the IT industry?	GM			
32	**Future-oriented behaviour**				
321	What is your planning horizon? How far in the future do you plan and why?	GM			
33	**Networking and partnerships development**				
331	Is networking important for your business? In which areas and how do you proceed the networking activities?	GM	R&D M	SM	HR M
332	Do you have any specific strategies for doing this the so-called planned networking?	GM			
333	Have you established any long-term partnerships and why?				

RESEARCH: Exploiting firm capabilities as dynamic capabilities					
Empirical part – Case study research: Interviews with the key respondents					
	Subject areas/Questions	**Primary respondent**	**Secondary respondent**	**Add. respon. 1**	**Add. respon. 2**
34	**Communication capacity**				
341	How important is effective communication? How would you describe effective communication?	GM	HR M	SM	R&D M
342	What forms and channels of communication (informal, formal, verbal, non-verbal, etc.) are typical of your business environment (internal, external)?	GM	HR M	SM	R&D M
35	**Managerial capacity/competence**				
351	Who is the decision maker (a person or a team) for strategic questions? (To what extent/level of hierarchy do you delegate important tasks and responsibility for taking risks and making decisions?)	GM			
352	What are the key capabilities/competencies a general manager should have?	GM	HR M		
353	Are there any gaps between the desired competence level and the current competence level (competence gaps)? (The education level of the management team, previous experiences & work positions, the number and the content of training hours?)	GM	HR M		
354	Are competences at different levels of hierarchy different and if so, why?	GM	HR M	SM	R&D M
4	**Human resource capability**				
41	**Human resource strategy**				
411	Who is responsible for planning, developing and executing the human resource strategy?	HR M	GM		
412	Is your human resource strategy written-down? How has it been executed and evaluated?	HR M			
413	What rewarding system/scheme do you have? Do you have any special rewarding system for the "more innovative" ones?				
42	**Self-motivation, self-initiative behaviour**	HR M			
421	Are your employees creative, self-initiative, or average (grade 1-5)?	HR M			
422	How do you support their creativity?	HR M	R&D M		
423	Are your employees the most important source of innovation and if so, why?	HR M			
424	Are any employees more or less innovative? Can you describe their competence profile?	HR M			

RESEARCH: Exploiting firm capabilities as dynamic capabilities					
Empirical part – Case study research: Interviews with the key respondents					
	Subject areas/Questions	**Primary respondent**	**Secondary respondent**	**Add. respon. 1**	**Add. respon. 2**
425	How do you develop competences of your more creative/innovative employees?	HR M			
43	**Accepting changes and novelties, risk-oriented behaviour**				
431	Are your employees open for changes, novelties? Are they ready to take a risk? Give some examples.	HR M	R&D M		
44	**Future-oriented, strategic perspective behaviour**				
441	Do your employees take an active part in the strategic planning process and strategy in general? If they do, explain this process.	HR M	GM		
45	**Networking possibilities and capabilities**				
451	Are your employees members of diverse professional associations? Which are they and why are they important?	HR M			
452	Do you promote unformal networking and why?	HR M	GM		
46	**Human resource capabilities**				
461	What are the key capabilities/competencies employees in your firm (and industry) should have?	HR M			
462	Are there any gaps between the desired competence level and the current competence level (competence gap) among your employees?	HR M			
463	What is you experience in an internal knowledge transfer and a self-learning process?	HR M			
464	What is the number of training hours per year? What is the content of the training classes?	HR M			
465	What is your fluctuation rate? Do you have part-time employees? If so, why?	HR M			
5	**Innovation, R&D and technological capability**				
51	**Understanding innovation, the innovation process and innovation strategy**				
511	What do you understand under the term innovation? Describe some typical innovations that occurred in your firm in the recent years.	R&D M			
512	How important is the innovation activity for your business and your industry?	R&D M	GM		
513	Do you consider yourself as an innovative company and why? How would you rate your "innovation fit" between 1-5?	R&D M	GM		

RESEARCH: Exploiting firm capabilities as dynamic capabilities					
Empirical part – Case study research: Interviews with the key respondents					
	Subject areas/Questions	**Primary respondent**	**Secondary respondent**	**Add. respon. 1**	**Add. respon. 2**
514	What is your innovation strategy? Do you have more tendency for incremental or radical innovation?	R&D M			
515	Are you more or less successful in the innovation processes, product/services, position, paradigm (4P Innovation map)? Explain.	R&D M			
516	Explain your innovation activities/processes and the system that supports that?	R&D M			
517	How fast is the R&D process: from basic idea to its commercialisation?	R&D M			
518	How do you evaluate your innovation processes and outcomes?	R&D M			
519	Are you accepting failures and how do you tolerate a trial-error process?	R&D M			
520	Is there "enough" time for being creative? Are there "enough" other resources available for being creative?	R&D M			
52	**Innovation sources**				
521	Which environmental factors/forces affect the level and speed of innovation (and diffusion of innovation)?	R&D M	GM		
522	Who is responsible for the innovation process and strategy?	R&D M			
523	Who takes the most credit for innovation outcomes and why?	R&D M	HR M		
524	What are the most important internal sources of the innovation process (top management, employees, more innovative co-workers, etc.)?	R&D M	GM		
525	What are the most important external sources of the innovation process (buyers/customers, suppliers/vendors, competitors, industry experts, universities and R&D institutions, government, etc.)?	R&D M	GM		
53	**Funding the innovation process, the financial perspective**				
531	How do you support your innovation and R&D process and activities?	R&D M			
532	Do you think that being a SME poses obstacles to innovation strategy implementation (lack of financial, human resources, etc.)?	R&D M	GM		
533	What are the costs of the R&D process/ activities? Explain.	R&D M			

RESEARCH: Exploiting firm capabilities as dynamic capabilities					
Empirical part – Case study research: Interviews with the key respondents					
	Subject areas/Questions	**Primary respondent**	**Secondary respondent**	**Add. respon. 1**	**Add. respon. 2**
6	**Marketing capability**				
61	**Customers perspective**				
611	Do you consider costumers' needs when developing your business strategies? How?	SM	GM		
612	Are your customers taking an active part in the innovation process? Explain.	SM	R&D M		
613	Can you give a profile/description of your customer(s) taking an active part in the innovation process?	SM			
614	How do you discover the needs of your existing and potential customers/markets?	SM	R&D M		
615	What is your customer retention rate (for the last five years)?	SM			
62	**Suppliers perspective**				
621	How important is collaboration with the IT suppliers, technological leaders in the IT industry? Why?	SM			
622	What are the financial and non-financial results of these long-term partnerships?	SM	R&D M		
63	**Competitors perspective**				
631	Do you benchmark your environment? Explain this activity.	SM			
632	Do you have any short-term/long-term partnerships with your competitors (joint R&D, market entrance) and if so, why?	SM			
64	**Partnerships, Collaboration and Networking**				
641	Do you have any short-term/long-term partnerships with universities, R&D institutions and if so, why (the level of commercialisation)?	SM	R&D M		
642	Do you have any short-term/long-term partnerships with any other subjects in your environment and if so, why?	SM	R&D M		

GM – General Manager; SM – Sales Manager; R&D M – R&D Manager; HR M – HR Manager.

Source: Our own.

INFORMATION SOURCES AND FACTORS INFLUENCING ENROLMENT IN ICT AND STEM UNIVERSITY STUDY PROGRAMMES

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ABSTRACT: *In a demanding and increasingly competitive higher education marketplace, the awareness of the reasons why prospective students choose a certain study programme and information sources they use during their decision-making process is essential to develop institutional positioning, thus requiring deeper understanding. This paper aims to explore students' decision-making processes, focusing on the information sources and factors influencing their decisions. The results contribute to the understanding of factors influencing students' decision-making and provide the evidence about the factors and information sources influencing Information and Communication Technology (ICT) and Science, Technology, Engineering and Mathematics (STEM) students' choice, which can serve as implications for higher education policy makers and companies operating in these fields.*

Keywords: *factors affecting students' choice, consumer behaviour, higher education, educational economics, information sources, institutional positioning, services marketing*

JEL Classification: I23, L31, M310

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1 INTRODUCTION

In today's highly competitive and increasingly complex higher education marketplace, where students can chose among many options, factors enabling higher education institutions (HEIs) to attract and retain students, as well as information sources used by prospective students when applying to an HEI, request a deeper understanding. The importance of attracting and retaining students in Science, Technology, Engineering and Mathematics (STEM) and Information and Communication Technology (ICT) study areas is of highest interest because ICT and STEM expertise is regarded as an imperative for future economic growth based on knowledge and technological innovations (EC, 2015; CIC, 2014). In accordance with Europe 2020 flagship initiative Digital Agenda for Europe, Europe

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will need more qualified staff to support its strategic orientation in fostering sustainable development of the European Union through development and implementation of digital technologies (EC, 2010; EC, 2014). STEM skilled labour is also insufficient (EP, 2015) and "effective cooperation with employers" is needed (EP, 2015, p. 24).

Owing to the awareness that during the last decade the European Union member countries have been continuously reporting and alerting about the young population's decreasing interest to enrol in STEM study areas (EC, 2007; OECD, 2008), a need has emerged to deepen the understanding about students' decision-making processes and to gather scientific evidence about the information sources and factors affecting prospective students' choice when selecting an HEI offering ICT and STEM study programmes in order to provide the support for enhancements of HEIs' marketing policies. The awareness about the reasons why students choose a certain HEI and information sources they use during their decision-making process is essential to develop institutional positioning in an increasingly competitive higher education marketplace. Thus, this paper aims to answer the following question: *What are the information sources and factors that influence the ICT and STEM students' decision-making process related to choosing a specific higher education institution and a study programme?*

There is only a limited research base regarding the issues. Moreover, to the best of our knowledge, research providing evidence from Croatia regarding this subject is rather scarce as well. The originality of this study stems from the fact that this is believed to be the first such study carried out among students at the University of Rijeka. Given that the questionnaire can be used to survey factors affecting students' choice in most other higher education institutions should be considered as an important added value of this work.

The paper thus begins with a brief theoretical background related to the choice, information sources and decision-making in the higher education context, institutional positioning, as well as an ICT and STEM skills gap in the labour market. In the subsequent section, it addresses the empirical research with data analysis, followed by the concluding discussion that also indicates limitations of the study and suggests a proposal for future research.

2 LITERATURE REVIEW

When making a decision about which study programme and HEI to select and attend, prospective students are influenced by a wide range of various influence factors. Sources of information and factors affecting students' choice are important dimensions in the students' decision-making process (Kiel & Layton, 1981; Simões & Soares, 2010).

2.1 Choice in higher education

Due to the constant and intense changes occurring in the last decades, the higher education marketplace has been transformed to a highly marketised, competitive environment

(Soutar & Turner, 2002), and the phenomena of choice and decision-making in higher education have become an area of growing research interest. In today's increasingly competitive and diverse higher education marketplace, students have many options and choices available to choose from and have to engage in a serious decision analysis in order to make an informed decision.

According to Foskett (1999), choice is a continuous, complex and multifactorial process that involves different sources influencing an individual's decision. Early structural models by Gambetta (1996), Roberts (1984) and Ryrie (1981), proposed to predict and explain participation and progression of students in higher education, explain the choice in the context of institutional, economic and cultural confines, with the central argument of choice as an irrational process. On the contrary, to adverse such argument, the economic models of choice, as proposed by Becker (1975), are based on beliefs that students make rational choices based on calculations of the relative rates of returns associated with participating in a particular higher education study programme. Yet, a third group of structural models explaining choices are based on the individual's subjective reasoning in the decision-making process and on the importance of an individual's personality. In accordance, Hodkinson et al. (2012) argue that "choice is a rational process that is constrained by a realistic perception of opportunities and shaped by individual personality" (Payne, 2003, p. 13). Hemsley-Brown (1999) follows this view and confirms in her study that future students have pragmatic reasons for making choices, which are found to be influenced by family background, culture and life history. Foskett & Hemsley-Brown (2001) develop an integrated model which synthesises elements of the previous three models, in which choice is not a fully rational action and includes both key choice influencers and choosers. In this paper, choice is considered as an expression of students' preferences at a particular moment of the students' decision-making process (Maringe, 2006).

2.2 Decision-making in higher education

In recent literature (Lunenburg, 2010; Lee & Chatfield, 2011; Wadhwa, 2016), decision-making process is broadly comprehended as a problem solving process, undertaken by individuals in the process of making choices. Decision-making models have been developed from the theory of consumers' purchase behaviour, which defines purchase behaviour as a process or a series of stages that include arousal, information search, evaluation of alternatives, purchase decision and post purchase feelings (Kotler, 2003).

Chapman (1986) was amongst the pioneers in transposing the buying behaviour theory into the education context, suggesting that students and their parents go through a series of stages in the process of selecting an HEI or a study programme. The stages include: (1) pre-search behaviour, (2) search behaviour, (3) application stage, (4) informed decision, and (5) application (Maringe, 2006). In the stage of pre-search behaviour which involves students' early thoughts about their future careers, prospective students are exposed to information about HEIs and are becoming aware of them. Since some of the lasting perceptions and attitudes are developed during this stage, HEIs aiming to extent their

recruitment markets should recognize the importance of this early decision-making stage to improve their presence in the passive minds of future students. At the stage of search behaviour, prospective students already make a selection of several potential HEIs and begin to search and use available information sources to make an informed decision, while looking for data that meets their range of decision criteria (Maringe, 2006). At this stage, HEIs should maximise the availability of their information sources to facilitate the prospective students' decision-making process. In the application stage students submit their applications to the selected HEIs. Since prospective students tend to make multiple applications, there is still time to influence their choice by considering their applications promptly, responding quickly to communication requests and developing strategies ensuring a high standard of customer care (Sargeant, 1999).The term ***decision*** assumes the actual acceptance of the offer by the prospective student, followed by the final stage of the process, in which the applicant turns up for registration.

In relevant scientific literature (Lee & Chatfield, 2011), research on choice and decision-making process in the higher education context has been conducted at three levels: (1) the global level which shows why students choose to study out of their home country, (2) the national level at which students' choice of a certain HEI is in focus, and (3) the choice of a study programme which received the least attention.

Dreher & Poutvaara (2005) argue that at the global level, cultural and economic factors have the most influential impact on shaping the international students migration markets. Bauer et al. (2000) identify "push and pull" factors which impact the students' decision-making process in the international higher education market, explaining push factors as those relating to obstacles in higher education admission and attainment in home countries, scarcity of career opportunities, low economic standards, disagreement and disappointment with the general political climate, as well as political violence and deprivation of certainty in the government's ability and willingness to improve living conditions (Dzvimbo, 2003). According to Borjas (1994) and Bauer et al. (2000), pull factors attracting students to countries in the developed world are high educational standards in host countries, high teaching quality, availability and opportunities for future postgraduate study, a safe study and political environment, economic capabilities that include prospect of future employment, availability of part time jobs, and opportunities for study funding, including the opportunities for state assisted funding for family members.

The choice of HEI within countries gained prevalent interest among researchers and has been studied extensively. James et al. (1999) in their research conducted in Australia, found that field of study preferences, institutional reputation, course reputation, course entry scores, as well as easy access to home and institutional characteristics have a much more significant impact on future students' choice of HEI than costs. In accordance to that, Price et al. (2003) conducted a research in England, resulting in its extension by adding further dimensions that were found to have an influence on prospective students' decisions and choice of HEI, i.e. applicants to undergraduate study programmes considered the teaching reputation of HEIs more important than their research profiles. Foskett et al. (2006) confirm the growing tendency of considerations of economic factors among the student

population (i.e. part time job opportunities to supplement their incomes, accommodation costs and family home proximity), considering them as obstacles during the times of financial concerns or economic crises. Since the financial considerations have become increasingly more important to students, it was suggested to reconsider the meaning and importance of factors influencing prospective students' HEI choice.

The choice of a study programme closely relates to the choice of a higher education institution. Accordingly, James, Baldwins and McInnis' (1999) research in the area of study programme choice and decision identifies several factors influencing prospective students' study programme preferences: the entry criteria (possibility of enrolment based on school results), reputation of the study programme among employers, graduate satisfaction from the study programme, graduate employment rates from the study programme, teaching quality in a given study programme, approaches to teaching and learning, and assessment of the study programme. Study programme flexibility was found rather important especially among mature students and single parents students (James et al., 1999).

2.3 Information sources

To gather relevant information about a product or a service, various sources of information in the decision-making process need to be analysed. Murray (1991) and Boyle et al. (2011) identify two different information sources, internal and external. Accordingly, Beatty & Smith (1987) and Simões & Soares (2010) classify external information sources as interpersonal, media, neutral, and retailer, while Olshavsky & Wymer (1995) assort information sources as consumers' direct inspections of products or services, interpersonal sources (e.g. relationships), marketer-controlled sources (e.g. advertising), reseller information (e.g. catalogues), and third-party independent sources (e.g. consumer reports).

In the higher education context, the usage and relevance of distinct information sources have been explored, such as HEIs' websites, HEIs' open door days, media reports, brochures, leaflets, parents, teachers, and others. The research focusing on prospective students' information relevance and requirements found that the majority of prospective students rely on information sources developed by the HEI (such as HEIs' websites, brochures, leaflets, flyers), while career services and interpersonal sources, like parents and teachers for example, are found to be less important (Veloutsou et al., 2004; Briggs & Wilson, 2007). Taylor (1974), Schaninger (1976), Dowling (1986), Beatty & Smith (1987) and Heinström (2003) confirm the connection between individual factors and preferences for information sources. Briggs & Wilson (2007) show evidence on differences in preferences of information sources depending on gender and study programme area. Boone et al. (2004) identify differences between individual personalities and the chosen higher education study programmes.

2.4 Institution positioning in higher education

In the turbulent and increasingly demanding higher education marketplace, applicants or prospective students compete for the most preferred HEIs, while HEIs compete for the best students. Thus, HEIs should take advantage of their strengths and position themselves around the aspects they are successfully fulfilling and are about to become excellent in (Maringe, 2006).

According to Wilson & Gilligan (2012, p. 354), positioning is „the process of designing an image and value so that customers within target segments understand what the company or brand stands for in relation to its competitors". Accordingly, positioning as a process consists of three essential principles: (1) establishing and developing an institutional brand or image, (2) determining market segments and (3) creating a communication strategy that emphasizes the institutional proficiency to deliver its products and services to customers within a certain market segment. The above indicates that understanding prospective students' purchase behaviour, identification of choice and their decision-making process can contribute to create an HEI's positioning strategy.

2.5 ICT and STEM skills gap in the labour market

Policy makers in Europe and globally have identified the high growth sectors and thus recognise and foresee ICT and STEM skills shortages. According to Cedefop (2014, in Berger & Frey, 2016), 40% of European firms stated they lack workers with adequate skills. By 2020 companies will be able to absorb 756,000 additional workers in ICT only (Hüsing, Korte & Dashja, 2015). The gap is also widening in STEM skilled workers supply and demand (Cedefop, 2014, in Berger & Frey, 2016). Unless employers' needs are met by the educational system, they will have to resort to other options, such as specialised training programmes or labour force immigration. For employers, these solutions are costly, time-consuming and may slow down growth. Croatia is one of the countries where the society struggles with high unemployment rates coexisting with skill shortages in some fields (EC, 2017). A better alignment of the number of students in ICT and STEM is needed to address the labour market needs.

3 EMPIRICAL RESEARCH

Following the research questions, four hypotheses grounded on previous research have been submitted to data analysis to explore the information sources and factors affecting students' choice of a particular ICT or STEM study programme and a particular HEI. The proposed research hypotheses are:

H1: More important factors influencing the ICT and STEM students' decision-making process are personal interest, graduate employment, academic and teaching reputation.

H2: Less important factors influencing the ICT and STEM students' decision-making

process are parental guidance and the current students' influence.

H3: More important information sources used by ICT and STEM students during their decision-making process are websites and organised HEI visits (i.e. the HEI open-door days).

H4: Less important information sources used by ICT and STEM students during their decision-making process are interpersonal information sources (i.e. friends and acquaintances' recommendations and social networks).

3.1 Methodology

Relevant quantitative data was collected by an anonymous self-administered online questionnaire in Croatian used as a part of a larger study aimed to explore perceived service quality, students' satisfaction, study efficiency, positive word-of-mouth behaviour, reasons for choosing a particular study programme and information sources used during the decision-making process (Mestrovic, 2017), using Google Docs Forms distributed by email to undergraduate and graduate students of the University of Rijeka Departments in ICT and three STEM subjects: biotechnology, mathematics and physics.

The survey was conducted in the period of two months, during the middle of the summer semester of the academic year 2014/2015. Amongst 873 students enrolled and surveyed in this study, 214 questionnaires returned usable and valid for data analysis. While research in the information search area and social media interaction and validation in the student recruitment process use larger samples (e.g. Rutter, Roper & Lettice, 2016), scale developers in the marketing area (Parasuraman, Zeithaml & Berry, 1988; Markovic, 2006) and in higher education research (Wilkins & Huisman, 2011) used a sample size of 200 to analyse group data, thus a convenience sample of 24.51 % achieved for this research was considered as an adequate sample size.

For the data analysis, Statistica 12.7 software was used. After confirming the reliability of the measurement instrument assessed by Cronbach's Alpha, simple descriptive statistics were used as appropriate to examine the respondents' demographic profile, information sources used by the respondents during their decision-making process and factors influencing their choice for a particular STEM or ICT study programme and HEI.

3.2 Sample description

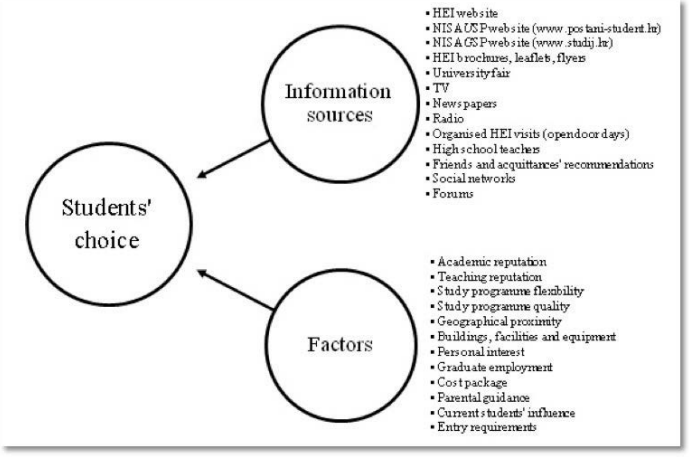
The current study examines the demographic variables of gender, age, study programme level, study programme area, tuition fee and students' success achieved during the studies. From the 214 respondents in this study, 140 (65.42 %) were female and 74 (34.58 %) were male. The calculated mean age of respondents was 22, with the majority of the students being between 21 and 23 years old (48.60 %). Among the total number of respondents, 95 were students of ICT (44.39 %) and 119 respondents (55.61%) were students enrolled

in STEM study programmes. 142 respondents were students enrolled in undergraduate study programmes (66.36 %) and 72 enrolled in graduate study programmes (33.64 %). All of them were full-time students and most of them did not pay tuition fees due to the study success awarded by the Ministry of Science and Education of the Republic of Croatia (MSE) grants (85.98 %). The majority of the students were successful and had a very good average grade during the study (46.26 %), followed by the good grade (29.44 %), excellent (18.22 %) and sufficient (6.07 %).

3.3 Research instrument

A quantitative approach was used in this research. Based on the extensive literature review, for the purpose of this study an online questionnaire was used (Mestrovic, 2017) to explore perceived service quality, students' satisfaction, study efficiency, positive word-of-mouth behaviour, reasons for choosing a particular study programme and information sources used during the decision-making process. It was created in Google Docs Forms and distributed by email to undergraduate and graduate students of the University of Rijeka Departments in ICT and three STEM subjects. The research instrument consisted of seven parts: measure of perceived service quality, measure of overall students' satisfaction, items concerning reasons for choosing a study programme, items concerning information sources used in the decision-making process, efficiency in studying, positive word-of-mouth recommendations, demographic characteristics, and an open question enabling participants to add their suggestions. To achieve the research aim, this study focused on the parts of the survey that administers the respondents' agreement with statements considering the factors affecting students' choice and the sources of information used by students when selecting an HEI, as shown in Figure 1.

Figure 1: *Conceptual framework*



Source: Authors

To achieve the aim of the study, it was decided to use and adapt the selected items from previous inventories developed around the factors influencing students' choice (James et al., 1999; Price et al., 2003; Briggs, 2006; Simões & Soares, 2010). The participants were asked to rate their agreement with the statements considering the factors that influenced their HEI and study programme choice, including their personal interest in the study programme area, academic reputation, teaching reputation, programme flexibility, study programme quality, geographical proximity, academic support facilities, graduate employment, cost of package, family influence, current and former students' influence and entry requirements, using a five-point Likert type scale anchored by 1 (strongly disagree) and 5 (strongly agree). To explore the information sources used during their decision-making process, the respondents were asked to select the sources of information they used when selecting an HEI using a multiple choice scale. All survey questions were mandatory.

Cronbach's alpha value for the entire measurement instrument was 0.958 and demonstrated an excellent reliability according to DeVellis (2001). The subscale with items concerning the reasons for choosing a study programme achieved an acceptable Cronbach's alpha value of 0.662, thus it should be interpreted and used considering its limitations (Hair et al., 2006).

4 RESULTS

Following previous research (James et al., 1999; Price et al., 2003; Briggs, 2006; Simões & Soares, 2010), participants were asked to rate their agreement with the proposed statements. For the purpose of the analysis, agreement to the statements rated as strongly disagree was coded with 1, 2 for disagree, 3 for neutral, 4 for agree and 5 for the statements rated as strongly agree. The mean (M) scores were calculated for each factor, as shown in Table 1.

Table 1: *Mean scores of factors influencing the HEI and study programme choice*

Factor	1 (strongly disagree)		2 (disagree)		3 (neutral)		4 (agree)		5 (strongly agree)		Total	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*N*	*%*	*M*	*SD*
Academic reputation	50	23.36	34	15.89	42	19.63	70	32.71	18	8.41	2.87	1.322
Teaching reputation	64	29.91	32	14.95	58	27.10	39	18.22	21	9.81	2.63	1.339
Study programme flexibility	43	20.09	41	19.16	37	17.29	61	28.50	32	14.95	2.99	1.374
Study programme quality	15	7.01	40	18.69	24	11.21	78	36.45	57	26.64	3.57	1.257
Geographical proximity	34	15.89	23	10.75	23	10.75	73	34.11	61	28.50	3.49	1.413
Buildings, facilities and equipment	40	18.69	23	10.75	34	15.89	77	35.98	40	18.69	3.25	1.381
Personal interest	5	2.34	5	2.34	2	0.93	53	24.77	149	69.63	4.57	0.829
Graduate employment	4	1.87	7	3.27	21	9.81	55	25.70	127	59.35	4.37	0.925
Cost package	20	9.35	12	5.61	38	17.76	71	33.18	73	34.11	3.77	1.241
Guidance from parents	171	79.91	18	8.41	15	7.01	8	3.74	2	0.93	1.37	0.845
Current students' influence	150	70.09	28	13.08	10	4.67	22	10.28	4	1.87	1.61	1.086
Entry requirements	142	66.36	24	11.21	19	8.88	16	7.48	13	6.07	1.76	1.244

Source: Authors

The table above shows that personal interest, marked as "strongly agree" by 149 respondents and "agree" by 53 respondents, is closely followed by realistic career considerations (i.e. graduate employment), marked as "strongly agree" by 127 respondents and "agree" by 55 respondents, and financial aspects (i.e. cost package), marked as "strongly agree" and "agree" by a majority of the respondents (i.e. 73 and 71, respectively). These factors have the greatest impact on the students' choice of a study programme and an HEI. Accordingly, the obtained mean scores are as follows: 4.57 for personal interest, 4.37 for graduate employment and 3.77 for cost package.

Study programme quality, geographical proximity and academic support facilities (buildings, facilities and equipment) are the fourth, the fifth and the sixth most influential factors in choosing the right study programme or HEI, respectively. The majority of the respondents (57 "strongly agreed" and 78 "agreed") consider study programme quality as a moderately important factor (mean score 3.57), while geographical proximity (mean score 3.49) and academic support facilities (mean score 3.25) are found to be less important.

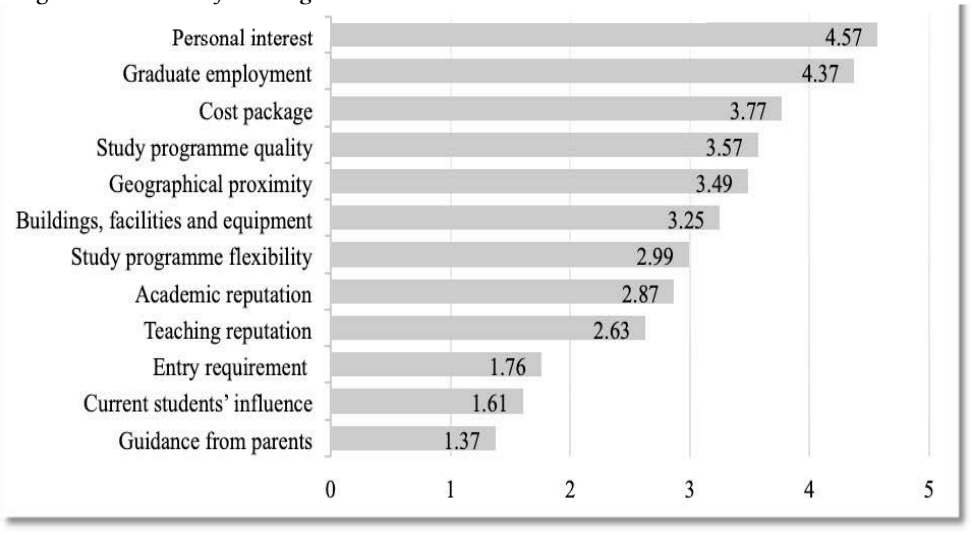
While study programme flexibility, academic reputation and teaching reputation are found to be even less important factors affecting students' choice, the least important factors are entry requirements, the current students' influence and parental guidance. 17.29 % of the total number of respondents were "neutral" considering the study programme flexibility and its influence on their choice, 20.09% "strongly disagreed", 19.16 % of the respondents "disagreed", 28.50 % "agreed" and 14.95 % of the respondents "strongly agreed" to having been influenced by the study programme flexibility, which resulted in its total mean value of 2.99. 39.25 % of the respondents (respectively 50 and 34) either "strongly disagreed" or "disagreed" that the academic reputation had an impact on their choice of a study programme and an HEI, 42 respondents were "neutral" and 41.12% of the total number of respondents either "agreed" or "strongly agreed" that the academic reputation as a factor that made an impact on their study programme and HEI choice, resulting in the total mean of 2.87. The teaching reputation with the mean score of 2.63 was found to have an even lower impact, with the majority of respondents choosing "strongly disagree", "disagree" or "neutral" in relation to its influence.

The least important factors were entry requirements and the current students' influence, followed by parental guidance as a factor with the absolutely lowest influence. Entry requirements were found to have an impact only on 13.55 % of the respondents, who either "agreed" or "strongly agreed" to it having an influence, 19 respondents were "neutral", while the majority of students (77.57 %) either "strongly disagreed" and "disagreed" to the statement that entry requirements had an impact on their study programme and HEI choice, with the mean value of 1.76. The current students' influence was found to have an impact only on 26 respondents, who either "agreed" or "strongly agreed", 10 respondents were "neutral", while the majority of students (178) either "strongly disagreed" and "disagreed" to the statement that the current students' influence had an impact on their study programme and HEI choice, with the mean value 1.61. The guidance from parents was found to have the lowest impact: only 10 respondents either "agreed" or "strongly

agreed", 15 respondents were "neutral", while the majority of students (88.31 %) either "strongly disagreed" or "disagreed" with the statement that guidance from parents had an impact on their study programme and HEI choice, resulting in the total mean value of 1.37.

Figure 2 demonstrates the factors infl uencing the students' choice in selecting an HEI and a study programme. Th e factors are shown in a descending order, from the most important to the least important one.

Figure 2: *Factors influencing students' choicere*



Source: Authors

The second aim of this research was to explore the sources of information used by students when evaluating which HEI and study programme to attend. To achieve that aim, the respondents were asked to select the sources of information, using a multiple choice scale suggesting the following information sources: HEI website, the National information system for application for undergraduate study programmes (NISA*U*SP) website (i.e. www.postani-student.hr), the National information system for application for graduate study programmes (NISA*G*SP) website (i.e. www.studij.hr), HEI brochures, leaflets, flyers, University fair, TV, newspapers, radio, organised HEI visits (i.e. open-door days), high school teachers, friends and acquaintances' recommendations, social networks, forums and other (with the possibility to add and describe any additional source of information). The results are summarised in Table 2.

Table 2: *The most used information sources*

Information sources	Total	
	n	%
HEI website	**130**	**60.7**
NISA*U*SP website (www.postani-student.hr)	**188**	**87.9**
NISA*G*SP website (www.studij.hr)	**34**	**15.9**
HEI brochures, leaflets, flyers	**8**	**3.7**
University fair	**6**	**2.8**
TV	**9**	**4.2**
Newspapers	**22**	**10.3**
Radio	**2**	**0.9**
Organised HEI visits (open-door days)	**0**	**0**
High school teachers	**0**	**0**
Friends and acquaintances' recommendations	**83**	**38.8**
Social networks	**36**	**16.8**
Forums	**4**	**1.9**

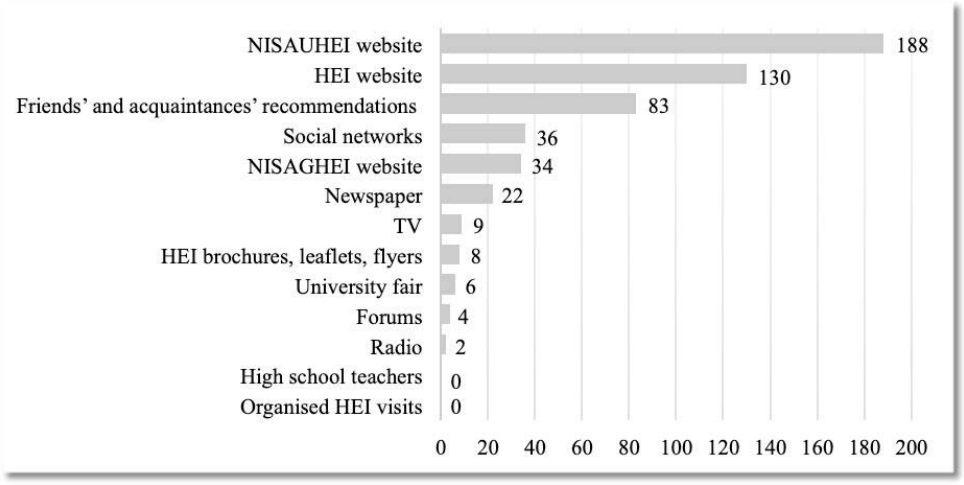
Source: Authors

Among the marketer-controlled sources, the National information system for application for undergraduate study programmes (NISA*U*SP) website, i.e. www.postani-student.hr, was the most used source indicated by 188 respondents (87.9 %), followed by the HEI website, which was used by 130 (60.7 %) respondents. Friends and acquaintances' recommendations (i.e. positive word-of-mouth) and social networks as interpersonal information sources also play a significant role. Friends and acquaintances' recommendations were the third most used information source, noted by 38.8 % of the respondents, followed by social networks with 16.8 %.

Interestingly, comparing to the NISA*U*HEI website, the National information system for application for graduate study programmes (NISA*G*SP) website, i.e. www.studij.hr, was not among the most frequently chosen information sources, since it was used by only 15.9 % of the respondents. Students addressed the other marketer-controlled sources less: Newspapers were indicated by 10.3 % of the respondents, TV by 4.2 %, HEI brochures, leaflets and flyers by 3.7 % and the University fair by 2.8 % of the respondents.

Finally, forums were chosen by only 4 respondents (1.9 %) and radio was marked as used by only 2 respondents (0.9 %). It should be noted that high school teachers and organised HEI visits (i.e. the HEI open-door days) were not indicated as information sources at all, therefore, they were found to be irrelevant to the respondents. Figure 3 shows the information sources ranked from the most to the least used one.

Figure 3: *The most used information sources*



Source: Authors

The findings either partially or fully support the proposed hypothesis as follows: (H1) "More important factors influencing the ICT and STEM students' decision-making process are personal interest, graduate employment, academic and teaching reputation"; (H2) "Less important factors influencing the ICT and STEM students' decision-making process are parental guidance and the current students' influence"; (H3) "More important information sources used by ICT and STEM students during their decision-making process are websites and organised HEI visits"; (H4) "Less important information sources used by ICT and STEM students during their decision-making process are interpersonal information sources". The findings also answer the research questions: What are the most used information sources that prospective students use while evaluating which HEI and study programme to attend and what are the key factors that influence the ICT and STEM students' decision-making process? Namely, while personal interest and graduate employment exerted the greatest impact, academic reputation and teaching reputation were found to be less powerful choice factors, partially supporting Hypothesis 1 (H1), stating that the most important choice factors influencing the ICT and STEM students' decision-making process are personal interest, graduate employment, as well as academic and teaching reputation. The current students' influence and parental guidance were found to be the least important choice factors, thus fully supporting Hypothesis 2 (H2).

According to the preceding results considering the information sources used during the decision-making process, the respondents marked the NISA***U***SP website as the most used information source, followed by the HEI website, while the NISA***G***SP website did not prove to be among the most influential information sources. Additionally, the HEI open-door days were found to be irrelevant to the respondents. Therefore, the third hypothesis (H3), stating that more important information sources used by ICT and STEM students during their decision-making process are websites and organised HEI visits, was only

partially supported. While forums and radio were found to be the least important, both high school teachers and the HEI open-door days were not addressed at all, thus found to be totally irrelevant to the respondents. Therefore, the fourth hypothesis (H4), stating that friends and acquaintances' recommendations as well as social networks are less important information sources, was not supported. Further research should explore the reasons for such ICT and STEM students' opinions. This research implies HEIs should reconsider their methods for attracting students while businesses should put greater emphasis on students' employment prospects.

5 DISCUSSION AND CONCLUSIONS

To contribute to the understanding of the factors affecting students' choice and the information sources used by ICT and STEM students in the course of their decision analysis related to choosing a study programme and an HEI, a quantitative survey method aiming to extend the limited research on the topic was used. The study provides evidence about the factors and information sources influencing the students' choice.

The conducted analysis shows that three out of four research hypotheses were either fully or partially supported, except the one stating that friends and acquaintances' recommendations and social networks are less important information sources that ICT and STEM students use during their HEI and study programme decision-making process, which was not supported.

The findings indicate that the HEI and study programme decision-making process is a complex multi-criteria process. The evidence demonstrates consistency in respect to the top three factors affecting students' choice: (1) personal interest in a specific study area and (2) employability after graduation, which are partially in accordance with Maringe's (2006) study, and (3) the cost package, as in Hoyt & Brown's (2003) study, which was found to be more important than the study programme quality or academic reputation. In disagreement with previous research (Veloutsou et al., 2004; Briggs (2006); Briggs & Wilson, 2007), the importance of academic reputation was found to be the eighth out of twelve relevant factors affecting students' choice. This highlights the need for HEI adequate positioning and differentiation strategies, including branding followed by effective promotion.

Employability, being the second most important decision-making factor, suggests that employers need to advocate ICT and STEM students' employment perspectives better if they want to increase the number of students enrolling in these fields. This is important in order to ensure sustainable economic growth of relevant sectors.

The findings reveal that the National information system for application for undergraduate study programmes (NISA*U*SP) website, the HEI website and friends and acquaintances' recommendations are rated among the top three most used sources of information by the majority of respondents, being in line with previous studies reporting the growing

importance of websites (Mentz & Whiteside, 2003; Briggs & Wilson, 2007) and word-of-mouth (Murray 1991; Briggs & Wilson 2007) as information sources in the prospective students' decision-making process. The sample size and the convenience sampling determined a considerable limitation to the generalisability of the findings of the study, partially confirming previous relevant research. Accordingly, a larger-scale survey testing the key findings should be part of future research.

The information search stage of the prospective students' decision-making process represents an opportunity for HEIs to influence their choices, thus requesting the HEIs to contemplate adequate ways for their promotion in the recruitment market and emphasize their promotional messages in the fields that are in fact the most important to students and not the ones assumed to be the most important by HEIs. From the marketing perspective, the implications of this study may be useful to marketing managers as an idea for designing the promotional mix, where websites are found to be the key information sources. The relevance of friends and acquaintances' recommendations as a frequently addressed information source should be considered with closer attention due to their important implications. Certain measures may improve students' satisfaction and, consequently, their positive word-of-mouth as a communication channel. Additionally, it would be useful to further explore why students ignore traditional HEI's promotional tools, such as brochures, leaflets, flyers and other printed material, to play a significant role in their decision-making process.

By using simple descriptive statistics, this study identifies some important views which need to be accentuated. The obtained data could be additionally subjected to a quantitative analysis using inferential statistical tools to investigate gender and study programme area differences of the factors affecting students' choice and the information sources used in the study programme and HEI decision-making process. It could provide additional insights as implications for higher education policy makers and companies operating in these fields. In addition, the findings should be considered as a starting point for further research on the importance, determinants, impacts and outcomes of the factors affecting students' choice and the information sources used by prospective ICT and STEM students during their decision analysis process.

Recognizing and exploiting the above mentioned is essential for the design and development of the HEI's recruitment strategy that allows the institution to compete successfully in the demanding higher education recruitment market. Being aware of the importance and understanding the reasons for choosing a certain HEI, as well as using certain information sources during the students' decision-making process, contributes to the solid foundations for the creation of a proper HEI positioning in the increasingly demanding and competitive higher education marketplace. Based on the findings of this study, useful to policy makers and marketing strategy creators in the services industry in general and in the higher education sector in particular, improvements can be planned across information sources and factors that influence the students' choice of HEIs, as a key factor to attract, educate and retain ICT and STEM students in Croatia.

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A DYNAMIC MODEL FOR INVESTIGATING CONSUMER UTILITY DERIVED FROM STATUS GOODS*

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ABSTRACT: *The purpose of this paper is to present a model that expresses the dynamics of the consumption of status goods from the perspective of consumer utility. The core of the model is how the level and the change of the prestige value of status goods affect the consumer's utility level over time. The model takes into consideration that individuals are often impatient to achieve a higher social position and that the prestige value of status goods changes during their diffusion. The model can be applied to forecast or monitor a proposed or an already realised purchase of status goods.*

Keywords: *social status, status goods, consumer utility, status-seeking behaviour, status consumption*
JEL Classification D11, D91
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1 INTRODUCTION

Striving for expressing and enhancing one's social status is a determinant and a continuous phenomenon in developed societies and economies nowadays. Its manifestation is called status-seeking behaviour which has many forms, such as career development and participating in certain events; however, only the consumption of status goods as a type of relative consumption is considered in this paper.

Interpersonal effects play a critical role in the consumption of status goods (Corneo and Jeanne, 1997a, 1997b; Kovács, 2015; Leibenstein, 1950), therefore, the absolute level of consumption is not the only factor in influencing consumer utility. On the one hand, an individual compares his purchased goods with others' possessions[2], and in this way, his perceived relative position also has an effect on his utility level. Furthermore, he can modify his consumption according to others' consumption to achieve a higher utility level and social status, whereas on the other hand, not only the intrinsic value but also the prestige value of status goods has a considerable influence on consumer utility. Frijters (1998) claims that the prestige value of goods is established by the average status of the consumers. Thus, the prestige value changes during the lifecycle of the goods, depending on the social position and the number of adaptors. The more

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2 This can occur only if others' consumption can be observed (Arrow and Dasgupta, 2009).

individuals possess certain goods, the lower the status value of the goods. Consequently, consumer utility derived from status goods should be investigated dynamically. It is worth mentioning that status and prestige value regarding goods are used as synonyms in the related literature. Thus, they are used as synonyms also in this paper.

The purpose of this paper is to investigate how the consumer's utility level derived from owning status goods changes over time due to factors related to the rivalry for social status. An own developed model is presented, expressing the dynamics of the consumption of status goods from the perspective of consumer utility. The core of the model is how the level and the change of the prestige value of status goods affect the consumer's utility level over time. The model takes into consideration that present-biased preferences (see O'Donoghue and Rabin, 1999) can be valid during the consumption of status goods, as individuals are often impatient to achieve a higher social position. It also includes that the prestige value of status goods changes during their diffusion, as the social status and the number of adaptors (snobs and followers) vary, and that people have different status properties when they purchase an additional status good to sustain or enhance their social status. Moreover, the form of financing an additional (valuable and durable) status good, which is with or without credit, can also influence the consumer's utility level. According to the model, the overall consumer utility levels per period are determined for the whole considered period, and they can be applied to forecast or monitor a proposed or an already realised purchase of an additional status good. In addition, the model is also beneficial to compare various consumption alternatives, including the different levels of influencing factors to predict and manage the utility levels over the considered time period. The model can be useful to plan or forecast an intended purchase of status goods by taking into account the individual's financial position, to avoid consumer's or household's indebtedness and to find the optimal form of financing valuable and durable status goods for an individual.

It is worth pointing out that consumers tend to overspend on status goods in developed economies[3], the consequence of which can be indebtedness, as occurred during the economic and financial crisis that started in 2008. Frank (2005) argues that when people spend more on status goods due to a rivalry over their relative position, they decrease consumer expenditure on non-positional goods; in this way, welfare loss occurs. Bricker et al. (2014) point out that relative consumption has considerable macroeconomic consequences, such as decreasing the savings rate and greater consumer indebtedness.

The rest of the paper is organised as follows. Section 2 includes a brief literature review about consumption related to status-seeking behaviour. Section 3 presents a dynamic model that describes how the overall consumer utility derived from status goods is influenced by present-biased preferences, the level and the change of the prestige value of status goods, the form of financing additional (valuable and durable) status goods, and the passing of time. Finally, section 4 gives the summary and the concluding remarks.

[3] If social status is important for an individual, he tends to invest a lot of money, time and energy to achieve a higher position (Becker et al., 2005).

2 LITERATURE REVIEW

Interpersonal effects arise at the level of preferences and not at the level of demand (Iannaccone, 1989). The first works about status-seeking behaviour also confirm that. According to Veblen's (1899/1979) conspicuous consumption theory people often strive to display their wealth to others by consuming conspicuous goods so that they can achieve a higher position. In the rivalry for social standing individuals' core drivers are the invidious comparison or pecuniary emulation. The investigation of the demonstration effect described by Duesenberry (1949) also reinforces that consumers' preferences are interdependent. Charness and Rabin (2002) identify the existence of competitive preferences which have relevance during status-seeking behaviour.

Weiss and Fershtmann (1998, p. 802) define social status with a sociological approach as "a ranking of individuals (or group of individuals) in a given society, based on their traits, assets and actions."[4] Similarly, Ordabayeva and Chandon (2011) state that social status is an individual's relative position in a group that is not necessarily observable. Bilancini and Boncinelli (2008) provide a core contribution to the related literature as they point out the difference between cardinal and ordinal status. This is relevant to the research and modelling in related topics and also to the interpretation and application of research findings. Cardinal status reflects the distinction that exists between the status goods possessed by an individual and others. However, ordinal status refers to a consumer's rank in the distribution of the possessed status goods. While Duesenberry (1949) and Akerlof (1997) integrate the cardinal status into the consumer's utility function, Frank (1985) applies the perspective of the ordinal status in his model. It is worth mentioning that Mazali and Rodrigues-Neto (2013) have a particular view of the matter, especially compared to the ones mentioned above. They assume in their model that an individual's status is determined by the brand of the most valuable status goods he consumes. I do not agree with this definition because one's social position is established by more than just one factor or possession. Consequently, a kind of average of their features determines the status.

Some social status elements, i.e. the ones related to the family background, are fixed in the short run (Becker et al., 2005). However, individuals can raise their status by becoming a member of a certain group, investing in observable and valuable assets or doing various activities (Weiss & Fershtmann, 1998). Status is also important for individuals as it affects significantly how successful someone can be in non-market situations (Cole et al., 1992) and it also reflects non-observable abilities (Rege, 2008).

A form of status-seeking behaviour is the consumption of status goods. A reason for this is that status and consumption are complements (Becker et al., 2005). Rauscher (1993) states that status goods reflect their owner's social position, however, with a

[4] Individuals rank members of society differently. Nevertheless, an individual's social or relative position can be determined relatively unambiguously.

prospective approach, those are the "goods that an individual expects to increase his or her status" (Kovács, 2015, p. 376). Thus, they can be regarded as 'positional goods' (Hirsch, 1976). The group of status goods is wide and varied. Not only tangible goods can demonstrate the social position, but also the use of certain services and some forms of free-time activities can do that. Therefore, studying in private universities, eating in elegant restaurants and taking part in luxury holidays can reflect an individual's social standing. Furthermore, one subgroup of status goods is luxury goods with a very high price as their core feature, usually reflecting in their appearance as well. Another subgroup of status goods includes conspicuous goods that are consumed to display their owner's wealth to others (Veblen, 1899/1979).

Various types of motivation for consuming status goods have been broadly scrutinised in the literature; based on the internal (e.g. hedonism, self-concept) and external (e.g. exclusivity, social identity) drivers Eastman and Eastman (2015) develop a conceptual model of status consumption. The consumption of status goods can be also explained according to the social comparison theory described by social psychologist Festinger (1954). The core of his theory is that individuals would like to assess themselves accurately. Thus, they compare themselves with others, and then they evaluate themselves based on the comparison. In line with this, Hopkins and Kornienko (2004) argue that individuals usually take into consideration others' expected consumption decisions which serve as a reference point before purchasing status goods. Thus, the consumption of status goods has to be visible to others, which means that the consumption of status goods satisfies not primarily basic needs but social needs (Chao and Schor, 1998).

Status-seeking behaviour through consumption is an everlasting form of rivalry among individuals (Trigg, 2001). The main reason for this is the interdependence of people's social position. Thus, Immorlica et al. (2015) study status seeking activities in social networks. Scitovsky (1976) explains that if an individual purchases a certain status good as one of the innovators, his social status rises. However, the status of the individual who has not adopted the good yet diminishes as a consequence. Thus, according to his theory, status-seeking through consumption is a zero-sum game. Similarly, Bianchi (2007) argues that consumers' positional interactions reflect a kind of vertical rivalry among them. The rivalry for social status occurs not only in the social elite but in all classes of society, even though in various forms. Different goods can provide prestige for individuals in various social classes. Possessing a yacht can contribute to belonging to the elite group, while a used car owner or a person who can afford to go on holiday can be successful in the rivalry in the poorest segments of society. Furthermore, there are many goods, such as cars, houses or clothes, which are consumed in (almost) any social class. However, some of their features reflecting the owner's social status can be extremely different, e.g. the brand, the age, the comfortability and the extras in case of cars; or the place, the condition and the area in case of houses. Mason (1981) argues that both vertical and horizontal rivalry can arise. There is a vertical emulation when individuals aim at getting a higher social status by imitating the consumption patterns and the behaviour of the members of the upper classes. In the case of horizontal rivalry, individuals in the same segment

compete with each other. Trigg (2001) states that the social norms directing rivalry change with the economy. In my opinion, the increase of purchasing power, the spirit of consumer society, the relevant role of social networks and the enhanced social and geographical mobility have a significant influence on the rivalry for social status nowadays.

The aspiration for sustaining or enhancing one's social status is present continuously at both social and individual levels. Striving for maintaining and developing the position is relevant for individuals not only because a more favourable or higher-than-before status is a utility-increasing factor, but also because as a result of consumption externalities generated by others' status-seeking behaviour, an individual's relative position can weaken besides the same or even the increasing consumption levels of status goods. For an individual to sustain or enhance his social status, which is beneficial to him, it is necessary (but not sufficient) to maintain or raise his relative consumption. Regarding the dynamics of the consumption of status goods this means that at the same time an individual does not become saturated by status goods due to their positional features. However, their functional characteristics can cause saturation (as in the case of normal goods). Thus, individuals can be highly innovative and fickle in the social status rivalry when they choose intermediary assets, such as status goods or their features.

On the other hand, it is also important to realise that an individual's relative consumption can increase (even significantly) in such a way that his absolute consumption level is unchangeable or rises only moderately. When others are forced to decrease their absolute consumption level in consequence of increasingly unfavourable economic conditions and to weaken personal financial position, an individual who has a stable financial position and can finance (or even slightly increase) his earlier consumption level of status goods can realise a more beneficial consumption than before and can get into a more favourable relative position this way. These relations again reflect that others' consumption continuously influences the change of an individual's social status.

According to the reasoning mentioned above, it is clear that an individual gets into a better relative position in consequence of others' altered consumption decisions and levels. However, in the following such a situation is pointed out when it is the individual who is the originator and determiner of the outcome of his status-seeking behaviour. An individual who is strongly motivated and involved in status-enhancing is able and willing to take a risk to improve his relative position. It can be a financial risk if, for example, he invests into a relatively expensive good compared to his income or wealth position (and, for example, the consumption is covered by credit). However, besides the financial risk he usually takes a social risk as well, since the individual's status is exposed to a risk of not being sure whether he can achieve the desired status through consumption or ownership of status goods. Furthermore, there is a kind of psychological risk because an individual's self-concept and self-esteem can be influenced badly if it is confirmed that he 'has taken on too much' by overspending to get the preferred good. To some extent, the three above

mentioned types of risk arise during the consumption of all status goods. Thus, if an individual purchases a status good that is not suitable for his real financial and social standing, it can have several negative consequences for him and his status can even diminish due to his inappropriate decisions. This could be seen during the economic crisis that started in 2008, as several consumers became heavily indebted as a result of their earlier status aspirations.

Bricker et al. (2014) emphasize that the relative income standing of households affects the financial decisions related to the consumption of status goods considerably. Households with a higher income level tend to contract a higher loan, become more indebted or even choose more risky portfolios to finance their consumption in order to sustain or enhance their social status.

However, a paradox situation arises when consumers become indebted due to purchasing status goods. The purpose of status goods is to reflect or enhance the owner's social position, however, those who do not assess their property status or income standing correctly and 'take on too much' by overspending due to their present-biased preferences, cannot achieve their goals through consuming goods and end up in a relatively disadvantageous social and a bad financial position.

3 THE MODEL

3.1 Framework and assumptions

The core of the model focuses on the dynamics of the consumption of status goods from the viewpoint of the individual consumer's utility. More precisely, how the level and the change of the prestige value of status goods affect the consumer's utility level from the perspective of various time periods. In other words, the main point of the model is that the prestige value of status goods changes over time and it has an effect on the individual consumer's utility. By applying a dynamic approach the model helps understand how various alternatives of the consumption of status goods and their influencing factors, such as the level of present-biased preferences, the prestige value and the diffusion process of status goods, as well as the form for financing additional (valuable and durable) status goods, affect the overall consumer's utility level over time.

We imagine such situations where at time zero a consumer already has a certain amount of status goods. This group of various status goods includes for example clothes, accessories, smartphones, electronic appliances or cars and influences the owner's social status considerably. An individual purchases an additional status good to sustain or enhance his social status. We assume that this status good is valuable and durable, for example, it can be a house or a car. Thus, this good influences the consumer's utility in the long run not only in the period when it is purchased. We also assume that individual's preferences can be time-inconsistent.

First, let us look at the initial consumer utility function. From the perspective that goods can be classified into positional and non-positional goods (Frank, 1985; Hirsch, 1976), or in other words, status and normal goods (Mason, 1992), we claim that individual i's consumer utility in period t in a general form can be written as

$$u_{it} = \sum_{j=1}^{n} v_{St}(x_{ij}) + \sum_{j=1}^{n} v_{It}(x_{ij}) + \sum_{j=1}^{n} v_{It}(y_{ij}) \quad (1)$$

where

- u_{it} is individual i's consumer utility in period t,
- x_{ij} is the amount of status good j consumed by individual i,
- $v_{St}(x_{ij})$ is the (perceived[5]) status or prestige value of good j consumed by individual i in time period t, where $0 \leq v_{St}(x_{ij}) \leq 1$[6],
- $v_{It}(x_{ij})$ is the intrinsic value of status good j consumed by individual i in time period t, where $0 \leq v_{It}(x_{ij})$,
- y_{ij} the amount of normal good j consumed by individual i,
- $v_{It}(y_{ij})$ is the intrinsic value of normal good j consumed by individual i in time period t, where $0 \leq v_{It}(x_{ij})$.

We assume that individual i strives to maximise his consumer utility. As the model focuses on how the consumer utility deriving from status goods varies due to the change of the prestige value of status goods, which is a consequence of mainly individuals' continuous status-seeking behaviour, interpersonal effects and the diffusion of status goods, the intrinsic value of both status and normal goods is ignored from the consumer's utility function. Thus, in the following, the consumer's utility function includes only the factors related to status-seeking behaviour and the prestige value of status goods, further their expense side.

A budget constraint is not included in the model. The consumption of status goods is induced by the rivalry for social status considerably. Thus, the consumer utility

[5] The perceived and not the real status or the prestige value is integrated into the consumer utility function, since it is the prestige value perceived by an individual that directly influences his utility level and decision-making regarding status-seeking behaviour, and not the real prestige value which cannot usually be directly realised or determined by an individual.

[6] The status value of a good that is $v_{St}(x_{ij})$ reflects a relative value. The value of 1 means that the good has reached its maximum prestige value, that is, the good is possessed by individuals with the highest social status, meaning that only a few people possess it. A low status value demonstrates that the good is diffused among consumers and most of the people who possess it have a relatively low social status. Thus, this approach is consistent with Frijters's (1998) view.

[7] An additive relationship is assumed among the prestige value of the various goods, as each and every status good can contribute to consumer utility separately. (Akerlof (1997) also integrates the variable of status as an additive component into the indirect utility function in his status model.) There can be a correlation between the prestige values of the goods in certain cases, such as a summer house and a sailing boat. However, it would be difficult to handle the relationship between the status values in the utility function from the applied approach, and it is actually not relevant regarding the core of the model presented in this paper.

derives primarily from the prestige value of the owned status goods and the possibility of an individual to maintain or enhance his social status this way. As emotions, social needs and emulation influence the consumption of status goods significantly, it cannot be considered as a rational and optimal decision which is a core concept in traditional consumer economics. This issue is studied from a behavioural perspective, and the budget constraint is not included in this model.

Present-biased preferences can be valid in the case of status-seeking behaviour, such as the consumption of status goods, which leads us to the belief that status is considered as asset allocation to achieve future benefits and gain favourable relationships (Geiger-Oneto, 2007; Lin, 1990, 1994). Thus, status rivalry in the society makes most of the individuals impatient in the sense that they strive to achieve a desired or higher status as soon as possible, or they advance the purchase of valuable and durable status goods to enjoy and benefit from the status expression or enhancing. Consequently, time as an influencing factor is also relevant regarding consumer utility.

As the model takes the possibility of present-biased preferences into consideration, let us see how it is integrated into the consumer's utility function. Based on O'Donoghue and Rabin's (1999 p. 106) point of view at time period 0, individual i's overall utility deriving from consumption is

$$U_i^0 = u_0 + \beta\delta u_1 + \beta\delta^2 u_2 + \beta\delta^3 u_3 + \cdots, \tag{2}$$

that is,

$$U_i^0 = u_0 + \sum_{i=1}^{\infty} \beta\delta^i u_i \tag{3}$$

where

- u_t is per-period consumer utility,
- δ is time-consistent discount factor for long-run, where $0 < \delta \leq 1$.
  Its meaning and role are the same as the discount factor in simple standard economic models during exponential discounting. Applying parameter δ reflects that the following utilities are weighted less heavily than the former levels of utility. Thus, from today's point of view the utility of 100 euros today is greater than the utility of 100 euros tomorrow. Furthermore, an individual prefers 100 euros tomorrow to 100 euros the day after tomorrow.
- Parameter β expresses "bias for the present". If $\beta = 1$, preferences are time-consistent and simple exponential discounting is needed. However, if $0 < \beta < 1$, present-biased preferences are reflected.
  In the case of present-biased preferences, an individual prefers immediate consumption and short-run benefits compared to later consumption and long-run benefits. Consequently, an individual places disproportionately higher weight on present consumption than on any future ones (O'Donoghue & Rabin, 1999).

This actually reflects an individual being impatient. The lower the value of β is, the more impatient the individual is. The impatience can arise due to visceral factors (Loewenstein, 1996), self-control problems (Casari and Dragone, 2011) or as a consequence of the change of the consumer's reference point (Hoch and Loewenstein, 1991). The impatience can be manifested in immediate consumption when a new product or innovation is introduced into the market. Another example is that individuals strive to purchase certain status goods as soon as possible so that they do not lag behind in social status rivalry .

In the following sections, (2) and (3) as general forms of overall consumer utility functions are applied to represent present-biased preferences in the model.

3.2 Case I: The status good is purchased without credit

Assuming that individual i owns n number of status goods in the initial time period when $t = 0$, let us look at the case in which an additional valuable and durable status good, such as a car or a house, is purchased and consumed by individual i. We assume that individual i purchases this good, that is the status good $n + 1$, without credit in period 1, in this way, the cost arises regarding this status good[8] only in period 1. As the good is valuable and durable, it has a status value not only in period 1 when it becomes the consumer's property but also in the subsequent periods or a longer run. However, the status value of the good changes during its lifecycle, depending on primarily the number and the social status of adaptors and the ratio of snob consumers and followers. Thus, individual i's consumer utility can be expressed for each time period in the following way

$$u_{i0} = \sum_{j=1}^{n} v_{S0}(x_{ij}) \tag{4}$$

$$u_{i1} = \sum_{j=1}^{n} v_{S1}(x_{ij}) + [v_{S1}(x_{in+1}) - C_1(x_{in+1})] \tag{5}$$

$$u_{i2} = \sum_{j=1}^{n+1} v_{S2}(x_{ij}) \tag{6}$$

$$u_{in} = \sum_{j=1}^{n+1} v_{Sn}(x_{ij}) \tag{7}$$

[8] The consumer's utility function is extended by a cost factor as the model assumes the purchasing of a valuable and durable status good where the related consumer expenditure can be considerable; thus, it decreases the consumer's utility level. It has relevance especially when a consumer buys a relatively expensive good compared to its prestige value or his financial position. (The price as a feasible factor of prestige value is assumed to be integrated into the status value of the good.) (In the literature on the consumption of status goods there are some examples for that the consumer's utility function is completed by the price or cost factor, see Corneo and Jeanne (1999) and Frijters (1998).)

where

- u_{it} is individual i's consumer utility in period t,
- x_{ij} is the amount of status good j consumed by individual i,
- $v_{St}(x_{ij})$ is the (perceived) status or prestige value of good j consumed by individual i in time period t, where $0 \leq v_{St}(x_{ij}) \leq 1$,
- $C_1(x_{in+1})$ is the price of status good $n+1$ purchased by individual i in period 1.

According to (2) and (3), further (4), (5), (6) and (7) from the perspective of period $0,1,2 \ldots n$ individual i's overall utility deriving from the consumption of status goods in Case I is

$$U_i^0 = \sum_{j=1}^{n} v_{S0}(x_{ij}) + \beta\delta\left[\sum_{j=1}^{n} v_{S1}(x_{ij}) + [v_{S1}(x_{in+1}) - C_1(x_{in+1})]\right] + \beta\delta^2 \sum_{j=1}^{n+1} v_{S2}(x_{ij}) + \cdots + \beta\delta^n \sum_{j=1}^{n+1} v_{Sn}(x_{ij}) \quad (8)$$

$$U_i^1 = \sum_{j=1}^{n} v_{S1}(x_{ij}) + [v_{S1}(x_{in+1}) - C_1(x_{in+1})] + \beta\delta \sum_{j=1}^{n+1} v_{S2}(x_{ij}) + \cdots + \beta\delta^{n-1} \sum_{j=1}^{n+1} v_{Sn}(x_{ij}) \quad (9)$$

$$U_i^2 = \sum_{j=1}^{n+1} v_{S2}(x_{ij}) + \cdots + \beta\delta^{n-2} \sum_{j=1}^{n+1} v_{Sn}(x_{ij}) \quad (10)$$

$$U_i^n = \sum_{j=1}^{n+1} v_{Sn}(x_{ij}) \, . \quad (11)$$

3.3 Case II: The status good is purchased on credit

Similarly to Case I, let us assume that individual i owns n number of status goods when $t = 0$ and purchases a valuable and durable status good in period 1. However, in Case II we assume that the status good $n+1$ is purchased on credit, consequently the cost arises regarding this status good not only in period 1 but also in the subsequent periods. The change of the status value of the good is taken into account while studying this case as well. Thus, individual i's consumer utility can be expressed for each time period in the following way

$$u_{i0} = \sum_{j=1}^{n} v_{S0}(x_{ij}) \quad (12)$$

$$u_{i1} = \sum_{j=1}^{n} v_{S1}(x_{ij}) + [v_{S1}(x_{in+1}) - c_1(x_{in+1})] \quad (13)$$

$$u_{i2} = \sum_{j=1}^{n+1} v_{S2}(x_{ij}) - c_2(x_{in+1}) \quad (14)$$

$$u_{in} = \sum_{j=1}^{n+1} v_{Sn}(x_{ij}) - c_n(x_{in+1}) \quad (15)$$

where

- u_{it} is individual i's consumer utility in period t,
- x_{ij} is the amount of status good j consumed by individual i,
- $v_{St}(x_{ij})$ is the (perceived) status or prestige value of good j consumed by individual i in time period t, where $0 \leq v_{St}(x_{ij}) \leq 1$,
- $c_t(x_{in+1})$ is the amount of credit repayment in period t.

Similarly, according to (2) and (3), further (12), (13), (14) and (15) from the perspective of period $0,1,2 \ldots n$, individual i's overall utility deriving from the consumption of status goods in Case II is

$$U_i^0 = \sum_{j=1}^{n} v_{S0}(x_{ij}) + \beta\delta\left[\sum_{j=1}^{n} v_{S1}(x_{ij}) + [v_{S1}(x_{in+1}) - c_1(x_{in+1})]\right] + \beta\delta^2\left[\sum_{j=1}^{n+1} v_{S2}(x_{ij}) - c_2(x_{in+1})\right] + \cdots + \beta\delta^n\left[\sum_{j=1}^{n+1} v_{Sn}(x_{ij}) - c_n(x_{in+1})\right] \tag{16}$$

$$U_i^1 = \sum_{j=1}^{n} v_{S1}(x_{ij}) + [v_{S1}(x_{in+1}) - c_1(x_{in+1})] + \beta\delta\left[\sum_{j=1}^{n+1} v_{S2}(x_{ij}) - c_2(x_{in+1})\right] + \cdots + \beta\delta^{n-1}\left[\sum_{j=1}^{n+1} v_{Sn}(x_{ij}) - c_n(x_{in+1})\right] \tag{17}$$

$$U_i^2 = \sum_{j=1}^{n+1} v_{S2}(x_{ij}) - c_2(x_{in+1}) + \cdots + \beta\delta^{n-2}\left[\sum_{j=1}^{n+1} v_{Sn}(x_{ij}) - c_n(x_{in+1})\right] \tag{18}$$

$$U_i^n = \sum_{j=1}^{n+1} v_{Sn}(x_{ij}) - c_n(x_{in+1}) \,. \tag{19}$$

3.4 The outcomes of Cases I and II with various alternatives

The purpose of this section is to study and analyse how the overall utility derived from the consumption of status goods is influenced by present-biased preferences, the changing prestige value of the goods which individual i already possesses in time period 0, the level and the change of the prestige value of a valuable and durable status good purchased in time period 1 and its cost. In the following, the overall utility derived from the consumption of status goods is calculated according to the various possible values of the influencing factors that reflect diverse consumption circumstances (Table 1). Thus, the consumer's utility levels can be compared over the period considered. Its purpose is to investigate how the degree of impatience, the initial and the changing prestige values of the already owned status goods, the financing (with or without credit) of an additional status good, and the initial and changing prestige values of the purchased status good influence the level and the change of consumer utility over time.

We can see four alternatives for β expressing "bias for the present". If $\beta = 1$, preferences are time-consistent. The other three values reflect present-biased preferences. If $\beta = 0.25$, that is relatively low, the individual is very impatient, so he would like to get certain goods as soon as possible. If $\beta = 0.75$, the individual is moderately impatient, but he also prefers immediate consumption to the latter consumption. The value of δ is not relevant related to the core of the studied issue, and partly due to this it is unchangeable in all alternatives. Besides the initial time period 0, there are ten periods. We assume that individual i already possesses ten status goods when $t = 0$. It reflects that everyone owns at least some goods (e.g. clothes, electronic appliances) which, besides their functional utility, also indicate one's social position. There are four alternatives (*a, b, c* and *d*) for $\sum_{j=1}^{10} v_{St}(x_{ij})$, which implies the owner's financial position and social status in dynamic approach. In the case of *a* the status values being summed up are the same in all time periods, which reflects that while the status value of some goods increases over time, others' status value decreases at the same time, as they are in different phases of the diffusion process. The overall value of 5 for *a* indicates an intermediate level regarding the status value as according to (1) $0 \leq v_{St}(x_{ij}) \leq 1$. In the case of *b* the status values being summed up decreases with time as the goods diffuse among consumers due to the bandwagon effect. Furthermore, as $\sum_{j=1}^{10} v_{S0}(x_{ij}) = 8$, this means that the consumer owns goods with a relatively high prestige value, which leads us to the assumption that he's in a good financial position. Alternative *c* reflects a group of goods with a lower status value and choice *d* indicates an even lower status value that can imply an individual's bad financial position.

In Case I the cost arises only when the status good is purchased. However, in Case II (when the status good is purchased on credit) we assume an annuity with the interest rate of 10%.

Option z for $v_{St}(x_{in+1})$ reflects a status good that reaches its maximum status value when it is purchased, that is when $t = 1$, so when only a few consumers with a high social status possess it. Its diffusion process is relatively slow, especially if it is compared to choice *y*. The values express the status value decreasing at a lower rate in the former and not in the latter case. In the case of *x*, a consumer chooses a status good with an increasing status value, as more and more snob consumers purchase it in the introduction phase of its lifecycle. It can occur when, for example, an individual purchases a new model of a certain car brand. Then, the status value decreases beyond its maximum within a short period. Choice *v* represents a status good that is purchased in the maturity stage and has a relatively slow diffusion rate among consumers.

Table 1: *Some possible values of the influencing factors of the consumption of status goods*

β				δ	t	$\sum_{j=1}^{10} v_{St}(x_{ij})$				C	c_t=10%	$v_{St}(x_{in+1})$			
						a	b	c	d			z	y	x	v
0.25	**0.5**	**0.75**	**1**	0.8	0	5	8	5	3						
					1	5	7.5	4.5	2.5	10	1.1	1	1	0.8	0.5
					2	5	7.0	4	2		1.1	0.95	0.9	0.9	0.45
					3	5	6.5	3.5	1.5		1.1	0.9	0.8	1	0.4
					4	5	6.0	3	1		1.1	0.85	0.7	0.9	0.35
					5	5	5.5	2.5	0.5		1.1	0.8	0.6	0.8	0.3
					6	5	5.0	2	0		1.1	0.75	0.5	0.7	0.25
					7	5	4.5	1.5	0		1.1	0.7	0.4	0.6	0.2
					8	5	4.0	1	0		1.1	0.65	0.3	0.5	0.15
					9	5	3.5	0.5	0		1.1	0.6	0.2	0.4	0.1
					10	5	3.0	0	0		1.1	0.55	0.1	0.3	0.05

In the following, various combinations of the influencing factors as the alternatives of consuming status goods are compared.

First, such alternatives are compared (Figure 1) when it is assumed that the individual has a stable financial position which enables him to get and possess a group of various status goods with the average prestige value being around the intermediate level in the long run. At the same time, this reflects a stable social position. The sum of the status values of the already owned goods being summed up is around the intermediate level over the whole period considered. Furthermore, the individual has financial resources to purchase an additional status good in time period 1, so credit is not needed. The good is at the beginning of its lifecycle, which means that only a few consumers possess it. As the

prestige value of the status good is high or at the maximum level when it is purchased, the individual can strengthen his social position even more. The choice "ß=0.75, b, C=10, y" provides the highest overall utility until $t = 3$, and the lowest one at the end of the period. Comparing "ß=0.75, b, C=10, y" with choices "ß=0.75, a, C=10, y" and "ß=0.75, a, C=10, x", it can be stated that the already owned goods with a constant intermediate sum of the values yield higher overall utility beyond $t = 4$ in all periods. Similar remarks can be concluded when comparing "ß=0.25, b, C=10, x" and "ß=0.25, b, C=10, z" with "ß=0.25, a, C=10, z". The latter one provides a lower overall utility before $t = 5$ than the other two alternatives; moreover, it exceeds them in the second part of the considered period. It is also worth mentioning that "ß=0.75, b, C=10, y" creates a higher overall utility than "ß=0.25, a, C=10, z" until $= 8$, but the latter exceeds the former one in the last two periods. In other words, a less impatient individual with a decreasing status value of his property who purchases a status good with the maximum prestige value with a normal decreasing rate realizes a higher overall utility until $t = 8$ than an impatient individual who has goods with a constant intermediate sum of the prestige values and the additionally purchased good loses its prestige value with a low rate.

Figure 1: *Six alternatives with a or b when the additional status good is purchased without credit*

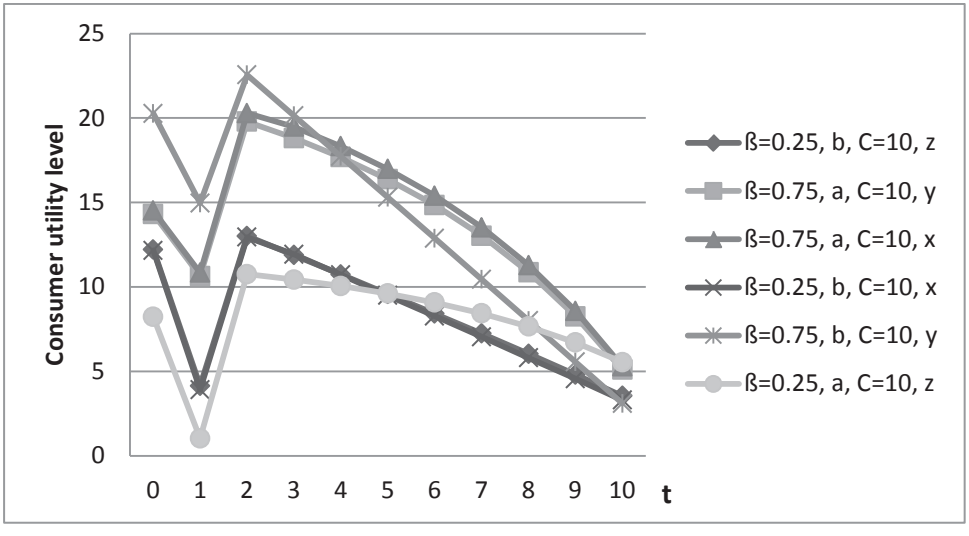
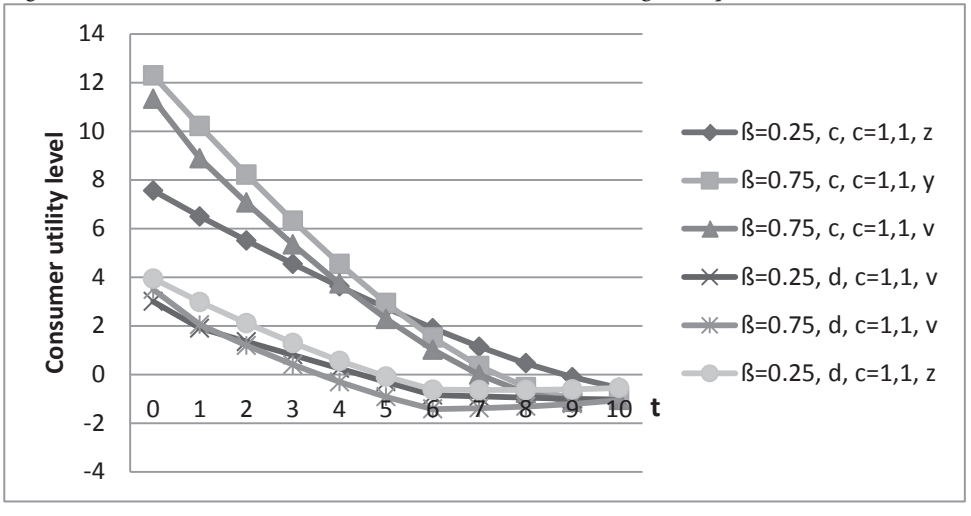


Figure 2 presents alternatives where the already owned group of status goods provides lower prestige in the initial period than the alternatives studied in Figure 1. Thus, the individual is in a lower social position in time period 0. He is in a worse financial position, since credit is required to purchase an additional status good to enhance his social status. If an individual purchases the status good at the beginning of its lifecycle, he can strengthen his social position much better. The alternative "ß=0.25, c, c=1,1, z" describes a relatively impatient

individual who buys a status good with the maximum prestige value and a low diffusion rate. Thus, this consumer strives to achieve a considerably better position quickly. Let us compare this to "ß=0.75, c, c=1,1, y" and "ß=0.75, c, c=1,1, v", that is, the choices which reflect lower impatience and an additional status good with the same initial prestige value but a faster diffusion rate or with the intermediate initial prestige value and a similar diffusion. The impatient consumer with "ß=0.25, c, c=1,1, z" realises less utility in the first periods, but from $t = 6$ the overall utility of this choice exceeds the two other alternatives' utility levels. In the last periods, all the choices provide a negative overall utility level reflecting the fact that purchasing an additional status good on credit (and conditions found in Table 1) is an excessive burden for the consumer in terms of the effects on his financial position or in other words, the prestige value of the already owned status goods. Furthermore, it is worth pointing out that "ß=0.25, d, c=1,1, z" yields a greater overall utility level in each and every period than "ß=0.75, d, c=1,1, v". This means that if the conditions of the already owned goods are the same, the consumer who is more impatient and purchases a status good with the maximum prestige value and a low diffusion rate can realise a higher overall utility over the whole period considered than the less impatient consumer who buys a status good in the middle of its lifecycle. Finally, the alternatives including *d* generate a negative overall utility level earlier than the choices including *c*. This reflects the fact that due to the individual's weaker financial position or the already owned less valuable status goods in the case of alternatives with *d*, investing into any additional valuable and durable status goods is a more considerable burden.

Figure 2: *Six alternatives with c or d when the additional status good is purchased on credit*

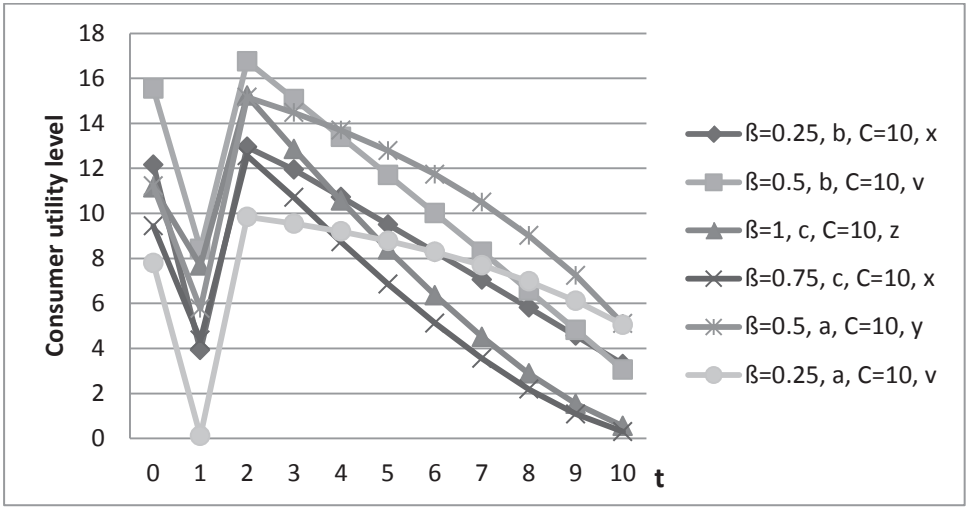


In the following, more different alternatives are compared to see how they are related to each other regarding the overall consumer utility considering the influencing factors and the passing of time. Figure 3 depicts choices when an additional status good is purchased without credit. The overall utility of "ß=0.5, b, C=10, v" is the highest from $t = 0$ to $t = 3$ due to the prestige value of the already owned status goods and the intermediate degree of impatience. The alternative "ß=0.25, b, C=10, x" which expresses a more impatient individual who

purchases an additional status good at the very beginning of its lifecycle provides a lower overall utility in every period except the last one. Thus, it is the manifestation of present-biased preferences that causes the lower utility level here. When $t = 2$, there are two alternative pairs which provide almost the same overall utility level, "ß=0.5, a, C=10, y" and "ß=1, c, C=10, z", further "ß=0.25, b, C=10, x" and "ß=0.75, c, C=10, x". However, the difference of the overall utility levels increases in the following periods and becomes considerable when $t = 10$. Nevertheless, this means that diverse choices with various levels of the factors can establish the same level of the overall utility directly after purchasing the additional status good due to the trade-offs, the overall utility of the alternatives decreases variously in the latter periods because of the different lifecycles and diffusion rates of the goods and the various degrees of impatience.

Both the slope and the intersection of the lines of the alternatives have relevance in Figure 3. The choice "ß=0.25, a, C=10, v" provides the lowest overall utility until $t = 3$. However, since its line is the least steep due to the low diffusion rate of the additional good, this can provide one of the highest utility levels in the last period. Furthermore, it intersects "ß=0.75, c, C=10, x" when $t = 4$, so the less impatient consumer having status goods with initially a moderate and later decreasing prestige value realises lower and lower overall utility with an increasing rate as he purchases a status good at the beginning of its lifecycle. Similarly, the overall utility of "ß=1, c, C=10, z" is lower than "ß=0.25, a, C=10, v" from $t = 5$, which reflects the effect of trade-offs between the influencing factors on the utility level again.

Figure 3: *Six more different alternatives when the additional status good is purchased without credit*



The alternatives outlined in Figure 4 are different from the choices in Figure 3 where the additional status good is purchased on credit. According to Figure 4, similar relations can be observed as in Figure 3. Moreover, the overall utility level of "ß=0.5, a, c=1.1, y", "ß=0.25, b, c=1.1, x" and "ß=0.75, c, c=1.1, x" is nearly equal when $t = 0$.

However, over time the difference between the overall utility levels increases due to the diverse effects of the influencing factors. Thus, it is worth anticipating the overall utility levels for the subsequent periods. Especially because "ß=0.75, c, c=1.1, x" provides a negative utility level from $t = 8$, which reflects that purchasing a status good at the beginning of its lifecycle is an excessive burden for the consumer compared to his financial position. It is also valid for "ß=1, c, c=1.1, z", where the preferences are time-consistent the diffusion process of the additional status good is relatively slow, with an intermediate prestige value at the end of the considered period. Furthermore, the line of "ß=0.25, a, c=1.1, v" indicates low volatility and, on the other hand, this choice assures an intermediate but compared to the others a relatively high overall utility level in the second part of the considered period. In this way, an impatient consumer who possesses goods with the intermediate overall status value and purchases an additional status good in its maturity stage can realise only low overall utility in the first periods compared to others but can enjoy a relatively good position in the second part of the considered period.

Figure 4: *Six more different alternatives when the additional status good is purchased on credit*

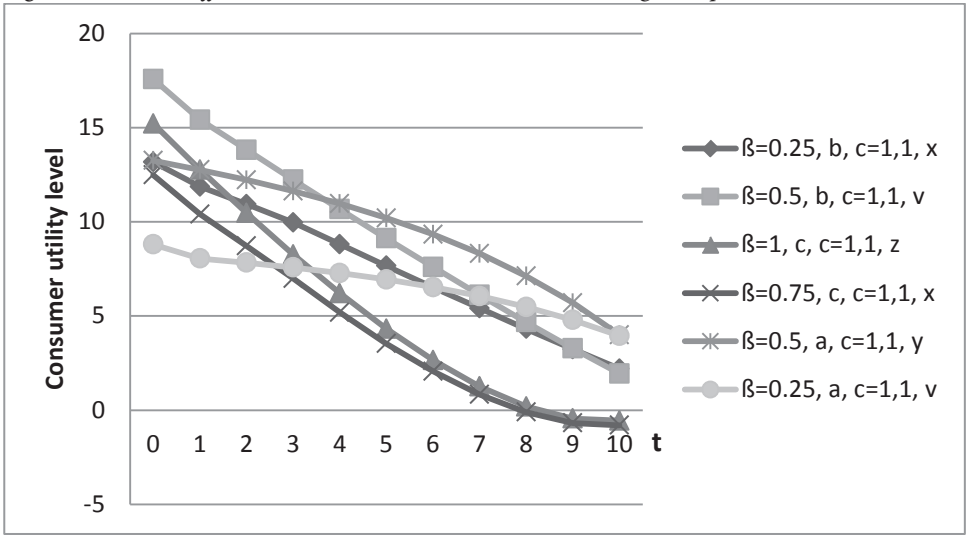
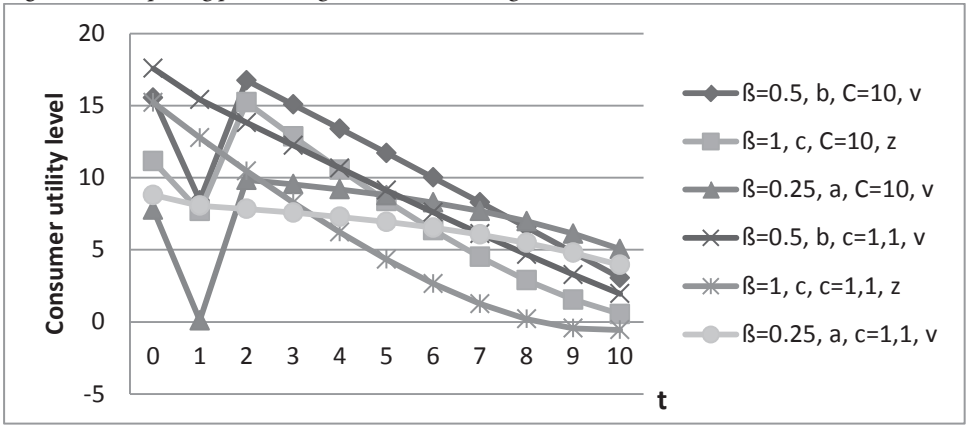


Figure 5 illustrates three pairs of alternatives; each pair includes the versions of purchasing on credit and without credit. If the additional status good is purchased on credit, the consumer achieves a higher overall utility level when $t = 0$ and $t = 1$. However, from $t = 2$ to the end of the considered period, purchasing the additional status good without credit provides a higher overall utility in each and every period. Consequently, the overall utility on the date of purchasing is higher if the individual finances the status good with credit. Purchasing on credit is more advantageous than buying without credit even for a very impatient individual. This can explain why credit is popular in the case of purchasing valuable and durable status goods among people who cannot afford to pay for the desired goods.

Figure 5: *Comparing purchasing additional status goods with or without credit*



3.5 Discussion

Even though O'Donoghue and Rabin (1999) incorporate parameter β into the consumer utility function which reflects time-inconsistent preferences, they do not consider the various degrees of impatience explicitly. Moreover, they do not link the different levels of impatience to economic and social circumstances, neither do they compare them. My analysis fills the gap. In the case of present-biased preferences, the more impatient the individual is, that is, the greater his desire to get a certain good as soon as possible, ceteris paribus, the lower the consumer utility level. This is due to the lower value of β.

By applying Frijters' (1998) interpretation about the prestige value of goods and taking into consideration that status goods reflect their owner's social position (Rausher, 1993) and that their consumption is an everlasting form of rivalry (Trigg, 2001), the model assumes that a consumer possesses not only one but more status goods at the same time. The results suggest that in the long run, it is more advantageous for a consumer to own status goods in different stages of their lifecycles and gain intermediate prestige value from them than to possess such status goods which are in the similar stages of the diffusion process. In other words, a consumer can realise a higher utility level if he strives to sustain the average prestige value of the possessed status goods around the intermediate level.

The added value of the model is that it considers how the various levels of impatience can relate to the purchasing context, the status value of the goods and the rivalry for social status. A very impatient individual who purchases a status good at the beginning of its lifecycle and with a high prestige value on credit can realise a higher utility level in the long run than a less impatient person who buys the status good in its maturity stage. Thus, it is understandable why new status goods are purchased on credit

and why the maturity stage of the lifecycle is not waited for. These results complete the relations described by Frijters (1998).

Various alternatives can provide a similar overall utility level directly after purchasing the additional status good due to trade-offs. However, over time the overall utility of the alternatives decreases differently because of various lifecycles and diffusion rates of the goods and the various levels of impatience. Thus, it is worth prospecting future utility levels, especially in the long run. This is valid both for purchasing on or without credit.

The findings explain why credit is popular among consumers who cannot afford to pay for the wanted status goods. The reason is that the overall utility on the date of purchasing is higher if the individual finances the goods with credit. At the same time, taking a credit reflects the individual's impatience, as he does not want to wait for collecting enough money to pay for the desired goods.

Overall, as figures also indicate, a person's social status can be enhanced only temporarily and not permanently by purchasing only one status good. This finding is in accordance with both Scitovsky's (1976) logic as well as my argumentation described in the literature review section.

The limitation of the analysis is that it takes into account only a few variations of the stock of the already owned status goods, some diffusion rates and one form of loan recovery. Furthermore, the analysis focuses on the level and the change of consumer utility derived from purchasing and owning status goods in various circumstances but eliminates the level of disposable income the consumer can spend on status and other goods.

4 SUMMARY AND CONCLUSIONS

Status-seeking behaviour is a relevant and never-ending phenomenon in developed economies. Its main form is the consumption of status goods. As people tend to overspend on status goods to sustain or enhance their social status, indebtedness and a decreasing saving rate can be the consequences. Furthermore, interpersonal effects, individuals' relative position and the prestige value of status goods have a considerable role in consumer decision making. Due to this, it is important to investigate how the purchasing and the possessing of status goods influence the consumer's utility level.

The presented model reflects the dynamics of the consumption of status goods from the perspective of consumer utility. The core of the model lies in how the level and the change of the prestige value of status goods affect the consumer's utility level over time. The added value of the model is that it takes into account that present-biased preferences can be valid during the consumption of status goods, as individuals are often impatient to achieve a higher social position. Furthermore, a novelty of the model is that it

also includes that the prestige value of status goods changes during their diffusion and that people have different status properties when they purchase an additional status good to sustain or enhance their social status. A core point is the form of financing the additional status good; two alternatives are considered, purchasing on or without credit.

According to the findings, the more impatient a consumer is, the lower his utility level is. However, impatience can be transformed into an advantage in the long run. For example, a very impatient individual who purchases a status good at the beginning of its lifecycle (with a high prestige value) on credit can realise a higher utility level than a less impatient consumer who adopts the status good later. The findings also verify the advantage of credit in the case of buying new status goods as the overall utility on the date of purchasing is higher if the consumer finances the good with credit. The results suggest that the social position can increase only temporarily by getting a status good. However, owning several status goods which are in different stages of their lifecycles and together provide an intermediate prestige value can be advantageous for the consumer in the long run. It is also the novelty of the model that relations mentioned above can be described.

According to the comparison of the alternatives of consuming status goods, it can be seen how the various alternatives are related to each other regarding the overall consumer utility, considering the influencing factors and the passing of time. The main conclusion is that diverse alternatives can provide the same or a similar level of the overall utility directly after purchasing the additional status good without credit, due to the trade-offs among influencing factors, however, the overall utility of the alternatives decreases variously in the latter periods because of the different lifecycles and diffusion rates of the goods and the various degrees of present-biased preferences. Furthermore, due to the trade-offs, an alternative that yields a relatively low overall utility level in the first periods can provide one of the highest levels at the end of the considered period.

The model that is based on the overall consumer utility levels per period can be applied to forecast or monitor a proposed or an already realised purchase of an additional status good. In addition, it is advantageous to compare various consumption alternatives including the different levels of influencing factors to predict and manage the utility levels over the considered time period. It can also be beneficial to plan or forecast an intended purchase of a status good by taking into account the individual's financial position to avoid consumer's or household's indebtedness and to find the optimal form of financing a valuable and durable status good for an individual.

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ORGANIZATIONAL DESIGN AND ORGANIZATIONAL LEARNING: THE MODERATING ROLE OF INNOVATIVE BEHAVIOR AND TEAM PSYCHOLOGICAL EMPOWERMENT IN THE CASE OF AN INTERNATIONAL SUSTAINABLE MOBILITY PROVIDER

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ABSTRACT: *We have investigated how organizational design facilitates organizational learning in the age of digital economy at exploring the cross-level interplay. In this inductive case study of a sustainable mobility provider, we conducted a three-level coding procedure. We found evidence for two moderators — innovative behavior at the individual level and team psychological empowerment at the team level — to propose the conceptual model of their interplay with regard to predicting organizational learning. Based on these findings, we developed a conceptual model of the cross-level interplay between organizational design and the moderating role of innovative behavior and team psychological empowerment in stimulating organizational learning. Specifically, we found support for three facets of innovative behavior — idea generation, idea promotion, and idea implementation at the individual level. In addition, we identified four facets of team psychological empowerment at the team-level — team potency, team meaningfulness, team autonomy, and team impact — which act as moderating mechanisms in predicting organizational learning.*

Keywords: *organizational design, organizational learning, innovative behavior, team psychological empowerment, sustainable mobility, multi-level perspective.*

JEL classification: M10, M12, M15

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1 INTRODUCTION

Increased recognition of organizational design in the era of digital economy has led to models that examine how organizational design (Snow, 2016; Burton et al., 2008) influence

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the adoption of a particular organizational learning model to achieve organizational fit. While traditionally organizational learning models have been viewed as static models that do not address important contingencies that affect the continuous dimension of the organizational learning process in the age of digital economy (Crossan, Maurer, & White, 2011; Roblek et al., 2018), organizations and researchers (Snow, 2016) are recognizing that organizations need to implement more dynamic organizational ecosystems (Snow, 2016) able to continuously adapt by both acquiring and generating knowledge.

Most of what we know about how organizational design facilitates organizational learning is based on the assumption that organizational learning is often a reaction to environmental change (Kim, 1993; March & Olsen, 1975) rather than a proactive, collaborative process among involved stakeholders. However, while the existing studies describe the link effectively, they do not fully explain the mechanism through which an organization's design facilitates the logic of organizational learning process. Indeed, the existing studies (Huber, 1991) view information processing as static, as it does not integrate the continuity of the organizational learning process, which requires the application of gained knowledge and feedback that form the basis for new loops of organizational learning (Crossan, Lane, & White, 1999). In addition, Huber's (1991) model does not incorporate the contingency perspective that would enable information to be processed successfully. It does not discuss inter-organizational learning, although the subject could be implicitly understood from the model.

These and other limitations indicate the need for a conceptual model that includes cross-level interactions and a dynamic focus on the organizational learning process that will follow the contemporary organizational design principles, based on the organic organizational framework. In today's age of digital economy, organizations do not usually operate and act against competitors on their own but rather tend to collaborate with others (Snow, 2016); for example, by building ecosystems based on developed platforms and forming cooperative partnerships which require organizational learning to adapt accordingly. This logic creates a demand for approaching organizational learning as a dynamic process.

The existing studies do not explain how organizational design might facilitate organizational learning within cross-level contextual effects, particularly at both the individual and team levels. Clarifications on the interactions of relevant moderators that characterize the moderating role in predicting organizational learning as a dynamic process have not been explored. This study presents an opportunity to advance the theory by introducing a conceptual model of the cross-level interplay between organizational design and the moderating role of innovative behavior and team psychological empowerment in stimulating organizational learning.

We know little about how organizations in the era of digital economy adopt organizational learning logic as a dynamic process within different cross-level contextual influences of the moderators — of team psychological empowerment at the team level and innovative behavior at the individual level — that stimulate this relationship. Learning and putting newly gained knowledge into practice are essential processes of knowledge-intensive

organizations. In this line of research, the field of organizational design has offered a variety of perspectives on the key considerations in stimulating organizational learning. In this study, we therefore develop an initial answer to the following research question:

Research question: *How does organizational design facilitate organizational learning at the individual and team levels in the age of digital economy?*

To answer this research question we have conducted an inductive study of an international sustainable mobility provider by applying a multi-level perspective (Černe et al., 2018). More specifically, our research focused on collecting primary and secondary data, conducing analysis through a three-level coding procedure and an investigation of qualitative data of an international sustainable mobility provider active in the fields of sharing economy and electric mobility. The data were collected from multiple sources and analyzed by using an inductive case application approach.

In this paper we investigate how organizational design facilitates the organizational learning process following a multi-level logic. In particular, we have identified two contingency factors as moderators in predicting organizational learning in the digital ecosystem — innovative behavior and team psychological empowerment — that an international sustainable mobility provider fostered in order to be aligned with the dynamic logic of organizational learning. Our findings show how organizational design stimulates organizational learning through moderating mechanisms of innovative behavior and team psychological empowerment from a multi-level perspective.

Previous frameworks and models of organizational learning have often taken a more restrictive conceptualization of what constitutes organizational learning (Fiol and Lyles, 1985), suggesting that organizational learning is the process of improving action through better knowledge and understanding based on the actor-oriented, problem based approach to organizational learning. With our paper we intent to contribute to the body of literature placed at the intersection between organizational design and organizational learning in three ways. First, our study goes beyond the traditional focus on organizational learning, where the focus lies on the cross-level interplay between organizational design and the moderating role of innovative behavior and team psychological empowerment. Second, the investigation of the moderating role of innovative behavior and team psychological empowerment within the proposed cross-level interplay of organizational design represents an important addition to the extant literature (Snow, 2014; Grah et al., 2016), applying a multi-level perspective. Third, based on the notion described above, we derive from the most recent findings on organizational design and organizational learning (Sitar, Pahor and Škerlavaj, 2018), where design of individual work should be adjusted to serve the learning needs of individuals necessary for achieving organizational goals, looking into conceptualization of specific facets of the moderating mechanisms by accounting the dynamic process of organizational learning in the age of digital economy.

2 THEORETICAL BACKGROUND

2.1 Organizational design

In developing a theoretical foundation for this research, we primarily drew from the contingency theory on organizational design (Nasrallah and Qawasmeh, 2009). Organizational design is a process of designing an organization. An organization is a system of interrelated human behaviors where humans perform tasks that are differentiated into several subsystems and each performs their own sub-tasks as well as integrated efforts to achieve effective system performance (Lawrence and Lorsch, 1967). According to Aldrich and Ruef (2006, in Snow, 2016), the organization is the preferred form to allocate resources over markets. It is a goal-directed, boundary-maintaining activity system that needs to be controlled and coordinated and therefore managed.

Organizational design is a thoughtful process of "configuring structures, processes, reward systems, and people practices to create an effective organization" that will be able to achieve its strategy and goals (Kates and Galbraith, 2007, p. 1). Organizational design can enable managers to create a productive, enjoyable working environment for accomplishing new goals, which will serve individual as well as collective interests (Snow et al., 2010) and stimulate learning. Puranam (2012, p. 18) defines organizational design as "a particular form of human problem solving in which the problem is one of getting multiple individuals with diverse knowledge and interests to collectively achieve something that they could not by acting individually." Due to the bounded rationality, such solutions might be better or worse, often imperfect, sometimes even unsuccessful or unintentional. Also, Galbraith (1984) as well as Burton, DeSanctis, and Obel (2008) define organizational design as a decision process that involves two main issues: the partition of the whole task of an organization into the smaller parts of the subunits, and coordination of the smaller parts to fit together and achieve goals.

In organizational literature, several different perspectives exist on how to design organizations. According to the traditional universalist view, the concept of an organizational design is perceived to be universal, therefore fitting all organizations. The neoclassical perspective is that it all depends on the situation and the context of the organization. The emphasis is on the uniqueness of a situation as well as the organic structure - decentralization, participative leadership, and a wide span of control. The contingency view combines the universalist and case views and is based on the contingencies or variables that enable understanding of the situation, and thus determine the most appropriate structure. What is appropriate for a specific organization might not be appropriate for others, and different structures fit different purposes (Daft and Marcic, 2013). The mechanistic structure, where centralization, specialized tasks, formalization with many rules, vertical communication and hierarchy are in general more appropriate for contingency factors, such as large size, efficiency strategy, stable environment, rigid culture and manufacturing technology. The organic structure, defined by high decentralization, empowerment, few rules and low formalization, horizontal

communication and collaborative teamwork, is more appropriate for contingency factors, such as small size, innovation strategy, changing environment, adaptive culture and service technology (Daft, 2013), and as such more preferable for the learning organization (Örtenblad, 2004). Innovativeness usually requires higher decentralization and lower formalization; thus an organic structure is more appropriate for organizations striving to be innovative (Wang, 2001).

Contingency theory calls for changing an organization, contingent on external or internal factors, to achieve better performance (Nasrallah and Qawasmeh, 2009), where "contingency is any variable that moderates the effect of an organizational characteristic on performance" (Donaldson, 2001, p. 7). However, there is no single contingency theory, as different scholars and practitioners have identified different, yet similar, contingency factors. However, when searching and adapting to achieve organizational fit, leaders need to be aware they are not only modifying work procedures and other structural dimensions but also affecting humans as it is primarily a social process, which can therefore be very stressful (Carmeli et al., 2010).

A number of influential studies on organizational design have examined different dimensions of this important concept in literature and practice. Burton and Obel (1998) emphasize that the basis for organizational design is promoting the organization's mission and goals, determining the boundaries of the organization, and influencing the choices of technology and size. They also identify the following contingency factors: environment, management style, technology, size, climate, and strategy. Effective and efficient organizational design should provide a good fit between contingency factors and the properties and structure of an organization, which must be seen dynamically as changes happen over time (Burton & Obel, 1998; Nissen, 2014). Donaldson (2001) identifies environment, size, and strategy as the most important contingencies. Additional contingencies, among others, are task uncertainty and interdependence, technology and technological change, and innovation (Donaldson, 2001). Daft (2013) emphasizes the role of goals and strategy, environment, culture, technology, and size. The contextual situation of an organization, described with different contingency factors, influences the structure of an organization, meaning the structural dimensions of an organization describe its internal characteristics. Those properties are, according to Burton and Obel (1998), complexity and differentiation, formalization, centralization, span of control, rules, procedures, professionalism, meetings, reports, communications, media richness, and incentives, which define different structural configurations or the structure of an organization, as for example, simple, functional, divisional, or matrix (Burton & Obel, 1998).

Recent organizational design literature reports on the impact of innovation strategy on organizational learning and innovation performance (Beyene et al., 2016; Janežič et al., 2018). The results of the structural equation modelling analysis revealed a positive relationship of the impact of innovation strategy on organizational learning and product innovation performance. Furthermore, the study confirmed that the firm size and ownership type moderate the effect of innovation strategy on product innovation

performance. Also, the study on the relationship between organizational design and organizational learning in the age of digital economy and innovativeness (Ali et al., in press) investigates the effect of the organizational structure in single and dual-loop learning modes. Namely, the empirical study confirmed a positive and direct relationship between the increased level of organizational complexity and the increased levels of organizational integration, as organic contingency variables of contemporary organizational design in the digital era, on absorptive capacity in single and dual-loop learning modes, whereas higher levels of formalization and higher levels of centralization relate negatively. Furthermore, mechanistic structure is associated with internal learning, independent learning and single-loop learning, whereas organic design leads to external learning, collaborative learning and double-loop learning (Sitar and Škerlavaj, 2018). In conditions of less-structured teamwork in self-managed teams (lower specialization, formalization and hierarchy within a team), the mechanistic structure at the organizational level has been found to have a positive impact on learning and information exchange (Sitar and Škerlavaj, 2018). Moreover, the features of organizational design and organizational learning interact with one another and should be adjusted to accomplish fit in cases of misfits (Daft, 2013). For example, even the most cunning strategies will not reach their potential without support from structures, processes, and systems. Innovativeness usually requires higher decentralization and lower formalization, thus an organic structure is more appropriate for organizations striving to be innovative (Wang, 2001). We thus assume that organizational design of innovative organizations, based on the organic organizational structure, would promote organizational learning. Hence, we specifically predict the following:

Proposition 1. *Organic organizational structure is positively related to organizational learning.*

2.2 Organizational learning, innovative behavior and team psychological empowerment

Organizational learning focuses on the processes of organization learning within and between organizations (Hernaus et al., 2008) at the individual, team, organizational, and inter-organizational levels. Argyris and Schön (1978) claim that learning takes place only when new knowledge is translated into different behavior that is replicable, whereas Kolb (1984, in Kim, 1993, p. 38) states that "learning is the process whereby knowledge is created through the transformation of experience." Huber (1991) considers an organization has learned if any of its components have acquired information that is used, either by itself or by other components, on behalf of the organization. Kim (1993, p. 38) defines individual learning as "the acquiring of knowledge or skill" encompassing the "know-how" and "know-why." Team learning is defined as cohesive collective individual learning resulting in shared mental models. Organizational learning is "increasing an organization's capacity to take effective action" (Kim, 1993, p. 43). Based on the analogy with learning, inter-organizational learning is defined as increasing the capacity to take effective action within a group of organizations (Yang et al., 2011) or by advancing Huber's (1991) words: "a

group of organizations that continuously learn(s), if, through processing of information, the range of their potential behaviors is changed" (Grah et al., 2016, p. 184).

What we do know about organizational learning has primarily focused on the static dimension of the organizational learning model that does not address important contingencies that affect the learning process in the age of digital economy. The main theoretical limitation of March and Olsen's (1975) model and Kim's (1993) model is that they do not incorporate inter-organizational learning. March and Olsen (1975) believe in independence of organizational action and environmental response, which clearly excludes inter-organizational learning. In both models, other organizations are perceived as part of the environment, which presents an environmental response to action and changes individual beliefs (March and Olsen, 1975). In Kim's (1993) model, these actions are caused by individual or actions that affect individual learning. The environment is perceived in terms of representing shocks (March and Olsen, 1975), not as offering opportunities to learn together and co-create the future. Despite the fact that both models show dynamics and emphasize continuity, they also indicate but do not sufficiently emphasize the importance and interactions of different contingency factors. Huber's (1991) information processing view is static as it does not integrate the continuity of the organizational learning process, which requires the application of gained knowledge and feedback to form the basis for new loops of organizational learning (Crossan et al., 1999). In addition, Huber's (1991) model does not incorporate the contingency perspective that would enable information to be processed successfully; therefore, this model can be considered universally applicable. In addition, it does not discuss inter-organizational learning, although the subject could be implicitly understood from the model.

While undoubtedly important, studies do not tell us how organizational design might facilitate organizational learning within different cross-level contextual influences, particularly at both the individual and team levels. Explanations of the interactions of the underlying moderators that characterize the moderation role in predicting the organizational learning as the dynamic process are not offered. By studying the proposed research question, this study presents an opportunity to advance the theory by introducing the conceptual model of the cross-level interplay between organizational design and the moderating role of innovative behavior and team psychological empowerment in stimulating organizational learning in the digital economy.

Narrowing on two moderators at different levels, innovative behavior at the individual level and team psychological empowerment at the team level, we propose their cross-level interactions in predicting organizational learning. In our research we conceptualize the interplay between organic organizational structure and innovative behavior as the moderator at the individual level and team psychological empowerment at the team level in stimulating organizational learning.

Innovative behavior, in our study drawn form Janssen's (2000) multi-dimensional conceptualization (idea generation, idea promotion, and idea implementation), is considered as a key factor in promoting innovation in organization (Amir, 2015).

Innovative work behavior includes exploration of opportunities and generation of new ideas (creativity related behavior), but could also include behaviors directed towards implementing change, applying new knowledge or improving processes to enhance personal and/or business performance (implementation oriented behavior) (De Jong and Den Hartog, 2008). As noted by different authors, organizational innovation plays an important role in stimulating organizational learning in entrepreneurship (García-Morales et al., 2006). Moreover, innovative behavior positively moderates growth intentions (Pekka, 2011). We thus assume that innovative work behavior would also promote organizational learning. Therefore, innovative work behavior would thus moderate the positive relationship between the organic organizational structure and organizational learning, making the relationship even more positive.

Proposition 2. *Innovative behavior moderates the positive relationship between the organic organizational structure and organizational learning in such a way that the positive relationship is stronger for individualists with high innovative behavior.*

With teams becoming more and more prevalent in organizations, it is hardly surprising that the empowerment construct has also been extended to, and examined, at the team level of analysis (Maynard at al., 2012). The widespread adoption of the four-dimension view of team empowerment at the team level has been conceptualized by Kirkman and Rosen (1999). They claim team psychological empowerment consists of four facets: (a) potency — a collective belief by team members that they can be effective; (b) meaningfulness — the tasks that the team works on are important, valuable, and worthwhile; (c) autonomy — the team has discretion over their work; and (d) impact — the work performed by the team is significant and advances organizational objectives. The theory reports on positive outcomes of team empowerment on team-level learning (Burke, 2006). Furthermore, team psychological empowerment positively moderates the relationship between transformational leadership and innovation at the individual, team and organizational levels (Grošelj, 2016). Therefore, team psychological empowerment would thus moderate the positive relationship between organic organizational structure and organizational learning, making the relationship even more positive.

Proposition 3. *Team psychological empowerment moderates the positive relationship between the organic organizational structure and organizational learning in such a way that the positive relationship is stronger for teams with high team psychological empowerment.*

3 METHODS

3.1 Research context: The practice of an international sustainable mobility provider

To gain insight into organizational learning in relation to design, we studied Avant car, an international sustainable mobility provider that is active in the digital economy and focused on constant 360-degree organizational learning (Avant car, n.d.), applying a multi-

level perspective. Avant car (n.d.) has a vision to *"strengthen the position of a successful internationally established provider of complete solutions for new generation mobility"* and enjoys trust from clients from more than 200 companies from 100 countries, while offering a fleet of over 1,000 vehicles. Their key business lines are short-term rentals, long-term business rentals, fleet management, vehicle rentals with drivers and Avant2Go car sharing, the new field of electric mobility as a service with already more than 50 stations and a fleet of 200 electric vehicles, distributed across four Slovene cities — Ljubljana, Maribor, Kranj and Murska Sobota, and in 2018 extending to Croatia (Avant car, 2017b). Their ten key values are: passion, trust, creativity, open-mindedness, flexibility, respect, persistence, progressiveness, team spirit and 360-degree organizational learning (Avant car, n.d.), as showcased by quotations 1 and 2. Avant car is a learning organization, as they practice organizational learning on a continuous basis and are regularly putting newly gained knowledge into practice.

Avant car has an organic organizational structure (Avant car, n.d.; Dimovski et al., 2005) which is adapted to the needs of digital economy and the fast changing environment. Work in Avant car is done in interdisciplinary teams, which require a low level of formalization to be able to perform in innovative ways. In addition, they are practicing decentralization and a low level of hierarchy, as each employee/team/team member is empowered to make decisions related to their area of work, reflecting in interdict specialization (quotations 3 and 4). It enables them to continuously implement new sustainable projects (Civil society organization - Center for promotion of sustainable energy, 2017; Slovenian Convention Bureau, n.d.; STA, 2016; Team red International Consulting GmbH, 2016). According to Grošelj (2018), Avant2Go is a breakthrough high-technological project, requiring team members with interdisciplinary skills to solve ongoing issues in decentralized, non-formal ways, as they operate in a highly complex work environment. For example, development of an application requires a complex combination of knowledge from different fields, including information technology, knowledge on legal issues and data privacy regulations (EU General Data Protection Regulation), as well as others.

Quotation 1:
"360-degree learning; all of us are teachers and students at the same time. We are glad to learn, develop and grow with each other." (Avant car, n.d.)

Quotation 2: "*We have combined our valuable experiences about mobility with the latest technologies and hi-tech solutions. We have brought together the entire range and know-how from a variety of e-mobility brands and our electric fleet of 150 electric cars...; our idea is supported by vast experiences in learning from success and failure.*" (Participant 2, CSO – Chief Strategy Officer)

Quotation 3:
"Even though we have a clearly defined organizational structure, we pursue a flat and decentralized form without unnecessary borders. This makes us more flexible but sometimes it also means we have to pay attention to something that is not part of our daily work. There is some room for improvement here." (Participant 11, Member of R&D)

Quotation 4:
"Well, we need to support fast growth with a corresponding infrastructure that also includes new working methods and techniques. For example, since our business units are dislocated, we have implemented a video conference tool because we wanted to have the "dispersed" employees in one virtual place, keeping it time-efficient." (Participant 11, Member of the R&D team)

Avant car, established in 2002, is an international as well as leading regional provider of sustainable mobility with 100% electric car sharing service within the framework of its innovative Avant2Go project, for which they received the 2017 National Energy Efficiency Award for the most energy-efficient project in 2017 in Slovenia (see Figure 1).

The goal of the Avant2Go project is to provide the new mobility infrastructure, being among the first to put on sustainable mobility, namely Mobility as a service (Maas) which is based on four pillars: (1) car sharing (sharing economy); (2) electric mobility (without harmful emissions); (3) connectivity (in a transparent and efficient manner); (4) enablement of finance and environment-related savings (better vehicle utilization, less environment pollution) in order to improve the quality of living. The Avant2Go project is a result of a collaboration between different organizations, including the Municipalities of Ljubljana, Maribor, Kranj and Murska Sobota, Zavarovalnica Sava, BTC City, BMW, Renault, Smart, Volkswagen, Ljubljana Airport, ABC Accelerator Group, Roto Group, Pomgrad Group, Iskratel, Four Points by Sheraton (Mons), Technology Park, and Comtrade (Avant car, 2017a). Electric car sharing is helping Slovenia toward its goal of becoming a reference point for green and digitally ambitious projects. The Avant2Go project is part of the European Green Capital Award initiative (European Commission, n.d.), as emphasized by the Commission's Vice-President Mr Šefčovič, who is leading the project team Energy Union, (quotation 5):

Quotation 5:
"*I welcome Slovenia's work on its national energy concept, which could serve as a basis for the 2030 national energy and climate plan — an important tool to attract investments and maximize benefits of the ongoing energy transition. The country's innovative and clean tech spirit can create many business opportunities as well as mitigate high dependency on fossil fuel imports. The starting point is rather good, as Slovenia has already reached its 2020 target on greenhouse gas emissions and is well on track to meet its 25 percent renewables target.*"
(Šefčovič in the European Commission, 2018).

Figure 1**:** *Avant2Go project – the 2017 National Energy Efficiency Award and a map of Avant car's locations in the Municipality of Ljubljana*

Source: Avant car (2018).

3.2 Study design

We conducted an inductive qualitative study, based on a primary and secondary data analysis in exploring cross-level interactions (Černe et al., 2018), in order to gain insights and propose the conceptual model of the cross-level interplay between organizational design and the moderating role of innovative behavior and team psychological empowerment in stimulating organizational learning in the digital economy. In order to be able to answer our research question how organizational design facilitates organizational learning at the individual and team levels in the age of digital economy, we followed an inductive case application, giving particular attention to the cross-level interactions of moderators in predicting organizational learning. The inductive approach requires the theory to be developed after the data are collected, so the expected cause and effect relations among the variables in the model are not known prior to the data analysis (Saunders et al., 2009). Qualitative research methods enable in-depth studies of real-world settings and capture the contextual richness and thick descriptions. The five key characteristics of qualitative research are: (1) studying the phenomena in real-world settings, (2) representing the views of the participants, (3) covering the contextual conditions, (4) contributing insights to existing and emerging concepts to explain human social behavior, and (5) striving to use multiple sources of evidence rather than a single source, as well as triangulation (Yin, 2003, 2011). To analyze the data, a three-level coding approach was used.

The applied inductive qualitative research study differs from grounded theory. An inductive case study and grounded theory are both qualitative research methodologies (Maxwell,

2013). Case study was operationalized by Yin (2003, 2011, 2012) as positivist, interpretive or critical, depending on the underlying philosophical assumptions. An inductive case study can be single, multiple or comparative, depending on the objective of research, following the inductive logic. As mentioned above, the inductive approach requires the theory to be developed after the data are collected, so the expected cause and effect relations among the variables in the model are not known prior to the data analysis (Saunders et al., 2009). In distinction, grounded theory is used within interpretative philosophy (Glaser & Straus, 1967) as one of the theories of the methodologies used for a qualitative case study. Glaser (1992, in Eriksson & Kovalainen, 2008) believed that grounded theory should be about discovery of the theory and not its verification, therefore, the research starts with no preconceived theoretical ideas. Grounded theory could be one of the methodologies used for building a case study. As Glaser declared "all's data", case studies may be integrated into a grounded theory design. Nevertheless, not all inductive case studies use the grounded theory. They can be far more descriptive and do not meet the requirements of the strict research protocol of the grounded theory. The difference between grounded theory and an inductive case study is to be found in underlying research strategies and the ways the empirical investigation of cases is employed.

3.3 Data collection

The Avant car company was chosen for a case study on purpose, as (1) they have been identified as a learning organization, practicing 360-degree organizational learning on a continuous basis; (2) in order to implement the Avant2Go project, they have built a business ecosystem in Slovenia, expanding to Croatia in 2018; (3) Avant car is an organization that has successfully adapted to the needs of digital economy, being active in the sustainable mobility field; (4) Avant car was willing to collaborate and granted access to the researchers to collect primary and secondary data.

First, the inductive case of the Avant car study was employed by analyzing secondary data, collected from multiple sources for the purpose of triangulation. The collection of Avant car data included examination of a scientific monograph by Dimovski et al. (2005), seven articles published in international and Slovene print media; four articles published at international conferences and the European Commission website; two annual reports; the official Avant car website, Avant2Go blog, and other social media from the Avant car company as well as three internal documents; five social media videos; news; and documents from reliable journals and magazines, such as Europa.eu, Sloveniatimes.com, Slovenia-convention.com, Sm.team-red.de, Mediachange.info/Circular_Economy and Balkangreenenergynews.com. The collected data were triangulated and evaluated for possible biases before inclusion in the analysis, as suggested by Charmaz (2011).

Second, eleven one-on-one semi-structured qualitative interviews at the Avant car company were conducted to gain in-depth insight into the concept of organizational learning enhanced by contemporary organizational design practices. The interviewees had different backgrounds, working periods at the company, as well as positions – ranging

from top management positions to assistants. These interviews emphasized guiding questions on the studied topics. Open, semi-structured questionnaires were employed, each consisting of 10 to 12 questions. We asked the interviewees to tell us about their experiences about specific practices and approaches.

To increase the reliability and validity of our qualitative assessment we triangulated primary data by theoretical triangulation through rich data contexts for understanding and interpreting codes on organizational design and organizational learning phenomena. We also employed methodological triangulation, conducted through unstructured naturalistic observations of the respondents at their workplace during the visits to the company.

3.4 Data analysis

We structured our analysis by combining the methods of case study (Yin, 2003, 2011) and cross-level analysis (Černe et al, 2018) for the development of the proposed conceptual model. In order to build a case study of high quality, a case study protocol was employed (Yin, 2003). The case study protocol included analyzing (1) the context of the case study, (2) organizational learning processes in the studied case, (3) organizational design in the studied case, and (4) moderating effects at both the individual and team levels.

During the data analysis, five nonlinear phases for analyzing data according to Yin (2011) were followed: (1) compiling data into a formal database; (2) disassembling the data in the database by a three-level coding technique; (3) reassembling the data, requiring insightfulness to reorganize the pieces and see overarching patterns; (4) interpreting to give meaning to the analyzed data; and (5) designing the overarching moderators of the study.

To analyze the data, a systematic three-phased coding procedure was applied. The first step encompassed first-level coding of the collected data, by analyzing and summarizing small chunks of data to produce descriptive codes. Throughout the analysis of the collected data, answers to what, who, how, when, and why were sought. Parallel to first-level coding, a database of quotes was built. The second step encompassed second-level coding to relate to categories emerging from the first-level coding, while in the third step, third-level coding was executed, as the selected codes were combined to identify overarching moderators at multiple levels, namely at the individual and team levels. To code and classify the collected data, we looked for keywords within sentences, pointing to the phenomena under study, based on the coding scheme that was developed by comparing the collected primary and secondary data and the in-depth theoretical review. The themes led us to our categorization of the coded structure, as presented in Figure 2. Additionally, to assure the reliability of the coding procedure, the researchers independently coded the interviews data and, in cases of disagreement, further discussions were held until a consensus was reached. The analysis process concluded when the model fit the raw data. Throughout the analysis, research memos were kept consisting of various insights, generated ideas, observations, and other

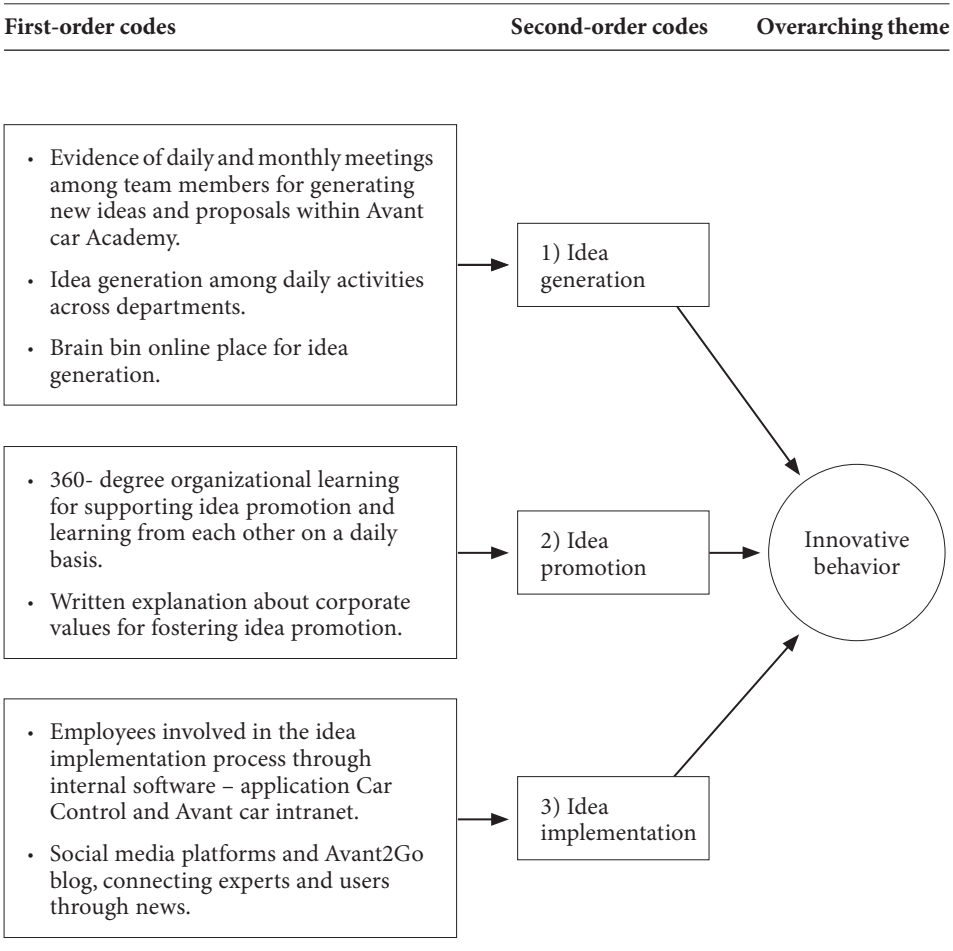
relevant information during the study. The memos included assigned codes as well as our notes and images with reflections on the sets of codes. The analysis was sent to Avant car principals for the purposes of external validation and final authorization.

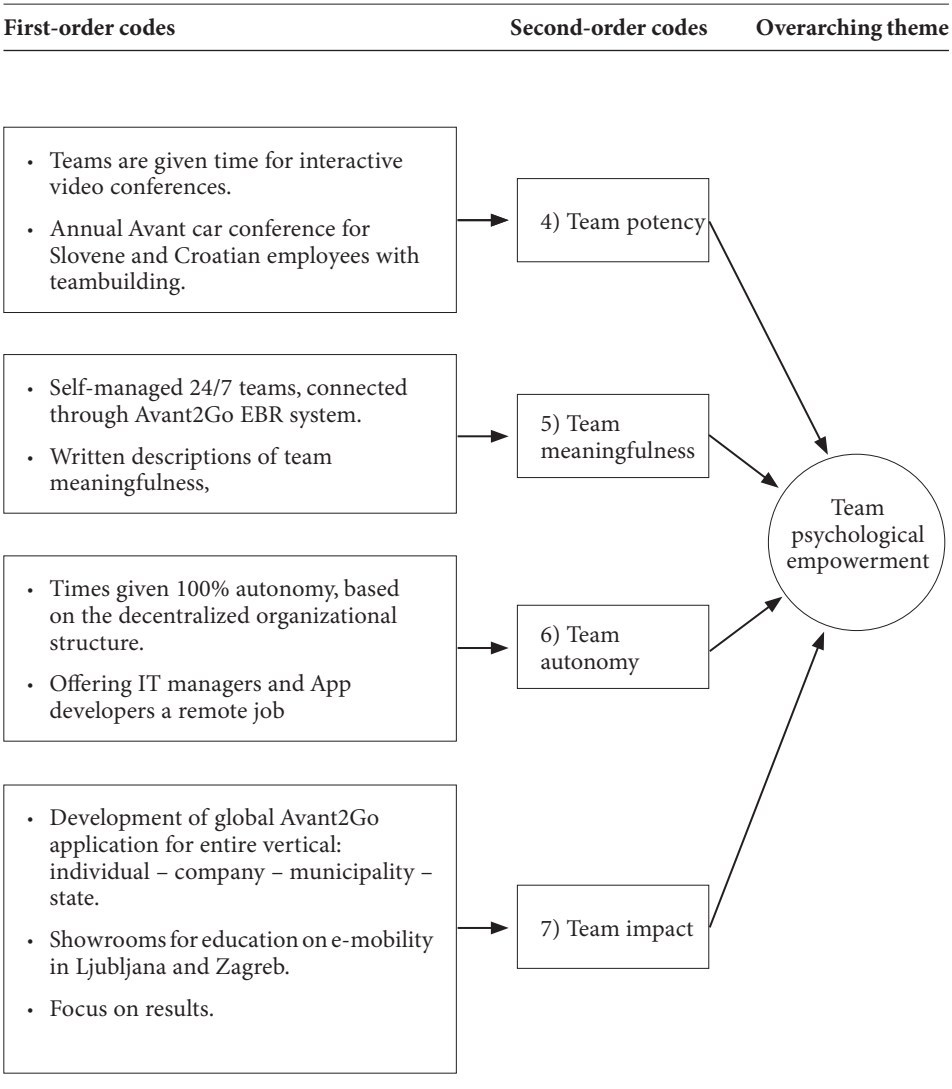
4 FINDINGS

In the inductive study of the international sustainable mobility provider with the leading position in the Adriatic region, we conducted a three-level coding procedure (Figure 2) resulting in the formulation of the overarching moderators, showing evidence of how organizational design facilitates organizational learning within different cross-level interactions as a response to the increased complexity in the age of digital economy at multiple levels (Figure 3). Figure 2 summarizes the process of the data analysis we followed and includes first-level codes (developed based on a wide range of the primary and secondary data analysis, including visits to the Avant car company), second-level codes (the emergent set of conceptual categories we abstracted from the first-level codes), and aggregates of overarching moderators.

We start by proposing a conceptual model of how organizational design facilitates the organizational learning process at multiple levels, then define the overarching moderators of innovative behavior (at the individual level), and team psychological empowerment (at the team level), and finally, we present each dimension of the conceptual model, linking the three-level data coding structure throughout (Figure 3). Our research revealed two main contingency mechanisms that facilitate organizational learning by intervening in the organic organizational design of our study: innovative behavior and team psychological empowerment. Our analysis further revealed how organizational design facilitates organizational learning in the interactions of the underlying contingency mechanisms within the cross-level interplay, facilitating innovative behavior and team psychological empowerment as the moderators in predicting organizational learning as a dynamic process in the Avant car company. Specifically, our analysis revealed three facets that created the innovative behavior: (1) idea generation, (2) idea promotion, and (3) idea implementation at the individual level. In addition, we identified also four facets of team psychological empowerment: (1) team potency, (2) team meaningfulness, (3) team autonomy, and (4) team impact at the team level. Based on these findings, we developed a conceptual model that explains how organizational design facilitates organizational learning within different cross-level interactions as a response to the increased complexity in the age of digital economy, which integrates research on organizational design, organizational learning, innovative behavior and team empowerment in the era of digital economy.

Figure 2: *Overview of Data Coding Structure of the Inductive Case Study*




First-order codes
Second-order codes
Overarching theme
• Teams are given time for interactive video conferences.
• Annual Avant car conference for Slovene and Croatian employees with teambuilding.
4) Team potency
• Self-managed 24/7 teams, connected through Avant2Go EBR system.
• Written descriptions of team meaningfulness,
5) Team meaningfulness
• Times given 100% autonomy, based on the decentralized organizational structure.
• Offering IT managers and App developers a remote job
6) Team autonomy
• Development of global Avant2Go application for entire vertical: individual – company – municipality – state.
• Showrooms for education on e-mobility in Ljubljana and Zagreb.
• Focus on results.
7) Team impact
Team psychological empowerment

In Tables 1 and 2 we identify two moderators of our conceptual model that intervene in organizational learning—innovative behavior at the individual level (Table 1) and team psychological empowerment at the team level (Table 2)—employed by Avant car.

Table 1: *Innovative Behavior*

Evidence: Exemplary quotations	**Form of innovative behavior**	**Aggregate**
Quotation 6: "The project is connected by a strong sense of vision; we see start-up as a child. And regardless of one's position in the company, whether it's in development or accounting, we can all generate ideas and suggestions, as well as the vision of the product for the future". (Participant 3, Head of R&D) Quotation 7: *"Through excessive testing of the system we are constantly looking for opportunities to see what can be improved and how we can improve things such as app functionalities, better user experience, etc."* (Participant 10, Member of operations) Quotation 8: *"We have a so called "brain bin", an online place, where we put all our ideas. They don't get lost and they wait for us :)."* (Participant 11, Member of R&D) Quotation 9: *"As I am not only a developer on the project but also a regular user, I always write down things to improve or add. I also think about redundancy a lot and my goal is always to shorten the processes as much as possible."* (Participant 9, Member of the IT team) Quotation 10: *"I explore new things on a daily basis. And it doesn't stop there - I am also in search for the latest trends to have a bigger picture about what is going on in the world."* (Participant 11, Member of R&D) Quotation 11: *"I always say innovative opportunities must be something that is written in your DNA. It is almost like breathing. If you don't innovate and adjust to an ever developing environment, the company will eventually fail to successfully fulfill its mission."* (Participant 11, Member of R&D) Quotation 12: *"I fully use the service and it enables me to understand how to improve customer experience; I get new ideas and then we discuss them with the development team."* (Participant 4, Head of Avant2Go operations) Quotation 13: *"Based on our own experiences we generate new ideas for our clients. For example, our staff drive electric cars to and from work and we are 100% electric for our business meetings as well."* (Participant 1, CEO)	Idea generation	Innovative behavior

Evidence: Exemplary quotations	**Form of innovative behavior**	**Aggregate**
Quotation 14: *"It is interesting but lately I have been looking at the improvements through the UX glasses. Just yesterday, I was included in a debate with our technical staff. They were so deeply involved in the matter they couldn't see the forest anymore, only the individual trees. I asked them only one question: What does an average user really need?"* (Participant 11, Member of R&D) Quotation 15: *"Since I am responsible for the technical development of IT infrastructure, I try to push new ideas into the product. The important part is also persuading others in the development sector to actively support or question the validity of implementing new ideas into the project."* (Participant 9, Member of the IT team) Quotation 16: *"If I believe in an idea, I try to make everybody in my team a believer. This way, we can be all aligned in our efforts."* (Participant 11, Member of R&D) Quotation 17: *"Educational (awareness-related) and innovational aspect of the Avant2Go service is also to be considered. We want all our users to make use of our service independently right from the start."* (Participant 2, CSO – Chief Strategy Officer)	Idea promotion	Innovative behavior
Quotation 18: *"Good and useful innovations should be available for everyone. The purpose of the Avant2Go project is to introduce the user experience of sharing electric vehicles to a wider range of people and decision-makers, as well as to accelerate the development of Slovenia to a higher standard."* (Participant 2, CSO – Chief Strategy Officer) Quotation 19: *"Prototyping new ideas helps us get positive feedback from the management and we usually receive quick approval or cancellation. In my opinion, this is the best way."* (Participant 9, Member of the IT team) Quotation 20: *"I regularly contribute to the implementation of new ideas and I like it. It feels rewarding."* (Participant 11, Member of R&D) Quotation 21: *"I think that my deficiency is that I never say no to new things and always put effort in the development of new things and projects, but sometimes I lose my focus on other things, while members of our team constantly have new ideas, I get all excited about them and put other projects aside."* (Participant 10, Member of operations) Quotation 22: *"Our IT team constantly develops and tests new mobile and web apps as prototypes. This way we test the ideas as soon as possible before developing the actual product and we save a lot of time."* (Participant 9, Member of the IT team)	Idea implementation	Innovative behavior

Evidence: Exemplary quotations	Form of innovative behavior	Aggregate
Quotation 23: *"I always say that you need to put yourself in a role of a user. By making quick prototypes the decision makers are able to test new ideas and features as users themselves."* (Participant 9, Member of the IT team) Quotation 24: *"Creating new ideas is something I deal with on a daily basis. But being in the R&D department it is not only about new ideas, we need to make these ideas alive. Oh, not to forget, new ideas apply not only to services, but also to processes, leadership, etc."* (Participant 11, Member of R&D) Quotation 25: *"I think that systematic introduction of innovative ideas into our work is becoming a reality now, as we have also adjusted our organizational infrastructure to fit the growth requirements. Before, we introduced innovative ideas when we felt we needed to."* (Participant 11, Member of R&D) Quotation 26: "*We have our R&D team…, for example, we use sustainable recharging, where we already charge our electric fleet with electricity gained by solar power on top of our buildings in Ljubljana and Zagreb. At the moment, we are producing electricity for 1000 electric kilometers a day.*" (Participant 2, CSO – Chief Strategy Officer) Quotation 27: "*The key of idea implementation is that the leaders first support the major decisions, then they totally trust and empower you, and afterwards two questions follow: Can you do it? and Do you need additional resources to implement the idea? The biggest advantage is quick empowerment to implement the ideas. on the other hand, there might be some disadvantages, as sometimes you might overtake some steps while the other part is still in the waiting phase.*" (Participant 3, Head of R&D)	Idea implementation	Innovative behavior

Innovative behavior. A number of quotations supported the moderating factor of innovative behavior, creating a dynamic organizational learning ecosystem in the selected company. In particular, quotations 6-13 identified idea generation, the first category that was added to the coding scheme. Furthermore, idea promotion nurtured by small empowered teams, the second category that was added to the coding scheme, was emphasized in quotations 14-17. Similarly, idea implementation as the third category added to our coding scheme was emphasized in quotations 18-27.

Table 2: *Team psychological empowerment*

Evidence: Exemplary quotations	**Form of innovative behavior**	**Aggregate**
Quotation 28: *"Despite the fact that we work in different areas, we always believe that a person can take on other roles within the team, so the project can continue. For example, at EUREKA, if one person was absent, we did something else, it was important the project went on. We are also generalists to a certain degree and we believe projects are successful even in case of deviations."* (Participant 5, member of the IT department) Quotation 29: *"Sometimes it is enough just to find the right solution, even though it is not the most original one. But when creating a completely new ecosystem like our 100 % electric car sharing system, you mostly start from scrap and need original solutions. For example, our logistics team needed a good overview over the electric fleet, so we created a backend control center for them."* (Participant 11, Member of the R&D team) Quotation 30: *"I don't always seek support for innovative ideas because as an empowered employee I know the company trusts me to execute the tasks. But sometimes you need all the support you can get and then it is good to know you can count on your staff."* (Participant 11, Member of the R&D team) Quotation 31: *"We embrace team potency through knowledge sharing, for example the app development and web design teams are continuously updating our own software and hardware solutions, such as Car Control for our internal knowledge, Avant2Go app and Charge Juice app for our clients, etc."* (Participant 6, App developer)	Team potency	Team psychological empowerment
Quotation 32: *"An important part of the project is also our partners who identify with our story and support it in one way or another, which makes development sustainable investment and content-wise."* (Participant 2, CSO – Chief Strategy Officer) Quotation 33: *"Luckily my boss is very passionate about what he does so I easily caught his 'disease'"*. (Participant 11, Member of R&D) Quotation 34: *"Since Avant2-Go car sharing is a service available 24/7, the team that takes care of the users is structured in such a way that it can be reached 24/7."* (Participant 1, CEO)	Team meaningfulness	

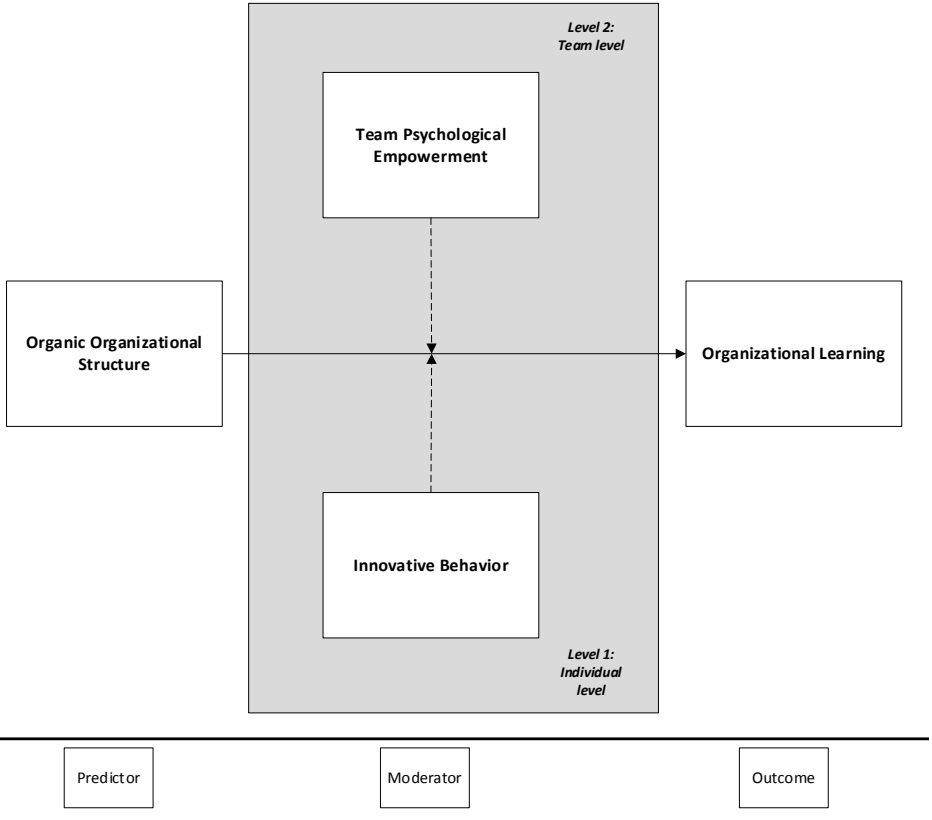
Evidence: Exemplary quotations	**Form of innovative behavior**	**Aggregate**
Quotation 35: *"We have brainstorming with the whole team every now and then, where we go through ideas and put them in a test if there are more vital pros than cons. And this is also exactly how we got the idea to start developing our Avant2Go car sharing service and we are seeing the results on the city streets."* (Participant 10, Member of operations) Quotation 36: *"… as individuals as well as teams are empowered, the organizational structure itself is decentralized and everyone, regardless of their function can promote their idea quickly and efficiently. For example, we have 360-degree learning and it means we all learn from each other at a given time. And then it becomes part of our culture.* (Participant 3, Head of R&D) Quotation 37: *"Checking the most successful projects outside of our field is my way of finding a different way to get the same result."* (Participant 9, Member of the IT team) Quotation 38: *"Most of the time innovative ideas are my decision and responsibility but sometimes I also ask for an opinion, not necessarily our management but the people that I feel are the most competent and practice-oriented for each case."* (Participant 11, Member of R&D) Quotation 39: *"I am responsible for the car control and logistic optimization of our electric fleet, for example, our app (noted: Avan2Go app) is constantly in the process of upgrading and here I am paying attention to the new improvements which are not "formally" my daily work. For example, after the last upgrade, the application seemed to respond more slowly, so I informed our developers about it and they checked the whole process."* (Participant 8, Member of the operations team) Quotation 40: *"In our organization, innovation is easier, as you don't feel the pressure or anxiety over the failure of implementation or the fear of being punished for failure. So you can innovate with passion, you have free hands and the leaders' support."* (Participant 3, Head of R&D)	Team autonomy	Team psychological empowerment

Evidence: Exemplary quotations	Form of innovative behavior	Aggregate
Quotation 41: *"The Avant2Go system of 100 % electric car sharing is the first global system with users throughout the entire vertical: individual – company – municipality – state."* (Participant 2, CSO – Chief Strategy Officer) Quotation 42: *"Coaching young people at universities about the new way of sustainable and green lifestyle that brings new career opportunities is part of our teamwork."* (Participant 1, CEO) Quotation 43: "*We have showrooms in Ljubljana and Zagreb, where we raise awareness about e-mobility*." (Participant 7, team member) Quotation 44: *"For the purposes of raising awareness in the region and implementing our new-mobility project (Slovenia, Croatia) we organize training and advisory centers, the so-called showrooms, where qualified advisors enable users the first contact with electric mobility, and in addition to presenting electric mobility and car sharing they also offer practical user experience."* (Participant 1, CEO) Quotation 45: "*We strive to achieve that our fleet vehicles will be powered by renewable energy sources also at other Avant2Go stations, which is why we encourage the project partners involved in stations to supply renewable energy too." (Participant 2, CSO – Chief Strategy Officer)*	Team impact	Team psychological empowerment

Team psychological empowerment. Several data supported the moderating factor of team psychological empowerment. Based on the inductive research, we labeled the first category team potency, which was added to the coding scheme as proven in quotations 28-31. The second added category was team meaningfulness, as observed in quotations 32-34. The third category, namely, team autonomy, is represented by quotations 35-40. The fourth and the last category of our data coding scheme, team impact, is evident in quotations 41-45.

Thus, our model offers a conceptualization that reveals the cross-level interplay of organizational design within a specific context of moderating role of innovative behavior and team psychological empowerment for predicting organizational learning as the dynamic process in the digital economy, as presented in Figure 3.

Figure 3: *The conceptual model of the cross-level interplay between organizational design and the moderating role of innovative behavior and team psychological empowerment in stimulating organizational learning*



Source: Own work.

In order to explain how organizational design facilitates organizational learning within the cross-level interplay in Avant car, we developed a conceptual model illustrated in Figure 3. The model summarizes the outcome of our qualitative study and presents our response to the research question: *How does organizational design facilitate organizational learning at the individual and team levels in the age of digital economy*? The model suggests that the coded moderators—innovative behavior and team psychological empowerment—accelerate the organizational learning process in the studied company. We conceptualize three specific facets of innovative behavior as the moderating mechanisms—idea generation, idea promotion, and idea implementation—that are aligned with the logic of organizational learning as the dynamic process. Similarly, four specific facets of team psychological empowerment—team potency, team meaningfulness, team autonomy, and team impact—support organizational learning as the dynamic process in the age of digital economy.

5 DISCUSSION AND CONCLUSION

This inductive study contributes to knowledge on organizational learning phenomena in contemporary workplaces by uncovering key moderation mechanisms—innovative behavior and team psychological empowerment. Our work highlights how organizational design affects organizational learning within the cross-level interplay, facilitating important facets of moderators in predicting organizational learning as the dynamic process able to continuously adapt by both acquiring and generating knowledge, and increasingly, by sharing and co-creating it with clients, suppliers, partners, and other stakeholders. We developed a conceptual model of organizational learning, which integrates research on organizational design, with the focus on innovative behavior at the individual level and team psychological empowerment at the team level.

Whereas previous work focused mainly on static models of organizational learning that do not address important moderators within the cross-level interplay that affect the dimensions of organizational learning as the dynamic process in the age of digital economy (Crossan et al., 2011), our findings highlight that both underlying moderators importantly contribute to the organizational learning process both at individual and team levels. This issue is central to research indicating that in the contemporary environment knowledge is the key resource (Miles et al., 2000; Snow, 2016). One implication of this cross-level perspective is that organizations need to react to or even try to co-create changes in the environment if they want to survive in the long term. Organizations that know how to collaborate with key stakeholders and to learn continuously will be able to gain competitive advantages.

Notably, our findings show that innovative behavior and psychological empowerment have the evidently crucial role of enhancing organizational learning from a cross-level perspective. The study therefore enables us to propose moderators through which organizational design facilitates the organizational learning process at the individual level and team levels. When environments are complex and dynamic, organizations need to constantly acquire, share, and use new knowledge (Hitt, 1996), and they need to continuously transform themselves (Prewitt, 2003). In particular, our research suggests that organizational design facilitates organizational learning in the interactions of the underlying moderating mechanisms by facilitating innovative behavior and team psychological empowerment. These characterize complex conceptualization of a cross-level moderated model of organizational design facilitating organizational learning in the age of digital economy. In line with the findings, organizational design and organizational learning researchers have argued that design dynamics and identification of misfits in order to achieve organizational fit (Burton et al., 2008) are crucial for organizations that strive to be innovative (Wang, 2001). Therefore, organizational design is a normative science with the goal of prescribing how an organization should be structured in order to obtain given goals effectively—doing the right things, and efficiently. Doing it right (Burton & Obel, 1998) means to successfully learn, share and implement knowledge at all organizational levels.

5.1 Theoretical contributions

The theoretical contributions of the present study are multidimensional. First, our findings possess important theoretical implications for researchers, conceptualizing organizational learning phenomena within a cross-level moderated nature in the age of digital economy based on an inductive study in the selected sustainable mobility provider. When studying organizational design that supports organizational learning initiatives, the coded moderating mechanisms in stimulating organizational learning in the age of digital economy should be considered. We found evidence of three specific facets of innovative behavior as moderating mechanisms — idea generation, idea promotion, and idea implementation — that appear specific to stimulating organizational learning. Additionally, we found four specific facets of team psychological empowerment — team potency, team meaningfulness, team autonomy, and team impact — specific to stimulating organizational learning in the age of digital economy.

Second, the key theoretical contributions are to be found in the developed conceptual model itself, which adds to the literature of the scholarly field of organizational learning. Organic organizational structure as a predictor as well as innovative behavior at the individual level and team psychological empowerment at team level as moderators lead to contemporary organizational learning.

The third theoretical contribution is the multiple-level analysis employed in the organizational learning field. Specifically, the developed model overcomes the limitations of the existing organizational learning models by expanding its scope and adding a multi-level nature of conceptualization. As presented and discussed in the previous sections, the model of organizational learning stems from the practice of an international sustainable mobility provider, based on collected contextual rich and real data. It therefore reflects the contemporary business environment of knowledge-intensive organization, including the formation of ecosystem collaborative partnerships, and other characteristics of contemporary organizations active in digital economy.

Another important theoretical contribution of this work stems from building further connections between organizational learning and organizational design scholarly fields. It importantly adds to the existing literature on organizational learning by proposing the conceptual model, emphasizing two moderators; innovative behavior and team psychological empowerment as important factors stimulating organizational learning in contemporary organizations. Nevertheless, the presented case study of an international sustainable mobility provider might also offer important insights for researchers in the fields of sustainability and green mobility.

5.2 Practical implications

Our study also highlights important implications for organizational learning and organizational design fields in practice of sustainable industry. In particular, results suggest

one way that important moderators, namely, innovative behavior and team psychological empowerment, can stimulate organizational learning processes at cross levels in the age of digital economy. Strategies such as innovative behavior and team psychological empowerment may help innovative organizations cope with complex environments based on constant learning. This implication is useful for practitioners as well as the consulting industry, as constant organizational learning and putting newly gained knowledge into practice in terms of innovation and improvement of existing products are crucial for long-term success. The presented study is also to be considered as a dissemination of the EU funded and successfully implemented project on e-mobility.

In addition, the presented case study can benefit the Avant car organization itself, as it offers a reflection provided by external researchers, as well as important insights on how their employees perceive the organization, as showcased in the presented proof-citations. the study can be also used as a basis for their knowledge transfer to the Croatian market while introducing e-mobility services or as a solid foundation for other organizations to carry out benchmarking, enabling them to identify their gaps, as well as possible improvements.

The developed case study will also offer an opportunity to build further connections between academic and business societies, as it will be presented at different courses related to organizational learning, performed at the researchers' faculty. Nevertheless, the practical implications of the presented study also go beyond directly involved stakeholders, as the presentation of successful implementation of a sustainable, innovative EU project might stimulate other members of the Slovene business environment to give special attention to learning and innovation, or even to build their own business ecosystems and apply for EU funds when searching for ways to support the development of sustainable innovative ideas.

Last but not least, the presented study is also to be considered as a means of promoting sustainable business and mobility solutions among the EBR's target audience that will help preserve our environment for generations to come.

5.3 Limitations and avenues for further research

While we believe our study has important contributions, it has some limitations. First, it is an inductive qualitative study, analyzed by the three-level coding procedure of data related to an international sustainable mobility provider at the individual and team levels, offering the venue for further research at the organizational and inter-organizational levels. Otherwise, the vast majority of limitations derive from the chosen inductive methodology, which allows the theory to be developed based on real cases and therefore to fit more closely to reality (Eisenhardt, 1989). The inductive research is also advised when relatively sparse literature on the constructs under study exists (Myers, 2009; Saunders et al., 2009), which is the case in this research industry of new generation mobility case in the age of digitalization and circular economy. The main disadvantage of the case study research

method is that it does not allow statistical generalization to the population. Case studies enable "generalizations to theoretical propositions and not to populations or universes" (Yin, 2003, p. 10); when case study research is based on systematic data collection and analysis, the case study findings can be generalized to other situations through theoretical, analytic generalization (Yin, 2012).

Other common limitations of qualitative research are lack of trustworthiness and credibility. Throughout the research, various procedures have been used to overcome this, in line with the proposed case study protocol, as presented in the study design section. The research is presented as transparently as possible. Throughout the study, we relied on explicit, empirical evidence, primary and secondary data, as advised by Yin (2011). For the data analysis, three-level coding was applied with its systematic codification of triangulated data. To increase the validity of the findings, the case study protocol was developed; 11 primary interviews were conducted in the selected company and relevant quotes were included in the research to provide clear empirical evidence to support the findings, next to the external validation. In addition, also the researchers' memos were written, and a case study database was built.

An interesting avenue for further research direction is the exploration of organizational design and organizational learning mutuality of relationship using complex cross-level empirical examination in selected innovative organizations, as well as identification of organizational design related problems in encouraging organizational learning. Nevertheless, also statistical investigation of the proposed research model is needed to generalize the findings.

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LEVELLING THE PLAYING FIELD: THE EFFECTS OF SLOVENIA'S 2013 LABOUR MARKET REFORM

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ABSTRACT: *The paper examines the effects of the 2013 labour market reform in Slovenia which made permanent contracts less restrictive and fixed-term contracts more restrictive. Using matched employer-employee data, the differences in the outcomes for workers employed under permanent vs. fixed-term contracts before and after the legislative change are compared. The results show that the reform was successful in both reducing labour market segmentation and improving access to jobs for vulnerable groups: (i) it increased the probability of accessing permanent jobs via transitions from both fixed-term jobs and unemployment, and (ii) it improved the accessibility of permanent jobs for both young and older workers.*

Keywords: *employment protection legislation, labour market dynamics, labour market segmentation*
JEL codes: J62, J63, J68
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1 INTRODUCTION

In the recent past, the Slovenian labour market was often regarded as rigid and segmented, thus posing a barrier to faster economic growth and hindering the employment of vulnerable groups. Before the adoption of the Employment Relationship Act in 2013, Slovenian employment protection legislation (EPL) was one of the most rigid among OECD countries and the EU, especially regarding the hiring and firing of permanent workers. The OECD index of EPL strictness in 2008 was 2.76, placing Slovenia in 20th place among the 25 EU Member States (Laporšek and Dolenc, 2012). As a consequence, the labour market was highly segmented between workers with permanent contracts, with a rich set of benefits, and those on fixed-term contracts, with meagre protections and benefits. Moreover, the weak ability of firms to adjust to labour market changes – as documented, among others, by the World Economic Forum (2016) – was increasingly viewed as a hindrance to the competitiveness of the Slovenian economy.

In Slovenia, the segmentation along the permanent vs. fixed-term divide has become increasingly pronounced and has particularly affected young workers. In 2011-12, the incidence of fixed-term contracts in Slovenia was 17.5 percent, compared with 13.5 for the non-weighted average of OECD countries; among European OECD countries Slovenia's

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share lagged only behind Poland, Portugal and Spain (OECD, 2014). Similarly, the share of fixed-term contracts among new hires has been among the highest in the EU (European Commission, 2010; OECD, 2014). Young workers have been particularly hurt by this dichotomy. In 2011, the incidence of temporary contracts (fixed-term, casual, and other temporary work contracts) among 15-29 year olds in Slovenia was 49.7 percent, compared to 29.3 percent in European OECD countries – placing Slovenia at the very top of that list (see also European Commission, 2010, for the analysis of earlier periods).[2] Moreover, while in the majority of European countries young workers have better chances of moving from a fixed-term to a permanent contract than older workers, Slovenia is one of the few countries where the opposite is true (European Commission, 2010).

The 2013 Employment Relationship Act (ERA) introduced significant changes aimed at reducing segmentation and increasing labour market flexibility. On the segmentation front, the law reduced the difference in costs between employing a worker under a fixed-term and a permanent contract. For fixed-term workers it introduced severance pay, increased the unemployment insurance contribution rate, and restricted the leeway for contract extensions. For permanent workers it reduced the level of severance pay and the advance notice period, as well as, above all, significantly simplified procedures for the dismissal of permanent workers. On the flexibility front – beyond reducing the firing costs for workers under permanent contracts – the law allowed for a more flexible deployment of workers and introduced the option of monetary compensation instead of reinstatement, among others. As the result of these changes, the strictness of EPL, as measured by the OECD EPL index, decreased for both permanent and temporary contracts, with the former being just below and the latter just above the average for OECD countries (see Section 2 below).

The objective of this paper is to rigorously evaluate whether the 2013 ERA levelled the playing field; whether it reduced the labour market segmentation between permanent and fixed-term workers, and whether it improved access to jobs for young and old workers. Related to labour market segmentation, the paper addresses the following questions: Has under the new law the probability of obtaining a job under the permanent – as opposed to the fixed-term contract –increased? For example, has the probability of obtaining a permanent contract increased for workers employed under the fixed-term contract? Moreover, has the probability of obtaining a permanent – as opposed to the fixed-term contract – increased for the unemployed? Related to the availability of jobs for vulnerable groups, the paper seeks to answer whether the new law increased the probability of accessing a permanent – as opposed to a fixed-term job –for both young and older workers. Theoretical predictions of Blanchard (2000) suggest that making EPL more flexible increases the availability of jobs for vulnerable groups, especially for young people, because employers prefer to employ workers with previous experience to reduce the possibility of bad choices. As for older workers, improving their employability was one of the explicit goals of the new law – the law both raised the age threshold at which workers are granted special protection against dismissal, as well as removed the dismissal protection to some groups of old workers (see below).

2 Data on incidence of temporary contracts is computed from: http://appsso.eurostat.ec.europa.eu/nui/show.do.

To identify the effects of the legislative changes, the study uses a "double difference" approach. The specific nature of the labour market reform – the fact that employment protection has become less restrictive for permanent workers and more restrictive for fixed-term workers – allows the identification of the effects by comparing differences in labour market outcomes for these two groups before and after the legislative change.

The key findings of the paper are as follows. Confronting labour market segmentation, the new law increased the probability of accessing permanent jobs via transitions from both unemployment and fixed-term jobs (including transitions from fixed-term to permanent contracts with the same employer). The reform also helped vulnerable groups; the probability of accessing permanent jobs increased disproportionally for both young and older workers.

In what follows, we first provide a brief review of literature about the effects of EPL on labour market outcomes. Section 3 describes the goals and key changes introduced by the 2013 ERA. Section 4 proceeds with describing the methodology and the matched employer-employee database used in the empirical analysis. Section 5 motivates the empirical analysis by describing the aggregate transitions between labour market states and presents the results of individual-level transition regressions. The final section concludes.

2 REVIEW OF LITERATURE

The effects of EPL on labour market outcomes have been a subject of a large body of theoretical and empirical literature focusing on the impact on the level of employment and unemployment, job and worker flows, and the differential effects on various groups of workers as well. Most studies find insignificant and some negative effects of rigid EPL on the level of employment, and no effects on unemployment (see recent reviews by Boeri, 2011, and Betcherman, 2012). More unambiguous are the results of the effects on labour market dynamics. Recent micro econometric studies indicate that strict regulations negatively affect worker and job flows and thus labour market transitions. For example, Autor et al. (2007) show that the adoption of wrongful-discharge protections by state courts in the United States had a negative effect on job flows and firm entries. Similarly, Kugler and Saint-Paul (2004) find that reduction in dismissal costs increased accessions as well as separations of workers in Colombia. The negative impact of employment protection on turnover was confirmed also by cross-country studies performed on aggregate data (Gomez-Salvador et al., 2004; Messina and Vallanti, 2007; Boeri and Garibaldi, 2009), as well as by studies using difference-in-differences approaches on OECD countries (see Micco and Pages, 2006; Haltiwanger et al., 2014; Bassanini et al., 2010; Cingano et al., 2010; and OECD, 2010).

Particularly interesting for the present study are the results concerning the effects of partial EPL reforms in Southern European countries, which typically reduced the stringency of fixed-term contracts while keeping EPL for permanent contracts unchanged. Bentolila et al. (2008) show that the 1984 Spanish reform liberalizing fixed-term contracts led to

a strong substitution of permanent with fixed-term contracts (whose share in aggregate employment reached 35 percent in the early 1990s), an increase in worker turnover rate, and a reduction in the long-term unemployment rate. Because firms used layoffs as a normal practice, the conversion rates into permanent contracts were reduced from 18 percent in 1987 to 5 percent in 1994. Aguirregabiria and Alonso-Borrego (2014) also find that the reform mildly increased total employment and firm productivity. The findings of Blanchard and Landier (2002) in the case of France are similar. Following the introduction of fixed-term contracts in the early 1980s for workers aged 20-24, the proportion of fixed-term contracts increased significantly, whereas conversion rates from temporary to permanent work decreased. The duration of unemployment and the probability of becoming unemployed decreased as well, but only in the early period. In Italy, the reform in the early 1990s introduced higher costs for unjust dismissals of permanent workers for businesses below 15 workers. That resulted in a more intensive use of temporary contracts and had a negligible effect on net employment (Kugler and Pica, 2008). Boeri and Jimeno (2005) also find that stricter EPL reduces dismissals of permanent workers, as opposed to fixed-term workers.

3 KEY CHANGES INTRODUCED BY THE 2013 ERA

The new Employment Relationship Act (Official Gazette of the Republic of Slovenia, No. 21/2013) came into effect on April 12, 2013 as part of a comprehensive labour market reform aiming at establishing an adequate balance between employment security and flexibility. The new law pursued two main goals: (i) reducing labour market segmentation and (ii) increasing flexibility (Ministry of Labour, Family, Social Affairs and Equal Opportunities, 2013). The new law also strengthened legal protection in areas where workers in the past were subject to insufficient protection or misuse.

3.1 Reduction of labour market segmentation

One of the major goals of the ERA was to foster employment under permanent contracts while curbing employment under fixed-term contracts, as well as to stimulate the employment of older workers. Important changes introduced by the law are described below.

The 2013 law introduced a variety of changes that reduced the cost of employment under the permanent as opposed to the fixed-term contract. On the one hand, employment under permanent contracts was made more attractive from the perspective of employers. This was achieved by shortening the period of advance notice and monetary costs of layoffs (for example, in case of business reasons, the maximum advance notification period was shortened from 120 to 60 days), by reducing severance pay in cases of layoffs for business reasons or incapacity, and by limiting severance pay upon retirement, as

well as in-kind work benefits.[3] Moreover, a number of provisions were delegated to the existing collective agreements, including transportation allowances and wage premium associated with work experience. Very importantly, the law also simplified procedures for termination of employment under permanent contracts. For example, before laying off a worker, the employer is no longer liable to offer him/her another suitable job within the firm; the employer can terminate the probationary period before the planned end, and the new law no longer calls for reinstatement and it allows for monetary compensation to be paid instead. Moreover, the law exempted permanent contract hires from the payment of unemployment insurance contributions for the first two years.

On the other hand, employment under fixed-term contracts was made more restrictive and less attractive. This was achieved by imposing stricter conditions on the use of fixed-term contracts, introducing severance pay for fixed-term contracts, charging a five-fold higher contribution rate for unemployment insurance for hires under fixed-term as opposed to permanent contracts (in duration of two years), and limiting the use of temporary work agency workers employed under fixed-term contracts.

With the goal of increasing employment opportunities for older workers, the ERA introduced two types of changes. First, it raised the age threshold at which workers are granted special protection against dismissal. Starting in 2017, special protection against dismissal is given to workers who fulfill the age requirement of 58 years or to workers who otherwise do not meet the age requirement but qualify for retirement within five years (in the interim period, the age threshold was synchronized with the retirement age that was also gradually raised). Second, the dismissal protection is not granted to workers who, at the time of hiring, already pass across the threshold of protection dismissal (however, protection dismissal is kept by workers who conclude a new contract by forfeiting the present employment).

3.2 Increase of labour market flexibility

Several measures aiming at reducing labour market segmentation served also to increase labour market flexibility. These are the measures for making employment protection under permanent contracts less strict, as well as the measures for reducing the special protection of older workers (see above). Several other measures of the ERA also increased labour market flexibility. First, the law reduced limits on the use of temporary agency workers, particularly in cases of workers employed by these agencies under permanent contracts. Second, the law increased internal labour flexibility of firms by both increasing the possibilities for internal redeployment and introducing temporary lay-offs, whereby a worker can be laid off for up to six months a year, with the employer being responsible for paying out 80 percent of the wage (and not 100 percent as under the old law). And

3 The relevant reductions in severance pay are as follows: under the previous law, workers with 5-10 years of tenure were entitled to an average of 1.9 months of severance pay, to be contrasted with 1.5 months under the new law; and workers with 16-20 years of tenure were previously entitled to an average of 6 months of severance pay, to be contrasted with 4.5 months under the new law.

third, during the layoff advance notification period the law granted the worker the right to participate in employment programs organized by public employment offices for one day a week.

Note, however, that the 2013 Employment Relationship Act includes also some provisions that impede labour market flexibility. These provisions, above all, relate to limitations on the use and the increase of costs of fixed-term contracts (see above).

3.3 The resulting changes of the EPL index

After the introduction of the ERA, the strictness of EPL in Slovenia, as measured by the OECD EPL index, fell considerably. Above all, the EPL index for individual and collective dismissals (permanent contracts) decreased from 2.67 to 2.39 (which is still slightly above the non-weighted average of 2.28 for OECD countries), while the EPL index for individual dismissals for permanent contracts dropped to 1.99, just below the OECD average of 2.04 (Table 1). Despite the increase in rigidity associated with fixed-term contracts, the EPL index for temporary contracts also decreased, from 2.50 to 2.13 – a change that happened due to the decrease in the restrictions on the use of temporary work agencies outweighing the increase restrictiveness on fixed-term contracts.[4] Despite the decrease, the EPL index for temporary contracts remains slightly above the non-weighted average of 2.08 for OECD countries.

Table 1: *The OECD index of the strictness of employment protection legislation in Slovenia, before and after the enactment of the 2013 ERA*

	Individual and collective dismissals (permanent contracts)	Individual dismissals (permanent contracts)	Collective dismissals (additional restrictions)	Temporary contracts
Slovenia – 2013, old ERA	2.67	2.39	3.38	2.50
Slovenia – 2013, new ERA	2.39	1.99	3.38	2.13
OECD average – 2013 (unweighted)	2.28	2.04	2.90	2.08

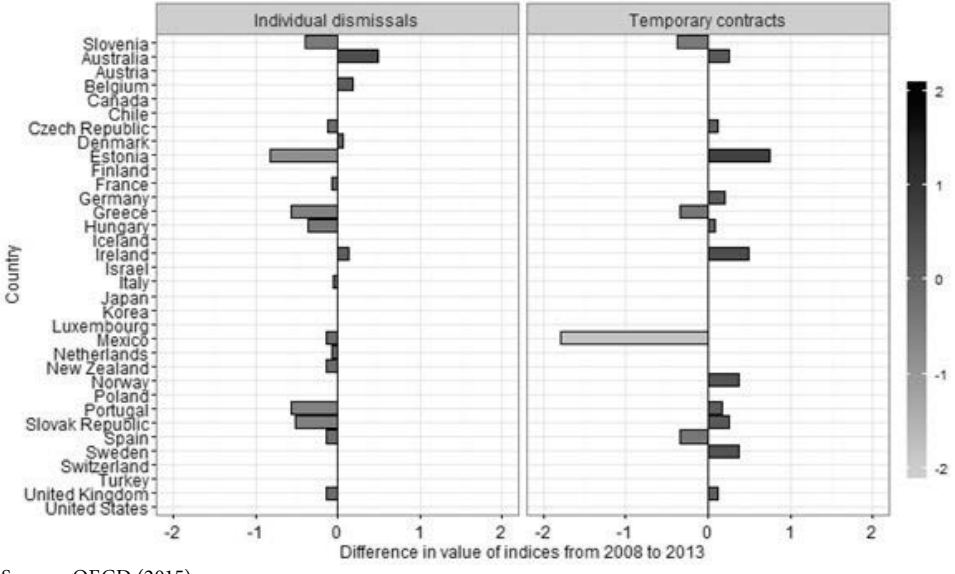
Source: OECD (2015).

It is useful to put the nature and intensity of Slovenia's 2013 reform into further perspective. Using the classifications introduced by Boeri (2011), the introduction of the 2013 Slovenian Employment Relationship Act can be labelled as "complete" (rather than "two-tier"), since the share of the population potentially affected by the reform represents

4 Note that the OECD index of strictness of temporary contracts fails to account for two specific features introduced by the 2013 ERA, namely for the imposition of (i) the obligation of paying severance pay to fixed-term workers, and (ii) a higher contribution rate for unemployment insurance for hires under fixed-term as opposed to permanent contracts. Therefore, the reduction of the temporary contracts index associated with the introduction of the 2013 law presented in Table 1 is overestimated.

more than 50 percent of the potentially eligible population. Moreover, the reform may also be labelled as "incremental" (rather than "discrete"), as the regulatory change lags behind the changes in many other countries – see the comparison of the intensity of changes in the indices of individual dismissals (permanent contracts) and temporary contracts in Slovenia and other OECD countries in Figure 1.[5]

Figure 1: *Intensity of EPL reforms, Slovenia and other OECD countries, 2008-13*



Source: OECD (2015).

4 METHODOLOGY AND DATA

In this section, we first outline the strategy to identify labour market effects of the legislative changes, and then a specification of models to be estimated is presented.

4.1 Identification strategy

Identification of the impact of the legislative changes takes advantage of the specific nature of the labour market reform that allows the use of a quasi-experimental approach. The 2013 labour reform made employment under permanent contracts less restrictive and employment under fixed-term contracts more restrictive, which allows the use of the difference-in-differences methodology to identify the reform effects (comparing the differences in outcomes for workers employed under permanent vs. fixed-term contracts, before and after the legislative change).

5 In determining whether the Slovenian reform was incremental or discrete, we follow Boeri's (2011) classification only heuristically, not computationally.

The advantage of the proposed difference-of-differences method is that it controls for different characteristics of individuals included in the treatment and control groups, including the unobserved ones. This advantage arises because by comparing the outcomes of the same group of individuals before and after the treatment, the method eliminates the effect of time invariant and group-level characteristics, including the unobserved ones. On the other hand, the method has also important potential weaknesses that stem from its assumptions. Above all, the method rests on the "equal trends assumption", requiring that in the absence of treatment, the outcomes of the treatment and control groups have equal trends. When these trends differ, the method generates biased results (Blundell and Costa Dias, 2008, Gertler et al 2011). The difference-of-differences method is also sensitive to unobserved individual-specific shocks that influence the decision to participate in the treatment group (Blundell and Costa Dias, 2008). For example, individuals experiencing a "dip" in their earnings are more likely to enrol in a training program, resulting in difference-of-differences estimator overestimating an increase of earnings among the treated – those enrolled in training (the so-called Ashenfelter's dip).

4.2 Estimation model of worker transitions

To analyse the impact of the changed legislation on transitions between various labour market states, a multinomial logistic regression framework is used. Under this framework, individuals can transition to multiple, competing states – in our case, to permanent or fixed-term employment contracts (either with the existing or another employer, if applicable), unemployment (with or without unemployment benefits), or inactivity. Each of these J competing states is associated with a specific monthly transition probability

$$\Pr(y_{t+1} = m|\boldsymbol{X_t}, y_t = b) = \frac{\exp(\boldsymbol{X_t}`\beta_{m|b})}{\sum_{j=1}^{J}\exp(\boldsymbol{X_t}`\beta_{j|b})}, \text{ with } m = 1, \dots, J \quad , \tag{1}$$

where m denotes one of the J labour market states, b is the base category, and $\boldsymbol{X}$ is a set of control variables. For example, taking fixed-term employment (Efixed) as the base category, the probability of receiving a permanent contract with the same employer (Eperm) can be expressed as

$$\Pr(y_{t+1} = Eperm|\boldsymbol{X_t}, y_t = Efixed) = \frac{\exp(\boldsymbol{X_t}`\beta_{Eperm|b=Efixed})}{1+\sum_{j=2}^{J}\exp(\boldsymbol{X_t}`\beta_{j|b=Efixed})} \quad . \tag{2}$$

The results we present are expressed as the ratio of the predicted probabilities of a given outcome compared to the baseline outcome; e.g. in the case above, the relative probability of conversion from a fixed-term contract to a permanent contract is:

$$\frac{\Pr(y_{t+1} = Eperm|\boldsymbol{X_t}, y_t = Efixed)}{\Pr(y_{t+1} = Efixed|\boldsymbol{X_t}, y_t = Efixed)} = \exp\left(\boldsymbol{X_t}`\beta_{Eperm|b=Efixed}\right) . \tag{3}$$

The example presented in (3) can identify the causal effect of the increased rigidity in fixed-term contracts and decreased rigidity in permanent contracts via double differences: (i) by comparing the two differentially-affected labour segments, and (ii) by exploiting the time-series variation. To account for the latter, the set of explanatory variables $\boldsymbol{X}$ contains an indicator variable for the time period after which the reforms were enacted. Because the reforms went into effect on April 12, 2013, we exclude the month of April from the analysis by including an indicator variable for that month. Furthermore, when labour market state y_t pertains to unemployment, we include a dummy variable controlling for the receipt of unemployment benefits. In addition, the explanatory variables $\boldsymbol{X}$ contain variables for demographic characteristics (gender, age, education) and monthly control variables to account for seasonality in worker separations and accessions.

4.3 Data description

The study takes advantage of an exceptionally rich database, created by merging administrative data covering the entire Slovenian workforce. The database contains information on the history of employment, unemployment, and wages for the entire work career for each individual for the 1991-2016 period. Each employment spell is linked with the financial and other information of the employer, with all firms in Slovenia being included (the so-called matched employer-employee database). The following data sets are included in the combined database:

(a) *Work history data set*. It contains information on the starting and the ending date of an employment spell, the type of appointment, occupation, the employer identification code, and personal characteristics (gender, age, and education). Through the employer identification code, each employment spell is linked to accounting data on the current employer.

(b) *Data set on registered unemployment*. It contains the starting and the ending date, destination of exit, as well as information on the receipt of unemployment insurance benefits. Some additional personal and family characteristics, pertaining to each spell, are also included.

(c) *Workers' earnings data set*. It contains information on earnings associated with each post-1991 employment spell of an individual (the amount of earnings, number of hours worked, the starting and ending date of the earnings period).

(d) *Accounting data on enterprises*. Data consist of yearly profit and loss statements, as well as balance sheets, for all incorporated businesses in Slovenia.

(e) *Slovenian Business Registry data set* includes information on the four-digit industry, the year the firm started operating, and the firm's type and ownership structure (private and state ownership, ownership by domestic and foreign owners, and whether a firm is a publicly traded stock company or a limited liability company).

The resulting database used as the basis for this analysis contains over 18 million observations at the level of monthly individual states (Table A1), spanning the period from April 2012 to March 2014. The large majority of these observations refer to permanent

employment, mirroring the fact that permanent employment comprises the largest share of *stock* of labour market participants. Men tend to be disproportionally represented among the unemployed and in fixed-term contracts relative to their share in permanent employment; the lesser educated tend to be disproportionally unemployed, while the highest educated tend to be disproportionally employed under permanent contracts.

In an attempt to exclude spurious worker flows, we account for changes in employment that reflect worker re-registrations due to organizational and other changes of employers. For the purposes of the analysis, we therefore exclude all worker accessions and separations between pairs of accounting entities for which, in a given month, more than 10 job-to-job transfers of individuals on permanent contracts were observed.

5 RESULTS OF THE EMPIRICAL ANALYSIS

In this section, pre- and post-reform dynamics in aggregate labour market outcomes are contrasted, afterwards followed by the results of individual-level transition regressions.

5.4 Dynamics of labour market transitions

Comparing the transition matrices across labour market states before and after the legislative change provide some clues about the labour market impact of the 2013 ERA on accessing permanent employment. As shown in Table A2, the transition rate from fixed-term employment to permanent employment with the same employer in the period after the legislative change shows a marked increase of 0.46 percentage points (5.4 percentage points at the annual level – Table A2, Panel C), whereas the transition rate from fixed-term employment to permanent employment with a new employer shows an increase of 0.09 percentage points (1.1 percentage points at the annual level – Table A2, Panel C). Moreover, in the period after the legislative change, the transition rate from unemployment with unemployment benefits to permanent employment increased by 0.26 percentage points (3.1 percentage points at the annual level – Table A2, Panel C); note that the transition rate from unemployment without receiving benefits slightly declined.

The transition matrix also highlights a more stagnant nature of the Slovenian labour market compared to other EU countries. Bachmann et al (2015), for example, report annual persistency rates in permanent employment of 89.7 percent for a panel of 24 EU countries; the comparable figure calculated from the Slovenian administrative data is 91.9 percent.[6]

6 Note that the figures are not directly comparable due to differences in data sources and definitions – Bachmann et al. (2015) use EU-SILC survey data and directly examine annual persistency rates, while the figures for Slovenia are calculated from monthly transition rates. Also note that figures refer to comparable time periods.

5.5 Results of the estimation of multinomial logit models of labour market transitions

In this section, the results of multinomial regressions of transitions across various labour market states are presented. There are three types of transitions described: from fixed-term employment, from permanent employment, and from unemployment. In the estimated models, the following destinations are considered: fixed-term employment, permanent employment, unemployment with receiving benefits, unemployment, inactivity, and self-employment (that includes other types of exits). In transition models with employment as the origin labour-market state, a further distinction is made between employment with a new as opposed to the current employer.

The estimated models follow the multinomial logit specification from equation (1) above, with key parameters of interest being the parameters showing the difference-in-differences effect on the selected outcome (see the methodology section above). As control variables, gender, age, and education are included, all expressed as categorical variables. Because the outcomes for young and older workers are of particular interest, models are estimated separately by age categories. Relative risk ratios are reported.

5.2.1 Transition from fixed-term employment

The new law increased the relative probability of transition from a fixed-term to a permanent contract. We distinguish between two types of these transitions, one in which a fixed-term contract is converted into a permanent contract with the same employer, and another one where an individual gets a permanent position with another employer. First, as shown in Table A3, under the new law the probability of transitioning to a new permanent job with another employer increased by 18.9 percent in comparison to the pre-reform period, and the probability of transitioning to a new fixed-term job with another employer decreased by 9.9 percent (Table A3, coefficients under "New Law"). The relative probability of transitioning to a permanent contract (as opposed to transitioning to a fixed-term contract) thus increased by 32 percent. Second, under the new law, the probability of transition from a fixed-term contract to a permanent contract with the same employer increased by 28.2 percent.[7] Note that this applies for the chosen baseline characteristics (men younger than 30 years, with elementary education). Under the new law, the probability of transitions to other destinations (inactivity, covered and uncovered unemployment, and other) also changed, but these changes cannot be attributed to the change of the law alone, as in all likelihood, they reflect also changes in other circumstances.

While not directly tied to the legislative changes, it is interesting to note that employment outcomes generally tend to be superior for men and more highly educated individuals (Table A3). Although they have a higher probability of transitioning to self-employment,

7 Note that in Table A3, the coefficient for "Permanent employment – same employer" under "New law" already reflects a double difference. In contrast, coefficients under "New law" for "Fixed-term employment – new employer" and "Permanent employment – new employer" reflect only the "before-after" difference and a double difference is obtained by their division (as coefficients are relative risk ratios).

women under fixed-term contracts tend to have a lower probability for continuous regular employment in any form, permanent or fixed-term, and with either their current or another employer. They also have a higher probability of exiting to unemployment (although intriguingly, not inactivity). More highly educated individuals, on the other hand, have a higher probability of transitioning to permanent contracts (either with their current or a new employer) and a lower probability of transitioning to unemployment; similarly to women, they have a higher probability of becoming self-employed and a lower probability of becoming inactive.

Relative probabilities of transitions from fixed-term employment do not vary strongly across age groups. As shown in Table A4, under the new law the probability of transitioning to a new permanent job with another employer increased for all age groups, and the probability of transitioning to a new fixed-term job with another employer decreased for all age groups, with no group showing particular advantage over the others. Interestingly, the conversion of a fixed-term to a permanent contract with the same employer recorded the highest probability among 30 to 39 year olds.

5.2.2 Transition from permanent employment

The new law increased the relative probability of transition from a permanent to another permanent contract with a new employer for both young and older workers. In the aggregate, under the new law the probability of transition from a permanent to another permanent contract with a new employer decreased by 8.9 percent, nearly precisely by as much as the probability of transition to a fixed-term contract with a new employer did, leaving the relative probability unchanged (Table A5). But both young and older workers fared better: for the younger ones (aged 16-29), the relative probability of accessing another permanent contract with a new employer increased by 7.6 percent, and for the older ones (older than 55 years) by 32 percent (Table A6). The explanation for the latter effect can be found in the new law; with the intention of an increasing access to jobs for older workers, dismissal protection stopped to be granted to job movers older than 55.

Other results show that probabilities of transition from a permanent to another permanent or to a fixed-term contract with a new employer differ across various groups (Table A5). Women are less likely to change their employers than men, particularly when exiting to a fixed-term employment. Interestingly, the more educated are less likely to transition from a permanent to a fixed-term contract or to another permanent contract with a new employer, except the ones with tertiary education, when making transition from one permanent job to another permanent job.

5.2.3 Transition from unemployment

Although the new law coincided with the increase in the outflows from unemployment to both fixed-term and permanent employment, the increase in outflows to permanent

employment was significantly greater.[8] Transitions to permanent contracts increased by 12.1 percent, whereas transitions to fixed-term contracts increased by only 2.7 percent (a difference that is statistically significant). Interestingly, transitions to self-employment decreased, a finding that is attributable to the fact that subsidies for self-employment were offered to the unemployed to a greater extent in the year prior to the change in legislation.

Transitions from unemployment show that the new law improved accessibility of permanent jobs to both young and older workers (Table A7). For younger workers, the exit rate to both fixed-term and permanent employment increased by 15.3 percent and 29.4 percent, respectively; the increase to permanent employment was statistically significantly larger (and amounted to 12.2 percent, taking the ratio of the two coefficients) – see Table A8. For older workers, the exit rate to fixed-term employment decreased by almost 30 percent, while the exit rate to permanent employment increased, although the latter was not statistically significantly relative to the baseline of the remaining unemployed. Relative to the exit rate to fixed-term employment, however, the change was statistically significant and large in magnitude, amounting to 62 percent. For the other age groups, the relative probabilities to transition from unemployment to either fixed-term or permanent employment were statistically not significantly different from each other.

The finding that transitions into permanent employment increased significantly for the oldest workers can be explained by the legislative changes which selectively reduced the firing costs for precisely those workers, while leaving them unchanged for younger ones. Prior to the implementation of the new law, workers aged 55 and over were categorically guaranteed job security; layoffs were possible only in cases of gross negligence. As explained above, according to the new law, this special protection no longer applies for the new hires who are above the age threshold at the time of the hire.[9] As such, employers have a much stronger incentive to hire older workers who are above the age threshold, while continued disincentives are in place for hiring workers just below the age threshold (who will soon be subject to the increased job security).

The exit rates from unemployment to employment across demographic characteristics are consistent with those found in other studies (e.g. Bachmann et al., 2015). Women are found to have lower rates of exiting unemployment to either permanent or fixed-term employment than men, but not to self-employment. Exit rates to regular employment decrease with age, while exit rates to self-employment increase with age (although in general, exit rates to self-employment are much lower than to regular employment). Finally, higher levels of education are associated with much higher exit rates to employment in general, and permanent or self-employment in particular.

8 Note that the statistics reported here refer to exits from both covered and uncovered unemployment.

9 The precise stipulations for what constitutes an older workers are slightly more complicated: they were lower for women prior to April 2013, are gradually increasing over time, and are also linked to the age at which individuals may retire. These factors are taken into account in the empirical analysis but are not referred to in the text for simplicity of exposition.

6 CONCLUSION

The results of the paper indicate that the 2013 Employment Relations Act achieved its stated goals of reducing labour market segmentation, as well as improving access to jobs of vulnerable groups. On the labour market segmentation front, the new law increased the probability of accessing permanent jobs: (i) the probability of conversion from a fixed-term to a permanent contract with the same employer increased, (ii) workers employed under fixed-term contracts increased the probability of obtaining a permanent rather than a fixed-term job with another employer, and (iii) unemployed workers increased the probability of obtaining a permanent rather than a fixed-term job. On the vulnerable groups front, the new law improved accessibility of permanent jobs both for young and older workers. Younger workers can better access permanent jobs via transitions from unemployment and permanent contracts; older workers have a better access to permanent jobs via transitions from unemployment as well as from another permanent job.

Slovenia's 2013 ERA reduced job security for permanent workers and increased the costs associated with fixed-term employment; the above results suggest that this strategy has paid off. The "completeness of the reform" – the fact that the reform affected both fixed-term and permanent contracts – may well have contributed to favourable outcomes. It is also worth singling out favourable outcomes for the group of old workers (55 and older) – with the intention of increasing access to jobs for older workers, the new law stopped granting special dismissal protection to job-movers aged 55 or over. The findings of the paper indeed show favourable changes regarding this group: older workers were the only group for which under the new law the relative probability of transition from a fixed-term to a permanent contract with another employer increased, and they also faced favourable trends in transitions from both permanent jobs as well as unemployment.

The above results need to be qualified in several ways. First, it has to be recognized that 2013, the year of ERA introduction, was a turning point for the Slovenian economy, when the recovery from the 2008 recession began in earnest. Under such circumstances, the equal trend assumption that underlies the difference-in-differences approach may have been violated – conceivably, during the recovery the incentives of firms to attract new workers by offering them permanent employment contracts increased. The results of the paper may therefore partially reflect such a change in incentives and cannot be exclusively interpreted as the impact of the new law. Second, the results are of partial equilibrium nature, thus ignoring general equilibrium effects of the new law. Such effects can be substantial and involve, among others, interactions between temporary and permanent contracts (for a theoretical modelling of "two-tier reforms" see Boeri 2011). Third, the analysis is limited in that it examines the short-term results of the legislative change that limit the possibility of generalizing the estimated effects – applying the analysis to a longer time series may improve the reliability of the results and, by investigating longer-term effects, increase their richness.

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Table A1: Summary statistics of key variables (mean values of binary variables)

	Labour market state			
Variable	**Permanent employment**	**Fixed-term employment**	**Unemployed**	**Entire sample**
Gender				
Men	0.52	0.59	0.54	0.55
Women	0.48	0.41	0.46	0.45
Age				
Age under 30	0.10	0.28	0.25	0.15
Age 30-39	0.29	0.35	0.22	0.28
Age 40-49	0.33	0.23	0.18	0.29
Age 50-55	0.15	0.08	0.12	0.14
Age 55+	0.12	0.05	0.22	0.14
Education				
Primary education	0.12	0.16	0.19	0.22
Technical secondary education	0.23	0.28	0.25	0.24
General secondary education	0.33	0.30	0.27	0.25
Tertiary education	0.32	0.26	0.13	0.20
Number of observations	13,928,911	2,173,943	2,009,846	18,112,700

Note: Unit of observation is the monthly labour market status at the individual level. Data cover a two year period prior to and following the April 2013 labour market reform.

Source: Own calculations based on combined unemployment and employment registry data, Statistical Office of the Republic of Slovenia.

Table A2: Monthly transition matrix – comparison of the old and the new law (in percent)

Panel A: Old law

Origin	Destination								
	Fixed-term employment – same employer	Fixed-term employment – new employer	Permanent employment – same employer	Permanent employment – new employer	Other employment (e.g., self-emp.)	Unemployment –with unemp. benefits	Unemployment –without unemp. benefits	Inactivity	Total
Fixed-term employment	90.6	1.7	1.9	0.5	0.4	2.4	0.7	1.8	100.0
Permanent employment	0.0	0.1	98.9	0.3	0.1	0.3	0.0	0.2	100.0
Other employment (e.g., self-employment)	0.0	0.4	0.4	0.2	97.5	0.5	0.1	0.9	100.0
Unemployment (with unemp. benefits)	n.a.	4.2	n.a.	1.0	1.2	84.8	0.2	8.6	100.0
Unemployment (without unemp. benefits)	n.a.	2.5	n.a.	0.5	0.3	n.a.	93.5	3.0	99.9

Panel B: New law

Origin	Destination								
	Fixed-term employment – same employer	Fixed-term employment – new employer	Permanent employment – same employer	Permanent employment – new employer	Other employment (e.g., self-emp.)	Unemployment –with unemp. benefits	Unemployment –without unemp. benefits	Inactivity	Total
Fixed-term employment	90.4	1.5	2.4	0.6	0.3	1.9	1.0	2.0	100.0
Permanent employment	0.0	0.1	98.9	0.3	0.1	0.2	0.1	0.3	100.0
Other employment (e.g., self-employment)	0.0	0.3	0.6	0.3	96.8	0.4	0.2	1.4	100.0
Unemployment (with unemp. benefits)	n.a.	4.5	n.a.	1.2	0.9	83.0	0.1	10.2	100.0
Unemployment (without unemp. benefits)	n.a.	2.4	n.a.	0.5	0.4	n.a.	93.9	2.7	100.0

Panel C: Difference = Panel B-Panel A

Origin	Destination								
	Fixed-term employment - same employer	Fixed-term employment - new employer	Permanent employment - same employer	Permanent employment - new employer	Other employment (e.g., self-emp.)	Unemployment -with unemp. benefits	Unemployment -without unemp. benefits	Inactivity	Total
Fixed-term employment	-0.26	-0.15	0.46	0.09	-0.11	-0.50	0.33	0.14	0.0
Permanent employment	0.00	-0.01	0.05	-0.01	-0.02	-0.11	0.04	0.06	0.0
Other employment (e.g., self-employment)	0.01	-0.05	0.25	0.04	-0.70	-0.12	0.06	0.51	0.0
Unemployment (with unemp. benefits)	n.a.	0.34	n.a.	0.26	-0.29	-1.83	-0.07	1.58	0.0
Unemployment (without unemp. benefits)	n.a.	-0.09	n.a.	-0.03	0.05	n.a.	0.42	-0.32	0.0

Note: Contains averages of monthly transition probabilities from April 2012 to March 2013 (the period prior to the legislative change) and May 2013 to April 2014 (the period the after legislative change).
Source: Own calculations based on combined unemployment and employment registry data, Statistical Office of the Republic of Slovenia.

Table A3: Multinomial logit estimates of the monthly probability of transition from fixed-term employment to different labour market states

	Relative risk ratio of transition from fixed-term employment into:						
	Permanent employment - same employer	Inactivity	Unemployment - without unemp. benefits	Fixed-term employment - new employer	Permanent employment - new employer	Unemployment - with unemp. benefits	Self-employment
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Effects of the legislative changes (baseline: old law)							
New law	1.282***	1.039***	1.461***	0.901***	1.189***	0.809***	0.732***
	(0.013)	(0.011)	(0.023)	(0.01)	(0.023)	(0.008)	(0.017)
Gender (baseline: men)							
Women	0.945***	0.713***	1.527***	0.721***	0.810***	1.437***	1.790***
	(0.008)	(0.009)	(0.026)	(0.01)	(0.017)	(0.014)	(0.045)
Age (baseline: under 30 years old)							
Aged 30-39	1.189***	0.746***	0.912***	1.049***	1.060***	1.143***	1.053*
	(0.011)	(0.01)	(0.018)	(0.015)	(0.023)	(0.014)	(0.028)
Aged 40-49	1.098***	0.705***	1.066***	1.149***	1.080***	1.436***	0.920**
	(0.013)	(0.012)	(0.024)	(0.019)	(0.028)	(0.02)	(0.033)
Aged 50-55	0.910***	0.666***	1.458***	1.028	0.796***	1.977***	0.978
	(0.018)	(0.017)	(0.044)	(0.027)	(0.035)	(0.037)	(0.054)
Aged 55+	0.937**	0.666***	1.185***	0.802***	0.539***	3.082***	0.813***
	(0.024)	(0.022)	(0.05)	(0.03)	(0.037)	(0.059)	(0.059)
Education (baseline: primary school or less)							
Secondary school (technical)	1.199***	0.673***	1.086***	0.954***	1.054*	1.029*	1.191***
	(0.017)	(0.01)	(0.027)	(0.016)	(0.031)	(0.015)	(0.052)
Tertiary	1.492***	0.294***	0.671***	0.519***	1.082**	0.774***	1.723***
	(0.022)	(0.006)	(0.019)	(0.011)	(0.035)	(0.013)	(0.073)
Constant (baseline risk ratio)	0.012***	0.068***	0.004***	0.025***	0.005***	0.016***	0.001***
	(0)	(0.002)	(0)	(0.001)	(0)	(0)	(0)
Number of transitions	48,397	39,338	17,578	34,462	11,802	47,479	7,674
Number of observations	2,173,943						
Pseudo R-squared	0.027						

Note: Coefficients denote relative risk ratios obtained from multinomial logit regressions, where relative risk ratios are defined as the relative probability of observing a given outcome relative to the base outcome. Additional covariates included in the regressions include 11 dummy variables for calendar months and a dummy variable for April 2013. The regressions are estimated for monthly transitions from April 2012 to April 2014, thus including 12 months before and after the legislative change (in addition to April 2013, when the new law went into effect in the middle of the month). *, ** and *** denote statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors clustered by individual are in parentheses.

Source: Own calculations based on combined unemployment and employment registry data, Statistical Office of the Republic of Slovenia.

Table A4: Multinomial logit estimates of the monthly probability of transition from fixed-term employment to different labour market states – age-specific effects of the legislative changes (relative risk ratios)

	Relative risk ratio of transition from fixed-term employment into:						
	Permanent employment – same employer	Inactivity	Unemployment – without unemp. benefits	Fixed-term employment – new employer	Permanent employment – new employer	Unemployment – with unemp. benefits	Self-employment
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Effects of the new law, age-specific effects							
Aged 16-29	1.202***	1.011	1.122***	0.887***	1.207***	0.926***	0.757***
	(0.019)	(0.015)	(0.027)	(0.016)	(0.035)	(0.015)	(0.027)
Aged 30-39	1.541***	1.122***	1.681***	0.930***	1.193***	0.808***	0.771***
	(0.027)	(0.022)	(0.051)	(0.019)	(0.04)	(0.015)	(0.032)
Aged 40-49	1.135***	1.015	1.781***	0.890***	1.224***	0.751***	n.a.
	(0.026)	(0.025)	(0.065)	(0.022)	(0.053)	(0.016)	
Aged 50-55	n.a.	n.a.	n.a.	n.a.	n.a.	0.768***	n.a.
						(0.024)	
Aged 55+	n.a.	n.a.	n.a.	n.a.	n.a.	0.543***	n.a.
						(0.019)	

Note: Coefficients denote relative risk ratios obtained from separate multinomial logistic regressions estimated by age group. Relative risk ratios are defined as the relative probability of observing a given outcome relative to the base outcome. For each age group, the following covariates are included: gender, education (4 categories), dummy variables for calendar months and a dummy variable for April 2013. "n.a." refers to labour market states/transitions for which there were too few observations for reliable estimates. The regressions are estimated for monthly transitions from April 2012 to April 2014, thus including 12 months before and after the legislative change (in addition to April 2013, when the new law went into effect in the middle of the month). *, ** and *** denote statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors clustered by individual are in parentheses.
Source: Own calculations based on combined unemployment and employment registry data, Statistical Office of the Republic of Slovenia.

Table A5: Multinomial logit estimates of the monthly probability of transition from permanent employment to different labour market states

	Relative risk ratio of transition from permanent employment into:					
	Inactivity	Unemployment – without unemp. benefits	Fixed-term employment – new employer	Permanent employment – new employer	Unemployment – with unemp. benefits	Self-employment
	(1)	(2)	(3)	(4)	(5)	(6)
Effects of the legislative changes (baseline: old law)						
New law	0.850***	2.384***	0.913***	0.911***	0.602***	0.654***
	(0.011)	(0.074)	(0.017)	(0.009)	(0.007)	(0.014)
Gender (baseline: men)						
Women	0.799***	0.961	0.602***	0.818***	0.857***	0.900***
	(0.01)	(0.028)	(0.012)	(0.009)	(0.01)	(0.019)
Age (baseline: under 30 years old)						
Aged 30-39	0.536***	0.790***	0.997	1.310***	1.224***	1.363***
	(0.013)	(0.031)	(0.025)	(0.023)	(0.025)	(0.041)
Aged 40-49	0.400***	0.660***	0.673***	1.279***	1.186***	0.937*
	(0.011)	(0.027)	(0.019)	(0.023)	(0.024)	(0.031)
Aged 50-55	0.772***	0.764***	0.577***	1.179***	1.603***	0.747***
	(0.022)	(0.04)	(0.023)	(0.027)	(0.037)	(0.035)
Aged 55+	5.870***	1.194***	0.634***	0.906***	2.674***	0.752***
	(0.12)	(0.058)	(0.026)	(0.023)	(0.058)	(0.036)
Education (baseline: primary school or less)						
Secondary school (technical)	0.890***	1.054	1.162***	0.985	0.885***	1.246***
	(0.017)	(0.045)	(0.037)	(0.018)	(0.015)	(0.054)
Secondary school (general)	0.714***	0.837***	0.869***	0.920***	0.744***	1.473***
	(0.013)	(0.036)	(0.028)	(0.017)	(0.013)	(0.06)
Tertiary	0.604***	0.486***	0.947*	1.226***	0.477***	2.045***
	(0.012)	(0.024)	(0.031)	(0.022)	(0.009)	(0.084)
Constant (baseline risk ratio)	0.006***	0.000***	0.004***	0.004***	0.007***	0.001***
	(0)	(0)	(0)	(0)	(0)	(0)
Number of transitions	27,534	5,455	12,006	39,676	31,346	9,967
Number of observations	13,928,911					
Pseudo R-squared	0.046					

Note: Coefficients denote relative risk ratios obtained from multinomial logistic regressions, where relative risk ratios are defined as the relative probability of observing a given outcome relative to the base outcome. Additional covariates included in the regressions include 11 dummy variables for calendar months, a dummy variable for April 2013, and dummy variables for proxies of tenure with current employer. The regressions are estimated for monthly transitions from April 2012 to April 2014, thus including 12 months before and after the legislative change (in addition to April 2013, when the new law went into effect in the middle of the month). *, ** and *** denote statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors clustered by individual are in parentheses.
Source: Own calculations based on combined unemployment and employment registry data, Statistical Office of the Republic of Slovenia.

Table A6: Multinomial logit estimates of the monthly probability of transition from permanent employment to different labour market states – age-specific effects of the legislative changes

	Relative risk ratio of transition from permanent employment into:					
	Inactivity	Unemployment – without unemp. benefits	Fixed-term employment – new employer	Permanent employment – new employer	Unemployment – with unemp. benefits	Self-employment
	(1)	(2)	(3)	(4)	(5)	(6)
Effects of the new law, age-specific effects						
Aged 16-29	1.177***	n.a.	1.059	1.140***	0.718***	0.695***
	(0.042)		(0.041)	(0.032)	(0.024)	(0.035)
Aged 30-39	1.255***	n.a.	0.929**	0.946***	0.711***	0.700***
	(0.043)		(0.028)	(0.016)	(0.016)	(0.022)
Aged 40-49	1.126***	3.725***	0.903***	0.869***	0.720***	0.619***
	(0.042)	(0.25)	(0.034)	(0.015)	(0.016)	(0.025)
Aged 50-55	0.912**	3.658***	0.890*	0.839***	0.599***	0.616***
	(0.04)	(0.38)	(0.06)	(0.025)	(0.019)	(0.048)
Aged 55+	0.639***	2.086***	0.553***	0.730***	0.303***	0.474***
	(0.011)	(0.172)	(0.042)	(0.027)	(0.01)	(0.042)

Note: Coefficients denote relative risk ratios of multinomial logit regressions estimated for each age group separately, where relative risk ratios are defined as the relative probability of observing a given outcome relative to the base outcome. For each age group, the following covariates are included: gender, education (4 categories), dummy variables for calendar months, a dummy variable for April 2013 and dummy variables for proxies of tenure with the current employer. "n.a." refers to labour market states/transitions for which there were too few observations for reliable estimates. The regressions are estimated for monthly transitions from April 2012 to April 2014, thus including 12 months before and after the legislative change (in addition to April 2013, when the new law went into effect in the middle of the month). *, ** and *** denote statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors clustered by individual are in parentheses.
Source: Own calculations based on combined unemployment and employment registry data, Statistical Office of the Republic of Slovenia.

Table A7: Multinomial logit estimates of the monthly probability of transition from unemployment to different labour market states

	Relative risk ratio of transition from unemployment into:		
	Fixed-term employment – new employer	Permanent employment – new employer	Self-employment
	(1)	(2)	(3)
Effects of the legislative changes (baseline: old law)			
New law	1.027***	1.121***	0.852***
	(0.009)	(0.019)	(0.016)
Gender (baseline: men)			
Women	0.688***	0.617***	0.99
	(0.008)	(0.012)	(0.02)
Age (baseline: under 30 years old)			
Aged 30-39	0.843***	0.899***	1.474***
	(0.012)	(0.02)	(0.037)
Aged 40-49	0.862***	0.819***	1.591***
	(0.014)	(0.021)	(0.045)
Aged 50-55	0.751***	0.529***	1.797***
	(0.017)	(0.02)	(0.065)
Aged 55+	0.474***	0.188***	1.274***
	(0.013)	(0.011)	(0.051)
Education (baseline: primary school or less)			
Secondary school (technical)	1.864***	2.129***	2.123***
	(0.032)	(0.066)	(0.076)
Secondary school (general)	1.757***	2.593***	3.202***
	(0.03)	(0.078)	(0.108)
Tertiary	2.420***	4.226***	5.794***
	(0.046)	(0.137)	(0.208)
Constant (baseline risk ratio)	0.078***	0.021***	0.006***
	(0.002)	(0.001)	(0)
Number of transitions	68,302	15,521	13,225
Number of observations	2,009,846		
Pseudo R-squared	0.172		

Note: Coefficients denote relative risk ratios obtained from multinomial logistic regressions, where relative risk ratios are defined as the relative probability of observing a given outcome relative to the base outcome. Additional covariates included in the regressions include a dummy variable for receipt of unemployment benefits, 11 dummy variables for calendar months and a dummy variable for April 2013. The regressions are estimated for monthly transitions from April 2012 to April 2014, thus including 12 months before and after the legislative change (in addition to April 2013, when the new law went into effect in the middle of the month). *, ** and *** denote statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors clustered by individual are in parentheses.

Source: Own calculations based on combined unemployment and employment registry data, Statistical Office of the Republic of Slovenia.

Table A8: Multinomial logit estimates of the monthly probability of transition from unemployment to different labour market states – age-specific effects of the legislative changes

	Relative risk ratio of transition from unemployment into:		
	Fixed-term employment – new employer	Permanent employment – new employer	Self-employment
	(1)	(2)	(3)
Effects of the new law, age-specific effects			
Aged 16-29	1.153***	1.294***	1.407***
	(0.016)	(0.034)	(0.049)
Aged 30-39	1.006	1.05	0.952
	(0.016)	(0.032)	(0.031)
Aged 40-49	1.033*	1.062	0.717***
	(0.019)	(0.04)	(0.028)
Aged 50-55	0.900***	0.912	0.455***
	(0.025)	(0.061)	(0.026)
Aged 55+	0.717***	1.161	0.331***
	(0.026)	(0.128)	(0.025)

Note: Coefficients denote relative risk ratios obtained from separate multinomial logistic regressions estimated by age group. Relative risk ratios are defined as the relative probability of observing a given outcome relative to the base outcome. For each age group, the following covariates are included: gender, educations (4 categories), dummy variables for calendar months and a dummy variable for April 2013. "n.a." refers to labour market states/transitions for which there were too few observations for reliable estimates. The regressions are estimated for monthly transitions from April 2012 to April 2014, thus including 12 months before and after the legislative change (in addition to April 2013, when the new law went into effect in the middle of the month). *, ** and *** denote statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors clustered by individual are in parentheses.

Source: Own calculations based on combined unemployment and employment registry data, Statistical Office of the Republic of Slovenia.

E/B/R

POVZETKI V SLOVENSKEM JEZIKU

EXPLOITING FIRM CAPABILITIES BY SENSING, SEIZING AND RECONFIGURING CAPABILITIES: AN EMPIRICAL INVESTIGATION

ZMOŽNOSTI ZAZNAVANJA, PREPOZNAVANJA IN PREOBLIKOVANJA KOT KLJUČNE V PROCESU RAZVIJANJA ZMOŽNOSTI PODJETJA: EMPIRIČNA PREVERBA

LIDIJA BREZNIK, MATEJ LAHOVNIK, VLADO DIMOVSKI

V prispevku obravnavamo zmožnosti podjetja kot sestav zmožnosti zaznavanja, zmožnosti prepoznavanja in zmožnosti preoblikovanja v skladu z dinamičnim prilagajanjem le-teh okolju podjetja. Izsledki ugotovitev raziskave kažejo, da je potrebno zmožnosti podjetja razumeti in kontinuirano razvijati kot sestav navedenih treh zmožnosti, v kolikor želimo zagotoviti temelje za razvijanje in branjenje konkurenčne prednosti. V prispevku predstavimo tudi dobre in preverjene prakse, ki omogočajo razvijanje teh zmožnosti v kontekstu dinamičnih zmožnosti, hkrati pa navedemo tudi slabe prakse, katere pa lahko predstavljajo (ključne) ovire v razvijanju obravnavanih zmožnosti.

Ključne besede: zmožnosti podjetja, dinamično prilagajanje, prepoznavanje, preoblikovanje, informacijska tehnologija, študija primera

INFORMATION SOURCES AND FACTORS INFLUENCING ENROLMENT IN ICT AND STEM UNIVERSITY STUDY PROGRAMMES

VIRI INFORMACIJ IN DEJAVNIKI, KI VPLIVAJO NA VPIS V UNIVERZITETNE PROGRAME S PODROČJA INFORMACIJSKE IN KOMUNIKACIJSKE TER PODROČIJ ZNANOSTI, TEHNOLOGIJE, INŽENIRSTVA IN MATEMATIKE

DUNJA MEŠTROVIĆ, LIDIJA BAGARIĆ, NATAŠA JAKOMINIĆ MAROT

Na vse bolj konkurenčnem trgu visokošolskega izobraževanja je za uspešen prihodnji razvoj nujno razumeti, kako se bodoči študenti odločijo za vpis na določen študijski program in pri tem poznati tudi informacijske vire, ki jih le-ti uporabljajo v procesu odločanja. Prispevek raziskuje proces odločanja in uporabljene vire in s tem prispeva k razumevanju dejavnikov in virov informacij, ki vplivajo na odločanje dijakov. Članek se osredotoča na odločanje študentov informacijske in komunikacijske tehnologije (IKT) in področij znanosti, tehnologije, inženirstva in matematike (STEM). Rezultati so relevantni za oblikovalce ukrepov politike visokega šolstva in tudi za podjetja.

Ključne besede: visokošolstvo, študij, informacijski viri, odločevalni dejavniki, obnašanje potrošnikov, pozicioniranje inštitucije

A DYNAMIC MODEL FOR INVESTIGATING CONSUMER UTILITY DERIVED FROM STATUS GOODS

DINAMIČNI MODEL ZA ANALIZO KORISTNOSTI POTROŠNJE STATUSNIH DOBRIN

KÁRMEN KOVÁCS

Članek razvije dinamični model za analizo obnašanja posameznega potrošnika, katerega namen je analiza dinamike porabe statusnih dobrin in vpliva na potrošnikovo koristnost, tako na nivo koristnosti kot tudi na spremembo koristnosti skozi čas. Model temelji na predpostavki, da so posamezniki pogosto neučakani pri doseganju višjega družbenega položaja in da se lahko vrednost statusnega blaga spreminja med njihovo razpršitvijo. Model lahko uporabimo za napovedovanje koristnosti dobrin, o katerih posameznik šele razmišlja, da bi jih kupil ali pa že kupljenih dobrin.

Ključne besede: družbeni položaj, statusne dobrine, statusna potrošnja, koristnost potrošnje

ORGANIZATIONAL DESIGN AND ORGANIZATIONAL LEARNING: THE MODERATING ROLE OF INNOVATIVE BEHAVIOR AND TEAM PSYCHOLOGICAL EMPOWERMENT IN THE CASE OF AN INTERNATIONAL SUSTAINABLE MOBILITY PROVIDER

ORGANIZACIJSKI DIZAJN IN ORGANIZACIJSKO UČENJE: MODERACIJSKA VLOGA INOVATIVNEGA VEDENJA IN TIMSKEGA PSIHOLOŠKEGA OPOLNOMOČENJA NA PRIMERU MEDNARODNEGA PONUDNIKA TRAJNOSTNE MOBILNOSTI

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Preučili smo, kako v okviru raziskovanja medsebojne interakcije organizacijski dizajn spodbuja organizacijsko učenje v dobi digitalne ekonomije. V induktivni študiji primera ponudnika trajnostne mobilnosti izvedemo tri-stopenjski postopek kodiranja. Ugotovitve študije primera izpostavijo dva moderatorja - inovativno vedenje na individualni ravni in timsko psihološko opolnomočenje na ravni tima – na podlagi katerih predlagamo konceptualni model medsebojne interakcije za razumevanje organizacijskega učenja. Razviti konceptualni model prikazuje medsebojno interakcijo organizacijskega dizajna ter moderacijski vlogi inovativnega vedenja in timskega psihološkega opolnomočenja pri spodbujanju organizacijskega učenja. Natančneje, identificirali smo tri vidike inovativnega vedenja - ustvarjanje idej, promocijo idej in implementacijo idej na individualni ravni ter štiri vidike timskega psihološkega opolnomočenja na timski ravni – zmožnosti tima, smiselnost tima, avtonomnost tima in vpliv tima - ki delujejo kot moderacijski mehanizmi pri napovedovanju organizacijskega učenja.

Ključne besede: organizacijski dizajn, organizacijsko učenje, inovativno vedenje, timsko psihološko opolnomočenje, trajnostna mobilnost, več-nivojska perspektiva

LEVELLING THE PLAYING FIELD: THE EFFECTS OF SLOVENIA'S 2013 LABOUR MARKET REFORM

UČINKI REFORME ZAKONA O DELOVNIH RAZMERJIH IZ LETA 2013 NA DOSTOPNOST ZAPOSLITVE ZA NEDOLOČEN ČAS

MATIJA VODOPIVEC

Članek preučuje učinke Zakona o delovnih razmerjih iz leta 2013, ki je zmanjšal stroške in poenostavil postopke pri zaposlitvah za nedoločen čas ter hkrati destimuliral uporabo zaposlitev za določen čas. Na podlagi združene baze podatkov posameznikov in podjetij primerja verjetnost zaposlitve po pogodbah za določen in nedoločen čas pred in po zakonski spremembi. Članek ugotavlja, da je zakon prispeval k zmanjšanju segmentacije na trgu dela ter k povečanju dostopnosti zaposlitve za ranljive skupine, saj je povečal verjetnost prehoda v zaposlitev za nedoločen čas tako za brezposelne kot za zaposlene na pogodbah za določen čas, za mlajše in starejše delavce pa je tudi izboljšal dostopnost zaposlitve za nedoločen čas.

Ključne besede: zaposlitvena zakonodaja, dinamika trga dela, segmentacija