

UNIVERSITY OF LJUBLJANA
FACULTY OF ECONOMICS

BLANKA TACER

**USER DRIVEN INNOVATION AND BRAND DEVELOPMENT IN
YOUNG ENTERPRISES**

DOCTORAL DISSERTATION

Ljubljana, 2015

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IZJAVA O AVTORSTVU

Podpisana Blanka Tacer, študentka Ekonomske fakultete Univerze v Ljubljani, izjavljam, da sem avtorica doktorske disertacije z naslovom User driven innovation and brand development in young enterprises (Od uporabnika spodbujeno inoviranje in razvoj blagovnih znamk v mladih podjetjih), pripravljene v sodelovanju s svetovalko prof. dr. Majo Konečnik Ruzzier.

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Podpis doktorandke: _____

OD UPORABNIKA SPODBUJENO INOVIRANJE IN RAZVOJ BLAGOVNIH ZNAMK V MLADIH PODJETJIH

POVZETEK

Tehnološki razvoj in vse krajši življenjski cikli izdelkov v zadnjih desetletjih spodbujajo podjetja k vlaganju več energije v ustvarjanje vrednosti na strani povpraševanja. Podjetja preizkušajo nove načine prilagajanja izdelkov in storitev potrebam uporabnikov. Eden izmed načinov, kako lahko dosežemo prilagoditev je, da uporabnike vključimo v inovacijski proces in razvijamo nove izdelke in storitve skupaj z njimi. V literaturi ta pojav zasledimo pod imenom od uporabnika spodbujeno inoviranje (angl. user-driven innovation). Uporabniki lahko prispevajo k različnim fazam inovacijskega procesa: predstavljajo vir informacij pri raziskovanju njihovih potreb, lahko ustvarjajo nove ideje, zagotavljajo povratno informacijo pri testiranju prototipov ali pa sodelujejo kot aktivni inovatorji. V mladih podjetjih je prispevek uporabnikov še posebej pomemben, saj mlada podjetja tekmujejo na trgu z omejenimi lastnimi viri za razvoj. S pomočjo uporabnikov pa lahko povečajo svoje prizadevanja za inovativnost, saj je dostop do uporabnikov odvisen od lastne proaktivnosti in ne od institucionalnih omejitev, kot je to v primeru nekaterih drugih trgov z viri. Namen te doktorske disertacije je raziskati od uporabnika spodbujeno inoviranje v mladih podjetjih v Sloveniji. Skladno z interdisciplinarnimi značilnostmi od uporabnika spodbujenega inoviranja bomo preučili trženjski vidik tega rastočega raziskovalnega področja.

Raziskovalno področje od uporabnika spodbujenega inoviranja je šele v nastajanju, zato ga najprej raziščemo s pomočjo utemeljevalne teorije. Rezultati polstrukturiranih intervjujev razkrivajo tri ključne elemente konstrukta, to so vključevanje uporabnika, iskanje povratne informacije in naravnost v dizajn. Te tri elemente vključimo v tri-dimenzionalno konceptualizacijo konstrukta od uporabnika spodbujenega inoviranja. Na osnovi rezultatov utemeljevalne teorije in pregleda literature predlagamo novo opredelitev od uporabnika spodbujenega inoviranja kot pristopa k razvoju novih izdelkov/storitev, ki želena uporabniško izkušnjo ustvarja s pomočjo vključevanja uporabnikov v inovacijski proces, stalnega iskanja povratnih informacij in naravnostjo v intuitiven dizajn. Preučevanje od uporabnika spodbujenega inoviranja odpira metodološke izzive, saj obstoječe mere zaobjemajo le vključevanje uporabnikov, kar predstavlja samo en del konstrukta. Zato v nadaljevanju te doktorske disertacije razvijemo novo lestvico. S tremi zaporednimi študijami smo razvili novo lestvico s trinajstimi trditvami, ki je izkazala ustrezno zanesljivost, dimenzionalnost, konvergentno, diskriminantno in nomološko veljavnost. Novo lestvico uporabimo za empirično preverbo modela v naslednjih poglavjih te doktorske disertacije.

V nadaljevanju ta doktorska disertacija razišče determinante od uporabnika spodbujenega inoviranja. Ker trženjski vidik usmerja delo podjetja z uporabniki, v model vključimo dva trženjska koncepta kot določljivki preučevanega konstrukta. Predlagamo model, v katerem od uporabnika spodbujeno inoviranje mediira odnos med inovacijsko uspešnostjo

mladih podjetij in naravnost na blagovne znamke in interakcije z uporabniki. Inovacijska uspešnost podjetij pa je v nadaljevanju pozitivno povezana z uspešnostjo podjetja. Podatkovno bazo 284 mladih podjetij iz Slovenije smo analizirali z linearnim strukturnim modeliranjem. Rezultati so podprli model, v katerem je konstrukt od uporabnika spodbujenega inoviranja popolno mediiral predpostavljene odnose med spremenljivkami.

Poleg trženjskega vidika ta doktorska disertacija preuči tudi nekatere kontekstualne dejavnike od uporabnika spodbujenega inoviranja. Inferenčni testi kažejo, da so mlada podjetja v visokotehnoloških sektorjih bolj naklonjena od uporabnika spodbujenemu inoviranju v primerjavi z mladimi podjetji v ostalih sektorjih. Dodatno smo zbrali podatke še v eni državi (Velika Britanija) in preučili kako dinamičnost v okolju in trženjska zmožnost prispevata k od uporabnika spodbujenemu inoviranju. Rezultati hierarhične regresijske analize kažejo, da je dinamičnost v okolju statistično pomembno pozitivno povezana z od uporabnika spodbujenim inoviranjem v mladih visokotehnoloških podjetjih na obeh vzorcih. Trženjska zmožnost pa je statistično pomembno pozitivno povezana z od uporabnika spodbujenim inoviranjem le na vzorcu britanskih visokotehnoloških podjetij.

Ključne besede: od uporabnika spodbujeno inoviranje, naravnost na blagovne znamke, naravnost v interakcijo, trženjska zmožnost, kontekstualni dejavniki, razvoj lestvice, mlada podjetja

USER DRIVEN INNOVATION AND BRAND DEVELOPMENT IN YOUNG ENTERPRISES

SUMMARY

In recent decades, technology development and short product life cycles have encouraged companies to put more effort into the demand-side of value creation. They are constantly exploring new ways to customize their products and services to their users' needs. One way of doing this is to involve users in the innovation process and to collaborate with them to develop new products and services. Literature terms this phenomenon 'user-driven innovation'. Users can contribute to the different phases of the innovation process as a source of information in researching their needs, as idea generators, as feedback providers in prototype testing or as active innovators. Users' contributions are especially important for young companies, which have to compete on the market using limited resources. Therefore, users may represent a possible means of leverage for innovation efforts; access to users depends on the proactivity of the company and not on institutional constraints as in other resource markets. This dissertation aims to investigate user-driven innovation in young companies in Slovenia. In correspondence with the interdisciplinary nature of the user-driven innovation, we attempt to integrate the marketing perspective into this growing research field.

User-driven innovation is a nascent research stream, therefore we firstly explore the field using the grounded theory approach. The results of the semi-structured interviews reveal three key elements of user-driven innovation, namely user involvement, searching for feedback and design orientation. These three key elements are integrated in the three-dimensional conceptualization of the user-driven innovation construct. Based on the grounded theory approach and literature review, we define user-driven innovation as an approach to new product/service development, which aims to provide a desirable user experience by involving users in the innovation process, the continuous search for feedback and the creation of an intuitive design. Investigating user-driven innovation raises methodological challenges, since existing measures focus solely on user involvement (which is only one element of user-driven innovation). Thus, this dissertation proceeds with the development of a new measure. As a result of our three consecutive studies, we offer a new 13-item scale with appropriate reliability, dimensionality, convergent, discriminant and nomological validity. This new scale is used in the empirical verification of the model in the following chapters.

This dissertation goes on to investigate the determinants of user-driven innovation. As marketing drives companies' work with users, we examine two marketing concepts as antecedents of user-driven innovation. In particular, we conceptualize a model of user driven innovation (UDI) as a mediator of the relationships between innovation performance, brand orientation and interaction orientation. Innovation performance in turn is positively related to company performance. By using structural equation

modelling, we analyse a dataset of 284 young Slovenian companies. The results support a full-mediated model.

In addition to the marketing perspective, this dissertation also examines contextual factors of user-driven innovation. Inferential tests reveal that young companies in high-technology sectors are more inclined to implement user-driven innovation than those from other sectors. By collecting data in one additional country (the United Kingdom), we explore how environmental dynamism and marketing capability contribute to user-driven innovation in young high-technology companies. The results of the hierarchical regression analysis revealed that environmental dynamism is significantly positively connected with user-driven innovation in both countries, whereas marketing capability only shows a statistically significant coefficient in the UK sample.

Keywords: user-driven innovation, brand orientation, interaction orientation, marketing capability, contextual factors, scale development, young companies

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INTRODUCTION

MOTIVATION

A production of Netflix's House of Cards was different comparing to other series. It did not have a plot episode. The founder of the Netflix signed a contract for 26 episodes at the very beginning of the development process, which is considered as a very risky and unique move in the film industry. Their decision was risky indeed, but it was not impulsive or without strategic consideration. The decision was justified by their users' behaviour. Based on the analysis of their 50+ million subscribers Netflix recognized that users who watched the original British version of House of Cards were more likely to watch political drama or films starring Kevin Spacey or directed by David Fincher (Hegde, 2014). Following these results Netflix established cooperation with Kevin Spacey and David Fincher in order to produce a political drama. In contrast to other series which favour producers' judgements this decision was driven by users' behaviour based on the big data analyses. Netflix's revenues in 2012 before the release of the House of Cards were 3.6 mlrd \$ whereas in 2014 after two seasons of the series were 5.5 mlrd \$ (Netflix, 2015).

Many other examples including start-ups such as Dropbox, Pinterest and Outbrain show how customization of the products or services to meet users' needs is becoming more and more important (Flynn, 2013). Dropbox's¹ principle in start-up development for instance was to learn about their target users' needs during product development phase. They started with a working prototype in a form of three-minute screencast on the Hacker News platform (<http://thehackernews.com/>), in order to obtain immediate high-quality feedback. After receiving the feedback, they continued with a simple landing page to assemble interest of their potential users. A private beta launch video followed; in one day, they obtained 70,000 users in the waiting list for their product. Finally, they launched the product in September 2008 in the TechCrunch50 conference. Immediately after the launch, they prepared a marketing plan, and hired different marketing experts. The experiment ended up with cost of \$233–388 per customer acquisition for a \$99 product price. Nevertheless, they had a rapid increase of signups. Finally, they employed users' behaviour observation techniques by investing in analytics. The results showed that word-of-mouth is the strongest acquisition channel among their users. Consequently, they develop a referral programme that rewards users for bringing in new users. If a user brings in a new user, they both get extra free space in Dropbox. The incentive resulted in

¹ We describe Dropbox case based on the following sources: Dropbox (2013), YouTube (2011), YouTube (2012), The Lean Startup (2013).

a 60% growth of signups. They continue to grow by 15–20% per month since then. In the meantime, they already refreshed their brand identity.

A common feature of those examples is that they are driven by users' needs even if they refer to technology innovation. Some of those examples actively engage users in the innovation process by continuous searching for feedback, i.e. Dropbox, while others focus on researching users' behaviour in order to reveal their latent needs, i.e. Netflix. In contrast to many R&D departments in large companies, which focus on developing and delivering innovation these companies focus on researching users and defining new product's or service's feature in close interaction with users. Deriving from the literature those examples reflect the demand-side of value creation rather than resource side. Priem, Li, and Carr (2012, p. 350) define demand-pull innovations as "innovations driven by the goals of either satisfying current consumer needs in an entirely new way or identifying and satisfying new needs." Innovation efforts in demand-side of value creation are thus driven by users and not by technology advancements or other resource ownership. By shifting the innovation paradigm from traditional producer innovation logic towards user-centric logic innovation strategies have become more open allowing external parties to contribute to innovation (Lichtenthaler, 2011). The literature has different terminology for the innovation driven by users. For instance, user-driven innovation (Bar & Riis, 2000), participatory innovation (Buur & Matthews, 2008), collaborative innovation with customers (Greer & Lei, 2012), user involvement (Alam, 2002), lead users collaboration (von Hippel, 1986) are the most frequent terms. In this doctoral dissertation we use the term user-driven innovation (hereinafter UDI).

Despite users have always been a source of innovation for companies (Freeman et al., 1968), authors only recently began to recognize the role of users in creating sustainable competitive advantage (Bogers, Afuah, & Bastian, 2010). Although authors acknowledge many challenges connected with involving users in the innovation process (De Moor et al., 2010; Trott, Duin, & Hartmann, 2013), the literature accepts net positive benefits from the UDI. Users can be contributors of new ideas (Alam, 2002), providers of feedback on product's or service's concepts (Hjalager & Nordin, 2011) or source of knowledge about the needs (Greer & Lei, 2012). The UDI has received a growing attention by researchers in the last 15 years (Priem et al., 2012) with rising pressure for product or service customization (Greer & Lei, 2012), shortening of product life cycles (Bogers et al., 2010), technological advancement in researching users' needs (Prandelli, Verona, & Raccagni, 2006) and increasing knowledge intensity among users (Greer & Lei, 2012).

The topic of UDI has especially strong implications for young companies (Priem et al., 2012). Established companies have an access to different resources such as supplier networks, financial resources and customer database. Young companies on the other hand have to compete in the market in order to survive, but they have a limited access to

resources (Criscuolo, Nicolaou, & Salter, 2012; Priem et al., 2012). Users therefore might represent one possibility of leveraging the innovation efforts since access to users depends on companies' own proactivity and not on institutional constraints as in some other resource markets. Young companies typically receive a lot of attention by governments and researchers as drivers of economic growth (Audretsch, Bönte, & Keilbach, 2008; Carree, van Stel, Thurik, & Wennekers, 2002; Park & Bae, 2004). They create new jobs (Wennekers & Thurik, 1999), introduce innovations (Criscuolo et al., 2012; Rosenbusch, Brinckmann, & Bausch, 2011), and enhance per capita income growth (Toma, Grigore, & Marinescu, 2014). Burns (2011) argues that entrepreneurship encourage growth, because it stimulates competition, facilitates the knowledge spillovers and generates diversity and variety among companies.

The importance of entrepreneurship subsequently puts the development of young companies in the spotlight. Young companies are vulnerable; their survival rate across Europe is low. Less than half of new born companies in Europe survive first five years. The average survival rate for Europe was 45% in 2012, whilst in Slovenia the survival rate was 53% (Eurostat, 2014). Research on the antecedents of young companies' performance is thus important. A rich body of literature addresses this topic (e. g. Chen, Zou, & Wang, 2009; Cooper, GimenoGascon, & Woo, 1994; Song, Podoyntsyna, van der Bij, & Halman, 2008; Wu, 2007). However, some authors recently highlighted that the boundaries among disciplines prevent us to integrate insights from different perspectives in an effort to advance our knowledge about the development of entrepreneurial companies' (Ireland & Webb, 2007; Webb, Ireland, Hitt, Kistruck, & Tihanyi, 2011). Webb et al. (2011) are especially critical towards boundaries between entrepreneurship and marketing research. Marketing research is focused on identifying and understanding the customer and translating their needs into new products or services, whereas entrepreneurship research has traditionally assumed market opportunity and dedicated their research effort to entrepreneur's traits and behaviour (Webb et al., 2011). In their integration of marketing and entrepreneurship process Webb et al. (2011) show how marketing (learning, market orientation, and marketing mix) influences each entrepreneurial process (entrepreneurial alertness, opportunity recognition, innovation, opportunity exploitation) which in turn improve firm performance. The UDI encompasses both understanding the customer and acting towards exploiting business opportunity. As such researching UDI cannot be limited only to marketing, entrepreneurship or innovation discipline. As the fields are so tightly integrated in practice, research also needs to deliberate cross-disciplinary dimensions. Drawing from Webb et al. (2011) and their integration of the marketing and entrepreneurship process, this dissertation aims to consider marketing concepts as antecedents of UDI.

PURPOSE AND GOALS

Based on the lack of interdisciplinary empirical research of young companies, and considering young companies' scarce resources in innovation effort, the first purpose of this dissertation is to investigate the UDI in young companies in Slovenia. Following Webb et al. (2011) integration of marketing and entrepreneurship process, the second purpose of this dissertation is to include marketing perspective in the UDI research. Slovenia is a former socialist economy with a relatively short market tradition that started in the early 90s. The disintegration of Yugoslavia forced Slovenia to find new markets. In the early 90s, the new market conditions also allowed for the increased establishment of private companies. Innovation and knowledge about users were crucial for those companies in order to survive and grow in the period of intensive economic changes. This dissertation aims to shed some light into different contextual factors of the UDI, for instance what are the differences in the UDI between a developed country and a smaller transition economy, the role of environmental dynamism in the UDI and the differences between high-technology young companies and other industries. In the following section we present the specific goals of the research.

Despite some notable studies (e.g. Alam, 2002; Lau, Tang, & Yam, 2010; van de Vrande, de Jong, Vanhaverbeke, & de Rochemont, 2009) UDI is a nascent research stream. UDI in entrepreneurship is even more specific since pure entrepreneurship research focus on entrepreneurs' behaviour and venture capital effectiveness (Ireland & Webb, 2007). To advance the field of UDI, we need more theoretical conceptualization followed by empirical studies (Bogers et al., 2010). For relatively new research fields with fragmented theory the grounded theory approach is suitable in order to develop conceptual propositions based on empirical data (Ji Young & Eun-Hee, 2014). Therefore the first research goal refers to the clarification of the UDI concept by employing the grounded theory approach. In contrast to the falsification and verification in the traditional scientific process, the grounded theory uses data in order to develop a theoretical framework without prior hypothesis development based on the literature review. By literature review in the grounded theory approach we only identify key issues connected with the phenomenon (Charmaz, 2006). Our goals are thus to identify key conceptual issues of the UDI, discover key elements of the UDI, explore how are users integrated in the innovation process, and how users contribute to the creation of user experience. Based on the results we will suggest the proposition for further research. This first study serves as an exploratory investigation of the UDI field.

Several authors call for more quantitative research of the UDI (Bogers et al., 2010; Greer & Lei, 2012; Priem et al., 2012). However, one of the reasons for lack of empirical research of the UDI is that currently we do not have a psychometrically sound instrument for investigating UDI. Therefore, the goal of this dissertation is to develop a reliable, valid and relatively short scale of the UDI with respect to the procedure recommended by

Churchill (1979). We will consider other measures too. For instance, Nagy and Ruzzier (2013) have developed a measure of the UDI. The measure contains 17 items for UDI orientation and 30 items for UDI activities. Such a long instrument is hardly a part of complex research designs with other measures. Their instrument will serve us as a reference point and inspiration for our development. There are also some other scales measuring the UDI (Carbonell, Rodriguez-Escudero, & Pujari, 2009; Chien & Chen, 2010; Feng, Sun, & Zhang, 2010). Those scales focus on user involvement, which is only one part of the UDI. In order to fully investigate the UDI we also need to include other dimensions.

Next goal of the dissertation refers to the marketing perspective on UDI, more specifically the relation of the brand and interaction orientation with the UDI. We will conceptualize a model of UDI as a mediator of the relationship between innovation performance, brand orientation and interaction orientation. The model will further propose that innovation performance in turn is related to firm performance. We will use a sample of young companies from Slovenia to test the proposed relationships. The model will be assessed by structural equation modeling. Since young companies sometimes lack of marketing capability (Giudici & Paleari, 2000; Sun, Ni, & Leung, 2007) it is important to investigate how marketing concepts can contribute to new product or service development. The authors highlight how companies need a capability to motivate users in order to fully incorporate UDI in their business practice (Lettl, 2007). Marketing capabilities thus are not important only for firm performance as such but also for motivating users to contribute. The marketing perspective will also be a part of the next research goal.

Since innovation is context dependent (Rosenbusch et al., 2011) it is important to consider different contextual factors connected with the UDI. Thus, our final goal is to address this topic by investigating the following contexts: (1) the differences in UDI between companies in post transition economy (Slovenia) and companies from developed country with long market tradition (UK), (2) the differences in UDI between high-technology and other companies, (3) the role of environmental dynamism in the UDI. We will employ hierarchical regression analysis and t-tests in order to examine the relationships among the variables. In addition, we will also investigate the role of marketing capability in UDI, but in contrast to the previous research goal this analysis will include marketing capability (and not brand and interaction orientation) as an internal contribution to the UDI in order to evaluate both effects: the effect of environmental dynamism and the effect of marketing capability, respectively.

This dissertation makes several contributions. In dynamic environments companies put more and more effort into customization of products or services to users' needs (Greer & Lei, 2012; Priem et al., 2012). From a company perspective this dissertation brings new knowledge about the synergies between marketing and innovation in entrepreneurial

process. Engaging users cannot be done in isolation. If a company has a proper marketing capabilities it will be more competent to engage users in the innovation process. We will investigate the concept of the UDI employing the grounded theory analysis. Further on, we will develop a measure of UDI, conceptualize a model with integrated two concepts from the marketing literature and empirically verify the model. Finally, we will examine some most important contextual factors. By doing so this dissertation aims to contribute: (1) a comprehensive picture of the manifestation of UDI in companies by employing grounded theory analysis. (2) The current literature considers UDI as unidimensional construct concerning user involvement (Carbonell et al., 2009; Chien & Chen, 2010; Feng et al., 2010), but in the same time calls for more empirical investigation of the UDI (Greer & Lei, 2012; Priem et al., 2012). This dissertation conceptualize UDI as a multidimensional construct, in addition to user involvement considers also searching for feedback and design orientation. We propose a new definition of the UDI, which builds upon existing definitions and integrates new developments of the field. (3) Lack of empirical investigation of the UDI might be due to a lack of reliable and valid measures of the UDI. This dissertation attempts to deliver psychometrically sound scale of the UDI, which will be relatively short in order to enable researchers to use it as a part of more complex research designs. (4) Empirical verification of a conceptual model in which UDI mediates the relationship between innovation performance, brand orientation and interaction orientation. (5) Empirical evidence of contextual factors of UDI in two different countries.

To conclude this section we wrap-up with the list of our research goals:

- To clarify the UDI concept by identifying key elements, investigating the ways of users' integration in the innovation process, exploring users' contribution to the creation of user experience, and developing research propositions
- To develop a theoretically justified, reliable and valid measure of UDI
- To empirically verify a conceptual model of the UDI as a mediator of the relationship between innovation performance, brand orientation and interaction orientation
- To investigate the role of contextual factors for UDI

RESEARCH FOCUS

As evident throughout the dissertation we focus more on UDI than in brand development and other marketing concepts. The reason for this is that UDI is a relatively nascent research field meaning that we had to conduct an exploratory investigation of the field in order to clarify key elements connected with the UDI domain. While the measures in marketing are already validated, a reliable and validated measure of the UDI has to be developed in order to investigate the concept appropriately.

The first focus of this dissertation is to provide exploratory research of the UDI field based on the grounded theory approach. Exploratory investigation is suitable, because UDI is not a comprehensive research field with clear conceptualizations (Greer & Lei, 2012; Priem et al., 2012). Some authors disagree about the benefits of UDI (Enkel, Perez-Freije, & Gassmann, 2005; Lehrer, Ordanini, DeFillippi, & Miozzo, 2012); some of them demonstrate the application of UDI in radical innovation (Lettl, Herstatt, & Gemuenden, 2006), while others maintain that UDI is suitable only for incremental innovations. As an interdisciplinary field UDI is investigated by marketing (Alam, 2002), management (Priem et al., 2012), entrepreneurship (Blank, 2013), and innovation scholars (von Hippel, 1988). Consequently, different terminology is used for similar content. Our exploratory investigation will analyze interviews with entrepreneurs in order to get an overview of the key elements of the field, identify different manifestations of involving users in the innovation process, get an insight to how UDI contributes to the creation of user experience, and how UDI is integrated into small companies.

The second research focus is on developing new scale of UDI. Following the results of our exploratory study and literature review we will first conceptualize UDI as a multidimensional construct. Item generation will follow along with an initial screening and assessing the content validity. The item purification process to determine reliability and factor structure will be conducted on a convenient sample of practitioners who participate in a part-time study for a business degree. The construct validity will be conducted on a sample of young companies from Slovenia. Dimensionality and reliability will be performed by principal component analysis and confirmatory factor analysis. Convergent and discriminant validity will be assessed with a procedure suggested by Fornell and Larcker (1981) in which we will calculate composite reliabilities and the average variance extracted. For discriminant validity we will use a chi-square difference test proposed by Bagozzi and Yi (1988). To assess the nomological validity of the UDI scale, we will investigate two potential antecedents (dynamic innovation capabilities and interaction orientation) and two potential consequences (innovation performance, turnover growth). Employing hierarchical regression analysis we will test a set of hypotheses. The first hypothesis refers to dynamic innovation capabilities as an antecedent of the UDI. We argue that dynamic innovation capabilities might relieve the process of involving users in new product or service development; a significant positive relationship between dynamic innovation capabilities and UDI dimensions is expected.

Hypothesis 1. A firm's dynamic innovation capabilities contribute positively to the variance in all three dimensions of UDI.

Interaction orientation as focusing on the relationship with user, understanding the user as social relationship partner, engaging and communicating with the individual user, empowering the user to influence and fostering dialogue instead of one-way

communication (Karpen, Bove, & Lukas, 2012; Ramani & Kumar, 2008) may lead to more interactions with users and foster the sensitivity of entrepreneurs to user needs.

Hypothesis 2. Interaction orientation positively correlates with all three dimensions of UDI.

An empirical generalisation from the literature shows that UDI is directly related to innovation performance (Grunert et al., 2008; Lettl, 2007; Lokshin, Gils, & Bauer, 2009). Turnover growth can serve as a proxy of firm performance (Antoncic, 2007). As stressed by von Hippel (2005) turnover growth may also be an outcome of the UDI.

Hypothesis 3. UDI dimensions are positively related to innovation performance.

Hypothesis 4. UDI dimensions are positively related to turnover growth.

Third research focus encompasses the role of UDI as a mediator between innovation performance and two marketing concepts, namely brand orientation and interaction orientation. Since UDI builds upon user linkage, marketing perspective on UDI might explain in what way marketing can contribute to innovation and firm performance. We will test whether brand and interaction orientation enhance the effect of UDI on innovation performance. The following hypotheses reflect our proposed model:

Hypothesis 5. UDI positively relates to innovation performance.

Hypothesis 6. Innovation performance positively relates to firm performance.

Hypothesis 7a. Brand orientation is positively related to UDI.

Hypothesis 7b. Brand orientation is positively related to innovation performance.

Hypothesis 8a. Interaction orientation is positively related to UDI.

Hypothesis 8b. Interaction orientation is positively related to innovation performance.

The fourth focus is related to the contextual factors of UDI. We will test the differences in UDI between high-technology and other industries. For two samples of high-technology young companies from two countries we will investigate the effect of environmental dynamism and marketing capability on UDI. We will include control variables in the analysis. Environmental dynamism is positively associated with explorative innovation (Saemundsson & Candi, 2014) and UDI has characteristics of explorative innovation. If the environment is dynamic, companies might search sources of innovation in users in order to incorporate users' changing needs in dynamic environment. The following hypothesis will test this assertion.

Hypothesis 9. Environmental dynamism is positively associated with UDI.

A literature review suggests that marketing capability may help company to engage in UDI approach to new product or service development (Lettl, 2007). Firms with higher marketing capability will more likely achieve user-related advantage, because they put an effort to linking with users. Several past studies suggest that firm capabilities may represent a significant part in the approaches to the innovation (Mariadoss, Tansuhaj, & Mouri, 2011; Ngo & O'Cass, 2013; Song, Droge, Hanvanich, & Calantone, 2005). The following hypothesis will assess the contribution of marketing capability to UDI on two samples.

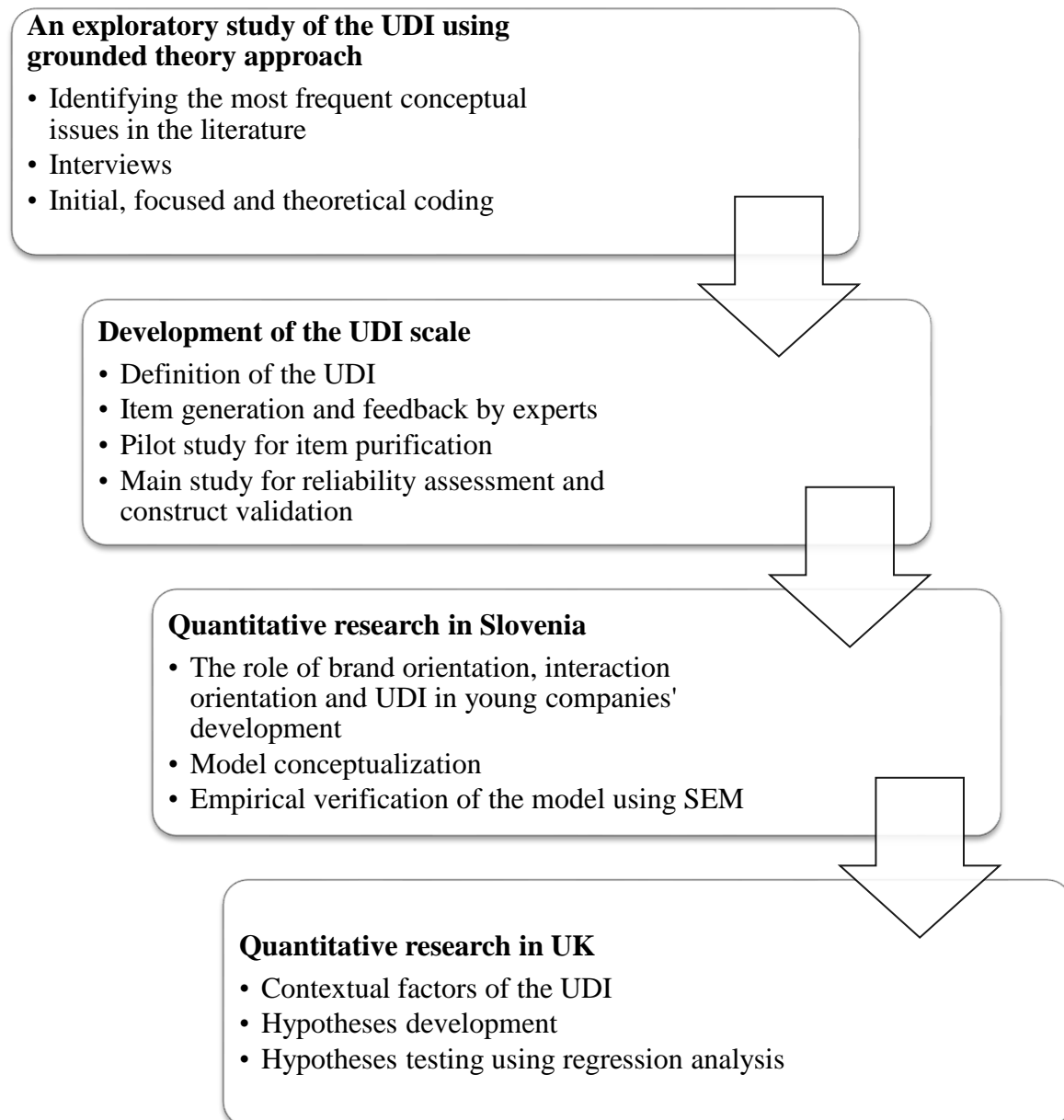
Hypothesis 10. Marketing capability is positively associated with UDI.

The literature provides several case studies on UDI from high-technology sectors (De Moor et al., 2010; Lettl et al., 2006). A rapid technology development, especially in the IT field, is an antecedent of the accelerated progress of UDI during the last two decades (Magnusson, Matthing, & Kristensson, 2003) because technology enabled companies to observe users' needs in more sophisticated ways. Consequently, many young high-technology companies started to include users in the innovation process. We will investigate whether high-technology companies are engaged more in the UDI comparing to other sectors.

Hypothesis 11. High-technology companies will be more inclined to UDI compared to other companies.

This dissertation uses primary sources of data along with the literature review. The methods used vary with the respect of the different research questions. Figure 1 shows a graphical representation of the research process. More about the methods and data collection procedures is written in the respective chapters 1, 2, 3, and 4.

Figure 1: Research process



LIMITATIONS

This doctoral dissertation provides new evidence about young companies' approach to innovation by employing UDI and marketing perspective. The study offers new conceptualization of UDI, proposes a psychometrically sound scale of UDI, and collects the data in two countries (Slovenia and UK), although we need to consider limitations when interpreting the results.

The first limitation refers to the company perspective. We investigated entrepreneurs' perception; hence the new scale is suitable for companies and not for investigating users'

perceptions. While a company's perspective gives us an insight into strategic decisions of entrepreneurs', the data still reflect their subjective perceptions. For instance, entrepreneurs' might perceive they address users' needs in innovation process while users might have different perception. Investigating users' perspective would bring additional insight into our topic. However, if we would include users' perspective another set of measuring issues would raise and we would have to limit the study to several cases. Since case studies on UDI are already present in the literature (Lettl et al., 2006; Schaarschmidt & Kilian, 2014), we wanted to contribute with empirical verification of a model.

The second limitation refers to the survival bias. Companies included in the sample survived in the competitive market. The survival rate for first three years in business for Slovenian companies is 53% (Eurostat, 2014). Therefore, based on our results it is difficult to conclude that UDI enhance young company's development despite the positive and significant coefficients. Maybe companies which did not survive on the market also used the UDI. In order to at least partially mitigate the survival bias, we included two precautions. On the one hand we extended the definition of a young company from the usual 10 to 15 years. On the other hand we also included companies younger than two years. By this we got a wider range of young companies at different levels of their development. It is important to consider both ends of the age dimension. The companies from 0 to 2 years represent the youngest companies which are the least effected by survival bias. The companies from 10 to 15 years represent companies which have survived the first delicate decade, but are still considered SMEs.

The third limitation refers to the limited sample of companies. We only investigated young companies. In order to investigate both the specific factors for young companies and the more general factors for other companies, would mean collecting data from different age groups and then comparing them. We controlled for company age, but our sample consisted only of young companies. Our results therefore cannot be generalized to older companies. However, we also cannot interpret the results as being specific for young companies, because we would need to compare the results from different age groups in order to make such conclusions. On the other hand, young and mature companies share the same dynamic and competitive characteristics of markets. Both types of company need to operate efficiently in order to survive, therefore partial aspects of our results may also be valid for mature companies; for instance, the evidence about the positive relationship between UDI and innovation performance.

The next limitation concerns the separation of high-technology companies and companies from other sectors. Although we were careful in attributing companies to high-technology or other sectors, the limits are artificial. We used the NACERev.2 sector approach in order to classify companies as high-technology companies (NACE Rev. 2, 2008). According to this classification, the following sectors are considered as high-technology: aerospace, automotive, artificial intelligence, biotechnology, computer engineering,

computer science, information technology, nanotechnology, nuclear physics, photonics, robotics, semiconductors, and telecommunications. As one of the respondents in our survey commented, some companies in creative industries may be high-technology companies if they include high-technology in their services. As a precaution we conducted a few t-tests with different categories of companies (for instance, some telecommunication and automotive companies we assigned to the category of other companies), but the results did not reveal any significant differences in the expression of main constructs included in the study.

Apart from environmental dynamism, industry, and country we did not investigate other contextual factors such as the differences between B2B and B2C businesses or services and manufacturing companies. The inclusion of additional contextual variables would provide new insights into the manifestation of UDI in different contexts.

Despite thorough approach to the development of a new measure for UDI, the final factor structure still needs some purification in order to achieve clean structure. The scale is validated on a Slovenian sample. A validation in other countries is also needed.

STRUCTURE OF THE DOCTORAL DISSERTATION

This dissertation has four main chapters which represent the investigations of the research questions. The dissertation also includes one introduction chapter and one concluding chapter which refer to the whole dissertation. Each major chapter investigates one perspective of the research topic. First chapter explores key conceptual issues of the UDI using grounded theory approach, the second chapter reports on the UDI scale development and validation, third chapter conceptualize and verify the relationships between UDI, brand orientation, interaction orientation, innovation, and firm performance, fourth chapter reveals the role of industry type, environmental dynamism and marketing capability on UDI in young companies. Finally, the concluding chapter wraps up the dissertation with the summary of the contributions.

Chapter 1 follows a grounded theory analysis approach in order to explore entrepreneurs' and researchers' perspective on UDI. After a short introduction of the UDI, we continue with the discussion on the common grounds of different definitions of UDI in the literature. In the next section we outline the grounded theory approach and proceed with the introduction of the key open questions of UDI in the literature. In the methodology section we present the research process along with the coding procedure of the qualitative data collected in semi-structured interviews. The results section summarizes themes and sub-themes which emerged from the coding process. The results reveal key elements of the UDI and highlight the distinction between strategic orientation towards UDI and application of different UDI techniques in companies' practice. Based on the sub-themes we develop research propositions for future empirical investigations and discuss theoretical and managerial implications.

Chapter 2 reports on the UDI scale development and validation. The chapter starts with an introduction and justification of a new measure development. We continue with a literature review which we upgrade with a conceptualization of UDI as three-dimensional construct with the following dimensions: user involvement, searching for feedback, and design orientation. We also propose a new definition of the concept. The chapter continues with a report on developing and validating the UDI scale across three studies. The first study encompasses item generation and face validity assessment on a sample of experts. The second study uses a sample of practitioners who participate in a part-time study for a business degree in order to purify the items. The initial reliability assessment and factor structure are calculated. The third study is a main study on a sample of entrepreneurs. The study provides empirical evidence of convergent and discriminant validity of the UDI scale by employing confirmatory factor analysis. Additional regression analysis offers an insight into nomological validity by evaluating two antecedents and one consequence of the concept. The chapter concludes with a discussion on implications and limitations of the study.

Chapter 3 introduces the marketing perspective on UDI by conceptualizing a model with two concepts from marketing, namely brand and interaction orientation, as antecedents of UDI. In the introduction we define the research gap and continue with an introduction of the main concept. The chapter continues with a model conceptualisation in which we define the constructs and hypothesise the relationships among them. We investigate the following concepts: UDI, brand orientation, interaction orientation, innovation performance, and firm performance. The section on methodology describes sample, procedures, and measures used. We also assessed the reliability of the measures and the possibility of the effect of a common method variance. By using structural equation modelling, we revealed that UDI fully mediates the relationship between brand orientation and innovation performance and the connection between interaction orientation and innovation performance. We discuss the results and highlight the implications of the results. We also point out the limitations and future research possibilities.

Chapter 4 attempts to investigate contextual factors of UDI. The analysis explores how environmental dynamism as an external variable and marketing capability as an internal variable contribute to the UDI in young companies. The analysis also includes industry type (high-technology and other companies) and datasets from two countries. After the introduction of the UDI concept we proceed with the hypotheses development. In the section on hypotheses development we define each construct and develop hypothesis according to the evidence in the literature. The methodology section presents sample, procedures and measures used in the study. We also provide reliability assessment and evidence of a common method variance. In the results section we report the findings of a hierarchical regression analysis. The discussion is divided on theoretical implications, practical implications and limitations along with the future research suggestions.

Concluding chapter summarizes all the main findings of the dissertation and highlight key contributions. This chapter is followed by three additional sections, namely references, appendices and a longer abstract in Slovenian language.

1 USER-DRIVEN INNOVATION: AN EXPLORATORY STUDY

1.1 ABSTRACT²

Despite the relatively robust promotion of UDI in practice, research on UDI remains in its early stages. Following a grounded theory analysis approach, this paper makes a contribution by conducting exploratory research of the field. Nine interviews yield an empirical basis for extracting categories connected with existing conceptual issues. The results reveal three key elements of the UDI (user involvement, searching for feedback, and design orientation). The results also indicate the interdisciplinary nature of UDI with branding, design, and company-user interaction as complementary fields in creating user experience. The analysis leads to four theoretical propositions for future studies. The chapter concludes with limitations and implications for future research.

1.2 INTRODUCTION

Integrating users into the innovation process is the subject of intense discussions, resulting in divergent conclusions. On one side, the relevant literature and practices acknowledge the beneficial impact of integrating users into the innovation process (von Hippel, 1998). UDI can improve a company's innovation capabilities (Lokshin et al., 2009; Ngo & O'Cass, 2013) and product performance (Lau et al., 2010), and reduce discontinuous innovations market risk (Enkel, Perez-Freije, et al., 2005). However, another stream of the literature reveals that integrating users into the innovation process may result in merely incremental innovations (Christensen, 1997; Enkel, Kausch, & Gassmann, 2005) or even impede a company's innovation process (Lehrer et al., 2012; Schaarschmidt & Kilian, 2013). UDI is a nascent research stream; in recent years, it has been a popular topic in the business press (e.g. Broberg & Edwards, 2012; Guterman, 2009). In the academic literature, however, a dilemma about the role of the user in innovation has been present for decades. Authors disagree about the approach to researching users' needs (Leifer, 2000). Some of them favour direct research of users' needs with surveys, focus groups and interviews while others prefer indirect techniques of investigating users such as observations, context immersion, and storytelling (Bisgaard & Hogenhaven, 2010; Wise & Hogenhaven, 2008). Drawing increasingly on the market orientation concept (Kohli & Jaworski, 1990; Narver & Slater, 1990) and sophisticated data analysis techniques, authors emphasize the importance of continuous exploration of user needs. In contrast, critics maintain that asking users about their needs leads only to incremental innovations (Beckman & Barry, 2007; Shaw & Ivens, 2005). Radical innovations are the result of revealing users' latent needs, which can be discovered by

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qualitative and in-depth research methods, such as observations, storytelling and contextual inquiries (Bisgaard & Hogenhaven, 2010; Holtzblatt & Beyer, 1993). The idea of fitting products and services to users' needs is, therefore, not new. What is relatively new is the term 'UDI' and its emphasis on the role of the user in different phases of the innovation process.

Despite growing research interest in the demand side of value creation as being distinct from the supply side (Priem et al., 2012), the theory on UDI remains fragmented in contemporary management, marketing, innovation and entrepreneurship literature. UDI discussions are predominantly focused on different strategies (Hjalager & Nordin, 2011; Sandmeier, 2009), estimations and the consequences of integrating users into the innovation process (da Mota Pedrosa, 2012; Sandmeier, Morrison, & Gassmann, 2010). The literature also offers several definitions of the UDI (e.g. Grunert et al., 2010; Hjalager & Nordin, 2011; Wise & Hogenhaven, 2008) which are predominantly focused on user involvement. The topic is important for the theory of demand side of value creation, which needs more clear distinctions among the competing approaches to value creation (Priem et al., 2012). On the other hand the topic is also relevant for practice, which needs an insight into the contribution of the UDI to the product or service success. To advance the field of UDI we firstly need more theoretical conceptualization followed by empirical studies.

In order to address this gap, we contribute via systematic analysis of the UDI field based on the qualitative empirical data. Our approach, based on a grounded theory (Charmaz, 2006), reveals three key elements of UDI: user involvement, searching for feedback, and design orientation. The qualitative analysis confirms the interdisciplinary nature of the UDI concepts and explains how UDI contributes to the creation of user experience. The study discloses ways of involving users in the innovation process in different innovation phases. In addition, this study highlights the culture of UDI which reflects strategic orientation towards UDI.

The following research questions drive our study: (1) What are the key elements of UDI? (2) What are the ways of involving users in the innovation process and in which phases of the innovation process can a company involve users? (3) How does UDI contribute to the developing of user experience? (4) How is UDI incorporated into the organization? Using a grounded theory approach, we derive theoretical categories that are further developed into four propositions for further research.

The remainder of the chapter is structured as follows: first, common grounds of different UDI definitions are presented. Second, conceptual issues in UDI research are enumerated as a starting point for our grounded theory analysis. Third, the chapter proceeds with methodology, results and discussion. Fourth, the chapter is finished with a conclusion, limitations, and suggestions for future research.

1.3 DEFINITIONS OF UDI

The literature offers several definitions of UDI. Some emphasize researching users' needs, while others see users as active contributors in the innovation process. For instance: 'UDI is the process of tapping users' knowledge in order to develop new products, services and concepts. A UDI process is based on an understanding of true user needs and a more systematic involvement of users (Wise & Hogenhaven, 2008, p. 21). This definition is based on researching users' needs and presents UDI as a process. In addition to researching users' needs, some other definitions present users as active contributors in the innovation process. For instance:

'UDI is the phenomenon by which new products, services, concepts, processes, distribution systems, marketing methods, etc. are inspired by or are the results of needs, ideas and opinions derived from external purchasers or users. UDI involves existing and/or potential users, and the processes rely on systematic activities that search for, acknowledge, tap, and understand the users' explicit, as well as implicit, knowledge and ideas. Methods in UDI span from superficial observations to consultations and intensive involvement of the users in co-creation processes' (Hjalager & Nordin, 2011, p. 290).

At first sight, different definitions of UDI converge on the same united grounds:

- Latent user needs. In contrast to technology- or price-driven innovation, users are at the centre of the UDI process. Definitions of UDI consider the exploration of users' needs (Christiansson et al., 2008; Hjalager & Nordin, 2011; Rosted, 2005). In addition to stated user needs, these definitions emphasize that the goal of research is to reveal users' latent needs (Wise & Hogenhaven, 2008). The process of revealing latent user needs is deliberate and systematic (Grunert et al., 2010). Exploration of user needs is not limited to the examination of requirements and desires directly connected with the product or service. Rather, it includes a user's broader life, identity, value system and desired holistic experience with the product or service (Hjalager & Nordin, 2011).
- Connection with design. Existing UDI literature directly or indirectly refers to the role of design in UDI. The role of intuitive and human-centred design is emphasized (Beckman & Barry, 2007; Bisgaard & Hogenhaven, 2010; Rosted, 2005). Design in UDI aims to simplify the usage and/or to accommodate the user interface of the product or service to the user's abilities, needs and desires. In this way, design meets users' functional, symbolic and experiential needs (Venkatesh, Digerfeldt-Månsson, Brunel, & Chen, 2012; Verganti, 2008). This perspective goes hand in hand with human/user-oriented/centred design (Karat, 1997; Veryzer & Borja de Mozota, 2005) and brand identity development. User-friendly design

and branding of a new product or service is a source of competitive advantage (Aaker, 2007; Verganti, 2008).

- UDI is a multi-stage, dynamic and interdisciplinary problem solving process. Despite different ordering and names of stages, authors agree that UDI is not a straightforward and unified process. It consists of several phases, which are interchangeable, repeatable and non-linear (Martin, 2009). Hence, the process is dynamic, because it emerges through social interactions and varies according to context. Moreover, due to the complexity and requirement of diverse competencies for UDI (e.g. exploration of user needs, touch-points design, brand development, user experience design, technological feasibility, business viability), most authors suggest a team approach based on interdisciplinary and diverse skills, personality traits and attitudes (Grunert et al., 2008).
- UDI as being simultaneously a philosophy and methodology. Early discussions (Foxall & Johnston, 1987; von Hippel, 1986) described different methodologies of UDI that involve users in the innovation process. Some contemporary discussions (Christiansson et al., 2008; Grunert et al., 2010; Hjalager & Nordin, 2011; Kuusisto, Kuusisto, & Yli-Viitala, 2013) remain focused on UDI as a set of different methodologies that enables practitioners to learn from users, reveal their latent needs and create user-friendly products and services. In other words, they aim to reveal secret and difficult-to-access information about the user. These methodologies include, but are not limited to, ethnographic research (Elliot & Jankel-Elliot, 2003), rapid prototyping (von Hippel, 1986), lead user involvement (von Hippel, 1986), observation of user behaviours (Hjalager & Nordin, 2011), storytelling (Christiansson et al., 2008) and contextual inquiries (Holtzblatt & Beyer, 1993). Recent discussions (Brown, 2008; Rosted, 2005; Wise & Hogenhaven, 2008) have started seeing UDI as a business philosophy, in which all business strategies, tactics and processes are oriented to the users. This literature is closely associated with the philosophy of the strategic role of design in business (Martin, 2009; Venkatesh et al., 2012). Such a view is congruent with a resource-based view, because UDI is considered to be a strategic orientation for developing and sustaining competitive advantage.

The discussion above leads us to the conclusion that the field of UDI needs an identification of its key elements that will guide further conceptualization for empirical research in the future. According to the grounded theory, we start with preliminary conceptual issues (Charmaz, 2006), which are investigated by qualitative research techniques. The grounded theory approach is suitable for developing a theory but not for testing a prior theory (Charmaz, 2006). As the theory of the UDI field is in its infancy stage, a grounded theory approach is suitable for the exploratory examination of the field. In the next section, we briefly introduce the grounded theory approach and describe conceptual issues derived from the literature.

1.4 APPLYING THE GROUNDED THEORY APPROACH TO THE UDI

1.4.1 The grounded theory approach

Introduced by Glaser and Strauss (1965) the grounded theory emerged as an alternative approach in qualitative social research promoting both the inductive and deductive method to theory construction. ‘Grounded theory methods consist of systematic, yet flexible guidelines for collecting and analysing qualitative data to construct theories ‘grounded’ in the data themselves’ (Charmaz, 2006, p. 2). In contrast to the falsification and verification in the traditional scientific process, the grounded theory uses data in order to develop a theoretical framework without prior hypothesis development based on the literature review. The results of the grounded theory are a set of conceptual hypotheses developed from empirical data or a set of probability statements about the relationship between concepts (Glaser & Strauss, 1965). As such, the grounded theory approach is suitable when no prior theory exists or when the existing theory is too abstract to be tested (Ji Young & Eun-Hee, 2014). The UDI field in the literature has several case studies and reports, but rare empirical studies and theoretical frameworks. Therefore the grounded theory approach might be beneficial for the exploratory investigation of the key conceptual issues.

The core principle of the grounded theory is the constant comparative analysis, which represents the process of coding and analytic procedures with deriving theory from integrating categories and their properties (Charmaz, 2006). The grounded theory is not a prescribed process with precisely-defined research steps. The grounded theorists use different approaches, especially to the coding process. Already Glaser and Strauss (1965) highlighted that every researcher has to develop its own approach to the grounded theory which is adapted to the specifics of the research problem. We will describe three alternative approaches to the coding process. We will introduce our approach in the methodology section.

Glaser (1978) proposed two phases of coding: substantive coding and theoretical coding. Substantive coding is a first level of abstraction where we code every line of the transcription or field notes. Substantive coding also encompasses selective coding, in which we find our core variable among the first codes and we selectively code the data with the core variable. Theoretical coding follows the substantive coding. In theoretical coding a researcher integrates the concepts from the first phase of coding into hypotheses which reflect a theoretical model. A theoretical model emerges from the data and is not conceptualized in advance (Glaser & Strauss, 1965).

Later Corbin and Strauss (1990) introduced three stages of coding: open, axial and selective coding. Their process is in contrast with Glaser’s more prescriptive. Open coding refers to labelling the incidents with concepts. Axial coding explores the

relationships between the concepts from open coding. Selective coding includes a selection of core concepts and generation of a story that connects those concepts (Corbin & Strauss, 1990).

Recently Charmaz (2006) also suggested three coding stages: initial, focused and theoretical coding. Initial coding is similar to Corbin's and Strauss's open coding. Focused coding aims narrow the initial codes to frequent and important codes. Theoretical coding results in a theory by examining the relationships between categories (Charmaz, 2006).

1.4.2 Conceptual issues of the UDI field

Despite the grounded theory approach does not build on a literature review, some authors starts with a brief examination of the most frequent conceptual issues that are evident in the literature (e.g. Keranen & Jalkala, 2014; Venkatesh et al., 2012). Following the process of these authors we also investigated which are the most common conceptual issues in the UDI literature. The identification of the frequent conceptual issues of the field served us as a guideline in preparing interviews. The conceptual issues also served us as themes in the coding procedure. By defining the conceptual issues at the beginning we achieved more systematic approach to the study. The process was not aimed to developing theory in advance which is strictly forbidden in the grounded theory approach (Glaser & Strauss, 1965). It only identified the most frequent issues, which needs further research. The literature review yielded four frequent conceptual issues.

Key elements of UDI. The literature provides different definitions of UDI. Moreover, different strategies of UDI propose different aspects of UDI. For instance, design thinking (Brown, 2008) builds upon qualitative investigation of latent users' needs, prototyping and testing. In contrast, living lab techniques (Dell'Era & Landoni, 2014) provide open spaces where users co-create new products/services. The literature remains vague when proposing key elements that integrate the UDI field. The answer to the question which are the key elements of UDI will advance the theory in this field.

Ways of involving users in the innovation process. Many articles describe strategies of involving users in the innovation process (Hjalager & Nordin, 2011; Wise & Hogenhaven, 2008). Some companies see users as active contributors in new product/service development, whereas other companies attempt to investigate latent needs, but further development of new product/service remains without users' participation. The breadth and depth of the users' contributions in the innovation process vary across companies (Fang, Palmatier, & Evans, 2008). However, the trend of customizing new products to users' needs, rapid e-commerce development, and new two-ways interaction with users through social media result in companies' increasing tendency to see users as active contributors (Rosted, 2005). Nambisan (2002) outlines three common roles of users in the innovation process, i.e. the users are a source of ideas,

the users can co-create new product's/service's features, and the users can test prototypes of a new product-service. The question is how those three roles are reflected in different phases of the innovation process.

UDI and creation of user experience. The literature is clear that the UDI field is interdisciplinary (von Hippel, 2005; Rosted, 2005). For instance, the marketing literature elaborates the methods for researching users' needs, the entrepreneurship literature highlights early testing of product's/service's concepts and business models, and the design literature investigates the aesthetic, functional and psychological role of design in creating user experience. Despite the many advantages of the interdisciplinary approach, its disadvantage is that different streams of knowledge prevent a clear picture of creating user experience in UDI. The quality of a user's experience with a product, service or company is an antecedent of satisfaction (Yoon, 2010), future use (Castañeda, Muñoz-Leiva, & Luque, 2007; Ismail, Melewar, Lim, & Woodside, 2011), and recommendations to other potential users (Santos, Mazzone, Aguilar, & Boticario, 2012). In order to obtain a clearer picture of the role of UDI in a firm's performance, we need to investigate which aspects of UDI contribute to the creation of user experience.

Culture of UDI. The literature distinguishes thinking from action (Grinstein, 2008). Introducing UDI strategies in an organization does not yield results if the company does not develop a culture that supports the adoption of such strategies. Some researchers claim that UDI is not merely about involving users in the innovation process, but is also about creating teams and a flat organizational structure that supports user's contribution in the innovation process (Witzeman et al., 2006). More elaboration is needed about the distinction between the strategies of UDI and the culture that supports the implementation of UDI.

We have explored those conceptual issues by conducting nine interviews. The purpose of the empirical study is to discover theoretical ideas and suggest propositions for further research. The grounded theory approach is discovery oriented (Charmaz, 2006), which serves our goal to conduct an exploratory study of the UDI. The aim of this study is not to propose and test a conceptual model. The key goals are to identify the key categories in the UDI, to create the relationships between the categories and to suggest theoretical propositions, which will need further quantitative study. The next section includes more details about the methodology.

1.5 METHODOLOGY

1.5.1 Sample and procedures

Our empirical data comprise nine semi-structured interviews. As the goal of the research is an exploratory investigation of the field, an interview is a suitable research technique (Denzin & Lincoln, 2005). In preparing the research design, we followed the

recommendations by Charmaz (2006), and Denzin and Lincoln (2005). We used theoretical sampling in order to ensure a relevant representation of reality (Denzin & Lincoln, 2005). The sample of nine interviewees is small, but relevant for the topic, because it includes a relatively recognised people from the local environment who are actively connected with new product/service development. In selecting people for an interview, we followed several criteria. First, we included persons who work on new product/service development. Second, in order to ensure career diversity, we wanted to include entrepreneurs, business consultants and researchers. Entrepreneurs offer a view from everyday business practice whereas business consultants and researchers have a theoretical knowledge about the field and also knowledge about different practices on the market, which they gain from their everyday contacts with entrepreneurs. Fourth, in order to incorporate diverse industries, i.e. both services and manufacturing, we also included industries in which UDI is more common, such as creative industries, high technology, and marketing.

Initially, we sent invitations to ten people. One rejected participating in an interview due to the lack of time. As a criterion of saturation was fulfilled with nine interviews, we did not include additional participants. 'Saturation' refers to the point when information started to repeat and no new or relevant information emerges with respect to our conceptual issues (Denzin & Lincoln, 2005). Table 1 presents the demographic data of the participants. On average, interviews were 58 minutes long.

Table 1: Interviewees' demographic data

Code	Career	Work experience (in years)	Business owner (in years)	Gender	Education	Industry
A	Entrepreneur	24	7	F	BA, business	Small business development
B	Researcher, business consultant	16	1	F	PhD, business	Small business development
C	Entrepreneur	4	1	M	BA, business	Commerce
D	Entrepreneur	21	6	F	MSc, business and sociology	Marketing
E	Business consultant	6	/	M	MSc, business	Innovation management
F	Entrepreneur	12	6	F	MSc, sociology	Creative industries
G	Business consultant	23	3	F	MSc, business	Marketing
H	Entrepreneur	19	3	F	MSc, computer arts	Fashion
I	Entrepreneur	35	18	M	MSc, physics	Medical lasers

1.5.2 Semi-structured interviews

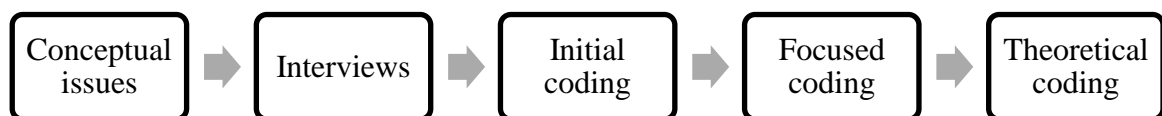
The interviews were semi-structured, individual, and non-standardized in order to follow the narrative of the participants. We started with the initial pool of questions and then added sub-questions or additional questions with the respect of the stream of thoughts of the participant. The list of initial questions is in the Appendix 1. The interviews were individual, because we wanted to analyse the narrative of every participant. Furthermore, individual interviews allowed us to adjust the time of the interview to the participant's schedule. The non-standardized form of the interview allowed us to clarify the questions, to add additional questions or to withdraw some redundant questions in the course of the interview. Such a form of interview is suitable, because, with respect to the grounded theory approach, our goal was to obtain theoretical ideas and not to test a conceptual model.

1.5.3 Data analysis

The research procedure follows the recommendation by Charmaz (2006). Figure 2 shows the research steps. The first step includes conceptual issues which are introduced in previous section. The conceptual issues served as guidelines in preparing interviews and as themes in coding procedure. The second step is interviews. The interviews were conducted in Slovenian language; however, an English translation is presented in this paper. We recorded all the interviews and then prepared a transcription. We analysed 78 pages of narrative text. The third step is initial coding in which we extracted the central themes represented by conceptual issues in the first step. Focused coding followed as a fourth step. In focused coding we extracted the sub-themes. The further step in grounded theory is theoretical coding, which refers to substantive categories that are related to core categories (Charmaz, 2006). Core categories in our case are sub-themes identified in the coding process. Those initial concepts are accumulated, collapsed, and related to each other. By identifying sub-themes and relation among the categories, we construct a story line that emerges to further theoretical ideas. Theoretical ideas are reflected in the proposed set of propositions, which is the final goal of the grounded theory.

The procedure is suitable, because the central themes were already identified by frequent conceptual issues in the literature. Therefore we didn't need an open coding procedure as proposed by Glaser and Strauss (1965).

Figure 2: Research procedure using grounded theory approach



1.6 RESULTS

1.6.1 Emergent themes and sub-themes

The basis for the theoretical framework in the end is the themes and sub-themes presented in Table 2. Sub-themes emerged from our grounded theory analysis. We will discuss each sub-theme and support it with the data from the interviews.

Table 2: Subthemes of the interviews

Themes	Sub-themes
Key elements of UDI	User involvement Searching for feedback Design orientation
Ways of involving users in the innovation process	Phases of the innovation process Breadth and depth of users' contribution
UDI and creation of user experience	Brand Design Company-user interaction
Culture of UDI	Strategic orientation towards users Behavioural level

1.6.2 Key elements of UDI

The participants were asked to describe an example of developing a new product/service, to share their experience how other companies develop new product/services, and to enumerate different ways of how they integrate users in the innovation process. Various contextually rich answers converge to three common grounds: user involvement, searching for feedback, and design orientation.

User involvement. The key element of the UDI is integrating users in different phases of the innovation process. The term 'UDI' means understanding users and giving them an active role in the innovation process. Understanding users was indicated as follows: 'I need a certain feeling that I understand what the users want in particular,' (Participant E). This statement refers to cognitive or emotional empathy, which was evident from most of the participants, for instance: 'I need to go under the skin of my users and think what I need to offer them so that they will see benefits for themselves,' (Participant D). The process of gathering knowledge in order to understand the users is more or less unsystematically: 'I often go and try things, this is really informal, for instance, I go out as a tourist. I gather the knowledge without any particular systematic approach. I try and the write something and again try,' (Participant F). Understanding users in researching their needs is the biggest part of user involvement. The active role of users in the innovation process is another part of user involvement: 'It is interesting when you bring

users together and they have to create new products from our existing products or new products from materials which we use in our products,' (Participant E). Another participant highlights partnerships with users: 'It often happens that people work out of assumptions about the users, and they just cannot understand that you need a partnership with users if you want to develop a successful new product,' (Participant D).

To summarise, user involvement refers to two aspects. The first is researching users' needs. The second refers to the active role of users in the innovation process. Researching users' needs is a relatively frequent, whereas giving users an active role in the innovation process remains in its infancy.

Searching for feedback. The emphasis on continuous search for feedback from the earliest versions of product concept was evident from the majority of the participants. For instance: 'Go out for feedback. If you get enough "yes" answers, you know that you are on the right way. It is really important to do that before you even start developing your product,' (Participant C). Such an emphasis on continuous searching of feedback is in line with the lean start-up approach in entrepreneurial innovation (Blank, 2013). This approach also builds upon users' feedback in every stage of the innovation process. Another participant said: 'We organize workshops with users where we present the product, users get an opportunity to test the product and give us feedback. It happened one time that our business idea sounded very promising, but then we realized from the feedback that we will not have market big enough for implementing the idea,' (Participant B). The learning from feedback is constant: 'We do not know everything at the beginning of the entrepreneurial process. We learn with users down the road,' (Participant G). The feedback need to come from real potential users and customers: 'You cannot test prototypes among friends. It is not real. It is even better to include the whole school because teachers can be very critical,' (Participant D).

Design orientation. Participants refer their answers about the UDI to the product/service appearance. They mention user-friendly products and the aesthetic quality of the products. For instance: 'We cannot afford to have complicated products. The technology itself is already complicated. So, if we do not know how to simplify things in designing the product, our users will not use them,' (Participant I). Another comment by the same participant reflects the role of users in designing new products: 'Users do not know anything about the technology, but they can always tell you their preferences about the functions they need or colours or how the data appears,' (Participant I). The participants also mention that the need for service design is also essential despite it not being so widespread among the companies. One participant claims: 'Just imagine McDonald's sales staff. They are all the same, they communicate in one particular way. You may say they are robots, but actually they are a part of a bigger design that enables the company to give all the users the same experience,' (Participant E).

The questions related to the key elements of UDI aim to explore the meaning of the UDI. The sub-themes extracted from the data confirm the existing definition of UDI, which emphasizes researching users need and the active role of users in the innovation process (Hjalager & Nordin, 2011; Wise & Hogenhaven, 2008). In addition, the sub-themes reveal two other aspects of UDI: searching for feedback and design orientation. Two new aspects may emerge in a new integral definition of UDI. This leads us to the first theoretical proposition:

Proposition 1: User involvement, searching for feedback, and design orientation are consistent parts of the UDI.

1.6.3 Ways of involving users in the innovation process

Phases of the innovation process. A general answer to the question about the ways of involving users in the innovation process was that a company can involve users in every stage of the product/service development, but they rarely practice this. For instance: ‘Indeed, you can involve users everywhere, but companies do not even think about this,’ (Participant G). The participants mentioned the following phases in no particular order: researching users’ needs, creating ideas, prototyping, designing product’s features and appearance, creating and testing a business model, and developing a brand. One participant mentioned that involving users in the innovation process is unsystematic: ‘You ask them and then improve the concept. Well, not so systematically, but intuitively when you do not know the other way forward,’ (Participant A). The UDI strategies are focused to different innovation phases (Christiansson et al., 2008; Hjalager & Nordin, 2011) and rarely involve users in the whole process.

Breadth and depth of users’ contribution. Users can be involved in one or several innovation activities. The number of innovation activities in which users participate represents the breadth of users’ contribution (Fang et al., 2008). For instance: ‘User involvement is everywhere, but our companies stay on the surface and are satisfied only with researching users’ needs’ (Participant D). Users can be deeply involved in the innovation process with active participation in the development of the product’s feature or they can remain only at the surface with general feedback regarding whether they would buy a new product or not (Fang et al., 2008). For instance: ‘Yes, they can tell me everything about the illustrations they want. In this case, I would customize the product to their wishes. However, design is my thing so I do not make prototypes and tests’ (Participant H). This statement reflects a superficial involvement of the user in the product development. In contrast, another participant elaborates on a deep involvement of users in the innovation process: ‘If the users have appropriate knowledge they can actually lead the whole process. In this case I can invite them to work on a new project in our company,’ (Participant I). User involvement may be connected with user satisfaction (Yoon, 2010). One participant said: ‘By involving users in the innovation process, you are

creating your customer base from the beginning. They are more satisfied with the product if they contribute something,' (Participant C). From sub-themes of involving users in the innovation process, we can derive the next proposition:

Proposition 2: Breadth and depth of user involvement are positively related to user satisfaction with a new product/service.

1.6.4 UDI and creation of user experience

When asked to elaborate how UDI contributes to the creation of user experience, three sub-themes emerged: brand, design and company-user interaction.

Brand. In UDI, brands can engage the users to participate in the process. 'Users will not trust in no name company. If you are respected among your users, they will willingly participate in the innovation process,' (Participant I). Brands differentiate the products/services (Aaker, 2007). One participant mentioned: 'You need to give something tangible to all those products on the market. A brand can be that tangible part of differentiation, and users can help to create it. But you need to be aware that brand is not logo, it is a fundamental competitive advantage of the company,' (Participant B). In contrast, brand orientation can lead to oversaturation, with the symbolic value overshadowing the content of the brand achieved by the product's function and user experience (Anker, Kappel, Eadie, & Sandøe, 2012; El-Amir & Burt, 2010). For instance: 'Brand is all about the promise and credibility. The brand should be congruent with the needs of the users. From this point onwards we need to be consistent in delivering our promise,' (Participant D). Brand orientation may quickly lead companies to underestimate the product's tangibles, resulting in poor performance in delivering the brand promise. Brand credibility needs to be maintained in the long term (Balmer, 2012; Sweeney & Swait, 2008) to sustain competitive advantage. 'You need a focus. If you listen your users deeply enough, they will show you, where should be the focus. From this point onward you only need the right package and user can contribute here as well. At least with feedback if not with something else,' (Participant E).

Design. The meaning of design in UDI extends beyond aesthetics and style though this dimension is also considered. 'Design serves to users' needs. Design need to improve user experience and you can easier achieve this if you involve users in designing. If we do not consider this, then our design serves the needs of the designer and this is not a good way,' (Participant E). Design creates user experience in terms of functional and symbolic needs (Verganti, 2008). 'In designing a new product/service, you need to constantly have in mind the user experience,' (Participant B). One participant pointed out a communication value of a design: 'Design is a communication tool, because it contributes to the recognisability,' (Participant G). According to Veryzer and Borja de Mozota (2005), emphasis on user-oriented design has several implications in the innovation process: (i) it encourages a more collaborative innovation process; (ii) it facilitates the

idea generation process; (iii) it results in a superior product or service; and (iv) it leads to products that are more readily adopted by users. Thus, design in UDI reflects both the innovation process and the product's/service's holistic appearance in terms of functionality and symbolic value. One participant summarizes the meaning of a design for creating user experience: 'The user must not see the design. If the design captures the entirety of a user's needs, then users will not even notice the complexity of our technology. They will use it intuitively,' (Participant I).

Company-user interaction. As UDI builds upon a holistic view of meeting user's needs, interaction between the company and the user is an integral part of UDI. For instance: 'When you come to a store, the staff there will give you a whole picture about the company. Every interaction has to be consistent,' (Participant D). The role of interaction between the company and user in UDI thus completes user experience by fulfilling the value proposition: 'The service can be the same – an airline brings you from point A to point B, but your experience as a user is different if a company builds a proper interaction with users,' (Participant A). Based on their interaction with a company, users make judgments about it (Dall'Olmo Riley & de Chernatony, 2000), develop trust in it (Jevons & Gabbott, 2000) and create future intentions for purchasing from it (Nasermoadeli, Choon Ling, & Maghnati, 2013). Company-user interaction is a soft side of UDI: 'It is a feeling, a creation of a particular atmosphere, it has nothing to do with logo or brand,' (Participant A). In UDI, neglecting company-user interaction means missing the opportunity for inclusive support of user experience, regardless of whether it is of a service or product: 'You cannot expect cooperation from them if you do not look them in a holistic way. If you look them as a whole, as people, you will get more of them, more feedback and more cooperation. You cannot look at them as consumers – this is a big problem, because they are people,' (Participant F). The process of company-user interaction is not straightforward to create, because 'the interaction needs to be constant, it is an on-going two-way process, you cannot always plan it,' (Participant E). Despite the process being difficult to plan, companies can consciously plan touch-points with users: 'The employees can cause inconsistency. Therefore, it is really important that they are aware of the goals, vision, reasons why they have to behave in a certain way,' (Participant D). Touch-points are the interaction points between a company and user; they create the user experience (Clatworthy, 2011). Examples include check-outs in retail, call-centres, web portals and complaints procedures.

Proposition 3: Brand, design, and company-user interaction are positively related to the quality of the user experience.

1.6.5 Culture of UDI

Strategic orientation towards users. According to cognitive behavioural theories, cognitions determine actions (Wood & Bandura, 1989). If an entrepreneur believes that

expert knowledge leads to entrepreneurial success, he will focus his energy on his expertise. If he considers selling to be at the core of business success, he will concentrate his effort on selling. Similarly, if an entrepreneur understands user integration as a crucial part of innovation, he will more likely use UDI methodologies in business development: ‘An entrepreneur needs to move from a manufacturing logic to marketing logic. He/she needs to move from thinking about what they produce and how they can sell their products. They need to think about users and users’ needs,’ (Participant D). Likewise, another participant adds: ‘The mind-set is crucial. I need to listen my users. Not out of politeness, but I need a real and deep focus on the users in every step I do,’ (Participant A). Our participants highlight that the users need to be embedded in the thinking patterns of the entrepreneurs: ‘I need to consider a lot of different dimensions in thinking about the users’ needs. Companies often make mistakes because they function only on one dimension in terms “I like it” or “I do not like it”. For instance, ‘My wife will not have this so we will not develop this, because it has no market potential’ (Participant F).

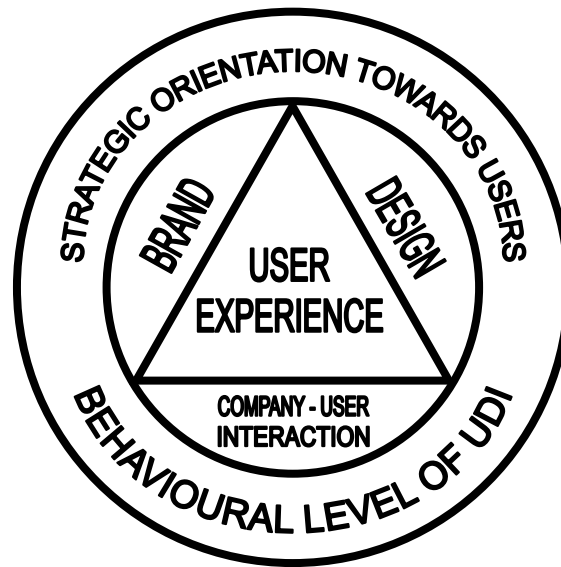
Behavioural level of UDI. The behavioural level includes different methodologies of implementing the UDI: ‘When you know how to listen and when you are actually prepared to improve something, you will have a need to ask for a feedback,’ (Participant D). UDI refers to the whole team: ‘If we know how to think together as a team then it will be easier to make an action,’ (Participant E).

Proposition 4: Strategic orientation towards users is an antecedent of implementation of UDI methodologies.

In conclusion, we can integrate the last two conceptual issues, i.e. creation of user experience and the culture of UDI. Brand, design and company-user interaction development may act as reciprocally related processes, which contribute to creating user experiences. This implies UDI to be an interdisciplinary process. Despite the fact that different methodologies of UDI exist, the creation of user experience also needs branding, design and company-user interaction development in order to develop a successful new product/service. Moreover, methodologies of UDI, such as lead user innovation, design thinking, living labs etc., are not sufficient if the company is not strategically oriented towards users. This refers to the entrepreneurs’ beliefs in users as a source of ideas. Methodologies of UDI are limited to the behavioural level. If an entrepreneur’s cognitions are not reconciled with a user as an active contributor, the implementation of UDI methodologies will be partial and incomplete.

is a representation of different perspectives on creating user experience. UDI methodologies (behavioural level) are supported by strategic orientation towards users. In addition to the methodologies, the UDI process also includes other fields, such as design, branding and company-user interaction, in order to create a desirable user experience.

Figure 3: Creating user experience as multidisciplinary process



1.7 DISCUSSION

The aim of this study was to generate theoretical ideas for further research of the UDI field. The theoretical ideas were created from empirical data based on nine semi-structured interviews with entrepreneurs, business consultants, and researchers. We started with a basis of four conceptual issues that are present in the contemporary literature: key elements of UDI, ways of involving users in the innovation process, UDI and creation of user experience, and the culture of UDI. Following the grounded theory approach, we derived sub-themes for each conceptual issue from our primary data along with theoretical propositions. Our study contributes to the existing literature with theoretical propositions that are derived from empirical data. The propositions are not exhaustive; rather, they aim to highlight several issues that need further study. Below is a list of the suggested propositions:

Proposition 1: User involvement, searching for feedback, and design orientation are consistent parts of the UDI.

Proposition 2: The breadth and depth of user involvement are positively related to user satisfaction with a new product or service.

Proposition 3: Brand, design, and company-user interaction are positively related to the quality of the user experience.

Proposition 4: Strategic orientation towards users is an antecedent of implementation of UDI methodologies.

Based on our results, the UDI field needs a fresh conceptualization. The current definitions of the UDI (e.g., Hjalager & Nordin, 2011; Wise & Hogenhaven, 2008) highlight two aspects, i.e. researching users' needs and giving the users an active role in the innovation process. Our study yielded two additional aspects: searching for feedback and design orientation. Searching for feedback and design orientation are embedded in the UDI. This raises another research question for future research. Current studies treat UDI as a uni-dimensional construct of customer involvement (Alam, 2002; Chien & Chen, 2010). Based on the results of our study, additional research on the dimensionality of UDI concept is needed. Since UDI reflects three key elements, i.e. user involvement, searching for feedback and design orientation, those three elements may represent three dimensions.

The ways of involving users in the innovation process remains an open question. UDI practices are becoming increasingly widely acknowledged among companies (Christiansson et al., 2008). Companies understand UDI as leverage of their development in a competitive environment (Lichtenthaler, 2011). However, integrating users in the innovation process is not straightforward (Enkel, Kausch, et al., 2005; Lokshin et al., 2009). Companies need capabilities to engage and motivate users (Lettl, 2007). However, involving users in the innovation process may also hinder creativity and result in only incremental innovations (Beckman & Barry, 2007). Empirical research is needed on how breadth and depth of user involvement contribute to user satisfaction.

UDI cannot be studied in isolation, because the concept itself promotes interdisciplinarity. Creating a beneficial user experience is at the centre of attention in UDI. The process of creating user experience also concerns other fields, such as design, branding and company-user interaction, and not merely the R&D field. Further research is needed on how branding, design, and company-user interaction effect the quality of user experience. Brand, company-user interaction and design act as key synergic elements of developing and sustaining of user-driven innovations, which are implicitly (brand development, company-user interaction) or explicitly (design) present in UDI research and practice. These three elements also allow different methodologies of UDI, but every element is augmented in the quality of users' experience. Successful innovations include all three elements coexisting in a harmonized manner. A sophisticated brand without a user-friendly solution for user needs will be seen only as a marketing trick. A beneficial and feasible design can be lost in the crowd of innovations if a company does not see any value in developing an eloquent brand. The meaning of both design and brand can be severely reduced if a company fails in implementing valuable interactions with users, either through personal or web interaction. We do not want to say that an innovation without a harmonized bundle of these essential elements will necessarily fail. However, the innovation performance can be significantly extended if a company puts deliberate effort into all three elements synchronically.

UDI is not merely a set of different methodologies that can be implemented in a company. Our study reveals that the strategic orientation towards user may be a precursor of the implementation of UDI methodologies, which means that companies that are oriented towards users will more likely involve them in new product/service development.

1.7.1 Theoretical implications

Our study has some theoretical implications. In contrast to the current conceptualizations of UDI as uni-dimensional construct (Carbonell et al., 2009) our study indicates UDI as multi-dimensional construct with user involvement, searching for feedback and design orientation as three distinctive dimensions. Although this proposition needs an empirical verification, our research showed that user involvement is only one aspect of the UDI. If we conceptualize UDI as multidimensional construct, we will also need a new measure of UDI in order to empirically investigate this field.

Furthermore, our study showed that user involvement might be positively related to user satisfaction. This finding implies that user involvement might be an important predictor of user based indicators of product success. In the studies of new products or services success researchers need to consider the breadth and depth of user involvement (Fang et al., 2008).

Researching the quality of user experience needs to consider several aspects, i.e. brand, design, and company-user interaction. Usually those aspects are investigated by researchers from different fields (e.g. marketing, design, innovation). Our study suggests that UDI methodologies can be used in creation of brand, design and company-user interaction. Even though researchers come from different fields, they can address the investigation of the quality of user experience more holistically if they consider the role of UDI in creating brand, design or company-user interaction.

UDI methodologies are implemented on the basis of several antecedents. Our study indicated that a strategic orientation towards users might be one of the possible antecedents. Companies which are strategically oriented toward users will more likely involve them in the innovation process. This implies that the UDI field might also benefit from multi-level research designs in which strategic orientation towards users can be treated as company-level phenomenon and UDI methodologies can be treated as group-level phenomenon.

1.7.2 Managerial implications

Creating user experience is a complex process. If managers want to create a meaningful user experience, the innovation process needs to involve users deliberately from the very beginning of product or service development. Although the UDI may be time consuming,

it contributes to a greater fit between the product or service and user needs (Ngo & O'Cass, 2013). The constant feedback in UDI is a source of information for further development for practitioners. However, user involvement does not mean asking users directly about their needs or about the feedback on the product concept. Practitioners are often critical to direct investigation of users' needs (Brown & Katz, 2009), because some of them do not believe that users are able to define their needs. User involvement in UDI rather means the whole continuum of methods dispersed from very direct involvement (e.g. asking users about their needs) to very indirect involvement (e.g. observation in the context) (Bisgaard & Hogenhaven, 2010). The managers need to decide which method is suitable for their product development. A managerial implication of our study is that the practitioners need to be proactive in terms of users' involvement. The question about which method is suitable for a particular context of new product or service development remains open.

Another managerial implication refers to the interdisciplinarity of the UDI field. Our research showed that brand, design and company-user interaction are as important as product's or service's functional characteristics, because they contribute to user experience. Consequently, the innovation process needs to include development of brand, design and company-user interaction in order to meet users' symbolic needs. Traditionally, brand, design and company-user interaction demand different knowledge and skills than development of product's or service's functional characteristics. Interdisciplinary teams might be more competent to approach holistically to product or service development and consider both user's functional and symbolic needs.

Finally, practitioners will easily adopt UDI methods if their management will be focused on users. Our research showed that a strategic orientation towards users may be an antecedent of UDI methodologies. Practitioners thus need to get support for UDI from their management before they start changing the innovation process. Otherwise, time consuming UDI may surprise the management which might withdraw their support to the UDI.

1.8 CONCLUSION, LIMITATIONS AND IMPLICATIONS

An important impact of the study is the groundwork for future studies. The study reveals individual propositions based on empirical data. A contribution to marketing literature refers to the embeddedness of brand development, design, and company-user interaction in the innovation process. Analogous development of those three elements and product or service may lead to better fit of new product or service to users' needs. By integrating brand, design, and company-user interaction into the innovation process, a company may benefit from creating both tangible and intangible aspects of user experience. A contribution to entrepreneurship and innovation literature refers to the key elements of

UDI that complement existing definitions of UDI by adding two additional aspects, i.e. searching for feedback and design orientation.

The results and propositions developed in the present study suggest managerial changes in order to accelerate new product development. Because they contribute to user experience, brand development, design and company-user interaction cannot be isolated from new product or service development. Rather, the elements need to be included in the process as an integral part of UDI from the very beginning of the development. Brand, design, and company-user interaction not only involve the look of a new product or service, but also reflect the understanding of users. Therefore, a critical point for brand development, design and company-user interaction already exists in the phase of researching user needs.

Since UDI is an emerging field of study, it raises more questions than answers. Therefore, we can identify several possibilities for future research. First, a greater clarity of UDI methods is needed (Moor et al., 2010). A classification of methods and evaluation of their efficiency in producing innovative results would aid in understanding different innovation leverage in companies. General lists of UDI methods in the literature (Christiansson et al., 2008; Moor et al., 2010) are neither comprehensive nor categorized into a system that would be suitable for further quantitative research. Second, insight into strategic foundations of UDI is needed. This is beneficial not only for small but also for large and established companies. Strategic foundations lead to the implementation of UDI activities. Hence, by identifying strategic foundations of UDI, we obtain valuable insight into precedent factors for UDI inside the company. Comparisons across firms and industries should reveal additional information about UDI practices. Third, a process view of UDI would reveal new knowledge about the emergence of product or service identity through UDI. Fourth, empirical verification of propositions is needed. A quantitative research is feasible for testing hypothesis derived from propositions. Further qualitative and quantitative studies would also reveal additional theoretical contributions.

The limitations of the present study are connected with company perspective. The study implies the aspect of companies and not the aspect of users. User-based research would reveal additional insights into the UDI. Another limitation lies in a small sample. Nine interviews do not allow any definite conclusions. However, this study is an exploratory study with the primary aim of obtaining theoretical ideas for further empirical research.

2 USER-DRIVEN INNOVATION: SCALE DEVELOPMENT AND VALIDATION

2.1 ABSTRACT

In dynamic business environments entrepreneurs increasingly strive to customize new products/services to displayed and latent user needs. UDI aims to incorporate user needs by giving users an active role in the innovation process. Despite the growing interest of researchers, empirical evidence remains scarce, because of a lack of a psychometrically sound instrument to enhance insight into this field. This paper derives an integrative definition of UDI from different research streams and proposes a model with three distinctive dimensions: user involvement, searching feedback and design orientation. Three consecutive studies result in a 13-item scale with appropriate reliability, dimensionality, convergent, discriminant and nomological validity. Pilot studies include researchers, entrepreneurs and practitioners. The main study comprises data of 357 SMEs. The analyses confirm the multidimensionality of the proposed construct. This study contributes to existing research of UDI in entrepreneurship by addressing the multidimensional nature of UDI with a new research instrument. The proposed scale can be used in future investigations. The construct is informative also for practitioners in introducing UDI to their companies.

2.2 INTRODUCTION

Entrepreneurs in dynamic business environments discover new business opportunities in customising products/services to user needs (Priem et al., 2012) and exploit the benefits of involving users into the innovation process (Smith & Shah, 2013). Meeting user needs is a business imperative, and UDI is an umbrella term for innovation methods which aim to customize new products/services to users' needs by involving users in the innovation process. UDI improves product quality (Feng et al., 2010) and performance (Lau et al., 2010), contributes to micro innovations (Hyysalo, 2009), reduces the market risk of disruptive innovations (Enkel, Kausch, et al., 2005), impacts user satisfaction, and facilitates a company's innovation capabilities (Ngo & O'Cass, 2013). UDI is especially important for SMEs and start-ups, as it represents an alternative to expensive market research procedures (Blank, 2013). The UDI brings to the surface a need for changes in thinking about approaches to value creation from a company-oriented view to a user-oriented view (Lockwood, 2009; Ottosson, 2004). Such a transformation can compensate for the initial limited financial resources of entrepreneurial firms and accelerate their development (Newey & Zahra, 2009). Via a continuous search for feedback from the market, UDI also contributes to the process of business planning for start-ups. UDI is grounded in the demand side of value creation in recent management and

entrepreneurship research, some of which concerns new product/service development (Alam, 2002; Kaulio, 1998; Ottosson, 2004). Another approach studies user entrepreneurship and product/service commercialisation (Shah & Tripsas, 2007). This paper focuses on UDI in new product/service development.

Despite the recognition of the need for empirical investigation (De Moor et al., 2010), UDI discussions are predominantly focused on the different strategies (Buchanan, Abbott, Bentley, Lanceley, & Meyer, 2005; Hjalager & Nordin, 2011; Sandmeier, 2009), estimations, case studies (Lettl et al., 2006), consequences and challenges of integrating users into the innovation process (da Mota Pedrosa, 2012; Sandmeier et al., 2010). The literature offers two streams of thoughts connected with UDI. One stream lies in entrepreneurship and innovation literature with von Hippel's research of lead users as source of innovation (von Hippel, 1986; Lüthje & Herstatt, 2004). Another stream lies in marketing literature and predominantly encompasses service development topic with the concept of customer integration/involvement (Alam, 2002; Chien & Chen, 2010). Multiple perspectives on UDI including research of user involvement, investigating user needs, methods of application of UDI, and the role of design in UDI result in lack of clarity of this research area. For instance, entrepreneurship emphasizes lead users involvement and user feedback (Blank, 2013; von Hippel, 1986), marketing focuses on customer integration with co-creation (Alam, 2002), innovation literature investigates UDI as a process (da Mota Pedrosa, 2012), and design studies present different methods for user participation in designing new products/services (Dell'Era & Landoni, 2014). Empirical research of UDI remains scarce also because of a lack of reliable and valid tools to thoroughly examine it. Previous work in this field focuses on measuring user involvement (Carbonell et al., 2009; Chien & Chen, 2010; Feng et al., 2010). While user involvement is an important aspect of UDI, it does not include the current trends of design orientation and user feedback in entrepreneurship stream of literature about UDI and reveals only a partial picture of UDI. Moreover, not all of the scales in the literature have been validated. Since UDI has been found to have an important effect on the quality of new products/services (Feng et al., 2010; Lau, 2011), it is of benefit to develop a validated measure for organizations.

To address the identified research gap this study first aims to deliver a theoretically justified, reliable and valid measure of UDI by reviewing the growing research in this interdisciplinary field, and considering the latest theoretical improvements of the concept. On this basis we propose an integrative definition of UDI, and posit UDI as consisting of three distinctive components: user involvement in the innovation process, searching for feedback from users, and a design orientation toward developing desirable user experiences. Second, a scale is developed that will serve researchers in investigating diverse aspects of UDI, including antecedents, consequences, mediating and moderating effects.

By doing so, this paper will make the following main contributions to the literature. First, we clarify the UDI construct and deliver a valid scale to measure it. Second, by proposing two additional dimensions we extend current research on user involvement. Third, by proposing an integrative definition of UDI, we attempt to integrate the parallel research stream of entrepreneurship and innovation to form a solid ground for further investigations.

This chapter reports on three studies conducted to develop and validate the UDI scale. Study 1 focuses on generating item pool and assessment of their face validity with experts' help. Study 2 reports on item purification along with initial reliability data and factor structures. Study 3 uses a sample of entrepreneurs to examine convergent, discriminant and nomological validity of the UDI scale.

2.3 USER-DRIVEN INNOVATION

Research on UDI was fostered by von Hippel (1986), who considered lead users to be co-creators in the innovation process and an important source of innovation. Later, UDI field diversified in different directions. One stream of research is predominantly focused on UDI as researching and understanding user needs, both displayed and latent (Christiansson et al., 2008; Hjalager & Nordin, 2011; Rosted, 2005). Another stream concentrated on UDI as involving users as active participants in all phases of the innovation process, for instance in idea generation, prototyping, product/service conceptualisation, commercialisation (Alam, 2002; Grunert et al., 2008; Kaulio, 1998). Both streams of literature are reflected through different definitions of UDI (Table 3). For instance, Grunert's et al. (2010) and Christiansson's et al. (2008) definitions highlight researching user needs as a central characteristic of UDI. Other definitions in addition to researching user needs reflect active role of users in the innovation process (e.g. Hjalager & Nordin, 2011; Wise & Hogenhaven, 2008). More recently, researchers have also studied UDI with regards to developing intuitive and human-centred design, demonstrated in different approaches, such as design thinking, participatory design and human/user-oriented/centred-design (Beckman & Barry, 2007; Venkatesh et al., 2012; Veryzer & Borja de Mozota, 2005). With the latest trends on lean start-up and customer development (Blank, 2013; Ries, 2011), also continuous user feedback has become central to the process of entrepreneurial innovation.

Table 3: Definitions of UDI

Definition	Focus	Source
UDI is the process of tapping users' knowledge in order to develop new products, services and concepts. A UDI process is based on an understanding of true user needs and a more systematic involvement of users.	User needs and users as contributors	Wise and Hogenhaven (2008, p. 21)
UDI is systematic approach to develop new products and services, building on investigation or adoption of users' life, identity, praxis, and needs including unrevealed needs.	User needs	Christiansson et al. (2008, p. 250)
UDI is characterised in three dimensions: customer focus, skills for analysing and assessing customer needs, methods applied in conducting user surveys.	UDI as a process	Rosted (2005, p. 56)
UDI is the phenomenon by which new products, services, concepts, processes, distribution systems, marketing methods, etc. are inspired by or are the results of needs, ideas and opinions derived from external purchasers or users. UDI involves existing and/or potential users, and the processes rely on systematic activities that search for, acknowledge, tap, and understand the users' explicit, as well as implicit, knowledge and ideas. Methods in UDI span from superficial observations, to consultations and intensive involvement of the users in co-creation processes.	Users as contributors	Hjalager and Nordin (2011, p. 290)
Consumer-driven innovation is a process towards the development of a new product or service in which an integrated analysis and understanding of the consumers' wants, needs and preference formation play a key role.	User needs	Grunert et al. (2010, p. 4)

Considering these developments in the literature, we conceptualise UDI with three complimentary dimensions: (1) user involvement in the innovation process and in researching and understanding their needs, (2) searching for feedback from users in a continuous manner through prototype testing, pilot sales, testing product ideas among users, etc. and (3) design orientation as adapting the user interface of the product/service to the users' abilities, needs and desires. Those three dimensions of UDI were evident also from the interviews with 9 entrepreneurs and researchers. However, the interviews' analysis exceeds the aim of the present chapter; thus we will describe the three dimensions only with the findings from the literature. User involvement dimension

reflects both streams of literature mentioned above along with the definitions provided in Table 3. The dimension refers to the breadth and depth of the users' contribution in the innovation process (Fang et al., 2008). Breadth represents a number of developmental activities in the innovation process, whereas depth captures the level of involvement in terms of deep involvement vs. superficial involvement. The second dimension, searching for feedback, is derived from the latest advancements in the entrepreneurship literature where user feedback plays a crucial role in entrepreneurial innovation (Blank, 2013). Entrepreneurial innovation is less systematic comparing to innovation process in big companies (Garud, Gehman, & Giuliani, 2014; Rosenbusch et al., 2011). Continuous feedback by users may represent a common characteristic of less systematic entrepreneurial innovation process. Searching for feedback denotes the deliberate and continuous user testing of product/service concepts, prototypes and business models. Companies differ with regards to the number of testing activities and in the starting stage of searching for feedback. Some companies start testing in early stages of product/service development, whereas others start testing with a functional prototype. Some companies conclude testing with a functional prototype whereas others extend testing to trial sales and business model testing. Similarly, also the third dimension, design orientation, is derived from entrepreneurship literature in which design thinking approach (Brown, 2008) uses designer's tools in new product/service/business development. Design orientation signifies a firm's orientation to achieve user friendliness by capturing users' functional and psychological needs; it also encompasses intuitive functionality, aesthetic appearance and uniqueness on the market with a distinctive brand. In the following section, each of the proposed dimensions of UDI is developed.

2.3.1 User involvement

User involvement is a source of competitive advantage, because it impacts product quality, delivery reliability, process flexibility, customer service and user satisfaction (Feng et al., 2010; Kujala, 2003). As a source of knowledge, users can also improve the effectiveness of the innovation process (Fang et al., 2008). Users can have three roles in new product development (NPD): the user as a resource of ideas, the user as co-creator in design and development task, and the user as a participant in product/service testing and support (Nambisan, 2002). The most frequent form of user involvement is in researching users in order to gain an in-depth understanding of their needs, both obvious and latent. Exploration of users' needs includes a user's broader life, identity, value system and desired holistic experience with the product or service (Hjalager & Nordin, 2011). Different approaches ensure an in-depth exploration of users' needs, for instance, ethnographic research (Elliot & Jankel-Elliot, 2003), observation of user behaviours (Hjalager & Nordin, 2011), storytelling (Christiansson et al., 2008) and contextual inquiries (Holtzblatt & Beyer, 1993). User involvement integrates external knowledge exploration, retention, and exploitation (Lichtenthaler, 2011). In addition to researching

users' needs, some companies also involve users in idea generation, prototyping, product/service conceptualisation, product/service support and continuous improvement (Nambisan, 2002). Companies use several approaches of involving users in the innovation process, for instance, living labs (open space where users co-create new product/service), collaborative innovation (users as part of developmental teams in companies), innovation with extreme or lead users (advanced users who can anticipate future needs and have a habit to modify existing products), innovation with user communities (on-line communities intended to innovate certain products or consumer communities intended to sharing experience with products), etc. In UDI, user involvement is active rather than passive. Users participate in some or all phases of product/service development; innovation principles are open (Lichtenthaler, 2011); companies motivate users to participate in the process (Nambisan, 2002). Companies with more intensive user involvement will easily absorb their knowledge, which can be beneficial in enhanced customer value creation (Feng et al., 2010). User involvement enables companies to integrate outward and inward knowledge transfers (Lichtenthaler, 2011). Bisgaard and Hogenhaven (2010) provide a framework for clarification of UDI from a company perspective. The framework is based on two dimensions. The first dimension divides UDI methods in two groups according to direct or indirect involvement of users in the innovation process. The second dimension refers to the nature of user needs; they can either be acknowledged or unacknowledged. The framework results in four generic categories of UDI methods: user exploration, user participation, user innovation, and user tests.

In summary, user involvement encompasses two aspects: researching users' needs and users as active actors in the innovation process. User involvement is related to the second dimension, i.e. searching feedback. This is evident from the nature of user involvement methods. Despite the methods are focused on users' contribution to new product/service development, the process also leads to feedback, because users can hardly contribute without expressing their own attitudes and perceptions. However, the distinction between user involvement dimension and searching feedback lies in type of user contribution. User involvement dimension includes users' contributions in terms of new ideas, functions and features of new product/service. Searching for feedback dimension on the other hand refers to providing judgement about an input given by the company. Searching for feedback thus refers to testing prototypes of new product/service, business model, brand etc.

2.3.2 Searching feedback

Learning theories suggest that frequent, immediate and regular feedback enhance the rapidity and quality of the learning process (Kolb, 1984). Searching for feedback focuses on the deliberate searching for new information about various aspects of product/service development or the business model. Users' feedback helps companies to fulfil users'

expectations and latent needs. Feedback reveals users' functional, symbolic and experiential needs. These three aspects of users' needs might guide companies in searching for feedback in a holistic way. Feedback about product's/service's characteristics are not enough, however, because functionalities refer only to user's functional needs. Psychological needs refer to users' emotional, symbolic and experiential needs (Verganti, 2008). Feedback on how a product/service meets user's psychological needs is a crucial part of searching for the feedback dimension in UDI. Testing in technology-driven innovation is predominantly focused on usability tests (De Moor et al., 2010). Searching for feedback in UDI also comprises testing the soft aspects of a new product/service. Via the deliberate gathering of feedback, companies can test their business model, adapt functionality of a new product/service, change user interfaces and customise the product/service to meet different users' preferences.

Feedback assists companies in obtaining an informed picture before and after the product/service launch (De Moor et al., 2010). User feedback allows companies to make judgements about the innovation process. Early feedback reveals whether a new product/service meets only articulated or also unarticulated user needs. Feedback is related to both functional and psychological needs; the distinction between these two needs is important, because it helps a company to react accordingly to user feedback. If feedback is related to the usability of a new product/service, further innovation effort will be focused on functionality. If feedback is related to psychological needs, supplementary innovation effort will be focused on the brand development or/and aesthetic appearance of a new product/service. Via pilot sales, which are also a form of feedback, companies obtain information about the market potential of new products/services and about the viability of their business models.

Companies can gather feedback in all phases of product/service development. Triggering feedback includes, but is not limited to, testing the initial product/service idea among potential users, testing functionality and design of mock-ups, small-scale pilot sales, rapid prototyping, testing of brand identity, feedback about the business model, and role playing. User feedback can change not only product's/service's functionality and appearance, but can also effect business model development and the innovation process itself. As searching for feedback includes users and creates dialogues with users, this dimension is connected with user involvement. By providing feedback, users automatically become a part of the innovation process. In this aspect searching for feedback dimension is related to user involvement dimension. Users provide information, ideas, insights, reflection, perception and experiential knowledge about the product or business model. Users' insights are subjective and usually not burdened with technical knowledge about the product (Nambisan, 2002). Users' feedback thus originates from their experience with products or services and from the aesthetic appearance of a product/service.

2.3.3 Design orientation

Design orientation in UDI concentrates on developing user-friendly products/services with intuitive user interfaces. Design orientation encompasses the entire product/service appearance, including the brand. Lack of attention to the design aspects of the UDI process may lead to implementation constraints (Kujala, 2003) and result in unrealistic imaginary products/services, which is a common critique of the UDI approach (Enkel, Kausch, et al., 2005). As design also adds value to a new product, design management literature considers design to be a source of competitive advantage (D'Ippolito, 2014; Johansson-Sköldberg, Woodilla, & Çetinkaya, 2013; Verganti, 2008). Different approaches to the design in terms of UDI has arisen lately, for instance, participatory design, contextual design, emphatic design, design thinking, and human/user-oriented/centred design (Kujala, 2003; Veryzer & Borja de Mozota, 2005). Researchers agree on the challenges of involving users in the design process, for instance, decreased cost and time efficiency, the need to educate users about design, a need for intensive communication with users, and a lack of suitable tools for involving users (Enkel, Kausch, et al., 2005; Kujala, 2003). Despite the challenges, researchers conclude that design orientation results in a better fit of a new product/service to user needs and interaction preferences (Venkatesh et al., 2012; Veryzer & Borja de Mozota, 2005).

We argue design orientation to be a separate dimension, since some companies understand design only as the aesthetic appearance of a product, while others comprehend the crucial role of design in assuring desirable user experiences (D'Ippolito, 2014). Design in UDI focuses on the user experience in terms of both functional and symbolic features. If a company understands design to be an antecedent of user experience, it then concentrates its innovation effort on ensuring a valuable user experience, which in turn impacts user satisfaction (Yoon, 2010), future use (Castañeda et al., 2007) and recommendations to other potential users (Santos et al., 2012).

Deriving from this development of three dimensions, we define *UDI as an approach to new product/service development, which aims to provide desirable user experience by involving users in the innovation process, continuous searching of feedback and creating an intuitive design*. Such a conceptualisation comprises all three aspects of UDI and complements the existing definitions by including the role of the design and user feedback as an integral part of UDI. The proposed definition covers the message of existing definitions of UDI regarding the aspects of researching user needs and active role of users in the innovation process (Table 3). Involving users in the innovation process in the proposed definition relates to both researching user needs and their active role in the process. The active role of users from existing definitions is partially covered also in the second aspect of the proposed definition, i.e. continuous searching of feedback. At the same time this part of the definition incorporates contemporary entrepreneurship literature with the focus on user feedbacks in entrepreneurial innovation (Blank, 2013). In addition,

the proposed definition upgrades the existing definitions of UDI by adding the third aspect, i.e. creating an intuitive design. The third aspect is also justified in the latest entrepreneurship and design literature. Design thinking and participatory design in new product/service development aim to develop intuitive product/service appearance which is driven by user needs. All three proposed dimensions derive from a demand-side of value creation and consider the user as a central part of this innovation strategy.

2.4 SCALE DEVELOPMENT

Having further explained the UDI components, we now proceed with developing and validating a scale to measure UDI across three studies. The first study concerns item generation and assesses their face validity with a sample of experts. The second study presents an item purification procedure with initial reliability analysis and factor structure. The third study offers evidence of convergent, discriminant and nomological validities of the UDI scale with a sample of entrepreneurs.

2.4.1 Study 1: Item generation

A process of measuring development recommended by Churchill (1979) was employed. In conducting the analysis, we also considered procedures in other validation studies: Rossiter (2008), Reid and Roberts (2011), Cheng and Shiu (2012), Tang, Kacmar, and Busenitz (2012), Cardon, Gregoire, Stevens, and Patel (2013) and Yi and Gong (2013). This research generated a broader pool of 115 items from previous exploratory pilot studies, literature reviews, and exploratory interviews with 9 entrepreneurs and researchers. The items from the literature were based on the earlier work by Deshpandé, Farley, and Webster (1993), Ittner and Larcker (1997), Song and Parry (1997), Narver, Slater, and MacLachlan (2004), Rosted (2005), Ramani and Kumar (2008), Brown and Katz (2009), Feng et al. (2010), Karpen et al. (2012). In the interviews, nine experts (five entrepreneurs, three business consultant and one researcher) were asked to describe in an open-ended manner a concrete example of product/service development from their personal experience. Next, they were asked how, according to their experience, companies involve their users or potential users in product/service development. In the last question, the interviewees brainstormed about how companies can involve their users in the innovation effort and how user involvement can be valuable for a company. The purpose of the interviews was to gain insight into the practices and specifics of UDI. The answers were converted into items.

A screening of the initial pool of items followed. Doubled, double-barrelled, ambiguous and overly similar items were eliminated, which resulted in 64 items. Via a translation-back translation procedure (Brislin, 1970) those items were adapted from the English to the Slovenian language. In order to consider object element, the attribute element and the rater entity element in assessing the content validity (Rossiter, 2008) sixteen researchers,

practitioners and Ph.D. students then evaluated these 64 items for representativeness. The evaluators were presented with a description of the construct and each dimension, respectively. Then they rated representativeness of each item on 5-point agreement scale (1 = “strongly disagree”, 5 = “strongly agree”). They also had an opportunity to suggest an alternative item. Only items evaluated as clearly representative by at least 10 of the 16 evaluators were retained (Tian, Bearden, & Hunter, 2001). A total of 33 items were eliminated for failing to provide face validity, leaving 31 items.

2.4.2 Study 2: Item purification

The purpose of this research was to determine the factor structure of UDI and to purify the scale based on the psychometric properties. We collected survey data from 129 practitioners who participate in a part-time study for a business degree. Other studies also use convenient samples for preliminary research in the development of scales (e.g. Tang et al., 2012; Yi & Gong, 2013); 31% were male, and in average they had 8.1 years of working experience. A 5-point Likert’s scale was used. The respondents were asked to have in mind the practices in their companies when reading the items. They also had a possibility to write comments about the items.

First, corrected item-to-total correlations and item correlations for each set of items representing components of UDI were examined. Seven items with corrected item-to-total correlations below .50 and item correlations below .30 were eliminated from further analysis (Hair, Black, Babin, & Anderson, 2009). The remaining 24 items were evaluated via exploratory factor analysis, i.e. principal components with varimax rotation. With 5.4:1, our observations to respondent ratio exceeds the 5:1 rule-of-thumb ratio (Hair et al., 2009). The KMO measure of sampling adequacy was .84, and a significant χ^2 value for the Bartlett’s test of sphericity ($\chi^2 = 596.58, p < .001$) indicated the appropriateness of data for factor analysis. Next, nine items with factor loading below .50, cross-loadings above .40 and commonalities below .30 were eliminated (Hair et al., 2009). With use of exploratory factor analysis, the scale is purified to 15 items that represent three UDI dimensions with eigenvalues above 1. In total, they explained 53.91% of the variance. Cronbach’s alpha reliability coefficients exceeded the .70 cut-off value (Nunnally & Bernstein, 1994). The alpha values are .79, .78 and .70 for user involvement, searching feedback and design orientation dimensions, respectively. The final items retained for the main study and confirmatory factor analysis are enumerated in Table 4.

2.5 STUDY 3: MAIN STUDY WITH SMES

2.5.1 Participants and procedures

The retained 15 items were examined for construct validity. Via an on-line survey, we collected data from young companies (0–15 years old) operating in multiple industries in

Slovenia. A market tradition in Slovenia has been present since the early 90s due to the introduction of a market economy. It was within a relatively short, post-socialistic transition period that companies in Slovenia had to adapt their innovation and marketing efforts to handle both increased competition and market turbulence. This process was especially intensive as the critical market of other Yugoslav republics drastically decreased overnight (Sambt & Malačič, 2011). Knowledge concerning the users within such dynamic market conditions became crucial to the differentiation and development of a competitive advantage. As a small open economy, Slovenia exports more than 70% of its goods and services in terms of share in GDP and is strongly integrated with developed European economies. Slovenia has been a member of OECD since 2010. The key innovation and educational indicators are comparable to those of other developed countries, for instance, R&D investments in Slovenia amounts to 2.6% of the GDP, wherein the OECD average is 2.4% and the UK share is 1.7% of GDP (OECD, 2014). Public spending on education as a share in GDP is also similar: 5.3% for Slovenia and the UK, wherein the OECD average is 5.4% (OECD, 2014). However, there is a lower demand within the domestic market due to the recent economic recession, one of the deepest among the EU countries. This encouraged companies in Slovenia to look for new approaches to innovation based on the knowledge of their users' needs. UDI in Slovenia and other developed countries emerged as a result of rapidly changing market conditions. Research into these new approaches is therefore needed. The development of a psychometrically, sound instrument is a necessary step toward more, intensive research into UDI.

A random sample of 4,267 companies that have at least one employee was obtained from a Slovenian national database of companies. The first invitations were sent in March, 2014 followed by three reminders sent to increase the response rate. A total of 357 complete surveys yielded a response rate of 10.6%. In calculating the response rate, any company that was not reachable due to a lack of access to their director's email address were dropped. Regarding demographics: 72.4% of respondents were male. 14.9% of respondents have a high school degree or less, 23.5% have a college degree, 42.0% have a bachelor degree and 19.6% have a graduate degree. The average number of working experience was 17.7 years ($SD = 9.5$). T-tests did not reveal any significant differences in dependent and independent variables between early and late respondents nor any significant differences in a firm's characteristics between respondents and non-respondents in terms of sales, number of employees and age. Each survey item required a response based on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree).

2.5.2 Reliability assessment and construct validation

Dimensionality and reliability. Principal components and confirmatory factor analyses were performed. One item was dropped due to item correlations below .30 (Hair et al., 2009). After principal components analysis, one additional item was eliminated, because

it did not load on its intended factor. After the elimination, the analysis was repeated with 13 items. According to the KMO measure (.89) and Bartlett's test of sphericity ($\chi^2 = 1858.82, p < .001$), the data were suitable for analysis. The principal component factor analysis requested three factors with a varimax rotation was conducted; three factors explained 61.99% of the total variance. Table 4 presents the rotated factor solution. Item loadings are greater than .40 on a single factor with minimal cross loadings on user involvement and searching feedback factors, which are theoretically related as presented in the conceptualisation of the UDI construct. The reliability estimates (Cronbach's alpha) exceeded the .70 cut-off value (Nunnally & Bernstein, 1994) and the average variance extracted is greater than .50 (Bagozzi & Yi, 1988). The proposed three-dimensional conceptualisation of UDI is reflected in the factor structure; therefore, we proceeded with confirmatory factor analysis to confirm the dimensionality.

Table 4: Results of exploratory factor analysis (study 4, N = 357)

Items	Factor 1	Factor 2	Factor 3
<i>User involvement</i>			
1. We actively encourage users to present to us their ideas on improving our products or services, as well as their ideas on new ones.	.70	.27	.05
2. We are including the users in all phases of the innovation process.	.80	.12	.05
3. Users are a part of a developmental team for new products/services.	.77	.13	.03
4. We conduct personal interviews with the users when developing new products or services.	.77	.14	.16
5. When developing products or services, we cooperate with leading (advanced) users.	.73	.33	-.02
6. We encourage users to share their experiences and stories about their habits, product usage, shopping decisions etc.	.69	.26	.19
<i>Searching feedback</i>			
1. We regularly check our ideas for new products or services with our users.	.38	.68	.13
2. We continuously monitor the development process to check how well the new product or service is adjusted to the needs of different users.	.42	.62	.25
3. We test prototype among our users several times.	.33	.75	.06
4. We organise pilot sales before mass sales.	.06	.67	.18
<i>Design orientation</i>			
1. In the process of developing new products or services, we aim to develop such properties that make the products easy to use regardless of the users' demands.	.22	.04	.77

continued

Items	Factor 1	Factor 2	Factor 3
2. New products or services are designed so that their use is intuitive (i.e., the user does not need instructions but only follows the design).	.10	.12	.82
3. The visual image is our way of ensuring the users like our products or services.	-.09	.34	.71
Eigenvalue	5.23	1.78	1.01
Percentage of variance explained	29.36	17.62	15.02
Cumulative percentage of variance explained	29.36	46.98	62.00
Cronbach's α	.87	.76	.70

Confirmatory factor analysis using Lisrel 8.5 estimated two alternative models, i.e. the proposed three-factor model and one-factor model. The results confirmed the dimensionality of the 13-item, three-factor scale ($\chi^2_{(62)} = 135.10, p < .001, GFI = .98, CFI = .96, NNFI = .95, RMSEA = .06$). The fit indices for the one-factor model are: $\chi^2_{(65)} = 244.43, p < .001, GFI = .96, CFI = .91, NNFI = .89, RMSEA = .08$. The fit of the three-factor model is significantly better than the one-factor model ($\chi^2_{(\text{difference})} = 109.33, df = 3, p < .001$).

Convergent and discriminant validity. A procedure suggested by Fornell and Larcker (1981) was employed in order to calculate composite reliabilities and the average variance extracted. Composite reliabilities exceeded the .70 threshold (user involvement: .95, searching feedback: .89, design orientation: .80) and the average variance extracted for each dimension was greater than .50 (user involvement: .76, searching feedback: .67, design orientation: .57), thereby indicating convergent validity (Bagozzi & Yi, 1988). Moreover, composite reliabilities greater than average variance extracted showed convergent validity (Hair et al., 2009). To assess discriminant validity, a chi-square difference test proposed by Bagozzi and Yi (1988) was performed. For each pair of factors, the constrained model with a free model was compared, specifically, the correlations between two factors in constrained model were set to equal one for each pair. Chi-square differences were significant in all cases ($\chi^2_{(UI-SF)}(1) = 62.32, \chi^2_{(UI-DO)}(1) = 96.97, \chi^2_{(DO-SF)}(1) = 29.35$), which indicated discriminant validity. The three dimensions of UDI are distinctive and measure different aspects of UDI.

2.5.3 Nomological validity

As a final step in the validation process the nomological validity was tested. Antecedents and consequences may serve as indicators of the nomological validity, if they relate to the focal construct in a theoretically meaningful way (Bagozzi & Yi, 1988). Nomological validity is crucial for evaluating the predictive power of constructs (Hinkin, 1995).

Hypotheses development. To assess the nomological validity of the UDI scale, this study investigated two potential antecedents (dynamic innovation capabilities and interaction orientation) and two potential consequences (innovation performance, turnover growth), which were identified from the literature. *Dynamic innovation capabilities* refers to “operational capabilities that include organisational learning process and routines rooted in innovation knowledge and that involve transformation of a firm’s innovation knowledge resources and routines,” (Cheng & Ja-Shen, 2013, p. 445). They serve in managing the innovation process and over time develop the characteristics of competitive advantage in terms of a resource-based theory as they become more valuable, inimitable and difficult to substitute (Hertog, van der Aa, & de Jong, 2010). Consequently, via knowledge creation and absorption, knowledge integration and knowledge reconfiguration, dynamic innovation capabilities effect new product success (Verona & Ravasi, 2003). Dynamic innovation capabilities thus facilitate innovation, because firms with such capabilities seek opportunities for new products/service, engage in continuous improvement of products/ services and acquire important information about their product/service. Nevertheless, the relationship between dynamic innovation capabilities and breakthrough innovation seems to be curvilinear in a form of inverted U-shape moderated by open innovation activities (Cheng & Ja-Shen, 2013). Our conceptualisation of UDI highlights a proactive approach to innovation by involving users, searching feedback and developing a user-friendly design. Dynamic innovation capabilities may relieve the process of involving users in new product/service development; therefore, a significant positive relationship between dynamic innovation capabilities and UDI dimensions is expected.

Hypothesis 1. A firm’s dynamic innovation capabilities contribute positively to the variance in all three dimensions of UDI.

Interaction orientation means “firm’s ability to interact with its individual customers and to take advantage of information obtained from them through successive interactions to achieve profitable customer relationships,” (Ramani & Kumar, 2008, p. 27). Based on their interaction with a company, users make judgments about the company (Dall’Omo Riley & de Chernatony, 2000), develop trust in it (Jevons & Gabbott, 2000) and create future intentions for purchasing from it (Nasermoadeli et al., 2013). Interaction orientation as focusing on the relationship with user, understanding the user as social relationship partner, engaging and communicating with the individual user, empowering the user to influence and fostering dialogue instead of one-way communication (Karpen et al., 2012; Ramani & Kumar, 2008) may lead to more interactions with users and foster the sensitivity of entrepreneurs to user needs. UDI comprises frequent interactions with users in different stages of the innovation process from researching users’ needs through developing a product concept to testing prototypes and launching a product to the market. Entrepreneurs oriented to users are likely to involve them in the innovation process.

Based on the proposed perspective, we expect a significant positive connection between interaction orientation and UDI dimensions.

Hypothesis 2. Interaction orientation positively correlates with all three dimensions of UDI.

Innovation performance is multi-layered phenomenon. Researchers use different innovation performance indicators (e.g. percentage of sales, profitability relative to spending, sales impact, etc.) as there is no commonly used construct to measure innovation performance (Cooper & Kleinschmidt, 1995). An empirical generalisation from the literature shows that UDI is directly related to innovation performance (Grunert et al., 2008; Lettl, 2007; Lokshin et al., 2009). Nishikawa, Schreier, and Ogawa (2013) find that user-generated products outperformed designer-generated products. Both sales revenue and gross margin were higher for user-generated products. Coviello and Joseph (2012) discover that young innovative companies are distinguished by an unconventional new product development process that includes different user roles. Moreover, the research of user entrepreneurship (Haefliger, Jäger, & von Krogh, 2010; Shah & Tripsas, 2007) and user innovation (Bogers et al., 2010) demonstrate the positive relationship between UDI and innovation performance. Given the previous research, we expect a significant positive relationship between the UDI dimensions and innovation performance.

Hypothesis 3. UDI dimensions are positively related to innovation performance.

Similarly, the multifaceted phenomenon of firm performance is also measured by different indicators in absolute as well as relative terms (e.g. turnover growth, market share, profitability, growth in the number of employees, return on assets / equity, etc.). Research on the innovation-firm performance relationship has revealed mixed results. However, two recent meta-analyses (Bowen, Rostami, & Steel, 2010; Rosenbusch et al., 2011) explored the innovation-firm performance relationship in greater detail and essentially confirmed a positive connection. Considering a meta-analytical conclusion, we expect a significant positive relation between UDI dimensions and turnover growth.

Hypothesis 4. UDI dimensions are positively related to turnover growth.

Sample and measures. The same respondents who participated in the research of construct validity of UDI scale were asked to fulfil additional questionnaires in order to get additional information about their company. A total of 275 respondents completed additional questionnaires. The sample characteristics remained the same as presented in section 2.5.1. The *dynamic innovation capabilities* construct was measured with a 5-item dynamic capabilities scale (Cheng & Ja-Shen, 2013). Respondents evaluated their capabilities in comparison to their major competitors using a 5-point Likert scale (1 =

much worse, 5 = much better). CFA indicated good fit ($\chi^2_{(5)} = 18.46, p < .002, GFI = .99, CFI = .99, NNFI = .98, RMSEA = .10$). Reliability is high (Cronbach's $\alpha = .89$).

The *interaction orientation* construct was measured by six items, based on the work of Karpen et al. (2012) and Ramani and Kumar (2008). A 5-point Likert scale was used (1 = strongly disagree, 5 = strongly agree). CFA showed acceptable fit ($\chi^2_{(9)} = 22.76, p < .007, GFI = .99, CFI = .98, NNFI = .96, RMSEA = .07$). Reliability in terms of internal consistency is strong (Cronbach's $\alpha = .84$).

Innovation performance was evaluated with three indicators adapted from Cooper and Kleinschmidt (1995) and Bodlaj (2010), i.e. the turnover of new products/services, the market share of new products/services, customer satisfaction with new product/services. Respondents evaluated their innovation performance in previous last three years using a 5-point Likert scale (1 = very unsuccessful, 5 = very successful). Turnover growth was measured with an item that asked for an average annual growth in sales in the last three years (Antonicic & Hisrich, 2001). Regression analysis included six control variables to reduce the confounding effect of variations in gender, education, experience, number of founders, firm size and industry. Dummy variables were introduced for gender (0 = female, 1 = male) and industry (0 = low-tech industry, 1 = high-tech industry). Education was coded in 1 = high school or less, 2 = college degree, 3 = bachelor degree, 4 = graduate study beyond bachelor degree. Experience was measured as the years of working experience. The number of founders was measured as the number of team members that established the company. Firm size was measured by number of employees working in the firm on 31 December 2013.

Table 5 reports descriptive statistics of constructs used in the study. Reliability analysis is suitable since all the coefficients are above .70. The majority of the correlation coefficient among the constructs are statistically significant.

Table 5: Means, standard deviations, Pearson correlations and reliability statistics

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. User involvement	3.45	.89	<i>.87</i>						
2. Searching feedback	3.83	.88	<i>.66**</i>	<i>.76</i>					
3. Design orientation	4.00	.75	<i>.29**</i>	<i>.39**</i>	<i>.70</i>				
4. Dynamic innovation capabilities	3.79	.76	<i>.30**</i>	<i>.37**</i>	<i>.27**</i>	<i>.89</i>			
5. Interaction orientation	4.28	.54	<i>.37**</i>	<i>.35**</i>	<i>.20**</i>	<i>.35**</i>	<i>.84</i>		
6. Innovation performance	3.74	.67	<i>.25**</i>	<i>.32**</i>	<i>.19**</i>	<i>.50**</i>	<i>.30**</i>	<i>.79</i>	
7. Turnover growth	4.31	2.26	<i>.03</i>	<i>.15*</i>	<i>.01</i>	<i>.31**</i>	<i>.06</i>	<i>.35**</i>	/

N = 275, * p < .05, ** p < .01, the numbers in the diagonal in *italics* denote Cronbach's alpha

Common method variance. Following the procedure used elsewhere (e.g. Cheng & Shiu, 2012) the presence of common method bias was tested by confirmatory factor analysis including all measurement items. In case of common method bias confirmatory

factor analysis produces a single factor (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The goodness-of-fit for single factor model was poor ($\chi^2_{(62)} = 3094.14$, $p < .001$, GFI = .56, CFI = .80, NNFI = .78, RMSEA = .17). Therefore, the likelihood for common method bias in the data is minimal.

Hypotheses testing. Table 6 and Table 7 report nomological validity tests, i.e. effects of antecedents and consequences, respectively. Three control variables are significantly connected to UDI. Entrepreneurs in high-technology firms are more inclined to UDI across all three dimensions. Entrepreneurs with more experience tend to involve users in innovation activities in a higher extent in comparison to their counterparts with less experience. The results also show that male entrepreneurs are slightly more inclined to involve users in innovation activities. Hypothesis 1 and Hypothesis 2 envisage that dynamic innovation capabilities and interaction orientation significantly relate to three respective dimensions of UDI. Models 2, 3, 5, 6, 8 and 9 demonstrate positive, significant effects of dynamic innovation capabilities and interaction orientation on UDI dimensions. The predictive power of the models was stronger after the dynamic innovation capabilities were entered in the case of searching for feedback dimension (significant change of F in F-test). The F value also approaches significance for the dimension of user involvement ($p = .07$). The predictive power of the models was also stronger after interaction orientation was entered in the model with user involvement and searching feedback, respectively. Despite the predictive power of the model not being better after the dynamic capabilities and interaction orientation were entered, both coefficients are significant. Hypothesis 1 and Hypothesis 2 are supported.

In analysis of the consequences, the effect of three control variables is significant. Firm size affects innovation performance. Firms with higher numbers of employees tend to have better innovation performance (Models 11, 12 and 13). Entrepreneurs with less experience exhibited higher turnover growth (Models 15, 16 and 17). Their venture is usually younger, and younger firms start with lower turnover. Relative measures of firm-performance are higher for young companies that survive on the market. Female entrepreneurs tend to have higher turnover growth (models 15, 16 and 17). Hypothesis 3 and Hypothesis 4 predict that UDI dimensions are significantly positively related to innovation performance and turnover growth. All three dimensions have significant positive effects on innovation performance, which support Hypothesis 3. For turnover growth, only searching for feedback demonstrated significant positive effects, which leads to partial support for Hypothesis 4. The F-test did not show better predictive power of the models with UDI consequences after the UDI dimensions were entered.

Table 6: Regression analysis for the antecedents of UDI^a

Variable	User involvement			Searching feedback			Design orientation		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Control									
Gender	-.13*	-.13*	-.08	-.09	-.10	-.06	-.03	-.03	.00
Education	.04	.02	.04	.01	-.02	.00	-.05	-.07	-.06
Experience	.17**	.18**	.13*	.10	.12*	.07	-.07	-.05	-.10
Number of founders	.09	.09	.10	.01	.01	.02	-.06	-.07	-.05
Firm size	.04	.03	.03	.02	-.01	.01	-.02	-.05	-.02
Industry	.22**	.20**	.23**	.18**	.15**	.18**	.16**	.14*	.17**
Dynamic innovation capabilities		.28**			.36**			.26**	
Interaction orientation			.36**			.30**			.21**
R ²	.11	.19	.23	.05	.17	.14	.03	.10	.07
Adjusted R ²	.09	.16	.21	.03	.15	.12	.01	.08	.05
ΔR ²	.11	.08	.12	.05	.13	.09	.03	.07	.04
ΔF	5.37	3.24*	6.06**	2.26	5.77*	3.81*	1.52	2.64	1.52

* p<.05, ** p<.01, ^a Standardised beta coefficients are presented.

Table 7: Regression analysis for the consequences of UDI^a

Variable	Innovation performance				Turnover growth			
	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16	Model 17
Control								
Gender	.02	.04	.04	.02	.15**	.17**	.16**	.15**
Education	.07	.07	.06	.08	-.03	-.03	-0.03	-.03
Experience	-.09	-.11	-.13*	-.08	-.14*	-.16**	-.15*	-.14*
Number of founders	-.04	-.04	-.06	-.03	.10	.10	0.10	.10
Firm size	.14*	.14*	.13*	.14*	.00	.00	-0.00	.00
Industry	.07	.03	.03	.05	.01	-.02	-0.00	.02
Searching feedback		.22**				.16**		
User involvement			.20**				0.06	
Design orientation				.15*				-.03
R ²	.04	.08	.07	.06	.06	.08	.06	.06
Adjusted R ²	.01	.06	.05	.03	.04	.06	.03	.03
ΔR ²	.04	.05	.04	.02	.06	.02	0.00	.00
ΔF	1.62	1.81	1.30	.64	2.62	.66	-.26	-.35

* p<.05, ** p<.01, ^a Standardised beta coefficients are presented.

2.6 DISCUSSION

As the innovation process is seen as a driver of young companies' success (Rosenbusch et al., 2011), it is important to understand which innovation activities contribute to young companies' performance and how they do so. UDI builds upon entrepreneurs' proactiveness and comprises methods of involving users in entrepreneurial innovation in order to customize new products/services to users' needs. By adopting UDI methods, young companies might overcome initially scarce financial resources for product service development. On the demand side of value creation, it is necessary to understand the complex nature of involving users in the innovation process.

This study contributes to the theory and practice in several ways. At a theoretical level, we contribute an integrative conceptualisation of UDI with three relevant dimensions. We have integrated different streams in the interdisciplinary UDI literature (for instance, Alam, 2002; Grunert et al., 2008; Hjalager & Nordin, 2011; Venkatesh et al., 2012; Veryzer & Borja de Mozota, 2005) and conceptualise UDI as an *approach to new product/service development that aims to provide desirable user experience by involving users in the innovation process, continuously searching for feedback, and creating intuitive design*. The proposed definition complements the existing definitions which are focused on researching user needs (Christiansson et al., 2008; Grunert et al., 2010) and active role of users in innovation process (Hjalager & Nordin, 2011; Wise & Hogenhaven, 2008). Besides those two aspects the proposed definition reflects two additional aspects from the entrepreneurship literature, i.e. user feedback (Blank, 2013) and design orientation (Brown, 2008). By proposing an integral definition of UDI we contributed to the theory of users as sources of innovation in entrepreneurial innovation process.

At a methodological level, we contribute a valid measure for studying antecedents, consequences, mediators and moderators of UDI. Through qualitative and quantitative empirical research, this study has developed and validated the UDI scale. UDI comprises three dimensions: user involvement, searching feedback and design orientation. All three dimensions of UDI are derived from various literature streams and our own interviews. These dimensions give entrepreneurs a foundation for a holistic approach to UDI in order to benefit from users' potential. Three dimensions are theoretically significant: without searching for feedback and design orientation, the concept of UDI is limited to researching user needs and obtaining ideas for new products/services from users. Such an approach does not sufficiently address the challenges connected with engaging users in the innovation process. Searching for feedback focuses on testing market potential, prototypes and business models. Design orientation integrates product appearance along with brand development. Empirical evidence suggests that the UDI scale demonstrates internal consistency reliability, convergent, discriminant and nomological validity. The

scale seems to appear as a comprehensive, psychometrically sound and operationally valid measure of UDI. The UDI scale can be a part of different overall research design, because 13 items is a manageable number to include in a longer questionnaire.

At an empirical level, we contribute evidence that UDI is related to innovation and firm-performance and that dynamic innovation capabilities and interaction orientation are related to UDI. Our results are in-line with evidence provided by Lokshin et al. (2009), who showed that companies which combine customer, technological and organisation competence introduce more innovations that are new to the market. Their definition of customer competence encompasses user involvement as we define it in our paper. Also Lettl (2007) reports about case studies, in which user involvement led to more radical innovations. The relationship of UDI with turnover is somehow weak since only searching feedback showed a statistically significant relationship with turnover. This is in-line with the entrepreneurship stream of research (Blank & Dorf, 2012), which proposes searching feedback as specific and important antecedent of innovation in young companies. The relationship of turnover growth with the other two dimensions is not significant, but also other evidence in the literature offer mixed results and concludes that contextual factors are important for investigating those relationships (Lettl, 2007). Positive relationship between dynamic innovation capabilities and different dimensions of the UDI reflects how a company needs capabilities in order to engage in UDI. As dynamic innovation capabilities encompasses acquiring important information about innovation opportunities (Verona & Ravasi, 2003), users represent one source of information and thus mediates the relationship between dynamic innovation capabilities and innovation performance. We can relate our evidence to Cheng and Ja-Shen (2013), who found out how open innovation activities (defined as linking with participants) help companies with effective coordination of dynamic innovation capabilities. Interaction orientation reflects the motivational side of the UDI antecedents. Since users make judgements about the company based on their interactions with the company (Dall'Olmo Riley & de Chernatony, 2000), positive interaction may lead to greater motivation for helping the company. Our evidence of positive relationship between interaction orientation and UDI dimensions implies that companies with greater interaction orientation may easier engage in UDI. However, the investigated relationships are context dependent and should not be regarded as definitive, since we did not develop and test a model.

Limitations of this study include its cultural generalizability, as the Slovenian national culture is individualistic (Svetlik, 2000). Future research should investigate the psychometric characteristics of the UDI scale in collectivistic countries such as China or India. The findings based on Slovenian sample are not generalizable to firms in other countries. However, the proposed research instrument may serve as a starting point for validation in other countries. Additional items may be added and/or current items may be adapted in order to comprise different contingencies that affect UDI in other countries.

Another limitation is the complexity of the model. In our initial analysis, we included only two antecedents and two consequences of UDI. Future research should conceptualise a more comprehensive model with antecedents, consequences and control variables. In particular, firm performance should be tested with more indicators, since we used only turnover growth. We also did not investigate to what extent investing in UDI compares in effectiveness to investing in other aspects of the innovation process. These challenges are important, but they exceed the goal of the present chapter which aims to develop a new scale. Antecedents and consequences in this chapter serve as indicators for nomological validity and should not be seen as parts of a complex conceptual framework. Furthermore, this study is limited to entrepreneurs' views. Future studies should also include the view of employees in companies and employ a multilevel approach. Additional methods with independent observers would reveal greater insight into actual degree of UDI in entrepreneurial firms.

2.7 CONCLUSIONS

By providing a scale of UDI, we considered an appeal for stronger interdisciplinary research between the fields of entrepreneurship and other disciplines such as marketing or innovation (Ireland & Webb, 2007). Due to the lack of a valid UDI scale, researchers had to depend on broader measures of user involvement (Carbonell et al., 2009; Chien & Chen, 2010; Feng et al., 2010; Ngo & O'Cass, 2013), which do not comprise distinctive aspects of UDI. Having a reliable measure of underlying UDI dimensions, researchers will be able to investigate the nature of UDI and explain the relation of UDI to major concepts in entrepreneurship. The proposed dimensions (user involvement, searching feedback and design orientation) have proved to be distinctive aspects of UDI. We believe the three dimensions are relevant for the theory of UDI because they are both theory-driven and derived from several consecutive empirical procedures (i.e. pilot studies, interviews and evaluators' ratings of the wider set of items). Nevertheless, the validation study needs to be replicated in other countries in order to use the UDI scale within cross-cultural settings.

As innovation is context dependent (Rosenbusch et al., 2011), research in the future has to focus on exploring the settings that can most benefit from UDI. In our analysis of antecedents and consequences, we showed that high technology firms were more inclined to adopt UDI methods. However, this may be specific to our research context as the literature offers some cases of UDI stemming from tourism (Hjalager & Nordin, 2011) and construction (Christiansson et al., 2008). Furthermore, innovation-firm-performance relationship is affected by different moderators and mediators (Rosenbusch et al., 2011); therefore, researchers need to consider variables that influence the strength of the relationship. For instance, are firms that develop their brands along with their UDI efforts in average more successful? Do marketing capabilities as more general marketing concepts influence the relationship between UDI and firm performance? UDI itself may

be a mediator (Ngo & O'Cass, 2013). However, researchers have to explain which cognitive processes drive UDI. Does entrepreneurial alertness enable entrepreneurs to see business opportunities in UDI? Our initial results demonstrated that dynamic innovation capabilities and interaction orientation are related to UDI. Despite the potential influence of contingencies within our research context, such results are in-line with the theory. Dynamic capabilities theory (Teece, Pisano, & Shuen, 1997) maintains that firm's dynamic capabilities create and sustain a competitive advantage. Also, the interaction orientation is focused on the user and on creating a value proposition, which relates to the UDI approach. Future research needs to clarify the process how UDI contributes to competitive advantage and dynamic capabilities. Theoretical conceptualisation is needed. Moreover, the UDI scale will enable researchers to explore this process also with quantitative research designs.

This study also has practical implications. Entrepreneurs can use this scale as a diagnostic tool for assessing the current state of UDI in the firm. Based on the results, entrepreneurs can develop training programmes to adopt different methods for user involvement (e.g. ethnographic research, living labs), searching feedback (e.g. rapid prototyping, pilot sales) or design orientation (e.g. design thinking, emphatic design).

3 USER-DRIVEN INNOVATION, BRAND ORIENTATION AND INTERACTION ORIENTATION IN YOUNG COMPANIES: THE RELATION WITH THE INNOVATION PERFORMANCE

3.1 ABSTRACT

This chapter contributes to the growing interest in UDI research. Because companies operate on relatively dynamic and turbulent markets, they increasingly involve users in their innovation efforts in order to customize their products according to both latent and displayed user needs. The literature discusses the advantages, disadvantages and managerial challenges of involving users in the innovation process. However, the role of UDI in organizational development remains an understudied subject in empirical investigations. By integrating innovation and marketing perspectives, this study proposes a model of UDI as a mediator of the relationship between innovation performance, brand orientation and interaction orientation. Empirical evidence from 284 young companies supports this proposition. The research findings suggest that young companies oriented towards branding and interaction with their users are more likely to adopt UDI strategies. A structural equation modelling-based analysis of the hypothesized relationships shows that brand orientation and interaction orientation have a positive effect on UDI. The results challenge other studies that propose the direct influence of brand orientation on business performance. Additionally, the study finds that UDI positively enhances innovation performance, which in turn contributes to a firm's performance. By integrating a marketing perspective on UDI, this study advances knowledge about the indirect effects of marketing practices on performance through innovation. Furthermore, this study not only contributes to knowledge about UDI with empirical evidence, but also helps to explain how UDI and marketing efforts can mutually contribute to innovation and business performance.

3.2 INTRODUCTION

More and more companies are moving its innovation activities from laboratory to the field among users. As users are first to develop many new products (von Hippel, 2005), companies increasingly perceive users as sources of innovation also for their product/service development. For instance, LEGO involved fans to cooperate in developing new line of bricks called Mindstorms (Lindgaard, 2010). Companies such as Dropbox, Instragram, and Airbnb succeeded also because of their capability of engaging users in early phases of product development. Users contribute by providing information about the displayed and latent needs (De Moor et al., 2010), ideas for product's features and design (Nishikawa et al., 2013), feedback on the offerings and business model (Blank, 2013), thus adding value to every phase of new product/service development.

Despite the importance of the UDI in practice, the marketing and innovation literature intended a limited attention to this topic. Consequently, the literature review reveals lack of clarity, vague terminology, and underdeveloped theory of the field.

In spite of several notable exceptions (Alam, 2002; Lau et al., 2010; Lichtenthaler, 2011; van de Vrande et al., 2009), empirical studies of UDI have seldom been made. Authors have presented different cases (De Moor et al., 2010; Liedtke, Welfens, Rohn, & Nordmann, 2012), reports (Bisgaard & Hogenhaven, 2010; Rosted, 2005; van Rijswijk, Kleijn, Janson, & Menten, 2008; Wise & Hogenhaven, 2008) and reviews (Christiansson et al., 2008; Hjalager & Nordin, 2011). Most of the empirical evidence focuses on user involvement (Carbonell et al., 2009; Lau, 2011), which is an important but merely partial aspect of UDI. Existing literature comprises two streams. One stream of literature is derived from von Hippel's initiative on researching lead users as sources of innovation (von Hippel, 1986, 1988, 1998). Researching lead users has yielded evidence about the performance of their contributions (Lettl et al., 2006; Lilien, Morrison, Searls, Sonnack, & von Hippel, 2002). The field has recently been broadened to cover user entrepreneurship (Haefliger et al., 2010; Shah & Tripsas, 2007) and participatory design (Beckman & Barry, 2007; Veryzer & Borja de Mozota, 2005). Another stream of literature lies in marketing, with the concept of customer integration or customer involvement, which is primarily recognized within the topic of service development (Alam, 2002; Chien & Chen, 2010; Feng et al., 2010). Authors writing on customer integration analyze the methods, managerial challenges, antecedents and consequences of customer integration. In general, they conclude that customer involvement is common in turbulent and dynamic environments (Carbonell et al., 2009). This study considers both literature streams along with current advancements in the field of design and continuous searching for feedback.

As users demand customized products/services, interest in UDI is increasing, especially in the context of young companies. Contemporary approaches to entrepreneurship, such as business modeling (Osterwalder, Pigneur, & Clark, 2010), lean start-up and customer development (Blank, 2013; Ries, 2011), emphasize the significance of early product/service testing and involving users in the innovation process. In many approaches to innovation, the compliance of different strategic orientations, such as market orientation and entrepreneurial orientation, remains in the background. Authors rarely study UDI in the light of other concepts, such as brand orientation. Consequently, little is known about the synergy between brand development and UDI. The compliance of the visible parts of the company (logo, slogan, communication) with its invisible parts (strategic orientation, approaches to business development) is important for young companies, because they often search the most suitable approach to value creation. Authors also recognize innovation as a driving force of young companies (Rosenbusch et al., 2011). However, the literature offers no empirical studies focusing on the effectiveness of the UDI in young companies. We aim to fill this gap by investigating the

role of UDI in young companies between 0 and 15 years old. Specifically, we investigate a model suggesting that UDI mediates the connections among innovation performance, brand orientation and interaction orientation. The model further proposes that innovation performance in turn is related to firm performance. Consistent with the contemporary advancement of the field, we understand UDI to be an approach to new product/service development that aims to provide desirable user experience by involving users in the innovation process, continuous searching of feedback and creating intuitive design.

Our study is a response to appeals for stronger interdisciplinary research between the fields of innovation, marketing, and entrepreneurship (Ireland & Webb, 2007). The empirical findings of this study offer valuable contributions to knowledge about UDI. We introduce brand orientation and interaction orientation as important influences on UDI, showing how a focus on marketing concepts (individually by interaction orientation and systemic by brand orientation) can foster UDI. Second, our results support the notion that UDI contributes to a firm's performance by improving its innovation performance. Finally, the results offer additional empirical evidence for the connection between innovation and firm performance in young companies.

The remainder of the chapter starts with an introduction of UDI followed by hypotheses and conceptual model development. Next, the chapter presents research design along with psychometric characteristics of the measures used in the study. The results section follows with testing of the hypotheses. Finally, in the discussion, the main contributions, limitations and managerial implications are presented.

3.3 THEORETICAL BACKGROUND OF UDI

This study is grounded in the resource-based theory (Barney, 1991). In order to successfully innovate, companies must employ and develop resources and organizational capabilities (Barney, 1991). The literature recognizes that users might represent a valuable, rare, inimitable, and nonsustainable resource when a company attempts to improve existing products/services or to develop new products/services (Chesbrough, 2003; von Hippel, 2005). By integrating users in innovation a company might develop a competitive advantage (von Hippel, 1988). However, empirical investigations remain limited. The present study aims to address this gap by investigating whether UDI can contribute to innovation performance, which, in turn, contributes to business performance (Jiménez-Jiménez & Sanz-Valle, 2011). This section introduces UDI and proceeds with conceptual model.

The characteristics of UDI correspond with the open innovation paradigm (Lichtenthaler, 2011), which emphasizes the meaning of external ideas for the innovation process (Chesbrough, 2003). UDI has a relatively long history in companies, but a relatively short one in research. Most of the definitions of UDI include user needs and the active role of users in the innovation process. Wise and Hogenhaven (2008), for instance, define UDI as

follows: 'UDI is the process of tapping users' knowledge in order to develop new products, services and concepts. A UDI process is based on an understanding of true user needs and a more systematic involvement of users' (Wise & Hogenhaven, 2008, p. 21). In comparison to other approaches, the innovation specifics of UDI are the researching of user needs with a focus on latent needs, understanding users and collaborating with users. UDI involves three aspects (Rosted, 2005): (1) user focus, (2) skills for analyzing and assessing user needs, (3) methods applied in conducting user research. User focus encompasses firms' ability to work with user needs and user experiences in the innovation process (Rosted, 2005). User needs and experiences are regarded as an important source of innovation. User focus in UDI is thus related to the market orientation concept in marketing (Jaworski & Kohli, 1993; Narver & Slater, 1990). The main difference is that UDI focuses on the innovation process whereas market orientation refers to the organization-wide culture of creating superior customer value (Narver & Slater, 1990) and the generation of market intelligence (Kohli & Jaworski, 1990). Another difference is that UDI promotes an active role of the users in the innovation process. In addition to the user focus, companies need specific skills for analyzing and assessing user needs. First, companies need to identify suitable users; depending on the approach to UDI, suitable users range from lead users, extreme users, innovative users or users with high innovation tolerance (Lettl, 2007). Second, cooperation quality between users and the company depends on network competence of employees who interact with users (Lettl, 2007). Communication and motivation skills of employees who work with users are thus crucial in different phases of the innovation process, from researching users' needs through idea generation to prototyping and implementing. Methods of applying the UDI approach are diverse, which hinders the conceptual research of the field. Methods include, but are not limited to, personal and group interviews (Hjalager & Nordin, 2011), ethnographic research (Elliot & Jankel-Elliot, 2003), rapid prototyping (von Hippel, 1986), living labs (Liedtke et al., 2012), lead user involvement (von Hippel, 1986), observation of user behaviors (Hjalager & Nordin, 2011), storytelling (Christiansson et al., 2008) and contextual inquiries (Holtzblatt & Beyer, 1993).

With the rapid development of information technology since the mid-1990s, UDI has experienced a small renaissance, because information technology eases the observation of user experience. For instance, Dropbox, a cloud service for online data storage and sharing, invested in analytics in order to observe users' behavior when using their service; by observing users, they also discovered the patterns in the acquisition of new users. Many companies record the eye movements of users during their use of the webpage to learn how to improve its design in order to improve user experience. Alternatively, users' need for uniqueness (Tian et al., 2001) inspired different service companies, especially in tourism, to involve users in service design (Hjalager & Nordin, 2011). With mostly qualitative research techniques, at first glance UDI seems to be a high-cost approach; nevertheless, Rosted (2005) discovered that many SMEs use UDI in their innovation

effort. Moreover, some start-ups have also included UDI at the very beginning of their development, for instance, the Feed Me Bottle and Peepoople. The likelihood of success for entrepreneurial firms with limited resources is higher if firms are highly astute in choosing products to exploit in established markets or when they are quick to explore new markets (Katila, Chen, & Piezunka, 2012). UDI is focused upon exploring users' latent needs and creating products/services that meet users' natural preferences. Therefore, UDI may be attentive to young companies' survival needs. By engaging users in the innovation process, young companies may compensate for their initial limited financial and technological resources.

Although the active role of users represents a crucial part of UDI, the contemporary literature highlights two additional aspects: searching for feedback and design orientation. In the entrepreneurial literature, an emphasis on the continuous searching for users' feedback in the innovation process can be observed. Lean entrepreneurship and the customer development approach (Blank, 2013; Ries, 2011) promote users' feedback as a guideline in the innovation process. Constant searching for users' feedback fosters a young company's learning process. Consequently, such a company may save some developmental costs, because it eliminates mistakes and learns from the users' experience throughout the innovation process (Blank, 2013). Design orientation, as the third aspect of UDI, encompasses a creation of user-friendly experience both in functional and psychological terms. Design thinking and human-centered, participatory, contextual and emphatic design (Kujala, 2003; Veryzer & Borja de Mozota, 2005) reflect characteristics of UDI, in which users are a source of innovation. Design orientation aims to achieve a better fit of a new product/service to user needs and consider users' interaction preferences with new products/services (Venkatesh et al., 2012; Veryzer & Borja de Mozota, 2005). The three aspects of UDI thus lead to the definition of UDI as an approach to new product/service development, which aims to provide desirable user experiences by involving users in the innovation process, continuously searching for feedback and creating an intuitive design.

3.4 HYPOTHESES DEVELOPMENT AND CONCEPTUAL MODEL

3.4.1 UDI and innovation performance

The literature on outcomes of user involvement in the innovation process offers mixed results. One stream of literature reveals benefits of involving users in innovation process (Carbonell et al., 2009; Cheng, Chen, & Tsou, 2012; Chien & Chen, 2010; Grunert et al., 2008; Lau, 2011; Lau et al., 2010; Lettl, 2007; Ngo & O'Cass, 2013; Nishikawa et al., 2013). Carbonell et al. (2009), for instance, find that user involvement affects both the technical quality of the product and innovation speed. The affirmative connection between the product quality and user involvement was also confirmed by several other studies (Carbonell-Foulquie, Rodriguez-Escudero, & Pujari, 2008; Feng et al., 2010).

Customer satisfaction is higher (Ngo & O'Cass, 2013) and innovation performance in terms of sales and profitability is better (Lau, 2011) in the case of user involvement in the innovation process. Furthermore, two meta-analytical studies examined the relationship between customer inputs and innovation performance. One did not confirm a positive effect across research model (Henard & Szymanski, 2001), whereas the recent meta-analysis confirmed a positive effect (Evanschitzky, Eisend, Calantone, & Jiang, 2012). However, both meta-analyses define customer input as the “incorporation of customer specifications into a new product initiative,” (Henard & Szymanski, 2001, p. 364) which is not consistent with the majority of UDI definitions.

In contrast, some authors are skeptical toward UDI practices (Homburg & Kuehnl, 2014; Menguc, Auh, & Yannopoulos, 2014; Veryzer, 1998), especially those from the design area (Verganti, 2008). Menguc et al. (2014) found that user involvement is beneficial for incremental innovation capability, but it impedes radical innovativeness. Homburg and Kuehnl (2014) reported an inverted U-shaped relationship between the user integration and service innovation. In the same study, they did not find any significant effect of user integration on product innovations. In general, authors highlight the managerial challenges of involving users in the innovation process (Wadell, Sandstrom, Bjork, & Magnusson, 2013). For instance, Lau (2011) notes that user involvement increases transaction costs and relationship networks while Cheng et al. (2012) maintain that user integration is beneficial in the launch stage, but has a negative influence in the analysis stage. Lettl (2007) suggest that companies that engage in radical innovations need to develop user involvement competence, because not all users are suitable to contribute in the innovation process. User involvement competence includes two dimensions: competence about the characteristics of capable users and competence about appropriate interaction patterns.

As innovation-performance relationships are context dependent (Bowen et al., 2010; Rosenbusch et al., 2011), we expect a positive relationship between UDI and innovation performance. This research focuses on relatively young and small companies, which typically exhibit a stronger innovation-performance relationship in comparison to more mature and larger companies (Rosenbusch et al., 2011). Furthermore, the present study conceptualizes UDI beyond the user involvement and incorporates searching for feedback and design orientation in addition to user involvement. Both searching for feedback (Cheng et al., 2012) and design orientation (Verganti, 2008) positively relate to innovation performance. Therefore, the following hypothesis is suggested:

Hypothesis 5. UDI positively relates to innovation performance.

3.4.2 Innovation and firm performance

Innovation is commonly accepted as a key driver of firm performance (Jiménez-Jiménez & Sanz-Valle, 2011; Kalafsky & MacPherson, 2002; Lee, Lee, & Pennings, 2001; Li &

Atuahene-Gima, 2001; Zahra & Bogner, 2000). Despite the empirical literature providing both positive and negative effects on performance, recent meta-analyses have confirmed a positive effect of innovation on performance in the case of small (Bowen et al., 2010; Rubera & Kirca, 2012) and young companies (Bowen et al., 2010; Rosenbusch et al., 2011). Cainelli, Evangelista, and Savona (2006) report the positive effect of innovation on both productivity and growth. They argue productivity and innovation as a self-reinforcing mechanism that affects firm performance. Young companies may benefit more from innovation due to their entrepreneurial orientation (Vossen, 1998), the absence of established routines (Katila & Shane, 2005) and the advantages of flattened organizational structures (Quinn, 1985). Usually, their innovation process is less formal and conducted in small teams; some of the team members are typically external experts (Marion, Friar, & Simpson, 2012). Young companies can move faster and act more flexibly (Crisuolo et al., 2012; Katila & Shane, 2005). However, unsuccessful innovation in young companies may threaten their existence (van Riel, Lemmink, & Ouwersloot, 2004); consequently, the empirical findings reflect a survival bias (Rosenbusch et al., 2011). This leads us to the following hypothesis:

Hypothesis 6. Innovation performance positively relates to firm performance.

3.4.3 Brand orientation and UDI

The most recent definition conceptualizes brand orientation as “a deliberate approach to brand building where brand equity is created through interaction between internal and external stakeholders. This approach is characterized by brands being the hub around which organization’s processes revolve, an approach in which brand management is perceived as a core competence and where brand building is intimately associated with business development and financial performance,” (Gromark & Melin, 2011, p. 395). In general, brand orientation refers to the degree to which the organization values brands (Bridson & Evans, 2004). The concept of brand orientation is relatively new in the literature; the term was coined at the beginning of the 1990s (Gromark & Melin, 2011). Therefore, the field does not yet have a rich empirical track record. Several authors have attempted to conceptualize brand orientation as a multidimensional concept (Baumgarth, 2010; Ewing & Napoli, 2005; Gromark & Melin, 2011), but research practice maintains brand orientation as an uni-dimensional construct (Huang & Tsai, 2013; Laukkanen, Nagy, Hirvonen, Reijonen, & Pasanen, 2013; Wong & Merrilees, 2008).

Brand orientation is positively related to business performance (Gromark & Melin, 2011; Laukkanen et al., 2013; Reijonen, Laukkanen, Komppula, & Tuominen, 2012; Wong & Merrilees, 2008). However, different constructs mediate the relationship; authors connect brand orientation to brand performance (Huang & Tsai, 2013; Laukkanen et al., 2013; Wong & Merrilees, 2008) and market performance (Baumgarth, 2010), which in turn impact the business performance. Some authors have also found a direct effect of brand

orientation on business performance (Gromark & Melin, 2011). Wong and Merrilees (2008) provide evidence that brand orientation influences brand distinctiveness, which in turn affects the innovation. Weerawardena, O'Cass, and Julian (2006) find that innovation facilitates the achievement of stronger brand performance by systematically developing differentiated user values. Aaker (2007), in a discussion of the advantages of branding for innovation, presents it as a tool for adding value to an innovation, emphasizing the long-term value of branding for innovation. In terms of a resource-based view, branded innovations may be the valuable, rare and inimitable resources of a company (Fernández, Montes, & Vázquez, 2000). Without a branding strategy, the innovation life cycle can be short due to the absence of differentiation from other products in competitive markets. Branded innovations accelerate business in three ways: (1) branded innovation is differentiated; (2) by creating a new mental subcategory, a branded innovation can influence the user's perception of the product category; and (3) branded innovation can enhance a corporate brand. A brand provides the basis for the ownership of innovation, signals credibility and legitimacy, heightens the visibility of the innovation and helps communicate innovation features (Aaker, 2007).

As brand orientation is conceptualized on a cognitive level as a strategic orientation, and UDI represents behavioral level in terms of user involvement, searching for feedback and design orientation, we expect that brand orientation will act as an antecedent of UDI. Brand orientation may encourage companies to innovate with regard to their brand strategy. Brand orientation may also position a company to its users, because brand-oriented companies are usually focused on the market (Reijonen et al., 2012; Urde, Baumgarth, & Merrilees, 2013). From the discussion above and the findings of other empirical investigations, we derive the following hypothesis:

Hypothesis 7a. Brand orientation is positively related to UDI.

Hypothesis 7b. Brand orientation is positively related to innovation performance.

3.4.4 Interaction orientation and UDI

Interaction orientation encompasses a “firm's ability to interact with its individual customers and to take advantage of information obtained from them through successive interactions to achieve profitable customer relationships,” (Ramani & Kumar, 2008, p. 27). The interaction orientation positively affects customer-company identification and results in higher perceived customer identification (Tung, Rong-Da Liang, & Chen, 2014). Companies can benefit from the knowledge about individual users (Ramani & Kumar, 2008), which is reflected in greater customer satisfaction. Interaction orientation is connected with business performance (Chen, Li, & Evans, 2012; Hoops & Bucker, 2013; Ramani & Kumar, 2008). Ramani and Kumar (2008) have found support for the positive effect of the interaction orientation on customer-based relational performance (increased customer satisfaction level, increased customer ownership, positive word of

mouth) and customer-based profit performance (identification of profitable customers, acquisition and retention of profitable customers, conversion of unprofitable customers to profitable ones). In entrepreneurial settings, Chen et al. (2012) provide evidence that interaction orientation affects exploitative and exploratory capabilities, which contributes to product development speed and innovativeness; exploitative capabilities additionally impact financial performance and customer relationship performance. Furthermore, Hoops and Bücken (2013) report on the significant effect of an interaction orientation on customer-specific success and effectiveness, although they did not find support for any relationship between an interaction orientation and adaptiveness, entering new markets or product innovation.

In a dynamic and turbulent business environment, relationships with the customers are seen as a source of competitiveness and performance (Morgan & Hunt, 1999; Vargo & Lusch, 2004). Without effective interactions with users, it is difficult for a company to engage in UDI activities. An essential part of UDI is the need to involve users and the constant searching for feedback from the users (De Moor et al., 2010). Through interactions with users, companies obtain access to the needs of current and future users', which a company can exploit with a UDI approach. An interaction orientation also encourages users to actively participate in information sharing, exchanges and co-production (Vargo & Lusch, 2004). In this way, interaction-oriented companies have a greater ability to detect not only obvious needs, but also latent or emerging needs. Because of their knowledge of individual users, companies may exhibit greater innovation performance. Interaction-oriented companies follow two-way communication with their users, which enables a relatively quick reaction in customizing the innovation to user needs. The above discussion leads to the next hypothesis:

Hypothesis 8a. Interaction orientation is positively related to UDI.

Hypothesis 8b. Interaction orientation is positively related to innovation performance.

3.5 METHOD

3.5.1 Sample and procedures

This study used a random sample of 4,267 young Slovenian companies (0–15 years old) with at least one employee; the sample was obtained from a Slovenian national database of companies. Data collection was conducted from the beginning of March 2014 to the end of April 2014. The potential respondents received an email invitation followed by three reminders to participate in an online survey. The possibility of receiving a research report was offered. A total of 284 completed surveys were returned by the end of the data collection period. After the elimination of the companies without a valid address for a director's email, we calculated the response rate of 8.43%. A total of 72.18% of

respondents were male; 85.21% had a college or higher degree. On average, the respondents had 17.78 years ($SD = 9.45$) of working experience; 84.16% were company owners, co-owners and/or managing directors; 88.38% of the companies had less than 10 employees; 56.69% had a sales turnover in 2013 less than €200,000. On average, the companies were 8.21 years ($SD = 5.93$) old.

To evaluate any potential response bias, we divided the final complete surveys into early and late respondents. Early respondents were those who participated in the survey without any reminder. With t-tests, we checked all the studied variables and found no significant differences between early and late respondents. Moreover, we compared the number of employees and firm's age in our final sample with the whole database, to whom we sent the invitation to participate in the survey. The t-tests did not reveal any significant differences in this case ($t_{(\text{number of employees})} = .11, p = .91$; $t_{(\text{firm age})} = -1.11, p = .27$).

3.5.2 Measures

This study uses five main constructs: UDI, brand orientation, interaction orientation, innovation performance and firm performance. Table 8 displays the measurement model with all the studied constructs, using 26 observed variables. Confirmatory factor analysis assesses the uni-dimensionality of each new construct (Anderson & Gerbing, 1988). The results indicate an acceptable fit to the data with key fit indices above the recommended thresholds ($\chi^2 (273) = 472.94, p < .001$, GFI = .89, RMSEA = .05, SRMR = .06, TLI = .93, CFI = .94). Both Cronbach's alphas (Table 10) and composite reliability indexes (Table 8) exceed the .70 threshold (Bagozzi & Yi, 1988). Average variance extracted is above .50 for all the constructs, which indicates convergent validity (Fornell & Larcker, 1981). Table 10 presents the descriptive statistics of the constructs and Cronbach's alpha reliability coefficients.

User-Driven Innovation. A 13-item UDI scale developed and validated by Tacer, Ruzzier, and Nagy (2015, in the revision process) using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) was employed. Table 8 lists the items that cover three dimensions of UDI: user involvement, searching feedback and design orientation. This study measures UDI as a single construct composed of three dimensions. A second order confirmatory factory analysis reveals that the three dimensions reflect a higher-order construct of UDI (Table 9). The second-order measurement model fits the data relatively well ($\chi^2_{(62)} = 137.14, p < .001$, GFI = .98, RMSEA = .06, SRMR = .20, TLI = .96, CFI = .97). The SRMR fit index is above the recommended value of .08 (Hair et al., 2009). However, in their simulation study Hu and Bentler (1999) showed that a cutoff value of .96 for TLI, BL89, RNI, Gamma Hat and CFI in combination with SRMR above .06 resulted in the lowest number of Type I and Type II errors. As both TLI and CFI meet the .96 criteria, we can accept the proposed second-order measurement model.

Brand Orientation. Researchers use different multidimensional measures of brand orientation (e.g. Baumgarth, 2010; Ewing & Napoli, 2005; Gromark & Melin, 2011). This study employs the three-item brand orientation index measure (Gromark & Melin, 2011), which indicates the overall brand orientation. The respondents evaluated the items with a five-point Likert scale (1 = strongly disagree, 5 = strongly agree).

Interaction Orientation. Despite the fact that the literature offers several measures of interaction, relationship or customer orientation (Deshpandé et al., 1993; Narver & Slater, 1990; Ramani & Kumar, 2008), the majority of the measures are more suitable for large companies. For instance, items such as “This firm has systems in place that record each customer’s transactions” (Ramani & Kumar, 2008) assume that a company is big enough to be capable of having a systematic process. In order to adapt the concept to young and small companies, we operationalize the interaction orientation by four items adapted from the literature, i.e. Ramani and Kumar (2008), Karpen et al. (2012). Using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) the respondents evaluated every item.

Innovation Performance. The literature does not offer any commonly accepted validated measure of innovation performance. Researchers recommend using several innovation performance indicators, such as the proportion of annual turnover of new products/services. This study uses three innovation performance indicators, which reflect a single construct of innovation performance (Table 8). The indicators were adopted from previous studies (Bodlaj, 2010; Cooper & Kleinschmidt, 1995). Using a five-point Likert scale, the respondents rated their success in a particular indicator of innovation for the last three years (1 = very unsuccessful, 5 = very successful).

Firm Performance. Firm performance was evaluated with three items adapted from previous studies (Antonicic & Hisrich, 2001; Chandler & Hanks, 1993). Two items measure absolute growth in terms of the average annual growth in the number of employees in the last three years and the average annual growth in sales in the last three years. One item measures relative growth in terms of the average annual growth in market share in the last three years. Respondents evaluated the firm’s performance with the following scales: (1) average annual growth in the number of employees: less than 0%, 0–4%, 5–9%, 10–19%, 20–35%, 36–50%, 51% or more, (2) average annual growth in sales: less than 0%, 0–1%, 2–4%, 5–9%, 10–19%, 20–34%, 35–50%, 51% or more, (3) market share: has decreased, remains relatively the same, has slightly increased, has moderately increased, has significantly increased. The items on the average annual growth in the number of employees and the average annual growth in sales were converted to a five-point scale using a linear transformation.

Table 8: Construct measurement summary: confirmatory factor analysis with all 26 indicators

Item	Standardized loading	T-value	Reliability (CR, AVE)
<i>User involvement</i>			CR = .79
We actively encourage users to present to us their ideas on improving our products or services, as well as their ideas on new ones.	0.72	13.49**	AVE = .54
We are including the users in all phases of the innovation process.	0.75	14.34**	
Users are a part of a developmental team for new products/services.	0.70	12.86**	
We conduct personal interviews with the users when developing new products or services.	0.74	13.95**	
When developing products or services, we cooperate with leading (advanced) users.	0.78	14.90**	
We encourage users to share their experiences and stories about their habits, product usage, shopping decisions etc.	0.71	13.06**	
<i>Searching for feedback</i>			CR = .70
We regularly check our ideas for new products or services with our users.	0.79	14.45**	AVE = .53
We continuously monitor the development process to check how well the new product or service is adjusted to the needs of different users.	0.82	15.28**	
We test prototype among our users.	0.78	12.43**	
We organise pilot sales before mass sales.	0.46	7.52**	
<i>Design orientation</i>			CR = .77
In the process of developing new products or services we aim to develop such properties that make the products easy to use regardless of the users' demands.	0.79	8.64**	AVE = .63
New products or services are designed so that their use is intuitive (i.e., the user does not need instructions but only follows the design).	0.61	7.60**	
The visual image is our way of ensuring the users like our products or services.	0.95	6.44**	
<i>Brand orientation index</i>			CR = .87
Our brands serve as the strategic starting point for practically all our business operations.	0.80	15.91**	AVE = .75
Our brands are regarded as being one of our most vital assets	0.90	18.94**	

table continues

continued

Item	Standardized loading	T-value	Reliability (CR, AVE)
We are very brand-oriented. We feel inspired to use our brands to create sustainable competitive advantages	0.90	18.78**	
<i>Interaction orientation</i>			CR = .72
Our priority while developing new products or services is exceeding our users' expectations.	0.62	10.77**	AVE = .55
This firm consciously seeks to identify and acquire new customers individually.	0.74	13.34**	
In our company, we wish to surpass the rigid formal relationships with the users and therefore strive to work with them in a warm, friendly way.	0.81	15.19**	
We encourage a two-way communication with our users.	0.77	14.28**	
<i>Innovation performance</i>			CR = .71
Success in meeting sales objectives.	0.88	16.82**	AVE = .59
Market share of new products/services on the most important market or market segment.	0.84	15.85**	
Customer satisfaction with the new products/services.	0.53	9.09**	
<i>Firm performance</i>			CR = .71
The average annual growth in the number of employees in the last three years.	0.64	11.08**	AVE = .58
The average annual growth in sales in the last three years.	0.79	14.29**	
Growth in the market share in the last three years.	0.84	15.49**	

CR = composite reliability, AVE = average variance extracted, ** $p < .01$

Table 9: Second-order confirmatory factor analysis for user-driven innovation

First-order construct	First-order			Second-order	
	Indicator	Loading	t-value	Loading	t-value
User involvement	UI1	.86	- ^a	.89	15.77**
	UI2	.89	28.92**		
	UI3	.86	24.94**		
	UI4	.93	30.89**		
	UI5	.92	31.25**		
	UI6	.89	29.93**		
Searching for feedback	SF1	.88	- ^a	1.03	26.22**
	SF2	.93	31.11**		
	SF3	.89	30.00**		
	SF4	.62	16.11**		
Design orientation	DO1	.85	- ^a	.74	15.77**
	DO2	.81	18.74**		
	DO3	.61	11.65**		

^a Fixed parameter, ** $p < .01$

The table below is a summary of the descriptive statistics of the constructs indicating appropriate reliabilities of the constructs. The table also shows that all the correlations among the constructs are statistically significant and positive, except the correlation between interaction orientation and firm performance. Statistically significant relationships among variables are necessary in order to perform structural equation modelling (Jöreskog & Sörbom, 1996). However, high correlations among constructs may suggest weak discriminant validity (Bagozzi & Yi, 1988), thus we also performed discriminant analysis. We used a chi-square difference test proposed by Bagozzi and Yi (1988). For each pair of constructs, the chi-square of constrained model with the chi-square of free model was compared, whereas the correlations between two constructs in constrained model were set to equal one for each pair. Chi-square differences were significant in all cases ($\chi^2_{(\text{InovPerf-FirmPerf})}(1) = 142.29$, $\chi^2_{(\text{InovPerf-UDI})}(1) = 167.70$, $\chi^2_{(\text{InovPerf-BrandOrien})}(1) = 276.25$, $\chi^2_{(\text{InovPerf-InterOrien})}(1) = 271.00$, $\chi^2_{(\text{FirmPerf-UDI})}(1) = 189.54$, $\chi^2_{(\text{FirmPerf-BrandOrien})}(1) = 235.60$, $\chi^2_{(\text{FirmPerf-InterOrien})}(1) = 232.27$, $\chi^2_{(\text{UDI-BrandOrien})}(1) = 155.62$, $\chi^2_{(\text{UDI-InterOrien})}(1) = 146.07$, $\chi^2_{(\text{BrandOrient-InterOrien})}(1) = 518,35$), which indicated discriminant validity.

Table 10: Means, standard deviations, Pearson correlations and reliability statistics

	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. User-driven innovation	3.68	0.66	<i>.71</i>				
2. Brand orientation	3.48	0.97	.36**	<i>.90</i>			
3. Interaction orientation	4.36	0.57	.36**	.20**	<i>.82</i>		
4. Innovation performance	3.75	0.67	.31**	.28**	.35**	<i>.79</i>	
5. Firm performance	2.64	1.02	.14*	.12*	.09	.44**	<i>.80</i>

N = 248, * p < .05, ** p < .01, the numbers in the diagonal in *italics* denote Cronbach's alpha

Common Method Variance. The respondents' answers are the only source of data for this study. The results may be biased by a common method variance. Harman's one-factor test (Podsakoff et al., 2003) is a procedure to check the presence of common method variance. It conducts a factor analysis for all the variables included in the study. In the case of substantial common method variance, the factor analysis produces a single factor or a dominant factor explains the majority of the variance (Podsakoff et al., 2003). The exploratory factor analysis with principal axis and varimax rotation on our data produces five factors with eigenvalues greater than 1. Every item loads to one corresponding factor. In total, the five factors explain 71.65% of the variance. In addition, we conducted a confirmatory factor analysis for a single factor solution. The measurement model has a poor fit to the data ($\chi^2(299) = 2435.65$, $p < .001$, GFI = .60, RMSEA = .16, SRMR = .13, TLI = .42, CFI = .46) indicating that a common method variance is not an issue in our data.

3.6 RESULTS

The hypotheses were tested with structural equation modelling employing a maximum likelihood estimation technique (Jöreskog & Sörbom, 1996). Data analysis was conducted using Lisrel 8.5 software. Figure 4 shows the proposed partially-mediated model. The results demonstrate an acceptable fit ($\chi^2(97) = 147.59, p < .001, GFI = .94, RMSEA = .04, SRMR = .05, TLI = .97, CFI = .97$). However, as the paths from brand orientation to innovation performance and from interaction orientation to innovation performance are not statistically significant at the .01 level, we evaluated the alternative fully-mediated model (Figure 5). Furthermore, the fully-mediated model demonstrates an acceptable fit ($\chi^2(99) = 153.92, p < .001, GFI = .94, RMSEA = .04, SRMR = .06, TLI = .96, CFI = .97$). The partially-mediated and fully-mediated models are nested, because they use the same covariance structure as the input. Therefore, we conducted the chi-square difference test to compare the models. The chi-square difference test of comparison between the two alternative models reveals a marginal significance on the .05 level ($\chi^2_{diff.}(2) = 6.33$). Since the difference is marginal, and the two additional coefficients are not significant at the .01 level, we may accept the alternative fully-mediated model because of the better parsimony. The partially-mediated model does not explain an additional significant part of the variance.

Hypotheses testing (Figure 4) suggests that UDI is positively related to innovation performance ($H_5: UDI \rightarrow$ innovation performance, $\beta = .24, p < .01$), which in turn is positively related to firm performance ($H_6: innovation performance \rightarrow$ firm performance, $\beta = .56, p < .01$). The finding is in line with numerous studies focusing on the innovation-performance relationship (Bowen et al., 2010; Rosenbusch et al., 2011). The relationship is stronger in young companies (Rosenbusch et al., 2011), which are the subject of our study. The relation between UDI and innovation performance is also supported in other research on user involvement (Carbonell et al., 2009; Chien & Chen, 2010).

The findings partially support H_7 and H_8 . Brand orientation positively relates to UDI ($H_{7a}: brand orientation \rightarrow UDI, \gamma = .32, p < .01$), whereas the coefficient with innovation performance is significant at the .05 level ($H_{7b}: brand orientation \rightarrow$ innovation performance, $\gamma = .18, p < .05$). Despite the significance on the .05 level, the coefficient is small. Similarly, the interaction orientation demonstrates a positive connection with UDI ($H_{8a}: interaction orientation \rightarrow UDI, \gamma = .35, p < .01$). In contrast, the coefficient with innovation performance is not significant ($H_{8b}: interaction orientation \rightarrow$ innovation performance, $\gamma = .11, p = .93$). This suggests that UDI fully mediates the relationship between brand orientation and innovation performance and the connection between interaction orientation and innovation performance.

Figure 4: Partially-mediated model

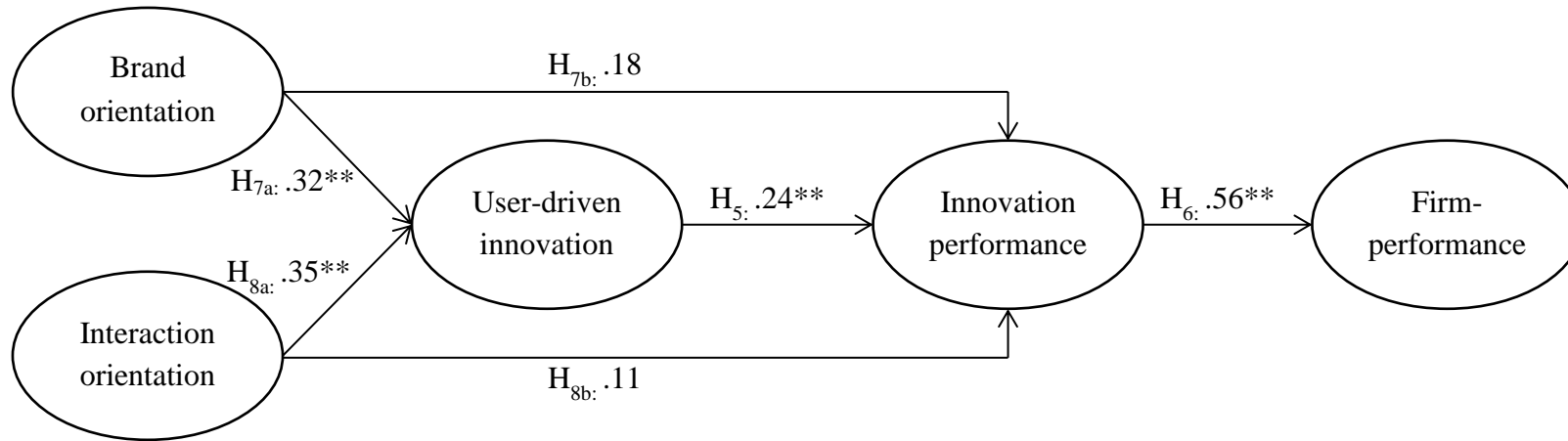
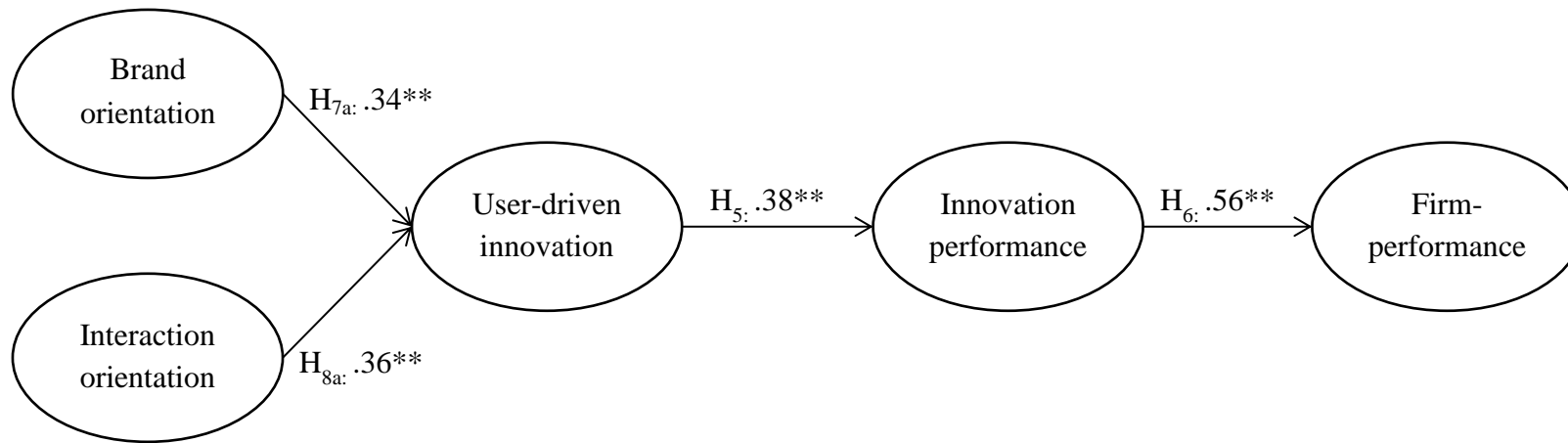


Figure 5: Fully-mediated model



The present study has also assessed the reversed causality between firm performance and UDI. The results did not reveal any significant effect (firm performance \rightarrow UDI: $t_{(97)} = -.58, p = .20$, firm performance \rightarrow brand orientation: $t_{(97)} = .66, p = .41$, firm performance \rightarrow interaction orientation: $t_{(97)} = .15, p = 1.00$). The data fit was significantly worse ($\chi^2_{\text{diff. (2)}} = -13.91, p < .01$).

3.7 DISCUSSION

Despite the growing interest in UDI, empirical studies remain scarce. In terms of theory development, our study implies that marketing concepts might have an important role in UDI, which is in accordance with the interdisciplinary nature of the UDI field (Chesbrough, 2003). The research findings suggest that young companies oriented towards branding and interaction with their users are more likely to adopt UDI strategies. This study aimed to provide empirical contributions to UDI literature. Consequently, the first contribution of the present study to the literature is to develop and test a model suggesting that UDI has the role of a mediator between the innovation performance and two concepts from the marketing literature: brand orientation and interaction orientation. With this finding, we contribute to the convergence of two research areas (Ireland & Webb, 2007). With our study, we provide evidence that the effect of brand orientation on performance is indirect by encouraging UDI. Such a result is consistent with previous findings that claim that brand orientation-performance relationship is mediated by other constructs, for instance brand performance, market performance or brand distinctiveness (Baumgarth, 2010; Huang & Tsai, 2013; Laukkanen et al., 2013; Wong & Merrilees, 2008). However, these results challenge other studies that propose a direct influence of brand orientation on business performance (Gromark & Melin, 2011). UDI as a mediator is also supported in customer participation literature (Ngo & O'Cass, 2013; O'Cass & Ngo, 2011). A similar conclusion follows for interaction orientation. As an antecedent of UDI, an interaction orientation influences innovation performance. Effective interactions with users might help the company to adopt UDI approach to new product/service development. The finding about the indirect effect of interaction orientation on innovation performance supports previous studies that proposed an indirect influence of interaction orientation on performance through exploitative and exploratory capabilities (Chen et al., 2012) or through customer-specific effectiveness (Hoops & Bucker, 2013).

The results show that the effect of UDI on innovation performance is stronger than its effect on firm performance. This finding may imply that UDI influences firm performance mainly by facilitating innovation performance. Such a finding is consistent with other studies on user involvement that reported the positive influence of user involvement on the technical quality of the product (Carbonell et al., 2009) as well as innovation performance (Evanschitzky et al., 2012; Lau, 2011). This study also provides additional empirical evidence to support existing literature on the innovation-firm performance relationship (Bowen et al., 2010; Rosenbusch et al., 2011).

In summary, our fully-mediated model suggests that UDI contributes to young companies' performance by facilitating innovation performance. Moreover, brand orientation and interaction orientation contribute to innovation performance by encouraging the UDI approach to new product/service development.

3.8 CONCLUSION

3.8.1 Academic and managerial implications

Previous research recognize users as a source of innovation (e.g., De Moor et al., 2010; von Hippel, 1988; Liedtke et al., 2012), but empirical investigations were limited until recent notable exceptions (e.g., Carbonell et al., 2009; Menguc et al., 2014). This study empirically confirms that the UDI contributes to innovation performance in young companies. The study highlights the indirect role of marketing concepts in innovation performance through the UDI.

The findings suggests that the UDI mediates the relationship between brand orientation, interaction orientation and innovation performance. According to the best of our knowledge these findings have not been previously found in the literature. In particular, this study confirms that marketing concepts and innovation in young companies go hand in hand, which is consistent with the literature (Hamid, 2009). Consistent with the literature (Carbonell et al., 2009; Lau, 2011), the findings also indicate a direct, positive relationship between UDI and innovation performance.

This study has managerial implications. Despite the awareness of entrepreneurs that innovation drives young companies' performance, they do not always know how to approach new product/service development. Our study suggests that adopting UDI facilitates innovation performance, which in turn affects firm performance. Based on our study, this conclusion is relevant for young companies; they need to learn how to involve their users in new product/service development. Achieving these frequent interactions with their users may help them to motivate users to actively participate in the innovation process. Moreover, companies should reflect the knowledge gained from the interactions with their users, because such reflection fosters new learning (Kolb, 1984). Developing a brand might represent a framework or inspiring symbolic value for users that can facilitate their active participation. A brand has the power to guide innovation effort in accordance with brand values. Companies need to understand the brand holistically beyond simply offering a slogan and logo. Along with a holistic brand conceptualization, companies might benefit from involving users in the innovation process with respect to the strategic brand elements, i.e. vision, mission, values, positioning and relationships. Considering strategic brand elements when applying UDI will result in a better UDI-performance link. Firms need to learn that simply asking users about their ideas is not enough. They need to involve the users into the innovation team, learn how to reveal their

latent needs, constantly search for feedback from users and not wait until the final stages of product/service development. Along with the user involvement, design orientation is also an important focus of UDI. Therefore, young companies should learn how to develop an intuitive design that anticipates users' needs, both symbolic and functional.

3.8.2 Limitations and future research

The limitations of this study are connected with the survival bias. Significant coefficients in the model can be explained with the survival bias; as seen in other studies. Innovation is a double-edged sword. Successful innovation drives firm performance while unsuccessful innovation may put the existence of a company at risk (van Riel et al., 2004). In order to at least partially mitigate the survival bias, we extended the definition of a young company from the usual 10 to 15 years. Another limitation is the static design of the study. Previous research reported that importance of user involvement may differ across different innovation process phases (Cheng et al., 2012; Ernst, Hoyer, & Rübstaamen, 2010). Future research needs to investigate the impact of UDI in different stages of new product/service development. Next, the generalization of the findings is limited, because the results are based on a sample from young companies in Slovenia. Future research may advance the model and replicate the study in other research contexts, especially in developing economies, but also in established firms in order to provide evidence of whether the model is only relevant for young companies or also for established companies.

Future research needs to examine more closely the relationship between UDI and innovation performance. Moderators that influence innovation-performance relationship might also influence the effectiveness of UDI. For instance, industry characteristics in terms of competitiveness, market growth, market turbulence and technological turbulence might influence the relationship between UDI and innovation performance. As user involvement is associated with dynamic environments (Carbonell et al., 2009), the moderator's analysis is especially important. Furthermore, high technology vs. low technology may represent two different contexts in which UDI contributes differently to innovation performance. As innovation is a process, a longitudinal research design could support the study of the causality of the proposed relationship between UDI, innovation performance and firm performance. Finally, more empirical research of UDI is needed in order to explore the contribution of UDI to business success and its role in organizational development.

4 ENVIRONMENTAL DYNAMISM AND MARKETING CAPABILITY AS ANTECEDENTS OF USER-DRIVEN INNOVATION IN YOUNG COMPANIES

4.1 ABSTRACT

The existing literature offers little guidance regarding the antecedents of UDI. This chapter explores how environmental dynamism as an external variable and marketing capability as an internal variable contribute to UDI in young companies. The proposed relationships were tested in two samples, one in a developed country and one in a smaller transition economy. Empirical evidence contributes to the understanding of the antecedents of UDI. Moreover, the results suggested differences in the level of UDI between high and low technology sectors. Implications for theory and practice are discussed.

4.2 INTRODUCTION

Young companies rarely compete with mass production companies due to their limited financial and other resources. Their source of competition more often lies in innovation (Rosenbusch et al., 2011; Song et al., 2008), especially in high-technology sectors. In order to survive and compete effectively, young companies use different sources of innovation, such as suppliers, technological advancements, or research institutions. Recently, users as sources of innovation are becoming more and more popular in many companies' practices (Blank, 2013; Brown, 2008), in marketing and entrepreneurship research (Ngo & O'Cass, 2013; Smith & Shah, 2013), and in national or regional developmental strategies (Rosted, 2005; van Rijswijk et al., 2008). While users are not a new source of innovation, since companies have always investigated their needs and tried to customize offerings to suit them (Carbonell et al., 2009; Jaworski & Kohli, 1993) in order to be competitive, the difference in the last two decades is that companies have begun to proactively engage users as active contributors to the innovation process (Bogers et al., 2010). Moreover, with technological advancements, even the methods of researching users' needs have become more thorough, with an increased focus on discovering hidden needs (Hjalager & Nordin, 2011; Wise & Hogenhaven, 2008). Netnography (Kozinets, 2002), for instance, aims to get insights into users' needs by investigating their free behaviour on the internet. Technology also enables companies to monitor users' habits more intensively with web analytics tools.

User-driven innovation (UDI) is an umbrella term for innovation strategies that promote the active role of users in the innovation process. Users can provide many benefits to the innovation process in the form of data about their needs, new ideas, and feedback on prototypes of new products or services, business models or marketing strategies (Blank, 2013; von Hippel, 1988). Despite these benefits, authors have pointed out several

challenges of involving users in the innovation process. For example, companies need competencies for involving users in order to benefit from UDI (Lettl, 2007), and users are not always able to give relevant information about their future needs (Schaarschmidt & Kilian, 2014) or to express their needs (Brown, 2008). Some authors even claim that users can impede radical innovation (Menguc et al., 2014; Trott et al., 2013). Due to different perspectives in the literature (Bogers et al., 2010) more empirical examination of the field is needed in order to understand what drives UDI. The prevailing view in the literature is that dynamic environments facilitate companies' innovation (Anderson, 1999; Cruz-González, López-Sáez, Navas-López, & Delgado-Verde, 2015). In the present contribution, we aim to understand whether dynamic environments also drive young companies to involve users in the innovation process. Since environmental dynamism is a potential external antecedent of UDI, we also aim to explore one potential internal antecedent. Specifically, as marketing capability refers to linking with users (Ngo & O'Cass, 2012), we aim to understand whether marketing capability might help companies to engage in UDI.

This paper provides the following contributions. First, we explore how environmental dynamism contributes to the variance of UDI. Although researchers have shown that environmental dynamism relates to different innovation strategies (Prajogo & McDermott, 2014; Saemundsson & Candi, 2014), the question of how smaller and young firms include users in the innovation process under dynamic market conditions remains open. The second contribution encompasses the role of marketing capability in UDI. Researchers highlight different challenges to engaging users in the innovation process, connected with both users' inability to express their needs (Bogers et al., 2010) and companies' lack of competencies to interact and link with users (Lettl, 2007). In order to address this question, we tested how marketing capability can help young companies to employ UDI. Since marketing capability encompasses organization routines for linking with users, we investigated how marketing capability is related to the UDI. The literature provides empirical evidence of how marketing capability influences performance indicators (Ngo & O'Cass, 2012; Song et al., 2005). However, marketing capability works through concrete strategies; hence, it is important to know how marketing capability relates to innovation, which drives young companies' performance (Rosenbusch et al., 2011). To the best of our knowledge, the literature so far has not offered many investigations based on quantitative data to provide insight into the relationship between marketing capability and UDI. Third, by including high-technology and low technology sectors, we contribute an insight about the level of UDI in two different sectors. Overall, our contribution lies in the examination of UDI in two countries, which strengthens the relevance of this study. The proposed relationships were tested in samples in one developed country and in one smaller transition economy.

This chapter continues with an introduction of UDI followed by hypotheses development. Next, the method and results of the study of young companies in two countries are

presented. Finally, the last part of the chapter presents a discussion in which we highlight theoretical and practical implications as well as limitations and future research opportunities.

4.3 USER-DRIVEN INNOVATION

UDI refers to innovation processes in which ‘new products, services, concepts, processes, distribution systems, marketing methods, etc. are inspired by or are the results of needs, ideas and opinions derived from external purchasers or users. UDI involves existing and/or potential users, and the processes rely on systematic activities that search for, acknowledge, tap, and understand the users’ explicit, as well as implicit, knowledge and ideas.’ (Hjalager & Nordin, 2011, p. 290). Companies have always invested in researching users’ needs (Jaworski & Kohli, 1993) but only lately have started to recognize the active encouragement of users to participate in the whole innovation process as a contribution to competitiveness (Bendapudi & Leone, 2003; Feng et al., 2010). In turbulent markets, which are characterised by frequent changes in users’ needs (Jaworski & Kohli, 1993), technology (Cruz-González et al., 2015), and consequently short product or service life cycles (Ngo & O’Cass, 2012), companies search for new ways to identify and address users’ needs and to customize products or services to meet those needs. Engaging users in the innovation process might represent a new inspiration in researching users’ needs, since UDI encourages employing relatively unconventional methods of researching users’ needs with a focus on revealing latent needs through observation of users’ lives, identities, and everyday experiences (Christiansson et al., 2008), methods rooted in ethnography and anthropology (Reese, 2004), and critical incidents interviews (Hjalager & Nordin, 2011). Furthermore, by involving lead users, UDI aims to anticipate future trends (von Hippel, 1986). By facilitating rapid prototyping, constant search for feedback by users (Blank, 2013) and active participation of users in new product or service development (Hjalager & Nordin, 2011; Ngo & O’Cass, 2013), UDI intends to customize new products or services to meet users’ needs. By focusing on design, the purpose of UDI is to address not only functional but also psychological needs of users (Verganti, 2008).

However, studies have revealed mixed results regarding the consequences of UDI. On the one hand, several studies have shown that UDI leads to better fit of new products or services with users’ needs (Raasch, Herstatt, & Lock, 2008), higher service quality (Ngo & O’Cass, 2013), process flexibility (Feng et al., 2010), stronger brand equity (Hu, 2011), and other product performance indicators (Lau et al., 2010). Lilien et al. (2002), for instance, report how the 3M company generates more than eight times higher annual sales with product ideas generated using the lead users method comparing to other projects conducted without UDI. On the other hand, a close literature review reveals almost as many critiques as positive implications of the UDI. Trott et al. (2013), for instance, critically review the lead user theory (von Hippel, 1986) and highlight that: (1) lead users

contribute only to minor modifications of existing products, (2) empirical evidence of outcomes of the lead users method is based on case studies, and (3) most of the radical innovations have technological origins. Some empirical studies have failed to find a positive relationship between UDI and performance-oriented indicators (Heinbokel, Sonnentag, Frese, Stolte, & Brodbeck, 1996), while others have found that UDI is beneficial for incremental but not for radical innovations (Veryzer & Borja de Mozota, 2005). Menguc et al. (2014) even report a negative connection between UDI and high radical innovation capability.

Such mixed results usually indicate the context dependency of the phenomenon (Rosenbusch et al., 2011), and several discussions support this assertion. First, Lettl (2007) highlights that employees need suitable competencies in order to involve users in the innovation process. Thus, the effectiveness of UDI partially depends upon the skills of employees who work with the users. Second, Hjalager and Nordin (2011) report on sixteen different methods of UDI, and this list is not exhaustive. Every method incorporates a different role of users. In order to achieve desirable results, companies have to choose the right combination of methods suitable for their context (Sandmeier, 2009). Third, UDI differs among industries (Raasch et al., 2008), meaning that, for instance, service industries involve UDI methods with many users, whereas technology industries focus on methods that are suitable for a limited number of users with special characteristics (von Hippel, 2005). This leads us to the purpose of our chapter, which is to explore antecedents of UDI in order to reveal which factors contribute to the level of UDI in young companies.

4.4 THEORETICAL BACKGROUND

All three of the hypotheses presented in this chapter are connected with under-researched fields in the literature. Environmental dynamism represents a contextual antecedent that affects strategic decisions of entrepreneurs (Freel, 2005); therefore, it is important to investigate whether environmental dynamism also contributes to the level of UDI. Marketing capability is an internal resource that might drive UDI because of the ability to interact with users (Ngo & O'Cass, 2012). Investigation of how industry type is connected with UDI represents an answer to the call by Bogers et al. (2010), who stated that user involvement in different industries is one of the key unexplored questions in the innovation field.

4.4.1 Environmental dynamism and UDI

Based on the literature, we propose that perceived environmental dynamism enhances young companies' inclination to UDI. Environmental dynamism is associated with the entrepreneurs' perception of dynamism rather than to the actual rate of dynamism (Freel, 2005). Thus, an environment is dynamic if entrepreneurs perceive that they are unable to predict the consequences or the future state of the environment (Milliken, 1987) because

they perceive changes in technologies, deviations in customer preferences and their composition, or variations in supply and demand (Jaworski & Kohli, 1993; Saemundsson & Candi, 2014). Entrepreneurs in dynamic environments will likely modify their products and services in order to respond to the perceived changes in customer preferences and technology challenges (Jaworski & Kohli, 1993). In contrast, entrepreneurs who perceive customer preferences and technology to be relatively stable are likely to have a smaller need to modify existing products or services. Although recent studies have investigated environmental dynamism as contingent on the relationship between innovation and performance (Baron & Tang, 2011; Cruz-González et al., 2015; Huang, Ding, & Chen, 2014), the complexity theory (Anderson, 1999) lays the foundation for environmental dynamism as an antecedent of innovation. According to the complexity theory, the ‘more turbulent an organization’s environment is, the more energy must be generated to keep the system above the threshold beyond which self-organization is sustained’ (Anderson, 1999, p. 222). Dynamic environments raise more strategic issues (Cruz-González et al., 2015) compared to less dynamic environments. Since entrepreneurs act on information available in their immediate environments (Anderson, 1999), they will respond to the perceived increase in dynamism. In order to respond to the strategic issues in dynamic environments, companies are looking for new sources of competitive advantages. Innovation may be one such source (Cho & Pucik, 2005). In support of this assertion, Saemundsson and Candi (2014) found that managers in dynamic environments tend to use more exploratory innovation strategies. Moreover, they reported that this relationship was stronger in new technology-based firms with less technology-oriented founder teams. Similarly, DeTienne and Koberg (2002) reported that high-technology companies in dynamic environments tend to engage more often in discontinuous innovation strategies. In the context of service companies, Prajogo and McDermott (2014) found that environmental dynamism is positively associated with both exploratory and exploitative innovation strategies. Other empirical evidence also supports environmental dynamism as a driving force of innovation (Freel, 2005; Lakemond & Detterfelt, 2013; Perez-Luno, Gopalakrishnan, & Cabrera, 2014; Story, Boso, & Cadogan, 2015; Triguero & Corcoles, 2013).

The UDI builds upon the users’ direct or indirect contribution to the innovation process (Grunert et al., 2010; von Hippel, 2005; Wise & Hogenhaven, 2008). If the environment is relatively stable, companies may not perceive the need to involve users in their innovation efforts. Conversely, if the environment is dynamic, companies might search for sources of innovation in users in order to incorporate users’ changing needs in the dynamic environment. In particular, lead users, who tend to customise existing products to their needs (von Hippel, 1988), might represent a source for anticipating future trends. Companies in dynamic environments may be more inclined to search for feedback among users because feedback allows companies to customize their products or services to users’ needs and acts as a source of early market validation of a product or service (Blank,

2013). Also, companies in a dynamic environment might be more engaged in creating a user-centred design to meet changing users' needs, including not only functional but also psychological needs. User involvement, searching for feedback, and design orientation, as three consistent parts of UDI, combine users' needs with business viability and technological feasibility (Tacer & Ruzzier, under review). All three consistent parts anticipate close interaction with users, which is more likely in a dynamic environment than in a relatively stable environment where the business process is relatively predictable (Jaworski & Kohli, 1993). Therefore, UDI is likely to be more positively related to companies in dynamic environments than in stable environments. Another argument for a positive relation between dynamic environments and UDI is that UDI has more characteristics of explorative innovation strategy than exploitative innovation strategy. As is evident from the literature, environmental dynamism is positively associated with exploratory innovation (Saemundsson & Candi, 2014). This leads us to the following hypothesis:

Hypothesis 9. Environmental dynamism is positively associated with UDI.

4.4.2 Marketing capability and UDI

A literature review suggests that marketing capability may help company to engage in a UDI approach to new product or service development. The concept of capabilities builds upon a resource-based view of companies. Resource-based theory (Barney, 1991) claims that a firm develops a sustainable competitive advantage by creating valuable, rare, and inimitable resources. Capabilities, as 'complex bundles of skills and collective learning, exercised through organizational processes, that ensure superior coordination of functional activities' (Day, 1994, p. 38), represent such resources, because they are rooted in routines and practices. Routines, if properly developed, place imitation barriers to competitors because they are based on organisational know-how deployment processes, which is hard to understand for outsiders (Day, 1994). Firms develop firm-specific capabilities in order to adapt to changing business environments (Teece et al., 1997). Previous studies suggest that firm capabilities may represent a significant part of the firm's approach to innovation (Calantone, Cavusgil, & Zhao, 2002; Mariadoss et al., 2011; Ngo & O'Cass, 2013; Song et al., 2005; Tatikonda & Montoya-Weiss, 2001). Ngo and O'Cass (2012), for instance, found that marketing capability, innovation capability and their interaction had a positive relationship with both innovation-related performance and customer related performance. Song et al. (2005) provide empirical evidence for the association between marketing capability and technology-related capabilities and their interaction with performance. Thus, capabilities not only are determinants of innovation performance but also interact, and their synergies contribute to competitive advantage (Ngo & O'Cass, 2012). Most prior studies provide evidence of the direct connection between capabilities and performance indicators. Despite some notable exceptions (Mariadoss et al., 2011), fewer studies investigate how capabilities contribute to

innovation (Weerawardena, 2003). This is the aim of our paper, in which we propose that marketing capability drives UDI.

Marketing capability refers to a marketing mix and encompasses organizational routines for conducting marketing activities, such as developing pricing programmes, distribution systems, marketing communication, marketing planning, and marketing implementation (Morgan, Vorhies, & Mason, 2009; Ngo & O'Cass, 2012). High marketing capability enables a company to effectively use marketing tools and techniques (Weerawardena & O'Cass, 2004). Firms with higher marketing capabilities will more likely achieve user-related advantages because they put effort into linking with users. To have the capability to connect with users and motivate them to participate in the innovation process is a prerequisite for effective UDI (Lettl, 2007). By having a strong marketing capability, a firm may actively generate user engagement opportunities. Although marketing capability does not lead to innovation intensity itself (Weerawardena & O'Cass, 2004), it might lead to an innovation process with the following characteristics: users are involved in the process, companies continually search for feedback in all phases of product or service development, and companies are oriented toward a design in order to meet users' functional and psychological needs. These are distinctive characteristics of UDI. Firms that engage in UDI are striving to meet users' needs when developing a new product or service. Firms with superior skills in handling marketing mix elements will more likely have an advantage in implementing UDI because of their skills in interacting with users. This is important because researchers have found that firms face several barriers in their attempts to employ UDI. Lettl (2007), for instance, highlights two barriers: (1) the fact that users are not always motivated to contribute and (2) cognitive limitations, which can impede users' ability to provide valuable information about their needs and experience. Thus, companies with high marketing capability are more likely to develop higher order UDI, which leads us to the following hypothesis:

Hypothesis 10. Marketing capability is positively associated with UDI.

4.4.3 Industry and UDI

Young firms in high-technology sectors have a greater tendency to be innovative (Cosh, Fu, & Hughes, 2012; Kirner, Kinkel, & Jaeger, 2009; Sung, 2005) because they usually operate in more dynamic environments compared to other companies (Yang & Kang, 2008), and innovations are a driving force of firm performance in a dynamic environment (Rosenbusch et al., 2011). The literature provides several case studies on UDI from high-technology sectors (De Moor et al., 2010; Leclercq - Vandelannoitte, 2015; Lettl, 2007; Lettl et al., 2006; van Rijswijk et al., 2008). Rapid technological development, especially in the IT field, is an antecedent of the accelerated progress of UDI during the last two decades (Magnusson et al., 2003), because technology has enabled companies to observe users' needs in more sophisticated ways. Netflix, for instance, by users' behaviour observational techniques has found out the preferences of their users regarding the film

actors, directors and genre. Based on the findings the company invested in new series House of Cards, which turned out as a great success. Engaging users in other sectors (for instance, in tourism or in creative industries) might consume more time, money and human resources, which can impede companies from engaging in UDI (Hjalager & Nordin, 2011; Kujala, 2003). Young high-technology companies are also more often included in science parks or other business accelerators. Science parks have lately put a lot of effort into educating their companies in adopting different user involvement practices, design thinking (Brown, 2008), business model innovation (Osterwalder et al., 2010) or lean business development (Blank, 2013). These practices include characteristics of UDI because they encourage direct or indirect user involvement, continuous searching for feedback and design orientation. By having easy access to UDI knowledge, high-technology companies might be more inclined to adopt UDI. Low-technology companies, on the other hand, often do not have an access to the knowledge of science parks. Sometimes they operate in less dynamic environments compared to high-technology companies (Yang & Kang, 2008) and consequently they do not perceive a need for UDI. If they do perceive a need for UDI, they might see it as a financially demanding approach to innovation, because offerings in low-technology sectors are not always tangible, so it might be harder to make a prototype or involve users only through technology. Consequently, UDI might be less common among companies from low-technology sectors. From these arguments, we can derive the following hypothesis:

Hypothesis 11. High-technology companies will be more inclined to UDI compared to other companies.

4.5 METHODOLOGY

4.5.1 Sample and procedures

This study collected empirical data from two countries: Slovenia and the United Kingdom. In Slovenia, we used a Slovenian national database of companies. A random sample included 4,267 companies 0-15 years old with at least one employee. In the UK, we used a convenience sample of high-technology UK companies 0-15 years old. We prepared a sample of 2,394 companies using publicly available databases, such as companies included in science parks, business accelerators and professional associations. In the UK, the study focused on high-technology companies because the analysis of the Slovenian sample revealed that high-technology companies are more inclined to UDI (see the results in Table 14). Via an email invitation, we asked potential respondents to participate in an online survey. In return, we offered a summary research report. After the initial invitation, we sent three reminders. The survey in Slovenia was open from the beginning of March 2014 to the end of April 2014, whereas in the UK the data were collected from the beginning of September 2014 until the end of October 2014. By the end of the data collection period in Slovenia, we received 284 completed surveys, four of

which were eliminated because the firm age exceeded our research criteria of young companies (<15 years), yielding a final sample of 280 companies, for a response rate of 8.31%. From this calculation, we excluded companies without a valid email address for the director. In the UK, the final sample consisted of 79 complete surveys after eliminating the companies without a valid email address and those that exceeded the criteria of firm age. The response rate in this case was 3.42% which was expected since the database was convenient.

In Slovenia, 87.86% of the companies had up to 9 employees, and 57.14% had a sales turnover up to €200,000 in 2013. On average, companies were 7.64 years old (SD = 5.00). A total of 86.91% of respondents were company owners, co-owners and/or managing directors; on average, they had 17.41 years (SD = 9.38) of working experience. In addition, 85.02% had at least a college degree, and the majority were male (71.43%). In the UK, 50.63% of the companies had up to 9 employees, and 49.37% had a sales turnover up to £200,000 in 2013. On average, companies were 7.77 years old (SD = 4.78). A total of 74.68% of respondents were company owners, co-owners and/or managing directors; on average, they had 22.19 years (SD = 11.33) of working experience. In addition, 89.19% had at least college degree, and the majority were male (83.56%). T tests did not reveal any significant differences between early and late respondents in any of the studied variables, indicating that a response bias is not likely for our sample.

4.5.2 Measures

This study uses three main constructs (UDI, environmental dynamism and marketing capabilities) and four control variables (firm age, firm size, past performance and industry). UDI was measured as a single construct composed of three dimensions: user involvement, searching for feedback and design orientation. The 13-item UDI scale was developed and validated by Tacer, Ruzzier and Nagy (under review). A second order confirmatory factory analysis suggested that the three dimensions reflect a higher-order construct of UDI (Table 12). Environmental dynamism was measured as a second-order construct composed of three dimensions: three variables indicated market growth (Zhao, Song, & Storm, 2013), four variables indicated market turbulence (Jaworski & Kohli, 1993) and three variables indicated technological turbulence (Jaworski & Kohli, 1993). As such, the environmental dynamism index encompassed the presence of more than one type of environmental dynamism (Pagell & Krause, 1999). A second-order confirmatory factory analysis showed an acceptable fit of the model (Table 12). Marketing capabilities were measured using five variables adapted from Ngo and O'Cass (2012). The respondents used a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) to provide their answers for all three constructs included in the survey. The measurement items and validity assessment are presented in Table 11.

Table 11: Construct measurement summary: confirmatory factor analysis with all 28 indicators on Slovene sample of companies (N = 280)

Item	Standardized loading
<i>User involvement</i> (CA = .88, CR = .88, AVE = .55)	
We actively encourage users to present to us their ideas on improving our products or services, as well as their ideas on new ones.	.74
We are including the users in all phases of the innovation process.	.75
Users are a part of a developmental team for new products/services.	.69
We conduct personal interviews with the users when developing new products or services.	.75
When developing products or services, we cooperate with leading (advanced) users.	.77
We encourage users to share their experiences and stories about their habits, product usage, shopping decisions etc.	.74
<i>Searching for feedback</i> (CA = .78, CR = .80, AVE = .51)	
We regularly check our ideas for new products or services with our users.	.79
We continuously monitor the development process to check how well the new product or service is adjusted to the needs of different users.	.82
We test prototype among our users.	.73
We organise pilot sales before mass sales.	.46
<i>Design orientation</i> (CA = .69, CR = .69, AVE = .43)	
In the process of developing new products or services we aim to develop such properties that make the products easy to use regardless of the users' demands.	.64
New products or services are designed so that their use is intuitive (i.e., the user does not need instructions but only follows the design).	.72
The visual image is our way of ensuring the users like our products or services.	.61
<i>Market growth</i> (CA = .74, CR = .74, AVE = .48)	
Sales growth in this industry is high.	.64
There are a lot of opportunities in this industry.	.72
The market is growing at a very high pace.	.72

continued

Item	Standardized loading
<i>Market turbulence</i> (CA = .80, CR = .79, AVE = .49)	
In our kind of business, customers' product preferences change quite a bit over time.	.74
Our customers tend to look for new products all the time.	.80
We are witnessing demand for our products and services from customers who never bought them before.	.68
New customers tend to have product-related needs that are different from those of our existing customers.	.57
<i>Technological turbulence</i> (CA = .87, CR = .88, AVE = .70)	
The technology in this industry is changing rapidly.	.84
Technological changes provide big opportunities in our industry.	.86
A large number of new product ideas have been made through technological breakthroughs.	.81
<i>Marketing capability</i> (CA = .88, CR = .88, AVE = .60)	
Compared to your major competitors, how would you evaluate your firm's marketing capabilities in the following areas?	
Developing pricing programmes.	.52
Developing distribution systems.	.62
Developing marketing communication programmes.	.89
Marketing planning skills.	.89
Implementing marketing activities.	.88
Model fit: $\chi^2_{(329)} = 775.62, p < .001, GFI = .83, RMSEA = .07, SRMR = .07, TLI = .94, CFI = .95$	

CA = Cronbach's alpha, CR = composite reliability, AVE = average variance extracted

Table 12: Second-order confirmatory factor analysis for UDI and environmental dynamism on Slovene sample of companies (N = 280)

First-order construct	First-order			Second-order	
	Indicator	Loading	t-value	Loading	t-value
<i>UDI</i>					
User involvement	UI1	.73	- ^a	.73	8.57**
	UI2	.75	12.02**		
	UI3	.69	11.08**		
	UI4	.76	12.19**		
	UI5	.78	12.51**		
	UI6	.74	11.91**		
Searching for feedback	SF1	.79	- ^a	1.04	10.55**
	SF2	.83	13.78**		
	SF3	.73	12.18**		
	SF4	.45	7.24**		
Design orientation	DO1	.67	- ^a	.51	5.95**
	DO2	.69	7.52**		
	DO3	.60	7.19**		
Model fit: $\chi^2_{(62)} = 199.51, p < .001, GFI = .90, RMSEA = .09, SRMR = .06, TLI = .95, CFI = .96$					
<i>Environmental dynamism</i>					
Market growth	MG1	.64	- ^a	.66	7.10**
	MG2	.72	8.54**		
	MG3	.74	8.61**		
Market turbulence	MT1	.74	- ^a	.89	9.47**
	MT2	.80	11.62**		
	MT3	.68	10.26**		
	MT4	.58	8.72**		
Technological turbulence	TT1	.83	- ^a	.70	8.98**
	TT2	.86	15.71**		
	TT3	.81	14.96**		
Model fit: $\chi^2_{(32)} = 140.33, p < .001, GFI = .91, RMSEA = .11, SRMR = .06, TLI = .92, CFI = .94$					

^a Fixed parameter, ** $p < .01$

Control variables. UDI can be influenced by other firm characteristics such as firm age, firm size, past performance and industry. Therefore, we included these as control variables. Firm age was measured as the number of years since the company's founding. Firm size was measured by the number of employees at the end of the 2013 using the following codes: '1' for 0 employees, '2' for 1-2 employees, '3' for 3-4 employees, '4' for 5-9 employees, '5' for 10-19 employees, '6' for 20-49 employees, '7' for 50-99 employees, '8' for 100-149 employees, '9' for 150-250 employees, and '10' for 251 or more employees. Past performance was measured by turnover in 2013 with the following codes: '1' for turnover of €50,000 or less, '2' for 50,001-100,000, '3' for 100,001-200,000, '4' for 200,001-400,000, '5' for 400,001-800,000, '6' for 800,001-1,600,000,

‘7’ for 1,600,001-4,000,000, ‘8’ for 4,000,001-20,000,000, and ‘9’ for turnover greater than €20,000,000. Industry type was coded as ‘1’ for high-technology companies and ‘0’ otherwise.

Since we had only one source of data for this study, we tested the common method bias using Harman’s one-factor test (Podsakoff et al., 2003). Exploratory factor analysis with principal axis and varimax rotation suggested 7 factors with eigenvalues greater than 1, as expected. The confirmatory factor analysis for a single factor solution revealed poor model fit: $\chi^2(350) = 3550.94$, $p < .001$, GFI = .52, RMSEA = .18, SRMR = .14, TLI = .70, CFI = .72. If the data have a common variance, then the dominant factor would explain the majority of the variance (Podsakoff et al., 2003). Our results indicated that the data could not be explained by only one dominant factor; thus, an effect of common method variance is not likely for our study.

4.6 RESULTS

Table 13 shows the descriptive statistics and inter-correlations of the variables used in the study. UDI is significantly connected with both independent variables, namely environmental dynamism and marketing capabilities. In addition, industry type is connected with the UDI and environmental dynamism indicating that high-technology companies have higher level of the UDI and perceive their environment as more dynamic. However, this indication will be further tested with hierarchical regression analysis.

Table 13: Descriptive statistics and Pearson’s correlation coefficients (N = 280)

		1	2	3	4	5	6	7
UDI	1	1.00						
Environmental dynamism	2	.40**	1.00					
Marketing capabilities	3	.24**	.28**	1.00				
Firm age	4	.01	-.18**	-.07	1.00			
Firm size	5	.08	.06	.16**	.34**	1.00		
Past performance	6	.00	.03	.16**	.27**	.76**	1.00	
Industry	7	.22**	.28**	-.06	-.11	.11	.07	1.00
Mean		3.62	3.29	2.99	7.64	2.87	3.30	.30
Std		.69	.71	.84	5.00	1.33	1.94	.46

* $p < .05$, ** $p < .01$

In the theoretical part of the chapter, we constructed three hypotheses. Hypothesis 9 postulated that environmental dynamism is significant positively connected to UDI; Hypothesis 10 stated that marketing capabilities are significantly positively related to UDI; and Hypothesis 11 anticipated that high-technology companies are more inclined toward UDI compared to companies operating in other industries. To examine the hypothesized relationships, we employed a hierarchical regression analysis. Table 14 shows the results of this analysis. The base model (Model I) showed that industry type is significantly related to UDI; specifically, the UDI is significantly higher in high-

technology companies. The relationship is significant in all three proposed models. The other control variables did not reveal any significant relationship with UDI either in the base model or in the subsequent models. Additional *t* tests revealed that high-technology companies tend to perceive their environment as more dynamic compared to that of other companies ($M_{\text{high-tech}} = 3.59$, $M_{\text{other}} = 3.16$, $t = 4.77$, $p = 0.00$). On the other hand, *t* tests did not reveal significant differences in marketing capabilities between high-technology and other companies ($M_{\text{high-tech}} = 2.92$, $M_{\text{other}} = 3.02$, $t = 0.92$, $p = 0.36$).

Model II included environmental dynamism. Hypothesis 9 predicted that environmental dynamism is positively related to UDI. The results in Table 14 show that the standardized beta coefficient was positive and statistically significant, which provides support for Hypothesis 9.

Model III also included marketing capabilities. The results in Table 14 showed that both environmental dynamism and marketing capabilities were positively related to UDI. The coefficients were significant, and the model increased the explanation of variance compared to the base model. This provides support for Hypothesis 9 and Hypothesis 10.

Table 14: Regression analysis of Slovene sample of companies (N = 280) for the UDI^a

Variable	Model 1	Model 2	Model 3
Control			
Firm age	.03	.09	.10
Firm size	.15	.10	.08
Past performance	-.13	-.11	-.13
Industry	.22**	.12*	.15**
Environmental dynamism		.37**	.32**
Marketing capabilities			.18**
R ²	.06	.18	.21
Adjusted R ²	.05	.17	.19
ΔR ²		.12	.15

* $p < .05$, ** $p < .01$, ^a Standardised beta coefficients are presented.

All independent variables were standardised prior to regression analysis.

Table 15 shows the descriptive statistics and inter-correlations of the variables used in the study for both studied countries, respectively. For Slovenia we included only high-technology companies (N = 83). T-tests revealed significant differences between the Slovene and UK samples in terms of marketing capabilities and firm size. The companies in the UK sample evaluated their marketing capabilities higher on average compared to Slovene companies. Also, the UK companies are larger on average in terms of the number of employees.

Table 15: Descriptive statistics and Pearson's correlation coefficients for the sample of high-technology companies from Slovenia and UK^a

		1	2	3	4	5	6
Mean (SLO _(high-tech companies) , N = 83)		3.85	3.59	2.92	6.84	3.08	3.49
Std		.60	.72	.82	4.63	1.43	2.00
UDI	1	1.00	.32**	.26*	-.08	-.08	-.09
Environment. dynamism	2	.33**	1.00	.39**	-.23*	-.03	-.01
Marketing capabilities	3	.30**	.34**	1.00	-.07	.15	.20
Firm age	4	-.06	-.17	-.06	1.00	.39**	.30**
Firm size	5	-.12	.05	.16	.48**	1.00	.83**
Past performance	6	-.15	-.04	.03	.52**	.62**	1.00
Mean (UK, N = 79)		3.74	3.71	3.27	7.77	4.66	4.05
Std		.65	.63	.92	4.78	2.14	2.71
t		-1.10	1.13	2.53*	1.26	5.56**	1.51

^a The UK sample is below and Slovene sample is above the diagonal. * p<.05, ** p<.01

Table 16 summarizes the results of the hierarchical regression analysis for the Slovene and UK samples, respectively. The base model included the control variables and showed that firm age, firm size, and past performance did not have a significant relationship with UDI. Model II shows a relationship between environmental dynamism and UDI. In both the Slovene and UK samples, the relationship is positive and significant, as indicated in Hypothesis 9. Finally, the full model included environmental dynamism and marketing capabilities. While both constructs showed a positive and significant relationship with UDI in the UK sample, the link in the Slovene sample was significant only for environmental dynamism. This provided partial support for Hypothesis 10. The final model contributed significantly to the explained variance in both samples.

Table 16: Regression analysis of Slovene (N = 83) and UK (N = 79) high-technology companies samples for the UDI^a

Variable	Slovene sample			UK sample		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Control						
Firm age	-.05	.02	.02	.05	.09	.12
Firm size	-.02	-.03	-.03	-.06	-.10	-.16
Past performance	-.06	-.07	-.11	-.14	-.11	-.10
Environmental dynamism		.32**	.24*		.33**	.25*
Marketing capabilities			.19			.25*
R ²	.01	.11	.14	.02	.13	.19
Adjusted R ²	-.03	.06	.08	-.02	.09	.13
ΔR ²		.10	.13		.11	.17

* p<.05, ** p<.01, ^a Standardised beta coefficients are presented. All independent variables were standardised prior to regression analysis.

4.7 DISCUSSION AND IMPLICATIONS

By providing empirical evidence from two countries, this study increases the relevance and generalizability of two examined antecedents of UDI. We build upon existing literature on drivers of innovation and apply previous findings to UDI in young companies. Young companies are an important driver of economic development, but their vulnerability regarding survival calls for further research on the sources of competitive advantage. This study contributes to the growing body of literature on SME innovation by revealing how environmental dynamism and marketing capability are related to UDI. Moreover, we also examined the level of UDI in both high- and low-technology industries. In the following paragraphs, we discuss theoretical and practical implications of the study as well as limitations and possibilities for future research.

4.7.1 Theoretical implications

Our first contribution is the finding that environmental dynamism drives UDI. This finding is supported in both countries included in the study and is in line with the rich body of literature that has already investigated environmental dynamism as a driving force of innovation (Perez-Luno et al., 2014; Prajogo & McDermott, 2014; Saemundsson & Candi, 2014). However, our study reveals that young companies in dynamic business environments tend to search for sources of innovation in users more often compared to companies in less dynamic environments. While some authors have suggested that UDI can be an answer to increased changes in customer preferences (De Moor et al., 2010; von Hippel, 2005; Lettl, 2007; Magnusson et al., 2003), our study offers empirical evidence for this assertion. This contribution corresponds with the complexity theory (Anderson, 1999), which claims that organizations in turbulent environments put more effort into searching for a suitable response because they have more strategic issues compared to companies in less turbulent environments. Since environmental dynamism refers to the entrepreneur's perception of the environment, we can find one possible explanation for why young companies are more inclined to UDI. Because entrepreneurs struggling for survival in the early phases of firm development tend to perceive their business environment as more dynamic compared to managers in mature companies (Wijbenga & van Witteloostuijn, 2007), they seek different sources of competitive advantage, and users might be one of the most convenient sources of innovation. The results of this study demonstrate that young companies in dynamic environments consider users to be a source of innovation in order to address or anticipate changing users' needs. They also search for constant feedback from users, which enables them to obtain quick validation of their new offerings. This assertion was supported in both the UK and Slovene samples and in both high- and low-technology companies.

The second contribution is related to the role of marketing capability. The findings suggest that young companies with higher marketing capability are more inclined to

employ UDI. However, while this hypothesis was supported in the UK sample, the coefficient in the Slovene sample of high-technology companies was not significant. This is not surprising, since a market tradition in Slovenia has been present since the introduction of the market economy 25 years ago. Consequently, the marketing capabilities of Slovenian companies are significantly lower than in companies with longer market tradition, which is evident also from our empirical findings. Due to the lower marketing capabilities, Slovenian companies might not be capable to establish links with users in the same manner as UK companies. Since links with users are crucial for engaging in UDI (Lettl, 2007), a possible explanation would be that Slovene companies might use more convenience samples of users when employing UDI (for instance, searching for feedback among friends and regular customers), whereas UK companies with higher marketing capabilities might attract a wider range of users in their UDI activities. Other reasons for the difference can be hypothesised. However, since the primary objective of this contribution is to demonstrate the cross-cultural validity of the hypothesized relationships, we did not investigate the reasons behind the cross-country variances. The implication for theory in this case is that the relationship between marketing capability and UDI might be country-dependent. Specifically, the relationship might be stronger in countries with longer market traditions and weaker in countries with shorter market traditions.

The third contribution reveals that high-technology companies in our sample are more inclined towards UDI compared to other companies. Although this hypothesis was tested only in the Slovene sample, the result is consistent with the literature, which suggests that high-technology companies are more motivated to be innovative (Cosh et al., 2012) because they operate in relatively more dynamic business environments than low-technology companies (Yang & Kang, 2008). Our results support this notion; we also found that high-technology companies perceived their environment to be more dynamic compared to that of other companies. The findings suggest that separate studies of UDI in different sectors are recommended in order to reveal the mechanisms through which companies benefit from UDI.

4.7.2 Policy implications

Since young companies contribute to economic growth, their development is often a concern of governments, local authorities and other policy decision makers. Our results show important implication for policies, especially since we provide evidence from two countries, namely UK as a traditional market economy and Slovenia as developed country with shorter market tradition. First policy implication refers to marketing capabilities of young companies. Marketing capabilities are crucial for young companies' performance and for their capability to involve users in the innovation process. Slovenian national initiatives lately promote entrepreneurship and offer some incentives for young companies. However, according to our results the initiatives should encompass

strengthening marketing capabilities of young companies and not only offer incentives in terms of preventing administrative barriers or offering financial guarantees for funding investments. Second policy implication refers to strengthening UDI in high-technology companies. Some of the practices were introduced in Nordic countries (Rosted, 2005). In Slovenia, high-technology companies perceive their environment as more dynamic compared to other companies and they also engage more in UDI. Thus the initial motivation in Slovene high-technology companies exists, but the environment may offer more innovation hubs in order to introduce different UDI methodologies which are very different and widely developed in Nordic countries, but not present in Slovenian environment (for instance, living labs). Third policy implication refers to low-technology young companies in Slovenia. In our sample they perceive their environment as less dynamic and they engage in UDI significantly lower compared to high-technology companies. Engaging users in service innovation is rapidly getting more and more attention in companies from Nordic and Western countries. Offering opportunities to get in touch with best practices might facilitate young low-technology companies from Slovenia to engage users in their innovation process and consequently they might improve their innovation performance which in turn improves firm performance as suggest the evidence from our study.

4.7.3 Practical implications

Practical implications of our study refer to the role of environmental dynamism and marketing capability in UDI. It is important to recognize that environmental dynamism refers to the entrepreneur's perception (Freel, 2005) and not to actual dynamism. Entrepreneurs who perceive their business environment to be relatively predictable need awareness that they can benefit from users' input in innovation. Entrepreneurs in high-technology sectors who employ UDI have to keep in mind that the UDI methods and techniques might not bring about the desirable results if a company do not possess marketing capabilities. If a company develops high marketing capability linking with users, which is crucial for UDI (Lettl, 2007), the company will be able to take advantage of this to attract and motivate users. In particular, entrepreneurs in markets with a short market economy tradition, such as the Slovenian market, might need to put more effort into developing marketing capability in order to benefit from UDI. Entrepreneurs thus need more knowledge regarding how to empower users to contribute to the innovation process (Lettl, 2007). On the other hand, they also need to manage their own expectations regarding users' contributions. Research shows that the performance outcomes of UDI are context-dependent and that a proper choice of methods is needed in order to benefit from it (Hjalager & Nordin, 2011). This study's findings also show that the level of UDI in high-technology sectors differs from that of other sectors. Whereas entrepreneurs in high-technology sectors need to enhance the marketing capability of their companies in order to attract, motivate and empower users to participate in innovation, entrepreneurs in other sectors might need more awareness of how can they benefit from user involvement,

feedback, and design orientation as key elements of the UDI. Several cases from the service industries report on the processes, benefits and challenges of the UDI (Clatworthy, 2011; da Mota Pedrosa, 2012; Oliveira & von Hippel, 2011), which illustrate how UDI might be implemented.

4.8 LIMITATIONS AND FUTURE RESEARCH

Our study has some limitations that should be noted in interpreting the results. First, while environmental dynamism and marketing capability are important, they are not the only antecedents of UDI. The purpose of this study was to explore whether effects from the outside environment and internal capabilities could explain variance in UDI, as suggested in many cases and discussions (Lettl, 2007; Magnusson et al., 2003) but not previously investigated with quantitative empirical data. Future studies may conceptualize and empirically test more complex models of the antecedents of UDI. For instance, several countries provide institutional support for UDI initiatives (e.g., Rosted, 2005; van Rijswijk et al., 2008; Wise & Hogenhaven, 2008). Future studies might investigate how institutional support affects UDI. On the other hand, from the internal perspective, future studies might conceptualize how other firm capabilities relate to UDI. Second, another limitation of our study is the use of self-reported data and only one method of investigation, which could cause a problem of common method bias (Podsakoff et al., 2003); however, it should be noted that the statistical tests we ran did not show such bias. Third, the results showed some differences between two countries. In the UK sample, the relationship between marketing capabilities and UDI was significant, whereas in the Slovene sample the relationship was not significant. Further research can provide insight into the relationship by adding country-specific variables that affect UDI, such as market tradition or institutional framing (Iederan, Curşeu, Vermeulen, & Geurts, 2013), which also affect companies' strategic orientation and consequently the approach to innovation.

CONCLUDING REMARKS

Changes in business environment encourage companies to engage in demand side of value creation to address heterogeneous users' needs. Viewing innovation from a demand side may require a "shift in mind-set from focusing on the firm to focusing on the consumer and from emphasis on value capture to an emphasis on value creation," (Priem et al., 2012, p. 369). As UDI reflects demand side of value creation, investigation of marketing perspective on UDI in young companies is relevant in today's environment with short product or service life cycles (Ngo & O'Cass, 2012). Young companies in environments with changing users' needs have to leverage from scarce resources (Criscuolo et al., 2012). With open innovation paradigm researchers recently have started to consider users as a source of competitive advantage (Bogers et al., 2010), because users can contribute to the innovation process if properly engaged (von Hippel, 2005). A need in practice for investigating benefits and antecedents of integrating users into the innovation process on one hand and literature with many case studies but less quantitative studies on the other hand have motivated this doctoral dissertation.

This doctoral dissertation focused on UDI in young companies. Using several research techniques this dissertation addressed key elements of UDI, measurement issues, marketing perspective of UDI, and contextual factors of UDI. We offered theoretical, methodological and empirical contribution. Theoretical contribution refers to the concept of UDI. By grounded theory approach in the first chapter we revealed three key elements of the UDI (user involvement, searching for feedback, and design orientation). The qualitative research also confirmed the interdisciplinary nature of UDI with branding, design, and company-user interaction as complementary fields in creating user experience. Since branding and company-user interaction are marketing concepts, the important implication of our results is that we need more theory on UDI which integrates marketing perspective in the field. Another theoretical contribution is connected with the level of investigation of UDI. Since many UDI techniques exist, it is important to acknowledge the difference between behavioural level of UDI which encompasses different techniques of UDI, and strategic level of UDI which reflects companies' orientation towards UDI. This implies two different sorts of investigations. On the one hand researchers may focus on investigating the effectiveness of particular UDI techniques such as living labs, lead user involvement or individual and group interviews. This focus opens space for many case studies which might reveal new data about the effectiveness of different methods in several contexts. Literature already offers many case studies (e.g., Lettl et al., 2006; Oliveira & von Hippel, 2011), but more of them is needed to provide a clear picture about particular methods. On the other hand, considering the strategic orientation of a company towards UDI opens a field for further model conceptualizations and for revealing wider antecedents and consequences of the UDI. With the aim of clear conceptualization of the UDI we reviewed the existing definitions

of UDI and current advancement of the field in the literature. Having an insight into the three key elements of UDI (user involvement, searching for feedback, and design orientation) from the grounded theory approach in the first chapter we contributed by offering a new definition of the UDI in the second chapter. The new definition acknowledges current definitions and upgrades them with the insights from the grounded theory approach. From these developments we define *UDI as an approach to new product/service development, which aims to provide desirable user experience by involving users in the innovation process, continuous searching of feedback and creating an intuitive design.*

Methodological contribution of this dissertation encompasses a new 13-item UDI scale. The new scale is consisted of three dimensions, namely user involvement, searching for feedback, and design orientation. According to our knowledge this is the first UDI scale which considers UDI as a multidimensional construct. In developing a new scale we followed the procedure recommended by Churchill (1979); in addition we considered other articles dealing with scale development (e.g. Cardon et al., 2013; Tang et al., 2012). We conducted the following steps: (1) we specified the domain of the construct according to the findings from the grounded theory analysis and literature review, (2) we generated a broader pool of items based on earlier work and interviews with entrepreneurs, (3) screening of initial pool of items, (4) content validity was assessed with the help of 16 assessors, (5) the remaining items were included in the pilot study intended to purify the measure, alpha coefficients and exploratory factor analysis were calculated, (6) retained items were included in the main study intended to the validity assessment, confirmatory factor analysis was performed, for the convergent and discriminant validity the procedure by Fornell and Larcker (1981) was employed, (7) nomological validity was determined by regression analysis in which we included two antecedents and two consequences of UDI. As a result of three consecutive studies the new scale reflects appropriate reliability, dimensionality, convergent, discriminant and nomological validity. By proposing a new scale we enable future studies to unify knowledge and empirical research on UDI. In the nomological net we included two antecedents (dynamic innovation capabilities and interaction orientation) and two consequences (innovation performance and turnover growth) of UDI. Significant relationships of the UDI with other concepts imply important role of UDI for young companies' development. It is a starting point for future studies to expand our understanding of UDI relationships with other constructs. By our nomological net we demonstrated the mediating role of UDI. Future studies need to reveal under which circumstances UDI is implemented in the companies' innovation process and what factors moderate the relationship between UDI and firm performance.

Empirical contribution of this doctoral dissertation refers to Chapter 3 and Chapter 4. In Chapter 3 we developed a conceptual model and empirically verify the proposed model. Understanding the determinants of UDI is important due to its essential role in innovation performance (Bogers et al., 2010; Greer & Lei, 2012). The literature states how marketing

perspective is important for UDI, because companies with strong marketing capability will have the necessary competencies to engage, motivate and work with users (Lettl, 2007). Therefore our conceptual model proposes that UDI serve as a mediator between two narrow marketing concepts, namely brand and interaction orientation, and innovation performance which in turn improve firm performance. The model was tested using structural equation modelling. The results supported a fully mediated model. The research findings suggest that young companies oriented towards branding and interaction with their users are more likely to adopt UDI strategies. With our study, we provide evidence that by encouraging UDI, the effect on brand orientation and interaction orientation on performance is indirect. With this finding, we contribute to the convergence of two research areas as we consider both marketing and innovation perspective for young companies. By doing this, we considered calls in the literature (Ireland & Webb, 2007) for more cross-disciplinary exploration of entrepreneurship research.

Next empirical contribution refers to the contextual factors of UDI (Chapter 4). We collected additional set of data from UK and investigated a Slovene and UK sample of young high-technology companies. First we tested the differences in UDI between high-technology and other companies. The results showed that high-technology companies are more inclined towards UDI. Industry is therefore an important contextual factor of UDI. Next, we analysed the role of environmental dynamism and marketing capability as UDI antecedents. The results in both samples suggested that young high-technology companies in dynamic environments tend to search for sources of innovation in users more often compared to companies in less dynamic environments. Similarly, the findings suggested that young companies with higher marketing capability are more inclined to employ UDI. However, this hypothesis was supported in the UK sample only.

By demonstrating the empirical evidence for hypothesized relationships this doctoral dissertation increases the relevance of UDI for young companies' development. The results showed how marketing concepts such as brand orientation, interaction orientation and marketing capability drive UDI. This is not surprising since companies oriented towards marketing have more experience in working with users. On the other hand the results of the present study correspond with a rich body of literature which suggest that marketing contributes to firm performance through innovation (e.g. Hamid, 2009; Huang & Tsai, 2013). Several authors called for empirical examination of UDI (Bogers et al., 2010; Greer & Lei, 2012; Priem et al., 2012). Therefore, this dissertation is in line with the contemporary research of the field and increases our understanding of the role of UDI for firm performance.

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Appendix 1: The list of initial questions for the semi-structured interviews

What is your thinking process when you develop new service/product? Concrete example.

How do companies develop their services/products?

In what ways do they integrate their users in product development? Example.

How else can companies integrate their users in product development?

In what ways is this beneficial?

How is this connected with business performance?

How do companies approach brand development?

How is brand development connected with new product development?

How is brand development connected with business performance?

If you have in your mind brand and innovation in the same time, how they are connected with business performance?

What are the possible threats in brand development?

What is the definition of company-user interaction?

How is user experience (with company/with product) connected with new product development?

How is user experience (with company/with product) connected with business performance?

In what ways can companies influence user experience?

How is design connected with new product development?

How is design connected with business performance?

Appendix 2: Slovene version of the questionnaire for the study on user-driven innovation in young companies

The questionnaire is exported from on-line survey tool www.lka.si.

Q1 - Podatki o podjetju

Leto ustanovitve vašega podjetja:

Q2 - Podatki o podjetju

V kateri panogi vaše podjetje ustvari največ prihodkov?

- Kmetijstvo in lov, gozdarstvo, ribištvo (dejavnost A)
- Predelovalne dejavnosti (dejavnost C)
- Gradbeništvo (dejavnost F)
- Trgovina, vzdrževanje in popravila motornih vozil (dejavnost G)
- Promet in skladiščenje (dejavnost H)
- Gostinstvo in turizem (dejavnost I)
- Informacijske in komunikacijske dejavnosti (dejavnost J)
- Finančne in zavarovalniške dejavnosti (dejavnost K)
- Strokovne, znanstvene in tehnične dejavnosti, poslovno svetovanje (dejavnost M)
- Izobraževanje (dejavnost P)
- Kulturne, razvedrilne in rekreacijske dejavnosti (dejavnost R)
- Drugo (prosim, napišite):

Q3 - Podatki o podjetju

Število zaposlenih v vašem podjetju na dan 31. 12. 2013:

- 0
- 1 - 2
- 3 - 4
- 5 - 9
- 10 - 19
- 20 - 49
- 50 - 99
- 100 - 149
- 150 - 250
- 251 in več

Q4 - Podatki o podjetju

Celotna vrednost prodaje v letu 2013:

- 50.000 € ali manj
- 50.001 € - 100.000 €

- 100.001 € - 200.000 €
- 200.001 € - 400.000 €
- 400.001 € - 800.000 €
- 800.001 € - 1.600.000 €
- 1.600.001 € - 4.000.000 €
- 4.000.001 € - 20.000.000 €
- nad 20.000.000 €

Q5 - Podatki o podjetju

Vrsta ponudbe vašega podjetja:

- Izdelki / storitve so v celoti ali pretežno namenjeni končnim porabnikom (B2C = vaši kupci so pretežno fizične osebe)
- Izdelki / storitve so v celoti ali pretežno namenjeni poslovnim kupcem (B2B = vaši kupci so pretežno pravne osebe)

Q6 - Podatki o podjetju

Ali je vaše podjetje vključeno v tehnološki park, univerzitetni inkubator ali kakšen drug podjetniški pospeševalnik?

- NE
- DA
- Bili smo vključeni v preteklosti
- Smo v procesu vključevanja

Q7 - Podatki o podjetju

Ali je vaše podjetje poskušalo pridobiti »crowdfunding« sredstva financiranja naložb (npr. Kickstarter, Indiegogo, itd.)?

- NE
- DA in smo bili uspešni
- Pravkar smo v procesu priprave
- DA, vendar nismo bili uspešni

Q8 - Uporabniško spodbujeno inoviranje

Sedaj pa začnemo z osrednjim delom vprašalnika. Spodnje trditve se nanašajo na vključevanje uporabnikov v razvoj novih izdelkov / storitev. Pri odgovarjanju imejte v mislih tudi izboljšave obstoječih izdelkov / storitev.

Prosimo, preberite vsako trditev in ocenite, v kolikšni meri trditev velja za vaše podjetje.

	Sploh se ne strinjam	Se ne strinjam	Niti niti	Se strinjam	Povsem se strinjam
V procesu razvoja novih izdelkov / storitev razvijamo takšne lastnosti, ki omogočajo enostavno uporabo različno zahtevnim uporabnikom.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Novo izdelke / storitve oblikujemo tako, da je	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Sploh se ne strinjam	Se ne strinjam	Niti niti	Se strinjam	Povsem se strinjam
njihova uporaba intuitivna (to je, da uporabnik ne potrebuje navodil za uporabo, temveč le sledi dizajnu).					
Z vizualno podobo želimo doseči, da so naši izdelki / storitve uporabniku všeč.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lastnosti naših izdelkov / storitev vnaprej predvidijo, kakšne potrebe ima uporabnik.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pri razvoju novih izdelkov / storitev uporabljamo industrijski dizajn.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ideje za nove izdelke / storitve sproti preverjamo med uporabniki.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
V razvojnem procesu stalno preverjamo, kako dobro prilagajamo nov izdelek / storitev potrebam različnih uporabnikov.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prototipni izdelek / storitev večkratno testiramo pri uporabnikih.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pri razvoju novih izdelkov / storitev se vživljamo v uporabnika (igranje vlog za lažje razumevanje).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organiziramo poizkusno prodajo izdelkov / storitev v manjšem obsegu preden izvedemo množično prodajo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organiziramo delavnice, na katerih nov izdelek / storitev razvijamo skupaj z uporabniki.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aktivno spodbujamo uporabnike, da nam posredujejo svoje ideje za izboljšave naših izdelkov / storitev ali ideje za nove izdelke / storitve.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Uporabnike vključujemo v vse faze inovacijskega procesa.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
V tim za razvoj novega izdelka / storitev vključimo tudi uporabnike.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pri razvoju novih izdelkov / storitev izvajamo osebne intervjuje z uporabniki.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pri razvoju izdelkov / storitev sodelujemo z vodilnimi (naprednimi) uporabniki.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spodbujamo uporabnike, da nam pripovedujejo svoje izkušnje in zgodbe o navadah, uporabi izdelkov, o nakupnih odločitvah itd.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q9 - Naravnost k blagovnim znamkam

V tem sklopu nas zanima, v kolikšni meri je vaše podjetje naravnano na blagovne znamke.

	Sploh se ne strinjam	Se ne strinjam	Niti niti	Se strinjam	Povsem se strinjam
Stalno se izobražujemo o vodenju in razvoju blagovnih znamk, kar prispeva k nenehnemu razvoju naše konkurenčnosti.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Verjamemo, da je močna blagovna znamka tesno povezana s profitabilnostjo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
V primerjavi s konkurenti dajemo večjo prioriteto razvoju blagovne znamke za doseganje konkurenčne prednosti.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pri praktično vseh poslovnih odločitvah se oziramo na našo blagovno znamko, ki nam služi kot strateška orientacija.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Sploh se ne strinjam	Se ne strinjam	Niti niti	Se strinjam	Povsem se strinjam
Naša blagovna znamka je ena najbolj ključnih prednosti našega podjetja.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Zelo smo ozaveščeni o pomenu blagovne znamke za uspešnost podjetja, zato s pomočjo blagovne znamke ustvarjamo konkurenčne prednosti našega podjetja.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Naše oglaševanje, PR aktivnosti in aktivnosti pospeševanja prodaje odražajo enako, jasno in konsistentno sporočilo za naše uporabnike.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Naša blagovna znamka ima jasno določeno grafično podobo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Razvili smo strateška izhodišča za pozicioniranje (ciljanje na točno določeno tržno nišo) vseh naših blagovnih znamk na trgu.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Imamo zaščitene blagovne znamke.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
V vseh stikih z uporabniki prikazemo elemente naše celostne grafične podobe.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pri komuniciranju z zunanjim okoljem nas vodi sporočilo in vrednote naše blagovne znamke.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pri razvijanju poslovanja nas vodi sporočilo in vrednote naše blagovne znamke.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pri razvijanju novih izdelkov / storitev izhajamo iz sporočila in vrednot, ki jih odraža naša blagovna znamka.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Blagovno znamko aktivno uporabljamo za ustvarjanje pozitivne podobe v medijih.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Blagovno znamko aktivno uporabljamo za ustvarjanje odnosov z našimi uporabniki.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Blagovno znamko aktivno uporabljamo za ustvarjanje odnosov s splošno javnostjo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q10 - Odnosi z uporabniki

Spodnje trditve raziskujejo, kakšne odnose ustvarjate s svojimi uporabniki.

	Sploh se ne strinjam	Se ne strinjam	Niti niti	Se strinjam	Povsem se strinjam
Našim uporabnikom ponudimo različne vrste izobraževanj ali svetovanj, s pomočjo katerih se lahko bolje odločajo o naših izdelkih / storitvah ali bolje uporabijo naše izdelke / storitve.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trudimo se, da ne bi naših uporabnikov obremenjevali s kompleksnimi, nadležnimi ali časovno potratnimi postopki, informacijami ali informacijskimi tehnologijami.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Veliko pozornosti namenjamo poprodajnim storitvam.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
V podjetju izvajamo različne aktivnosti, namenjene vzpostavitvi dolgoročnega odnosa z našimi uporabniki.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pri razvoju naših izdelkov / storitev razmišljamo o tem, kako lahko presežemo uporabnikova pričakovanja.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trudimo se, da naše uporabnike obravnavamo čim bolj individualno.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
V našem podjetju želimo preseči formalne poslovne	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Sploh se ne strinjam	Se ne strinjam	Niti niti	Se strinjam	Povsem se strinjam
odnose z uporabniki, zato se trudimo vzpostaviti topel in prijazen odnos z uporabniki.					
Vzpodbujamo dvosmerno komunikacijo z našimi uporabniki.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Naši uporabniki nam pogosto povedo, da so od nas dobili več, kot so pričakovali.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q11 - Usmerjenost v tehnologijo

S spodnjimi trditvami želimo izvedeti, v kolikšni meri je vaše podjetje usmerjeno v sodobno tehnologijo.

	Sploh se ne strinjam	Se ne strinjam	Niti niti	Se strinjam	Povsem se strinjam
Pri razvoju novih izdelkov / storitev uporabljamo napredne tehnologije.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Naši izdelki / storitve vedno vključujejo najnovejšo tehnologijo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
V podjetju rade volje sprejemamo tehnološke inovacije na osnovi rezultatov raziskav.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
V naše projekte / programe rade volje vključujemo tehnološke inovacije.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q12 - Inovativnost v primerjavi s konkurenco

Prosimo, označite, kako ocenjujete različne vidike inovativnosti svojega podjetja v primerjavi z vašimi najmočnejšimi konkurenti.

	Smo dosti slabši od konkurence	Smo nekoliko slabši od konkurence	Smo pribl. enaki kot konkurenca	Smo nekoliko boljši od konkurence	Smo dosti boljši od konkurence
Pridobivanje pomembnih novih informacij v zvezi z našimi izdelki / storitvami.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Naklonjenost k izboljšavam izdelkov / storitev.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Razvoj najnovejših izdelkov / storitev v panogi.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stalni razvoj novih izdelkov / storitev.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prepoznavanje priložnosti za razvoj novih izdelkov / storitev.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q13 - Trženjske zmožnosti v primerjavi s konkurenco

Prosimo, označite, kako ocenjujete različne vidike trženja svojega podjetja v primerjavi z vašimi najmočnejšimi konkurenti.

	Smo dosti slabši od konkurence	Smo nekoliko slabši od konkurence	Smo pribl. enaki kot konkurenca	Smo nekoliko boljši od konkurence	Smo dosti boljši od konkurence
Razvoj cenovnih programov.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Razvoj distribucijskih sistemov.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Smo dosti slabši od konkurence	Smo nekoliko slabši od konkurence	Smo pribl. enaki kot konkurenca	Smo nekoliko boljši od konkurence	Smo dosti boljši od konkurence
Razvoj trženjskega (marketinškega) komuniciranja.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Veščine za marketinško planiranje.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Izvedba trženjskih (marketinških) aktivnosti.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q14 - Poslovna učinkovitost v primerjavi s konkurenco

Prosimo, označite, kako ocenjujete poslovno učinkovitost vašega podjetja v primerjavi z vašimi najmočnejšimi konkurenti.

	Smo dosti slabši od konkurence	Smo nekoliko slabši od konkurence	Smo pribl. enaki kot konkurenca	Smo nekoliko boljši od konkurence	Smo dosti boljši od konkurence
Nivo uporabe proizvodnih / storitvenih kapacitet.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nivo operativne učinkovitosti.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Učinkovitost pridobivanja osnovnih materialov.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Zagotavljanje konkurenčnih cen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Poudarek na iskanju možnosti za zniževanje proizvodnih stroškov.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Učinkovitost distribucijskih kanalov.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q15 - Značilnosti panoge

Sedaj pa nas zanimajo značilnosti panoge, v kateri delujete. Prosimo, ocenite, v kolikšni meri se strinjate s posamezno trditvijo.

	Sploh se ne strinjam	Se ne strinjam	Niti niti	Se strinjam	Povsem se strinjam
Konkurenca v naši panogi je zelo močna.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vse, kar lahko ponudi en konkurent, lahko drugi hitro posnemajo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Podjetja v naši panogi konkurirajo predvsem na podlagi cene.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Za našo panogo je značilna hitra rast prodaje.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
V naši panogi je veliko poslovnih priložnosti.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trg v naši panogi raste.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kupci v naši panogi nenehno pričakujejo nove izdelke / storitve.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Potrebe in želje kupcev v naši panogi se hitro spreminjajo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sestava naših kupcev se hitro spreminja.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Potrebe novih kupcev se razlikujejo od potreb obstoječih kupcev.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tehnologija v naši panogi se hitro spreminja.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tehnološke spremembe so v naši panogi pomemben vir poslovnih priložnosti.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Veliko zamisli za nove izdelke / storitve smo lahko uresničili zaradi velikih tehnoloških sprememb v panogi.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q16 - Poslovna uspešnost

Prosimo, ocenite uspešnost vašega podjetja v letu 2013 v primerjavi z vašimi najpomembnejšimi konkurenti.

	Smo dosti slabši od konkurence	Smo nekoliko slabši od konkurence	Smo pribl. enaki kot konkurenca	Smo nekoliko boljši od konkurence	Smo dosti boljši od konkurence	Ne vem
Vrednost prodaje.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rast prodaje.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Donosnost kapitala (ROE).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Donosnost sredstev (ROA).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doseženi bruto dobiček iz celotne dejavnosti.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Zadovoljstvo kupcev.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Zvestoba kupcev.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tržni delež na najpomembnejšem trgu.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Odstotek prodaje novih izdelkov, uvedenih na trg v zadnjih treh letih, v celotni prodaji podjetja.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q17 - Kazalniki inovativnosti

Spodaj so navedeni kazalci uspešnosti inovacij. Prosim, ocenite, v kolikšni meri ste bili uspešni, pri posameznem kazalcu na področju inovacij, ki ste jih uvedli v **zadnjih treh letih** (v obdobju 2011 – 2012).

	Zelo neuspešni	Razmeroma neuspešni	Niti niti	Razmeroma uspešni	Zelo uspešni
Vrednost prodaje novih izdelkov / storitev.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tržni delež novih izdelkov / storitev na najpomembnejšem trgu ali tržnem segmentu.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Zadovoljstvo kupcev z novimi izdelki / storitvami.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q18 - Poslovanje podjetja

Povprečna letna **rast števila zaposlenih** v zadnjih treh letih:

- manj kot 0 %
- 0 – 4 %
- 5 – 9 %
- 10 – 19 %
- 20 – 35 %
- 36 - 50 %
- 51 % in več

Q19 - Poslovanje podjetja

Povprečna letna **rast prodaje** v zadnjih treh letih:

- manj kot 0 %
- 0 – 1 %
- 2 - 4 %
- 5 – 9 %
- 10 – 19 %
- 20 – 34 %
- 35 – 50 %
- 51 % in več

Q20 - Poslovanje podjetja

Rast tržnega deleža v zadnjih treh letih: tržni delež vašega podjetja ...

- Se zmanjšuje
- Ostaja dokaj enak
- Se nekoliko povečuje
- Se zmerno povečuje
- Se občutno povečuje

Q21 - Poslovanje podjetja

Ali vaše podjetje posluje tudi na mednarodnih trgih?

- DA
- NE

IF (1) Q21 = [1] (Internacionalizacija)

Q22 - Poslovanje podjetja

V katerih mednarodnih aktivnostih trenutno sodeluje vaše podjetje?

Možnih je več odgovorov

- Uvoz
- Direktni izvoz
- Posredni izvoz
- Neposredne investicije v samostojne naložbe
- Neposredne investicije v skupne naložbe
- Licenciranje izdelkov / storitev
- Pogodbeno sodelovanje
- Franšizing
- Drugo (prosim, navedite):

IF (2) Q21 = [1] (Internacionalizacija)

Q23 - Poslovanje podjetja

V kolikšno število držav vaše podjetje trenutno prodaja svoje izdelke / storitve?

- 0 - 1
- 2 - 3
- 4 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- 21 in več

IF (3) Q21 = [1] (Internacionalizacija)

Q24 - Poslovanje podjetja

Koliko je znašal delež prihodkov od prodaje na tujih trgih v letu **2011**?

- 0 %
- 1 – 10 %
- 11 – 20 %
- 21 – 30 %
- 31 – 50 %
- 51 – 70 %
- 71 – 90 %
- 91 – 100 %

IF (4) Q21 = [1] (Internacionalizacija)

Q25 - Poslovanje podjetja

Koliko je znašal delež prihodkov od prodaje na tujih trgih v letu **2013**?

- 0 %
- 1 – 10 %
- 11 – 20 %
- 21 – 30 %
- 31 – 50 %
- 51 – 70 %
- 71 – 90 %
- 91 – 100 %

Q26 - Zgodovina podjetja

Število članov v timu ustanoviteljev tega podjetja:

Q27 - Zgodovina podjetja

Koliko let predhodnih delovnih izkušenj imajo člani ustanoviteljskega tima z **marketingom** (seštejte število let posameznikov ustanoviteljskega tima)?

Q28 - Zgodovina podjetja

Koliko let predhodnih delovnih izkušenj imajo člani ustanoviteljskega tima v **panogi** podjetja (seštejte število let posameznikov ustanoviteljskega tima)?

Q29 - Vaši podatki

Število let delovnih izkušenj:

Q30 - Vaši podatki

Spol:

- M
 Ž

Q31 - Vaši podatki

Kakšna je vaša najvišje dosežena formalna izobrazba?

- Osnovna šola
 Poklicna ali srednja šola
 Višja ali visoka šola
 Univerzitetna izobrazba / bolonjski magisterij
 Specializacija, znanstveni magisterij ali doktorat

Q32 - Vaši podatki

Vaša vloga v podjetju:

Možnih je več odgovorov

- Lastnik / solastnik
 Direktor podjetja
 Vodja organizacijske enote (npr. vodja marketinga, vodja računovodstva)
 Strokovnjak

Q33 - Finančni podatki

Če dovolite, da podatke o finančnem poslovanju vašega podjetja pridobimo iz baz podatkov, vas prosimo, da spodaj vpišete **davčno številko**.

S tem bo raziskava pridobila na veljavnosti. Vaši podatki bodo **varovani**, nikjer ne bom prikazovala individualnih podatkov podjetij, vključenih v raziskavo.

Q34 - Poročilo o rezultatih

Ali želite prejeti poročilo o rezultatih te raziskave? Poslala ga bom do konca maja 2014.

- Ne, hvala.
- Da, poročilo mi pošljite na naslednji e-naslov:

Q35 - Udeležba na brezplačni delavnici z Nastjo Mulej o de Bonovih orodjih za ustvarjalno razmišljanje

Ali želite prejeti vabilo na brezplačno delavnico z Nastjo Mulej (več o trenerki razmišljanja na www.debono.si)? Na delavnici bomo predstavili rezultate doktorske naloge in nekaj zanimivih de Bonovih tehnik za bolj ustvarjalno razmišljanje. Izvedli jo bomo **26. 5. 2014 ob 13h uri**.

- Ne, hvala.
- Da, vabilo mi pošljite na naslednji e-naslov:

Appendix 3: English version of the questionnaire for the study on user-driven innovation in young companies

The questionnaire is exported from on-line survey tool www.lka.si.

Q1 - Company Data

In which year was your company established?

Q2 - Company Data

In which industry does your company generate the majority of its turnover?

Q3 - Company Data

Number of employees in your company on 31. 12. 2013:

- 0
- 1 - 2
- 3 - 4
- 5 - 9
- 10 - 19
- 20 - 49
- 50 - 99
- 100 - 149
- 150 - 250
- 251 or more

Q4 - Company Data

Turnover in 2013 (in British Pounds):

- 50.000 or less
- 50.001 - 100.000
- 100.001 - 200.000
- 200.001 - 400.000
- 400.001 - 800.000
- 800.001 - 1.600.000
- 1.600.001 - 4.000.000
- 4.000.001 - 20.000.000
- above 20.000.000

Q5 - Company Data

The nature of the majority of your business is:

- B2C = the majority of your customers are natural persons
- B2B = the majority of your customers are legal persons

Q6 - Company Data

Is your company a part of a science park, business incubator or some other form of business accelerators?

- NO
- YES
- We were a member in the past
- We are currently in the application process

Q7 - Company Data

Did your company apply for crowdfunding financial resources (e.g. Kickstarter, Indiegogo, etc.)?

- NO
- YES and we were successful
- We are preparing a crowdfunding project at the moment
- YES, but we were not successful

Q8 - User-Driven Innovation

Let's start with the central part of the questionnaire. The statements below are related to user involvement in the development of **new** products/services. When answering **also** keep in mind the improvement of existing products / services. Please read each statement carefully and evaluate the extent to which you agree with the statement.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
In the process of developing new products or services we aim to develop such properties that make the products easy to use regardless of the users' demands.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
New products or services are designed so that their use is intuitive (i.e., the user does not need instructions but only follows the design).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The visual image is our way of ensuring the users like our products or services.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Design serves us as a source of differentiation from the competition.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We regularly check our ideas for new products or services with our users.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We continuously monitor the development process to check how well the new product or service is adjusted to the needs of different users.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We test prototype among our users.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We organise pilot sales before mass sales.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We actively encourage users to present to us their ideas on improving our products or services, as well as their ideas on new ones.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We are including the users in all phases of the innovation process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Users are a part of a developmental team for new	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
products/services.					
We conduct personal interviews with the users when developing new products or services.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When developing products or services, we cooperate with leading (advanced) users.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We encourage users to share their experiences and stories about their habits, product usage, shopping decisions etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q9 - Brand Orientation

In this part of the survey, we are interested in the extent to which your company is brand oriented.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Our brands serve as the strategic starting point for practically all our business operations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our brands are regarded as being one of our most vital assets.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We are very brand-oriented. We feel inspired to use our brands to create sustainable competitive advantages.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q10 - Relationships with Users

The statements below are related to the relationships you create with your users.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
We organize different activities to establish a long-term relationship with our users.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our priority while developing new products or services is exceeding our users' expectations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This firm consciously seeks to identify and acquire new customers individually.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In our company, we wish to surpass the rigid formal relationships with the users and therefore strive to work with them in a warm, friendly way.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We encourage a two-way communication with our users.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our users frequently tell us they got more from us than expected.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q11 - Technology Orientation

With the following statements we would like to explore your company's orientation towards contemporary technology.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
We use sophisticated technologies in our new product development.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our new products always use state-of-the-art technology.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technological innovation based on research results	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
is readily accepted in our organization.					
Technological innovation is readily accepted in our program/project management.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q12 - Innovativeness Compared to the Competition

Compared to your **major competitors**, how would you evaluate your firm's **innovation** capabilities in the following areas?

	Much worse	2	3	4	Much better
Acquiring important new product information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Responding to new product changes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mastering state-of-the-art new products.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developing a series of new products constantly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identifying new product opportunities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q13 - Marketing Capabilities Compared to the Competition

Compared to your **major competitors**, how would you evaluate your firm's **marketing** capabilities in the following areas?

	Much worse	2	3	4	Much better
Developing pricing programmes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developing distribution systems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developing marketing communication programmes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Marketing planning skills.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Implementing marketing activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q14 - Business Efficiency Compared to the Competition

Compared to your **major competitors**, how would you evaluate your firm's **business efficiency** in the following areas?

	Much worse	2	3	4	Much better
Level of capacity utilization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Level of operating efficiency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Efficiency in securing raw materials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Offering competitive prices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Emphasis on finding ways to reduce cost of production	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Efficiency of your distribution channels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q15 - Industry Characteristics

Let us explore a little bit about the **characteristics** of your **industry**. Please read each statement carefully and evaluate the extent to which you agree with the statement.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Competition in our industry is cutthroat.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anything that one competitor can offer, others can match readily.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Price competition is a hallmark of our industry.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sales growth in this industry is high.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There are a lot of opportunities in this industry.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The market is growing at a very high pace.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In our kind of business, customers' product preferences change quite a bit over time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our customers tend to look for new products all the time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We are witnessing demand for our products and services from customers who never bought them before.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
New customers tend to have product-related needs that are different from those of our existing customers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The technology in this industry is changing rapidly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technological changes provide big opportunities in our industry.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A large number of new product ideas have been made through technological breakthroughs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q16 - Firm Performance compared to the competition

Compared to your **major competitors**, how would you evaluate your **firm's performance in 2013** in the following areas?

	Much worse	2	3	4	Much better
Turnover	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sales growth rate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Customer satisfaction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Customer loyalty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Market share in the most important market	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q17 - Indicators of Innovativeness

Here we listed different **innovation performance** indicators. Please rate the extent to which you have been successful in a particular indicator of innovation that you've introduced in the **last three years (from 2011 to 2013)**.

	Very unsuccessful	2	3	4	Very successful
Success in meeting sales objectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Market share of new products/services on the most important market or market segment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Customer satisfaction with the new products/services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q18 - Market Orientation

The following statements are related to different aspects of firm's orientation to the market. Please evaluate the extent to which you agree with the statements below.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Our sales people regularly share information within our business concerning competitors' strategies.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Our business objectives are driven primarily by customer satisfaction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We rapidly respond to competitive actions that threaten us.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We constantly monitor our level of commitment and orientation to serving customer's needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our top managers from every function regularly visit our current and prospective customers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We freely communicate information about our successful and unsuccessful customer experiences across all business functions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our strategy for competitive advantage is based on our understanding of customers' needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All of our business functions (e.g. marketing/sales, manufacturing, R & D, finance/accounting, etc.) are integrated in serving the needs of our target markets.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our business strategies are driven by our beliefs about how we can create greater value for customers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We measure customer satisfaction systematically and frequently.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We give close attention to after-sales service.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Top management regularly discusses competitors' strengths and strategies.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All of our managers understand how everyone in our business can contribute to creating customer value.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We target customers where we have an opportunity for competitive advantage.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We share resources with other business units.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q19 - Firm Performance

The average annual growth in the number of employees in the last three years:

- less than 0 %
- 0 – 4 %
- 5 – 9 %
- 10 – 19 %
- 20 – 35 %
- 36 - 50 %
- 51 % or more

Q20 - Firm Performance

The average annual growth in sales in the last three years:

- less than 0 %
- 0 – 1 %
- 2 - 4 %
- 5 – 9 %
- 10 – 19 %
- 20 – 34 %
- 35 – 50 %
- 51 % or more

Q21 - Firm Performance

Growth in the market share in the last **three** years: the market share of your company ...

- has decreased
- remains relatively the same
- has slightly increased
- has moderately increased
- has significantly increased

IF (1)

Q22 - International Business

Does your company operate in international markets?

- YES
- NO

IF (2) Q22 = [1] (Internationalization)

Q23 - International Business

In which international activities is your company currently engaged?

More answers are allowed

- Import
- Direct export
- Export through intermediary
- Sole venture direct investment
- Joint venture direct investment
- License product/service
- Contract
- Franchise
- Other (please, specify):

IF (3) Q22 = [1] (Internationalization)

Q24 - International Business In how many countries your company currently sells its products/services?

- 0 - 1
- 2 - 3
- 4 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- 21 or more

IF (4) Q22 = [1] (Internationalization)

Q25 - International Business

What was the share of sales on foreign markets in **2011**?

- 0 %
- 1 – 10 %
- 11 – 20 %
- 21 – 30 %

- 31 – 50 %
- 51 – 70 %
- 71 – 90 %
- 91 – 100 %

IF (5) Q22 = [1] (Internationalization)

Q26 - International Business

What was the share of sales on foreign markets in **2013**?

- 0 %
- 1 – 10 %
- 11 – 20 %
- 21 – 30 %
- 31 – 50 %
- 51 – 70 %
- 71 – 90 %
- 91 – 100 %

Q27 - Company History Number of founding team members:

Q28 - Company History Combined number of years that the members of the founding management team spent in previous positions that were in **marketing**?

Q29 - Company History

Combined number of years that the members of the founding management team spent in previous positions that were in **similar industries** or markets?

Q30 - Your Data

How many years of work experience do you have?

Q31 - Your Data

Gender:

- M
- F

Q32 - Your Data

What is your highest level of formal education?

- Less than high school degree
- High school degree
- Higher education: bachelor's degree
- Postgraduate education: master's degree
- Postgraduate education: doctorate degree

Q33 - Your Data

Your role in the company:

More than one answer is possible.

- Owner / co-owner
- Managing director
- Department manager (e.g. head of marketing, head accountant)
- Expert/professional
- Other (please, specify):

Q34 - Research Report

Would you like to receive this survey's research report? It will be sent by the end of 2014.

- No, thank you.
- Yes, please send me the report to the following email address:

Appendix 4: Summary in Slovenian language/Daljši povzetek disertacije v slovenskem jeziku

Tehnološki razvoj in vse krajši življenjski cikli izdelkov v zadnjih desetletjih spodbujajo podjetja k vlaganju več energije v ustvarjanje vrednosti na strani povpraševanja. Podjetja preizkušajo nove načine prilagajanja izdelkov in storitev potrebam uporabnikov. Eden izmed načinov, kako lahko dosežemo prilagoditev je, da uporabnike vključimo v inovacijski proces in razvijamo nove izdelke in storitve skupaj z njimi. V literaturi ta pojav zasledimo pod imenom od uporabnika spodbujeno inoviranje (angl. user-driven innovation). Uporabniki lahko prispevajo k različnim fazam inovacijskega procesa: predstavljajo vir informacij pri raziskovanju njihovih potreb, lahko ustvarjajo nove ideje, zagotavljajo povratno informacijo pri testiranju prototipov ali pa sodelujejo kot aktivni inovatorji. V mladih podjetjih je prispevek uporabnikov še posebej pomemben, saj mlada podjetja tekmujejo na trgu z omejenimi lastnimi viri za razvoj. S pomočjo uporabnikov pa lahko povečajo svoje prizadevanja za inovativnost, saj je dostop do uporabnikov odvisen od lastne proaktivnosti in ne od institucionalnih omejitev, kot je to v primeru nekaterih drugih trgov z viri. Namen te doktorske disertacije je raziskati od uporabnika spodbujeno inoviranje v mladih podjetjih v Sloveniji. Skladno z interdisciplinarnimi značilnostmi od uporabnika spodbujenega inoviranja preučimo trženjski vidik tega rastočega raziskovalnega področja. Raziskovalno področje od uporabnika spodbujenega inoviranja je šele v nastajanju, zato so številni metodološki izzivi še odprti. Obstoječe raziskave večinoma zaobjemajo študije primerov in zelo malo kvantitativnih raziskav.

Skladno z vrzeli v literaturi ima pričujoča doktorska disertacija štiri glavne cilje: (1) razjasniti koncept od uporabnika spodbujenega inoviranja in razviti nadaljnje raziskovalne predloge; (2) razviti teoretično utemeljeno, zanesljivo in veljavno lestvico za merjenje tega konstrukta; (3) empirično preveriti konceptualni model od uporabnika spodbujenega inoviranja povezanega s trženjskim vidikom in inovacijsko ter poslovno uspešnostjo mladih podjetij; (4) analizirati vlogo kontekstualnih dejavnikov pri inoviranju spodbujenem od uporabnika.

Doktorska naloga je razdeljena v štiri glavna poglavja. Prvo temelji na kvalitativnem pristopu in s pomočjo utemeljevalne teorije identificira ključne elemente od uporabnika spodbujenega inoviranja. Drugo poglavje je namenjeno opredelitvi od uporabnika spodbujenega inoviranja in razvoju nove lestvice za merjenje tega konstrukta. V tretjem poglavju ponudimo model, v katerem povežemo dva trženjska koncepta s konceptom od uporabnika spodbujenega inoviranja, ki se v nadaljevanju pozitivno poveže z inovacijsko in poslovno uspešnostjo mladih podjetij. V četrtem poglavju preučimo izbrane kontekstualne dejavnike v povezavi z od uporabnika spodbujenim inoviranjem.

OD UPORABNIKA SPODBUJENO INOVIRANJE: EKSPLOATORNA ŠTUDIJA

Utemeljevalno teorijo (angl. grounded theory) prvič predstavita Glaser in Strauss (1965) kot alternativni pristop h kvalitativnemu raziskovanju v družboslovnih študijah. Uporablja se za področja, ki so teoretsko manj razdelana ali za področja, pri katerih je teoretska podlaga tako abstraktna, da jo je težko empirično preveriti. Ker je tudi od uporabnika spodbujeno inoviranje zaenkrat teoretsko slabo razdelano, na začetku raziskovalnega procesa tudi mi uporabimo pristop utemeljevalne teorije za pridobivanje uvida v preučevano področje. Najprej opredelimo konceptualne izziva preučevanega področja. Iz literature izpeljemo naslednja najpogostejša področja, ki potrebujejo podrobnejši uvid: (1) opredelitev ključnih sestavin koncepta, (2) načini vključevanja uporabnikov v inovacijski proces, (3) prispevek od uporabnika spodbujenega inoviranja k ustvarjanju uporabniške izkušnje, (4) kultura od uporabnika spodbujenega inoviranja. Izvedemo devet polstrukturiranih intervjujev s podjetniki, raziskovalci in poslovnimi svetovalci. Zvočne posnetke intervjujev prepisemo, sledi tristopenjsko kodiranje besedila. Začetno kodiranje vključuje iskanje osrednjih tem, ki smo jih že prvotno določili s pregledom literature. Druga stopnja kodiranja je fokusirano kodiranje, s pomočjo katerega znotraj vsake osrednje teme določimo podteme. Tretja stopnja kodiranja predstavlja teoretično kodiranje, ki poveže predhodne stopnje kodiranja v teoretične predloge za nadaljnje raziskovanje.

V nadaljevanju opišemo rezultate kodiranja. Prva osrednja tema se nanaša na opredelitev ključnih sestavin koncepta. Rezultati intervjujev kažejo na tri glavne elemente od uporabnika spodbujenega inoviranja, to so vključevanje uporabnika, iskanje povratne informacije in naravnost v dizajn. Druga tema se nanaša na načine vključevanja uporabnikov v inovacijski proces. Ugotavljamo, da uporabniki lahko dajo svoj prispevek v vseh fazah inovacijskega procesa, vendar pa je vključevanje uporabnikov največkrat nesistematično. Kljub potencialnemu prispevku uporabnikov v različnih fazah inovacijskega procesa, pa jih podjetja največkrat vključijo le v eno ali večjemu dve fazi. Naslednja ugotovitev se nanaša na širino in globino uporabnikovih prispevkov. Širina uporabnikovih prispevkov obsega število inovacijskih aktivnosti, v katere jih vključijo podjetja. Nekatera podjetja uporabnike vključijo le v omejeno število inovacijskih aktivnosti, druga pa v celoten inovacijski proces, če prepoznajo potencial uporabnika. Globina uporabnikovih prispevkov pa pomeni, v kolikšni meri podjetja dovoljujejo vpliv uporabnikov na končni izdelek. Nekatera podjetja iščejo le povratne informacije v zvezi s prototipi, medtem ko druga podjetja razvijajo ideje, ki jih podajo uporabniki. Tretja tema se nanaša na prispevek od uporabnika spodbujenega inoviranja k ustvarjanju uporabniške izkušnje. Rezultati intervjujev kažejo, da prek od uporabnika spodbujenega inoviranja podjetja lahko pridobijo prispevke za vsa orodja, ki so namenjena diferenciaciji izdelkov ali storitev. To so: blagovna znamka, dizajn in interakcija podjetja z uporabniki njihovih izdelkov ali storitev. Četrta tema obsega kulturo od uporabnika spodbujenega inoviranja. Ugotavljamo, da je strateška naravnost podjetja na uporabnike potreben pogoj za uvajanje različnih tehnik od uporabnika spodbujenega inoviranja. Obstaja cela množica

tehniki za implementacijo od uporabnika spodbujenega inoviranja v podjetja. Vendar tehnike obsegajo vedenjski nivo, ki se lahko izjalovi, če ni podprt s strateško naravnostjo podjetja v uporabnike, saj strateška naravnost omogoča razumevanje prispevka uporabnikov kot vira konkurenčne prednosti. Iz teh ugotovitev predlagamo štiri predloge za nadaljnje raziskave:

Predlog 1: vključevanje uporabnika, iskanje povratne informacije in naravnost v dizajnu so tri konsistentne dimenzije od uporabnika spodbujenega inoviranja.

Predlog 2: Širina in globina vključevanja uporabnikov sta pozitivno povezani z zadovoljstvom uporabnikov z novim izdelkom ali storitvijo.

Predlog 3: Blagovna znamka, dizajn in interakcija podjetja z uporabniki se pozitivno povezujejo s kakovostjo uporabniške izkušnje.

Predlog 4: Strateška naravnost na uporabnike je določljivka implementiranja tehnik od uporabnika spodbujenega inoviranja.

Eksploratorna raziskava je pokazala potrebo po novi konceptualizaciji od uporabnika spodbujenega inoviranja, ki bi v opredelitev vključila trenutne trende na tem področju. Poleg tega je potrdila stališča nekaterih drugih raziskovalcev (Priem et al., 2012), da to področje potrebuje interdisciplinarni pristop k raziskovanju. Ugotovitve kažejo, da naj nadaljnje raziskovanje poteka v dveh smereh. Po eni strani področje potrebuje več teorije, ki bi vključevala spoznanja drugih disciplin, kot sta trženje in podjetništvo. Po drugi strani pa še vedno nimamo dovolj empiričnih raziskav o učinkovitosti posameznih tehnik od uporabnika spodbujenega inoviranja, kot so na primer živi laboratoriji ali participatorni dizajn. Preučevanje učinkovitosti posameznih tehnik tako odpira prostor za nadaljnje študije primerov. Naša eksploratorna študija ima tudi jasno sporočilo za prakso, in sicer da vključevanje uporabnikov v inovacijski proces prinaša večje zadovoljstvo uporabnikov z novimi izdelki in storitvami, stalno iskanje povratne informacije od uporabnikov vodi do večje odzivnosti podjetja na potrebe uporabnikov ter prinaša hitro učenje iz napak, naravnost na dizajn pa podjetju omogoča, da izdelek ali storitev poleg funkcionalnih nagovarja tudi uporabnikove psihološke potrebe.

OD UPORABNIKA SPODBUJENO INOVIRANJE: RAZVOJ IN VALIDACIJA LESTVICE

Čeprav avtorji prepoznavajo potrebo po kvantitativnih raziskavah (De Moor et al., 2010), so obstoječe študije, razen nekaj izjem (Alam, 2002; Lau et al., 2010; Lichtenthaler, 2011; van de Vrande et al., 2009) še vedno pretežno kvalitativne. Kvalitativne študije opisujejo različne tehnike od uporabnika spodbujenega inoviranja (Buchanan et al., 2005; Hjalager & Nordin, 2011; Sandmeier, 2009), prikazujejo študije primerov (Lettl et al., 2006) in razpravljajo o izzivih vključevanja uporabnikov v inovacijski proces (da Mota Pedrosa, 2012; Sandmeier et al., 2010). Delno lahko to pripišemo tudi temu, da literatura ne ponuja

preizkušenih mer od uporabnika spodbujenega inoviranja. Nekaj obstoječih lestvic (Alam, 2002; Chien & Chen, 2010) izhaja iz trženja in vključuje le vključevanje uporabnikov v inovacijski proces, kar je sicer pomemben, vendar zgolj parcialen del od uporabnika spodbujenega inoviranja. Zato v tej doktorski disertaciji razvijemo in validiramo novo lestvico.

Pri konceptualizaciji konstrukta izhajamo iz rezultatov kvalitativne študije s pomočjo utemeljevalne teorije in pregleda literature. Obstoječe opredelitve konstrukta (Wise & Hogenhaven, 2008; Christiansson et al., 2008; Rosted, 2005; Hjalager & Nordin, 2011; Grunert et al., 2010) poudarjajo raziskovanje uporabnikovih potreb in njihovo aktivno sodelovanje v inovacijskem procesu. Tem opredelitvam dodajamo še dva druga vidika. Prvi se nanaša na stalno iskanje povratnih informacij od uporabnikov s prototipiranjem, pilotnimi prodajami in testiranjem z uporabniki. Drugi vidik pa izhaja iz naravnosti v dizajnu, ki zaobjema prilagajanje oblike izdelka/storitve uporabnikovim sposobnostim, potrebam in željam. Tako obstoječe opredelitve nadgradimo v tri-dimenzionalno konceptualizacijo konstrukta s sledečo opredelitvijo: od uporabnika spodbujeno inoviranje predstavlja pristop k razvoju novih izdelkov/storitev, ki želena uporabniško izkušnjo ustvarja s pomočjo vključevanja uporabnikov v inovacijski proces, stalnega iskanja povratnih informacij in naravnosti v intuitivnem dizajnu.

S tremi zaporednimi študijami razvijemo novo lestvico s trinajstimi trditvami, ki izkazuje ustrezno zanesljivost, dimenzionalnost, konvergentno, diskriminantno in nomološko veljavnost. Pri razvoju lestvice izhajamo iz postopka, ki ga je predlagal Churchill (1979), sledimo tudi priporočilom drugih avtorjev (na primer Cardon et al., 2013; Tang et al., 2012). Izvedemo naslednje korake: (1) opredelimo konstrukt in predlagamo tri dimenzije, in sicer vključevanje uporabnika, iskanje povratne informacije in naravnost v dizajnu, (2) prek pregleda drugih študij in ugotovitev iz intervjujev ustvarimo širši bazen trditev, (3) prvi pregled trditev je namenjen izločitvi nejasnih trditev, trditev z dvojnim pomenom in trditev, ki so si med seboj podobne, s prvim pregledom izločimo 51 trditev, (4) vsebinsko veljavnost preostalih trditev ocenimo s pomočjo 16 ocenjevalcev, ki so ocenili reprezentativnost vsake od preostalih 64 trditev, s tem postopkom izločimo nadaljnjih 33 trditev, (5) preostale trditve vključimo v pilotno študijo, namenjeno prečiščevanju lestvice, iz podatkov 129 študentov izračunamo koeficiente zanesljivosti in faktorsko strukturo s pomočjo eksploratorne faktorske analize, s tem postopkom obdržimo 15 trditev, ki jih vključimo v glavno kvantitativno raziskavo, (6) glavna kvantitativna raziskava je namenjena ocenjevanju veljavnosti, pri čemer uporabimo konfirmatorno faktorsko analizo, za analizo konvergentne in diskriminantne veljavnosti pa sledimo postopku, ki ga predlagata Fornell in Larcker (1981). Na vzorcu 357 mladih podjetij potrdimo faktorsko strukturo s tremi dimenzijami ($\chi^2_{(62)} = 135.10$, $p < .001$, GFI = .98, CFI = .96, NNFI = .95, RMSEA = .06). Alfa koeficienti zanesljivosti in kompozitne zanesljivosti za vse tri dimenzije presegajo kritično vrednost .70. Konvergentno veljavnost nakazujejo povprečja izločenih varianc (Bagozzi & Yi, 1988), ki v našem

primeru presegajo kritično vrednost .50. Diskriminantno veljavnost preverimo s χ^2 testom razlik (Bagozzi & Yi, 1988), pri čemer primerjamo omejen model s prostim modelom za vsak par faktorjev. Ker je bila razlika statistično pomembna v vseh primerih, to nakazuje diskriminantno veljavnost. Končna oblika lestvice ima po opravljeni analizi veljavnosti 13 trditev. (7) V zadnjem koraku preverimo nomološko veljavnost na vzorcu. V regresijsko analizo vključimo dve določljivki (naravnost v interakcije in dinamična inovacijska zmožnost) in dve posledici (rast prihodkov in inovacijska uspešnost) od uporabnika spodbujenega inoviranja. Preverimo naslednje štiri hipoteze:

H1: Dinamična inovacijska zmožnost podjetja statistično pomembno pozitivno prispeva k varianci vseh treh dimenzij od uporabnika spodbujenega inoviranja.

H2: Naravnost v interakcijo statistično pomembno pozitivno prispeva k varianci vseh treh dimenzij od uporabnika spodbujenega inoviranja.

H3: Dimenzije od uporabnika spodbujenega inoviranja se statistično pomembno pozitivno povezujejo z inovacijsko uspešnostjo.

H4: Dimenzije od uporabnika spodbujenega inoviranja se statistično pomembno pozitivno povezujejo z rastjo prihodkov.

Rezultati nakazujejo statistično pomembno pozitivno povezanost obeh določljivk z vsemi tremi dimenzijami od uporabnika spodbujenega inoviranja. Pri posledicah pa je inovacijska uspešnost statistično pomembno pozitivno povezana z vsemi tremi dimenzijami, medtem ko je rast prihodkov statistično pomembno povezana le z dimenzijo iskanja povratne informacije.

S predlogom nove zanesljive in veljavne mere od uporabnika spodbujenega inoviranja omogočamo poenotenje prihodnjih empiričnih raziskav. Rezultati izkazujejo, da je konstrukt relevanten za mlada podjetja, vendar potrebujemo več empiričnih podatkov za poglobljeno razumevanje na kakšen način in pod kakšnimi pogoji od uporabnika spodbujeno inoviranje prispeva k razvoju mladih podjetij.

OD UPORABNIKA SPODBUJENO INOVIRANJE, NARAVNANOST K BLAGOVNIM ZNAMKAM IN NARAVNANOST V INTERAKCIJO V MLADIH PODJETJIH: POVEZANOST Z INOVACIJSKO USPEŠNOSTJO

V nadaljevanju ta doktorska disertacija razišče determinante od uporabnika spodbujenega inoviranja. Ker trženjski vidik usmerja delo podjetja z uporabniki, v model vključimo dva trženjska koncepta kot določljivki preučevanega konstrukta. Predlagamo model, v katerem od uporabnika spodbujeno inoviranje mediira odnos med inovacijsko uspešnostjo mladih podjetij in naravnost na blagovne znamke in interakcije z uporabniki. Inovacijska uspešnost podjetij pa je v nadaljevanju pozitivno povezana z uspešnostjo podjetja. Hipoteze razvijem na osnovi obstoječe literature.

Obstoječa literatura ponuja mešane rezultate povezanosti od uporabnika spodbujenega inoviranja z inovacijsko uspešnostjo. Bile sta opravljeni tudi dve meta-analitični študiji, pri čemer je ena (Henard & Szymanski, 2001) potrdila pozitivno povezanost, druga pa ne (Evanschitzky, et al., 2012). Pri razlaganju teh dveh študij se je potrebno zavedati, da se nanašata na vključevanje specifikacij uporabnikov v razvoj izdelkov, kar pa ne odraža celotnega pomena od uporabnika spodbujenega inoviranja. Kljub vsemu več študij primerov poroča o pozitivnih učinkih od uporabnika spodbujenega inoviranja, zato preverimo naslednjo hipotezo:

H5: Od uporabnika spodbujeno inoviranje se pozitivno povezuje z inovacijsko uspešnostjo.

Meta-analitične študije zaključujejo o pozitivnih učinkih inovacij na poslovno uspešnost tako v malih (Bowen et al., 2010; Rubera & Kirca, 2012) kot v mladih podjetjih (Bowen et al., 2010; Rosenbusch et al., 2011). Skladno s temi študijami preverjamo sledečo hipotezo:

H6: Inovacijska uspešnost se pozitivno povezuje s poslovno uspešnostjo.

Naslednje štiri hipoteze se nanašajo na dva trženjska koncepta kot določljivki od uporabnika spodbujenega inoviranja. Lettl (2007) opozarja, kako zelo je za uspešno implementacijo od uporabnika spodbujenega inoviranja pomembno, da podjetje zna pritegniti, motivirati in delati z uporabniki. Predvidevamo, da bodo podjetja, ki so močna v trženjskem delu, to lažje uresničila v primerjavi s podjetji, ki trženju ne posvečajo posebne pozornosti. Naravnost v blagovne znamke in naravnost v interakcijo torej preverimo kot določljivki od uporabnika spodbujenega inoviranja. Poleg tega preverimo tudi neposredno povezanost teh dveh določljivk z inovacijsko uspešnostjo.

H7a: Naravnost v blagovne znamke se pozitivno povezuje z od uporabnika spodbujenim inoviranjem.

H7b: Naravnost v blagovne znamke se pozitivno povezuje z inovacijsko uspešnostjo.

H8a: Naravnost v interakcijo se pozitivno povezuje z od uporabnika spodbujenim inoviranjem.

H8b: Naravnost v interakcijo se pozitivno povezuje z inovacijsko uspešnostjo.

Podatkovno bazo 284 mladih podjetij iz Slovenije analiziramo z linearnim strukturnim modeliranjem. Rezultati podprejo model, v katerem konstrukt od uporabnika spodbujenega inoviranja popolno mediira predpostavljene odnose med spremenljivkami ($\chi^2(99) = 153.92, p < .001, GFI = .94, RMSEA = .04, SRMR = .06, TLI = .96, CFI = .97$). Pri delno mediiranem modelu neposredna povezanost določljivk z inovacijsko uspešnostjo ne izkazuje statistične pomembnosti. Rezultati nakazujejo, da od uporabnika spodbujeno inoviranje prispeva k poslovni uspešnosti mladih podjetij s tem, ko povečuje

inovacijsko uspešnost. Poleg tega rezultati osvetljujejo prispevek dveh trženjskih konceptov k inovacijski uspešnosti. Mlada podjetja, naravnana v blagovne znamke in interakcije z uporabniki, se bolj angažirajo v inoviranje spodbujenem od uporabnikov. Po eni strani jim to verjetno bolje uspeva, ker imajo zaradi svoje naravnosti v trženje že izkušnje z delom z uporabniki. Po drugi strani pa jih verjetno njihova strateška naravnost v uporabnike spodbuja, da uporabnike vključujejo tudi v svoje razvojne aktivnosti in jih ne obravnavajo le kot pasivne prejemnike trženjskih sporočil.

Naša študija skladno z obstoječimi študijami potrjuje, da trženje in inoviranje gresta z roko v roki (Hamid, 2009). Naravnost podjetij v trženjske koncepte jih spodbuja, da svoje uporabnike vidijo kot aktivne deležnike pri razvojnih aktivnostih. Ta ugotovitev nakazuje, da je povezano raziskovanje inoviranja in trženja relevantno za boljše razumevanje razvoja mladih podjetij, ki običajno nimajo funkcijskih oddelkov za posamezne aktivnosti, kot jih imajo velika podjetja.

OKOLJSKA DINAMIČNOST IN TRŽENJSKA ZMOŽNOST KOT DOLOČLJIVKI OD UPORABNIKA SPODBUJENEGA INOVIRANJA V MLADIH PODJETJIH

Poleg trženjskega vidika ta doktorska disertacija preuča tudi nekatere kontekstualne dejavnike od uporabnika spodbujenega inoviranja, saj je inoviranje kontekstualno specifičen fenomen (Rosenbusch et al., 2011). Zanimata nas okoljska dinamičnost in vrsta industrije, pri čemer želimo zaradi večje zmožnosti posplošitve rezultatov povezanost potrditi na vzorcu mladih podjetij iz dveh držav. S hierarhično regresijsko analizo preverimo tri hipoteze.

Spremembe uporabnikovih potreb v dinamičnih okoljih so pogoste in podjetja jih težko napovejo (Milliken, 1987). Če mlada podjetja svoje okolje zaznavajo kot dinamično, bodo v večji meri iskala vir inovativnosti pri svojih uporabnikih, da bodo lahko v nove izdelke/storitve vključila njihove spremenljive potrebe. Naslednja hipoteza preverja to trditev:

H9: Okoljska dinamičnost se statistično pomembno pozitivno povezuje z od uporabnika spodbujenim inoviranjem.

Ker že ugotovitve iz analize v predhodnem poglavju kažejo, da se trženjski koncepti pomembno povezujejo z od uporabnika spodbujenim inoviranjem, spremenljivko trženjske zmožnosti vključimo tudi v to analizo.

H10: Trženjska zmožnost se statistično pomembno pozitivno povezuje z od uporabnika spodbujenim inoviranjem.

Študije primerov od uporabnika spodbujenega inoviranja pogosto opisujejo visokotehnoške primere (De Moor et al., 2010; Lettl, Herstatt, & Gemuenden, 2006).

Hiter razvoj tehnologij podjetjem omogoča nove načine raziskovanja potreb uporabnikov s pomočjo informacijske tehnologije (Magnusson et al., 2003), tako mlada visokotehnološka podjetja ta napredek hitro vključujejo v svoje razvojne aktivnosti. Posledično lahko domnevamo, da visokotehnološka podjetja v večji meri uporabljajo od uporabnika spodbujeno inoviranje v primerjavi z mladimi podjetji v drugih sektorjih.

H11: Visokotehnološka mlada podjetja imajo statistično pomembno višjo izraženost inoviranja spodbujenega od uporabnika v primerjavi z drugimi mladimi podjetji.

Analizo razlik izraženosti od uporabnika spodbujenega inoviranja v visokotehnoloških in ostalih sektorjih smo napravili na vzorcu 284 mladih podjetjih iz Slovenije. Inferenčni testi kažejo, da so mlada podjetja v visokotehnoloških sektorjih bolj naklonjena od uporabnika spodbujenemu inoviranju v primerjavi z mladimi podjetji v ostalih sektorjih. Rezultati prav tako kažejo statistično pomembno pozitivno povezanost okoljske dinamičnosti in trženjske zmožnosti z inoviranjem spodbujenim od uporabnika.

V nadaljevanju iz vzorca slovenskih podjetij izločimo vzorec 83 visokotehnoloških podjetij. Dodatno zberemo še podatke 79 visokotehnoloških podjetij v Veliki Britaniji in preučimo, kako dinamičnost v okolju in trženjska zmožnost prispevata k od uporabnika spodbujenemu inoviranju. Rezultati hierarhične regresijske analize kažejo, da je dinamičnost v okolju statistično pomembno pozitivno povezana z od uporabnika spodbujenim inoviranjem v mladih visokotehnoloških podjetjih na obeh vzorcih. Trženjska zmožnost pa je statistično pomembno pozitivno povezana z od uporabnika spodbujenim inoviranjem le na vzorcu britanskih visokotehnoloških podjetij. Empirični podatki iz dveh držav povečujejo relevantnost ugotovitev. Do razlik prihaja v povezanosti trženjske zmožnosti z od uporabnika spodbujenim inoviranjem, pri čemer je potrebno poudariti, da podjetja v Veliki Britaniji delujejo v tradicionalno tržnem gospodarstvu, medtem ko podjetja v Sloveniji delujejo v posttranzicijskem gospodarstvu, ki načela tržnega gospodarstva razvija šele zadnji dve desetletji. To bi lahko pojasnilo razlike v izraženosti trženjske zmožnosti mladih visokotehnoloških podjetij, pri čemer je trženjska zmožnost britanskih podjetij višje izražena kot trženjska zmožnost slovenskih podjetij.

ZAKLJUČEK

Z različnimi raziskovalnimi tehnikami ta doktorska disertacija naslavlja ključne elemente, metodološke izzive, trženjski vidik in kontekstualne dejavnike od uporabnika spodbujenega inoviranja. Ponuja teoretične, metodološke in empirične prispevke. Teoretičen prispevek vključuje novo opredelitev in tri-dimenzionalno konceptualizacijo konstrukta. Metodološki prispevek obsega novo lestvico s 13 trditvami, ki izkazuje ustrezno zanesljivost in veljavnost. Empirični prispevek pa se nanaša na preučitev trženjskih določljivk konstrukta, posledic konstrukta in kontekstualnih dejavnikov. S prikazom empirične podpore za predpostavljene odnose ta doktorska disertacija povečuje relevantnost od uporabnika spodbujenega inoviranja za razvoj mladih podjetij.

Kljub pomembnim prispevkom ima tudi ta doktorska disertacija svoje omejitve. Prva omejitev se nanaša na to, da podatke zbiramo od podjetnikov, ki odražajo pogled podjetja na od uporabnika spodbujeno inoviranje. Pogled podjetja je pomemben, ni pa celovit. Za celovite informacije o inoviranju spodbujenim od uporabnika bi raziskava morala vključevati tudi podatke, zbrane med uporabniki.

Druga omejitev se nanaša na pristranskost preživetja opazovanih enot. Podjetja tekmujejo v konkurenčnem okolju, vsa podjetja tekme ne preživijo. Prva tri leta v Sloveniji preživi le dobra polovica podjetij (Eurostat, 2014), zato na osnovi naših ugotovitev ne moremo enoznačno zaključiti, da od uporabnika spodbujeno inoviranje pozitivno vpliva na razvoj mladih podjetij. Za takšen zaključek bi v analizo morali vključiti tudi tista podjetja, ki niso preživela.

Tretja omejitev zajema značilnosti vzorca podjetij. Ker preučujemo le mlada podjetja, ne moremo zaključiti, katere od ugotovitev so specifične za mlada podjetja, katere pa veljajo tudi za podjetja v drugih starostnih obdobjih. Po eni strani tako naših ugotovitev ne moremo posplošiti na vsa podjetja, po drugi strani pa tudi ne moremo zaključiti, da so ugotovitve specifične le za mlada podjetja. Za takšne zaključke bi morali primerjati podjetja v različnih starostnih kategorijah.

Četrta omejitev zajema nejasnosti v delitvi podjetij na visokotehnološka in ostala podjetja. Za razdelitev uporabimo klasifikacijo NACE Rev. 2 (2008), ki pa v nekaterih primerih postavlja umetne razmejitve. Tudi podjetja iz kreativnih industrij namreč lahko razvijajo visoke tehnologije, po drugi strani pa podjetje, ki le prodaja in ne razvija visokotehnoloških izdelkov spada med visokotehnološka podjetja. Z namenom, da presežemo to omejitev, naredimo t-teste razlik v glavnih preučevanih konstruktih, pri čemer podjetja, pri katerih je razvrstitev nejasna, vključimo enkrat med visokotehnološka podjetja, drugič pa ne. Razlike v izraženosti glavnih konstruktov niso bile statistično pomembne.

Peta omejitev je v naboru kontekstualnih dejavnikov, saj smo v analizo vključili le omejeno število kontekstualnih dejavnikov, to je okoljska dinamičnost, vrsta industrije in država. Pomembni so tudi drugi kontekstualni dejavniki (npr. razlike med B2B in B2C podjetji), ki pa jih v analizo nismo vključili, saj bi zbiranje podatkov zahtevalo stratificirano vzorčenje podjetij.

Šesta omejitev pa se nanaša na novo lestvico za merjenje od uporabnika spodbujenega inoviranja. Kljub sistematičnemu pristopu k razvoju lestvice končna oblika še vedno potrebuje nekaj nadaljnjih modifikacij za čistejšo faktorsko strukturo. Poleg tega je potrebno lestvico validirati tudi v drugih državah, da bi jo lahko uporabljali v nadaljnjih raziskavah. Tako smo jo npr. uporabili na vzorcu podjetij iz Velike Britanije, vendar na tem vzorcu lestvice nismo validirali zaradi premajhnega vzorca.