USER-DRIVEN INNOVATION: AN EXPLORATORY STUDY

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Received: 1 November 2014
Accepted: 15 January 2015

ABSTRACT: *Despite the relatively robust promotion of user-driven innovation (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 article concludes with limitations and implications for future research.*

Keywords: *user-driven innovation, value creation, design, branding, company-user interaction*
JEL Classification: L26, O31, M31

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, Gils, & Bauer, 2009; Ngo & O'Cass, 2013) and product performance (Lau, Tang, & Yam, 2010), and reduce discontinuous innovations market risk (Enkel, Perez-Freije, & Gassmann, 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, Ordanini, DeFillippi, & Miozzo, 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). 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

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are the result of revealing users' latent needs, which can be discovered by 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, Li, & Carr, 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 article 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 article proceeds with methodology, results and discussion. Fourth, the article is finished with a conclusion, limitations, and suggestions for future research.

1 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:

(1) 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).

(2) 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).

(3) 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).

(4) 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.

2 APPLYING THE GROUNDED THEORY APPROACH TO THE UDI FIELD

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 to narrow the initial codes to frequent and important codes. Theoretical coding results in a theory by examining the relationships between categories (Charmaz, 2006).

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 (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.

2 METHODOLOGY

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 present 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

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.

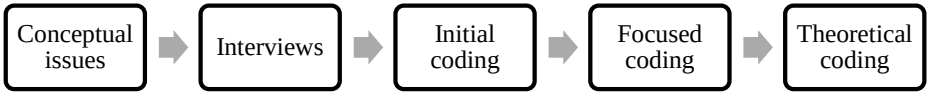
Data analysis

The research procedure follows the recommendation by Charmaz (2006). Figure 1 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 1: *Research process*



3 RESULTS

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

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.

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.

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.

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).

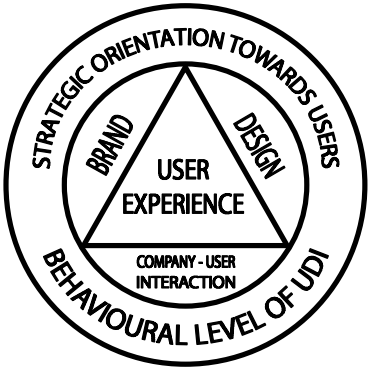
Behavioural level of UDI. The behavioural level includes different methodologies of implementing the UDI: 'When you know how to listen and when you are actually prepared to improve something, you will have a need to ask for a feedback,' (Participant D). UDI refers to the whole team: 'If we know how to 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. Figure 2 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 2: *Creating user experience as multidisciplinary process*



5. 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.

Theoretical implications

Our study has some theoretical implications. In contrast to the current conceptualizations of UDI as uni-dimensional construct (Carbonell, Rodriguez-Escudero, & Pujari, 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.

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.

5. 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.

Appendix 1

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?

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