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FACULTY OF ECONOMICS

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**DETERMINANTS AND CHARACTERISTICS OF SUCCESSFUL
BUSINESS MODEL TRANSFORMATION**

DOCTORAL DISSERTATION

LJUBLJANA, 2016

AUTHORSHIP STATEMENT

The undersigned, Nenad Savič, a student at the University of Ljubljana, Faculty of Economics, (hereinafter: FELU), declare that I am the author of the doctoral dissertation entitled Determinants and Characteristics of Successful Business Model Transformation, written under the supervision of prof. dr. Adriana Rejc Buhovac and prof. dr. Irena Ograjenšek.

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DETERMINANTS AND CHARACTERISTICS OF SUCCESSFUL BUSINESS MODEL TRANSFORMATION

SUMMARY

The topic of business model transformation has become attractive to both academics and strategy practitioners in the past decade. Extant empirical literature on business models is still inconclusive about the key determinants of successful business model transformation and their usability in different business contexts. Though many researchers have been exploring the process of business model innovation, the less innovative but highly demanding process of business model transformation is still underexplored (Aspara, Lamberg, Laukia, & Tikkanen, 2013; Chesbrough, 2010; Saebi, 2014). The search for a new business model in an existing organisation often requires an extended period of co-existence of both the old and the new business models. This is particularly true for strategic alliances in which once financially and technologically successful collaboration may turn out to hinder a single company's future success.

In this dissertation, which is a part of business model dynamic research stream, I illuminate results of a 14-year study based on in-depth and semi-structured interviews, secondary data analysis, and non-participant observation and suggest model of six generic determinants with all together 17 subcategories. The generic determinants are transformational leadership, discovery-driven decision making, industry improvement – customer specific orientation, content-oriented communication, self-initiative collaborators, and phased separation strategy.

My study extends the existing knowledge in the following ways. First, the majorities of studies on the subject are focused on independent companies and neglect the influence business model transformations have on their partners, which is especially true in the delicate case of strategic alliance separation, and how this influence affects the activities of the business model change. The separation process is sensitive because the partners should regain the capabilities which had been assured by the partner and persuade customers that they will not be affected by the alliance dissolution. Second, I outline a model of determinants by means of a single case longitudinal study design and inductive approach by using the grounded theory where a model of determinants was systematically generated from the collected data. Finally, from the managerial perspective, the study provides an extensive discussion of a successful business model transformation process, which is grounded in a case of strategic alliance separation, and forms a basis for further replications, confirmations and building a comprehensive model of business model transformation.

Key words: business model, transformation, determinants, qualitative research, strategic alliance, transformational leadership

DEJAVNIKI IN ZNAČILNOSTI USPEŠNEGA PREOBLIKOVANJA POSLOVNIH MODELOV

POVZETEK

Področje preoblikovanje poslovnih modelov je v zadnjem desetletju postalo privlačno tako za akademske raziskovalce kakor tudi poslovne praktike. Kljub temu je obsežna raziskovalna literatura s tega področja še vedno nepopolna glede ključnih dejavnikov uspešnega preoblikovanja poslovnih modelov in njihove uporabnosti v različnih poslovnih okoljih. Čeprav mnogi raziskovalci raziskujejo proces inoviranja poslovnih modelov, je manj inovativen vendar zelo zahteven proces preoblikovanja poslovnega modela, še vedno premalo raziskan (Aspara, Lamberg, Laukia, & Tikkanen, 2013; Chesbrough, 2010; Saebi, 2014). V obstoječih podjetjih razvijanje novega poslovnega modela pogosto zahteva daljše obdobje sobivanja med starim in novim poslovnim modelom kar še posebej velja za strateško povezana podjetja, kjer se nekoč finančno in tehnološko uspešno sodelovanje lahko izkaže kot ovira za prihodnji razvoj enega od podjetij.

V tej študiji, ki je del raziskovalne smeri usmerjene v raziskovanje dinamike poslovnih modelov, sem na podlagi opazovanja 14 - letnega obdobja poslovanja z uporabo intervjujev, sekundarno analizo podatkov ter z neprikritim opazovanjem brez aktivne vključenosti razvil model šestih determinant uspešnega preoblikovanja poslovnih modelov s skupaj 17 podkategorijami. Model šestih determinant vključuje: transformacijsko vodenje, raziskovalno usmerjeno odločanje, usmerjenost v izboljšanje panoge in specifičnosti kupcev, vsebinsko usmerjeno komunikacijo, samoiniciativnost sodelavcev ter strategijo postopnega ločevanja.

Moja študija razširja obstoječo znanje na naslednje načine. Prvič, obstoječe študije so večinoma usmerjene v preoblikovanje poslovnih modelov v samostojnih podjetjih in zanemarjajo vpliv preoblikovanja poslovnega modela v primeru strateško povezanih partnerjev. Proces preoblikovanja poslovnih modelov strateško povezanih partnerjev je zahteven zaradi tega, ker želijo partnerji pravočasno zagotoviti manjkajoče zmogljivosti za nadaljnje delovanje in zagotoviti, da njihovi kupci, če jih želijo obdržati, niso prizadeti zaradi ločevanja. Drugič, model determinant preoblikovanja poslovnega modela sem oblikoval s pomočjo študije primera in induktivnega pristopa s pomočjo utemeljene teorije na podlagi zbranih podatkov. Študija tudi z vidika managementa zagotavlja obsežno razpravo o dejavnikih uspešnega preoblikovanja poslovnega modela, ki je utemeljena na primeru ločitve strateško povezanih partnerjev in tvori podlago za nadaljnje ponovitve, potrditve in izgradnjo celovitega modela poslovnega modela preoblikovanja v drugačnih poslovnih okoljih.

Ključne besede: poslovni model, preoblikovanje, dejavniki, kvalitativna raziskava, strateška zveze, transformacijsko vodenje

TABLE OF CONTENTS

INTRODUCTION	1
Description of the Dissertation Topic and the Issues It Addresses	1
Research Question and Contributions	3
Research Methodology	4
Structure of the Doctoral Dissertation	6
1 CURRENT STATE IN THE FIELD OF BUSINESS MODEL TRANSFORMATION	8
1.1 Business Model Evolution – a Historical Review	8
1.2 Origins of the Business Model	10
1.3 Business Model Dynamics	14
1.3.1 Perspective Shift from Organisation-Centric to Customer-Centric Logic	14
1.3.2 Business Model Changes	15
1.3.3 Business Model Change Classification	17
1.3.4 Business Model Evolution	20
1.3.5 Business Model Innovation	21
1.3.6 Business Model Transformation	22
1.4 Determinants of Business Model Transformation	24
1.4.1 Key Research Streams	24
1.4.2 Experimentation Research Stream	25
1.4.3 Leadership Characteristics	27
1.4.4 Managing Two Business Models Simultaneously	30
1.4.5 Collaboration with Customers	32
1.4.6 Employee Cooperativeness	34
2 METHODOLOGY	37
2.1 Qualitative Research	37
2.2 Research Strategy	39
2.3 Case Study	40
2.4 Grounded Theory	43
2.5 Data Collection Techniques	50
2.5.1 Interview	50
2.5.2 Direct and Non-Participant Observation	53

2.5.3	Secondary Data.....	54
2.6	The Role of the Researcher in the Research Process.....	55
2.7	Informants.....	56
2.8	Quality of Research Design.....	58
2.8.1	Introduction.....	58
2.8.2	Construct Validity.....	58
2.8.3	Internal Validity.....	59
2.8.4	External Validity or Generalisability.....	59
2.8.5	Reliability.....	60
2.9	Ethical Issues.....	62
3	ABOUT THE COMPANY.....	64
3.1	Industry Presentation.....	64
3.1.1	Data Acquisition Market.....	64
3.1.2	Future Trends for Data Acquisition.....	65
3.1.3	Data Acquisition Software Choices.....	66
3.2	Basic Facts about Dewesoft.....	68
3.2.1	Born Global.....	68
3.2.2	From Excellent Software to World Class Hardware Provider.....	69
3.2.3	Selected Performance Indicators.....	70
3.3	Developmental Stages.....	71
3.3.1	Student Entrepreneurship Period (1996 - 2000).....	71
3.3.2	Development Partnership Period (2001-2007).....	73
3.3.3	Business Model Transformation Period (2008-2015).....	83
4	RESULTS.....	93
4.1	Outline of Research Sequences.....	93
4.1.1	Introduction of Major Research Sequences.....	93
4.1.2	Preliminary Research Sequence.....	95
4.1.3	First Research Sequence.....	97
4.1.4	Second Research Sequence.....	100
4.1.5	Third Research Sequence.....	103
4.2	The Model of Determinants of Successful Business Model Transformation.....	106
4.3	Transformational Leadership.....	107
4.3.1	Operational Definitions and Codes.....	107

4.3.2	Manifestation of Transformational Leadership	109
4.4	Discovery-Driven Decision Making	112
4.4.1	Operational Definitions and Codes	112
4.4.2	Manifestation of Discovery-Driven Decision Making	114
4.5	Industry Improvement - Customer Specific Orientation	117
4.5.1	Operational Definitions and Codes	117
4.5.2	Manifestation of Industry Improvement - Customer Specific Orientation.....	119
4.6	Self-Initiative Collaborators	123
4.6.1	Operational Definition and Codes	123
4.6.2	Manifestation of Self-Initiative Collaborators.....	124
4.7	Content-Oriented Communication	127
4.7.1	Determinants and Operational Definition	127
4.7.2	Manifestation of Content-Oriented Communication	128
4.8	Phased Separation Strategy	130
4.8.1	Operational Definitions and Codes	130
4.8.2	Manifestation of Phased Separation Strategy.....	132
5	DISCUSSION.....	136
5.1	Transformational Leadership	136
5.2	Discovery-Driven Decision Making	138
5.3	Industry Improvement - Customer Specific Orientation.....	139
5.4	Self-Initiative Collaborators	143
5.5	Content-Oriented Communication	145
5.6	Phased Separation Strategy	147
5.7	Challenges for Future Research and Limitations	152
	CONCLUSIONS.....	154
	REFERENCES	156
	APPENDICES	

LIST OF TABLES

Table 1: Questions which Reflect the Business Model Centric Logic.....	15
Table 2: Understanding the Business Model Change Concept.....	18
Table 3: Research Tradition Perspectives	38
Table 4: Informants	57
Table 5: Case Study Tactics for Assuring the Quality of Research Design.....	61
Table 6: Awards for Innovative Solutions in 1996-2000.....	72
Table 7: Amount of Funding Obtained in 2001-2007.....	78
Table 8: Growth of Employee Numbers for the Period 2001-2007.....	80
Table 9: Selected Financial Ratios for the Period 2001-2007.....	82
Table 10: Amount of Funding Obtained in 2008-2014.....	87
Table 11: Growth of Employee Numbers for the Period 2008-2014.....	89
Table 12: Selected Financial Ratios for the Period 2008-2014.....	92
Table 13: Major Research Sequences and Research Questions.....	94
Table 14: Course of the Preliminary Research Sequence	96
Table 15: Course of the First Research Sequence.....	97
Table 16: Course of the Second Research Sequence	101
Table 17: Course of the Third Research Sequence	104
Table 18: Operational Definitions of Transformational Leadership Subcategories	107
Table 19: Transformational Leadership Codes	108
Table 20: Transformational Leadership: Other Illustrative Quotes, Observations and Excerpts.....	111
Table 21: Operational Definitions of Discovery-Driven Decision-Making Subcategories	113
Table 22: Discovery-Driven Decision Making Codes	113
Table 23: Discovery-Driven Decision Making: Other Illustrative Quotes, Observations and Excerpts.....	116
Table 24: Operational Definitions of Industry Improvement - Customer Specific Orientation Subcategories	117
Table 25: Industry Improvement - Customer Specific Orientation Codes.....	118
Table 26: Industry Improvement - Customer Specific Orientation: Other Illustrative Quotes, Observations and Excerpts.....	122
Table 27: Operational Definitions of Self-Initiative Collaborators Subcategories	123
Table 28: Self-Initiative Collaborators Codes.....	123

Table 29: Self-Initiative Collaborators: Other Illustrative Quotes, Observations and Excerpts	126
Table 30: Operational Definitions of Content-Oriented Subcategories	127
Table 31: Content-Oriented Communication Codes	127
Table 32: Content-Oriented Communications: Other Illustrative Quotes, Observations and Excerpts	129
Table 33: Operational Definitions of Phased Separation Strategy Subcategories.....	130
Table 34: Phased Separation Strategy Codes	131
Table 35: Phased Separation Strategy: Illustrative Quotes, Observations and Excerpts...	134

LIST OF FIGURES

Figure 1: Development of the Business Model Concept.....	8
Figure 2: Business Model Innovation as a Subset of Business Model Design and Reconfiguration	16
Figure 3: The Grounded Theory Method Developed in Three Sequences.....	46
Figure 4: Dewesoft’s Organization Scheme in 2015.....	84
Figure 5: The Determinants of Successful Business Model Transformation.....	106
Figure 6: Hypothetical Model for Business Model Transformation	152

INTRODUCTION

Description of the Dissertation Topic and the Issues It Addresses

In the past decade, we have been faced with dramatic changes in the global economy and an even more challenging future is ahead, which is expected to critically influence contemporary businesses. In 2015, the challenges of globalisation and digitalisation (Korsten, 2008, p. 48, Global Risks, 2011, p. 15) are even greater than they were in the past. The emerging technology trends that are highlighted in Accenture Technology Vision 2015 will have a profound effect on business models (Daughtery, Banerjee & Blitz, 2015).

For example, by 2017, 70 per cent of successful digital business models will rely on deliberately unstable processes designed to shift as customers' needs shift (Spender, 2015), which presents managers with a demanding challenge of how to design new, and change existing, business models. The euphoria around e-business models and its influence on the growth and earning of companies declined at the end of 2000 (Wirtz, 2011, p. 9), and it was soon found out that the emerging concept was insufficiently understood by practitioners and academics alike (Amit & Zott, 2001).

Since then, two research approaches relating to business models have been recognised. The first is static and oriented to understanding the business model concept and coherence between core business model components; the other is dynamic and transformational, and addresses change and innovation in an organisation and in the model itself (Demil & Lecocq, 2010, p. 228). The topic of business model transformation has become attractive to academics and strategy practitioners in the past decade; however, the extant empirical literature on business models is still inconclusive about the key determinants of successful business model change (Saebi, 2014), and transformation in particular.

The search for a new business model in an existing organisation can be triggered by internal or external factors (Chesbrough & Rosenbloom, 2002; Giesen, Riddleberger, Christner, & Bell, 2010; Kim & Mauborgne, 2004; Markides & Charitou, 2004; Osterwalder & Pigneur, 2010), but the transformation itself often requires an extended period of co-existence of both the old and the new business models (Chesbrough, 2010; Johnson, 2010; Khanagha, Volberda, & Oshri, 2014). Though many researchers have been exploring the process of business model innovation, the less innovative but highly demanding process of business model transformation is still underexplored (Aspara, Lamberg, Laukia, & Tikkanen, 2013; Chesbrough, 2010; Doz & Kosonen, 2010).

With increased use, new technologies have created the possibility of having a significant impact on business change, from which a new direction of research oriented to business model innovation soon appeared. Business model innovation has attracted a lot of interest and special issues of magazines have emerged (Long Range Planning, 2010;

Harvard Business Review, 2011; Strategic Entrepreneurship Journal, 2015) dedicated to business models and business model innovation, but it turns out that not all changes in the business model mean business model innovation.

Researchers who have undertaken to analyse changes are therefore entering the field of business model dynamics, and they often use terms associated with these dynamics in an unusual manner. Massa and Tucci (2014) attempted to make a distinction, identifying that business model change does not necessarily lead to business model innovation. Quite the opposite, many of them lead to less novel but demanding fundamental business model transformation – i.e. how business is conducted – in order to cope with new, more challenging market environments and technological improvements (Chesbrough, 2010; Kotter, 1995; Teece, 2007).

Yet even these have not set a clear dividing line between business model innovation and business model transformation, although it is clearly defined that business model innovation is part of the broader concept of business model transformation. A further step was taken in the close relation to strategic intent to business model change, where three types of business model changes were recognised (Khanagha et al., 2014), which are: incremental evolution related to the changes of the existing business model; radical substitution related to implementation of a completely new and innovative business model; and directed transformation, which lies somewhere between the previous two business model changes. For each type of business model change, different organisational capabilities are required to assure the success of the business model change (Saebi, 2014).

Several authors emphasise barriers (Chesbrough, 2010; McGrath, 2010; Teece, 2010) that can influence successful business model transformation, and the majority of studies on the subject are focused on the successful business model change of independent companies (Aspara et al., 2013; Demil & Lecocq, 2010; Johnson, 2010; Khanagha et al., 2014; Markides & Sosa, 2013; Massa & Tucci, 2014).

The second challenge in this dissertation is that we do not know how business model transformations are performed in the context of the disaggregation of companies that have their business models interlinked in a strategic partnership alliance. Despite popularity of strategic partnering alliances the rate of their failures and terminations remains between 50% to 70% (Hyder & Eriksson, 2005, p. 784; Kale & Singh, 2009, p. 45). Failures are usually related to errors in the decisions which alliances to form, or the management of the strategic partnerships (Madhok, Keyhani, & Bossink, 2015, p. 94). This raises the question, how the involved companies change their business model during the alliance termination to recover from the loss of collaboration and support (Hyder & Eriksson, 2005, p. 794).

The process of separation is delicate because the partners must carry out resources transformation (Madhok et al., 2015, p. 97), regain in a timely manner the capabilities that

are lost as a result of the disaggregation, and in order to retain customers, the partners must assure them that they will not be affected by the alliance dissolution (Hyder & Eriksson, 2005, p.784). Monitoring each other for clues, the parties in a relationship constantly learn, interpret, and reorient themselves (Peng, 2008).

The question of how to transform a business model to spur technology improvements even when the existing business model is economically highly profitable has not been addressed yet. This is especially important in strategic alliances where hi-tech start-up companies with innovative technologies complement their weaknesses and lack of capabilities with the strengths and capabilities of their strategic partners (Medcof, 1997) and where once financially and technologically successful collaboration may turn out to hinder a single company's future success.

Despite the fact that such combinations could be highly profitable for aligned companies, one of them could embarked on a transformation which is not driven by the desire to have greater profit but by the desire to maximise its technological potential. It is particularly interesting to note how the company approaches the transformation with the awareness that it should provide the missing resources and skills that were previously assured by the strategic partner, and at the same time competes with the former partner in the same market with similar products. Even though we can find many similar situations in the business world of successful start-ups deciding on a similar path and strategic alliances occurring frequently among older firms in various combinations, very little has been studied about how to approach changes in business models.

Research Question and Contributions

The purpose of this study is to investigate the under-researched phenomenon of successful business model transformation and enhance understanding of key determinants of this process and their characteristics.

With this study I illuminate the process of business model transformation, complement the existing range of identified determinants and at the same time extend the scope of the field of strategic alliance separation in the following ways:

- The study aims to build a model of determinants of successful business model transformation, which is especially relevant for understanding managerial decisions in strategic alliance separation cases where old and new business models coexist during the whole process.
- Second, I outline a new conceptual model by means of a single-case longitudinal study design and inductive approach by using grounded theory where the model of determinants was systematically generated from collected data (Charmaz, 2006).

- Finally, from the managerial perspective, the study provides an extensive discussion of a successful business model transformation process which is grounded in a case of strategic alliance separation and forms a base for further replications. The identification of determinants which characterised the business model transformation may be of great help to managers who initiate a business model transformation process, especially related to simultaneous strategic alliance separation.

The objective of this study is thus to explore the key determinants, and their characteristics, of successful business model transformation. Consequently, the main research question is:

What are the key determinants of successful business model transformation?

The intended contributions of the doctoral dissertation are:

- enrichment of the academic literature on the topic of business model transformation by extending the known determinants of business model transformation,
- identification of the determinants of successful business model transformation and their characteristics from different perspectives of actors involved in the transformation,
- allowing scholars to better understand business model transformation, because hitherto the knowledge in the field of business model transformation has not successfully explained which determinants influence successful business model transformations, especially in the field of strategic alliance separations, and
- a proposed model of determinants of successful business model transformations, which could help architects of new business models delineate approaches and priorities most appropriate to ensure successful business model transformation.

The methodology which I used to explore the answer to the main research question is presented in the next paragraph.

Research Methodology

In accordance with the initial research focus on how the completed set of factors explained the successful transformation of business models, I used a qualitative research approach with two commonly used methods for inductive research. The used methodology involves a single case study (Yin, 2009) from which data are derived, and for analysing I used a grounded theory methodology (Glaser & Holton, 2004). At the start of the research I adopted a stance of “theoretical agnosticism” (Charmaz, 2011) and I was not influenced by any data in advance.

As a case study, I chose a hi-tech company that changed its business model during the period 2008-2014 to ensure the maximisation of its technological potential which had been

locked into and under-exploited in the first business model. A single case may be justifiable when the research of a topic is in an early stage (Eisenhardt, 1989), is representative, serves a revelatory and longitudinal purpose (Yin, 2009), and is persuasive (Siggelkow, 2007). Purposive or judgmental sampling allows us to select cases that will best enable us to answer research questions and meet objectives (Saunders et al., 2009, p. 237).

During the business model transformation period from a strategically aligned DAQ SW company toward an independent total solution company, Dewesoft established its own global sales network in 38 countries and brought to market more than 45 innovative DAQ HW measurement instruments perfectly fitted with their own DAQ SW. It completely changed its sales model and the total turnover achieved at the end of 2014 was €10.7M, which is 7.64 times more than at the end of 2007 (€1.4M). In addition, it raised the employee added value from €98,800 (2007) to €150,800 (2014), even though the average number of employees in the Slovenian head office rose from 9.6 to 38.3 and together with partners from the global sales & marketing network to over a hundred colleagues.

The case study was special because at the time of the execution of the business model transformation the process had not yet been completed. At the beginning of the research, the initial focus was broad and became progressively narrower as the research progressed. I gathered relevant information about the on-going business model transformation and its determinants flexibly “but not with absence of direction”.

I conducted the research in three sequences:

- In the first research sequence, I familiarised myself with the data collected by interviews with two executives and the data available outside the company. I then analysed the interview transcripts and investigated the data from site visits and informal communication to highlight any inconsistencies among those collected. I coded the data to summarise, interpret, and classify the information. The coding process was exploratory, relying on informants' wording. At this stage, the data sequential analysis resulted in a first tentative model of determinants.
- In the second data collection period, I transcribed and coded a new set of data from interviews, excerpts of internal documents, and personal observations. The main informants were still only two executives. By identifying patterns and connections among them, I defined the second tentative model of determinants. The use of multiple sources of evidence (internal archives, publicly available data, etc.) enabled me to triangulate findings and thus provide more convincing evidence in analysis.
- After the third data collection period, during which I was granted access to the company's cofounders, experience engineers and other employees, and external partners, I reorganised the data by adding new illuminative quotations, observations

and excerpts. By further study, I incorporated the broad categories into a final six and did another examination to fine-tune the previously defined categories of successful business model transformation.

Structure of the Doctoral Dissertation

Following the introduction, the dissertation comprises five major chapters as well as conclusions.

Chapter 1 examines extant literature in the field of business model change and emphasises the theoretical gap related to limited insight, which are internal determinants of successful business model change. In the beginning of Chapter 1 I briefly present the appearance of the business model concept throughout history and its theoretical origins. The focus in Chapter 1 is the business model change concept, which is, according to many authors, still under-researched, and we are lacking knowledge on what makes business model transformation successful over a longer period.

The methodology used in the research is discussed in Chapter 2. If the research topic is under-researched, performing qualitative research is an appropriate research strategy, which I present initially. I then introduce two inductive methods which I used in combination, the case study and the grounded theory approach. The case study was a foundation for collecting data, and by using a grounded theory approach, I developed determinants of successful business model transformation on the selected single case. In the next section, I present data collection techniques and the criteria for the assessment of the quality of research design, namely emphasising construct validity, internal validity, and external validity with a special explanation of the challenge of generalisability in qualitative research design. The chapter closes with a presentation of ethical dilemmas and solutions.

In Chapter 3 I comprehensively present the chosen company, which I used as a single case. I provide a historical overview of the company from its establishment. At the beginning of the chapter I present the industry and basic facts about the company. In the following three sections I describe three important periods for the company, which are important for understanding the context of the company's business model transformation. I named these three periods the "students entrepreneurship period", the "development partnership period" and, the main one, the "business model transformation period". All together I did a historical overview from 1996 to the middle of 2015; however, the main focus of the research is the period between 2008 and the first half of 2015.

The collected results and their interpretation are presented in Chapter 4. According to the number of determinants, which I defined as interpretation of results in Chapter 4, there are six sections where each determinant is described. At the beginning of the section, I present each determinant in its dimensions, followed by the codes which support each

dimension. The third part of the description is a manifestation of the determinants in the researched case. Each section ends with illustrative quotes, observations and excerpts which support the described determinant.

In the discussion chapter I compare all of the results in order and compare my findings with the research findings (if there are any). I then summarise the main findings, contributions, and limitations of the study, in addition to introducing challenges for future research. The main body of the dissertation ends with final conclusions.

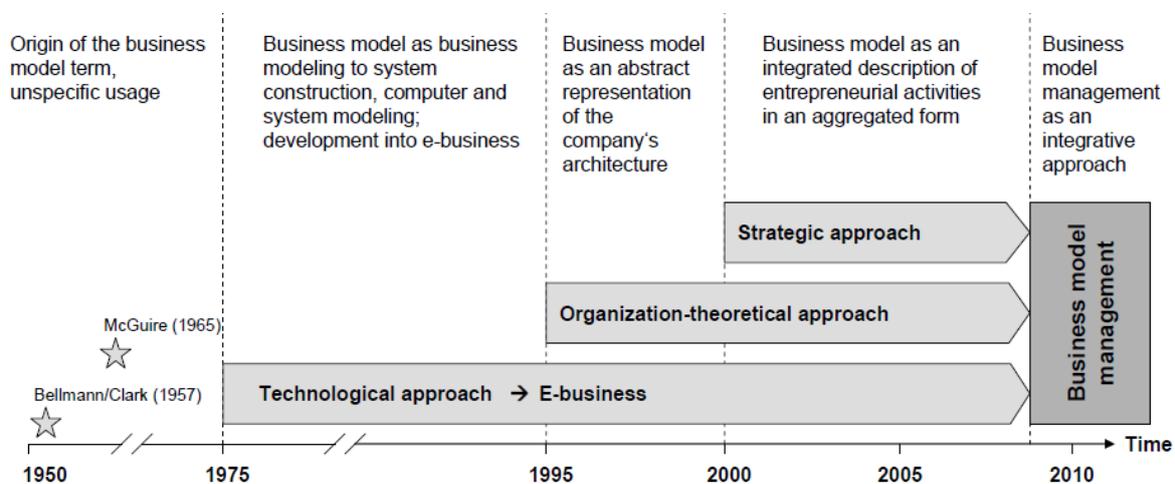
Following the main body of the text are appendices in which I present the questionnaires used in the study and an abstract of the dissertation in Slovenian.

1 CURRENT STATE IN THE FIELD OF BUSINESS MODEL TRANSFORMATION

1.1 Business Model Evolution – a Historical Review

Business models have been an essential part of trading and economic behaviour since pre-classical times (Teece, 2010); however, their first appearance in an academic article goes back to 1957, and their first mention in a title and abstract is from 1960 (Osterwalder, Pigneur, & Tucci, 2005). By the 1970's, a non-specific use of the business model concept had become noticeable (see Figure 1) and over the following two decades the term was mostly used in business modelling together with the beginning of business informatics (Wirtz, 2011). There is a general agreement among researchers and managers that the business model as a concept became popular with the advent of the internet in the mid-1990's (Ghaziani & Ventresca, 2005; Timmers, 1998; Zott, Amit, & Massa, 2011), with a simultaneous advance in information and communication technologies, and that it soon attracted the attention of researchers from different scientific disciplines (Massa & Tucci, 2014).

Figure 1: Development of the Business Model Concept



Source: B. W. Wirtz, *Business Model Management: Design – Instruments – Success Factors*, 2011, p. 20.

The term 'business model' had soon become a buzzword among researchers and management despite not being consistently defined (Wirtz, 2011, p. 8), so it was not surprising that not all researchers agreed with the use and meaning of the new concept and treated attempts at defining it as "murky at best" (Porter, 2001, p. 13). However, a research stream continued and eleven contexts of its usage were revealed in 2005. These are

(Ghaziani & Ventresca, 2005, p. 543): value creation, tacit conception, revenue model, electronic commerce, computer/systems modelling, relationship management, business strategy, varied other, business plan, organisation design, and globalisation. Value creation was among the most prominent contexts of usage, as well as value seen from the viewpoint of the customer, which was an important influence on the further evolution of the business model concept especially in relation to business conducted over the internet.

In reality, however, far from all business done over the internet was profitable (Nielsen & Lund, 2014, p. 22). The sources of value creation in the e-environment were soon recognised as a theoretical gap which resulted in a developed model of value creation in e-business with four interdependent dimensions: efficiency, complementarities, lock-in and novelty. These constitute a widely used business model definition based on transaction theory (Amit & Zott, 2001).

The collapse of the dot.com companies meant that internet companies began to take into account a “profit formula” when doing business on the internet (Nielsen & Lund, 2014). The concept spread and soon it was seen that the business model could unlock latent value from technology (Chesbrough & Rosenbloom, 2002). Businesses started to expand their business models by adding e-business components and terms such as ‘business model change’ or ‘business model innovation’ show how the understanding of the concept has broadened (Wirtz, 2011). Studies strived to not only better understand the business model concept, but also to understand how it is used in different industries or branches, such as biotechnology, e-organisations or fast-growing spin-out companies (George & Bock, 2011), material efficiency services, the healthcare sector, mobile (m)-services, small and medium-sized high-tech enterprises, strategy formulation and execution, and the creation and renewal of business in general (Cavalcante, Kesting, & Ulhøi, 2011).

The wider use of the business model concept has resulted in different classifications of dominant e-businesses (Afuah & Tucci, 2003; Rappa, 2004; Timmers, 1998), as well as in a combination with brick and mortar businesses (Johnson, 2010; Osterwalder & Pigneur, 2010). A greater understanding of the business model concept can help explain three phenomena (Zott et al., 2011, p. 1023): (1) e-business and the use of information technology in organisations; (2) strategic issues, such as value creation, competitive advantage, and firm performance; and (3) innovation and technology management.

Together with the advent of post-industrial technologies, globalisation processes have assured access to the markets’ resources and their economic needs, addressing the ‘bottom of the pyramid’ (Prahalad, 2012), so it is not surprising that understanding the use of business models is related to emerging markets (Casadesus-Masanell & Ricart, 2011). Further suggestions related to the transformation of business thinking involved the use of the shared value concept relevant to advancing the economies and social conditions in the

communities in which a firm operates by simultaneous enhancement of the competitiveness of a company (Porter & Kramer, 2011).

In the last decade, even businesses that had not exhibited any internet affinity started to expand their business models. By adding e-business components and reorganising themselves, an understanding of the business model concept broadened in new terms such as business model change or business model innovation occurred (Wirtz, 2011, p. 9), which indicates a dynamic component of the concept (Saebi, 2014). McGrath (2010, p. 248) exposed an uncertain, fast-moving, and unpredictable environment as the reason why previous business concepts – such as strategy, strategy planning, or sustainable competitive advantage – are no longer enough. Magretta agrees, presenting the case of internet retailers and the many fledgling companies which rushed to market with identical business models and no strategies to differentiate themselves (Magretta, 2002, p. 7). Thus, in order to be able to comprehensively understand the concept of the business model, knowledge of not only the history of its development, but also of its theoretical antecedents, is necessary (Wirtz, 2011, p. 10).

1.2 Origins of the Business Model

The ubiquity of the concept of the business model and the plethora of its uses suggest that business models are profoundly important to the world of work (Baden-Fuller and Morgan, 2010). Even though the importance of understanding the concept of the business model is rising, and many studies on the topic have been done, there is still no common definition of a business model (Amit & Zott, 2001; Chesbrough & Rosenbloom, 2002; DaSilva & Trkman, 2014; Demil, Lecocq, Ricart, & Zott, 2015; Morris, Schindehutte, & Allen, 2005; Teece, 2010; Zott et al., 2011).

The lack of a common definition is understandable because the concept is quite novel in the academic literature (DaSilva & Trkman, 2014) and because of the complexity of the concept, which originated from the different theoretical approaches (Chesbrough & Rosenbloom, 2002, p. 530). Compared to the strategy which has been the primary building block of competitiveness over the past three decades, the quest for sustainable advantage may well begin in the future with the business model, so there is undoubtedly a necessity to develop the concept of the business model and its practical implications (Casadesus-Masanell and Ricart, 2011, p. 107).

For a better understanding of the business model concept, we need to understand its origins, including with illustrative definitions, which are: (1) organisational design, (2) the resource-based view (RBV) of a firm, (3) narrative and sense making, (4) the nature of innovation, (5) the nature of opportunity, and (6) transactive structures (George and Bock 2011, p. 85).

- The emergent configuration of a firm's characteristics is typical for the organisational design origin of a business model and is primarily influenced by managerial knowledge, expertise, choice, and execution. A business model is therefore defined subjectively, and presents an abstract conceptualisation and perceived logic (Aspara et al., 2013), or is a kind of mental model, or gestalt (Hill & Jones, 2013, p. 7) of those who take decisions on how companies relate to their environment (Doz & Kosonen, 2010) and how to design or change it (Teece, 2010). Timmers (1998) defined a business model as an "*architecture for product, service and information flows, including a description of various business actors and their roles*", and Teece (2007, p. 1330) emphasised that designing a good business model is an "*art which outlines a plan for organisational and financial architecture of a business*". However, in order to select the right "architecture" for a business model, managers should be capable of analysing multiple alternatives, including how to compete with dual business models (Markides & Charitou, 2004), and should have a deep understanding of the user's needs. They should also understand how to deliver what customers want in a cost-effective and on-time manner, and how to design an organisation regarding outsourcing activities (Teece, 2007, p. 1330).
- Because the business model encompasses competitive advantage, it also draws on resource-based theory (Morris et al., 2005). The resource-based view, with the inclusions of knowledge and dynamic capabilities, presents an evolutionary framework where business model elements are discovered experientially and evolve without managerial agency. This view builds on Schumpeter's (1934), Barney's (1991) Peteraf's (1993) perspectives of value creation, which see the firm as a collection of resources and capabilities (Mansfield & Fourie, 2004). Afuah and Tucci (2003, p. 9) define the business model as "*a method by which a firm develops and uses its resources to offer its customers better value than its competitors and to make money doing so*", and propose a business model as a construct which can explain the competitive advantage of a firm. According to McGrath to shifts focus from the resources that a firm has to the question of how to use these resources (McGrath, 2010) because resources per se don't bring any value to customers and to the company, value is generated by using them in transactions (DaSilva & Trkman, 2014, p. 382). Such a position indicates that understanding a business model from only one origin is meaningless, just as McIvor argues that neither transaction cost economics nor the resource-based view alone can fully explain the complexities of constructs in management theory, such as outsourcing (McIvor, 2009, p. 61). An extension of the resource-based view, the dynamic capabilities approach (Ambrosini & Bowman, 2009, p. 31), addresses firm-specific capabilities that can be a source of sustainable competitive advantage (Teece, Pisano, & Shuen, 1997) and explores how valuable resource positions are built and acquired over time (Amit & Zott, 2001, p. 497). Dynamic capabilities help govern evolutionary fitness, and help shape the business environment itself (Teece, 2010).

- The narrative or story telling origin is oriented into subjective, descriptive, and emergent stories about the logic of key determinants of organisational outcomes. Stories are richer and thicker, more compelling, easily memorable, and they give us context (Erikson & Kovalainen, 2008, p. 224). Many authors analyse successful business cases that can be treated as examples of successful “stories” (Lucas & Goh, 2009; McGrath, 2010; Osterwalder & Pigneur, 2010; Sosna, Trevinyo-Rodríguez, & Velamuri, 2010). This is aligned with the view that “*business models are stories that explain how enterprises work*” and these “stories” show how a successful business model represents a better way than the existing alternatives (Magretta, 2002). Story-telling is an undervalued and underused art which can help in preparing for an in-depth discussion of a business model and its underlying logic (Osterwalder & Pigneur, 2010, p. 172). According to Magretta (2002, p. 4), a good business model answers Peter Drucker’s age-old questions: “Who is the customer? And what does the customer value? How do we make money in this business? What is the underlying economic logic that explains how we can deliver value to customers at an appropriate cost?”
- The innovation framework conceives the business model as a possible component of innovation, separate from product and process innovation (Johnson, 2010) and characterises immature firms in capital-intensive and high-velocity sectors. In this framework, the business model is seen in two separate roles. The first is that companies commercialise innovative ideas and technologies through their business ideas. Here, the business model is mainly seen as a mechanism which connects a firm’s technology to customer needs, plays the role of mediating between technology development and economic value creation, and “*takes technological characteristics and potentials as inputs and converts them through customers and markets into economic outputs*” (Chesbrough & Rosenbloom, 2002, p. 532). This role emphasises the fact that the business model can unlock the potential economic value locked in underused or new technology, which has no economic value *per se* (Massa & Tucci, 2014), but its logic also presents constraints for the subsequent search for a new, alternative model for other technologies later on (Chesbrough, 2010). The business model frames which managers hold in their heads determine the way in which technology gets developed (Baden-Fuller & Haefliger, 2013, p. 424). The second role is that the business model itself represents a new dimension of innovation which spans the traditional modes of process, product, and organisational innovation, and involves new forms of cooperation and collaboration (Zott et al., 2011). “*Business model innovation is about challenging traditional thinking with an aim to design models that meet unsatisfied, new or hidden customers’ needs*” (Osterwalder & Pigneur, 2010, p. 136). Teece claims that developing a successful business model is insufficient to assure competitive advantage as imitation is often easy. He argues that business model innovation itself can be a pathway to competitive advantage if the model is sufficiently differentiated and hard to replicate for incumbents and new entrants alike (Teece, 2010, p. 173). Technology from other sectors, such as information technology, could also influence innovative

business model forms and how they are created and adapted (Baden-Fuller & Haefliger, 2013, p. 424).

- The opportunity origin is where the business model “*presents a set of expectations about the future success of the business in its environment*” (Downing, 2005, p. 186). Three aspects related to opportunity exploration are (George and Bock 2011, p. 88): the link between innovation and value creation; the link between entrepreneurial appraisal of the opportunity and its exploitation; and understanding the business model as a mechanism for opportunity exploitation. A useful tool for opportunity exploration is the mental map, which has different forms, such as the business model canvas (Osterwalder & Pigneur, 2010), the four-box business model (Johnson et al., 2008), IBM’s component of a business model (Pohle, Korsten, et al., 2005), or “value proposition” and “operating model” as two essential elements which joined together form a company’s business model (Lindgardt, Reeves, Stalk, & Deimler, 2009). Mental maps can serve as an analytical device for the design of business model changes and allow firms to simulate various business model design possibilities before committing to specific investments in reality (Chesbrough, 2010, p. 359). Based on inductive research, it has been proposed that a business model, from the opportunity aspect, should be defined as “*a design of organisational structures to enact a commercial opportunity*” (George & Bock, 2011, p. 99).
- In the transactive framework, a business model “*can be defined from the viewpoint of transaction content, transaction structure, and transaction governance*” (Amit & Zott, 2001). The definition given by Amit and Zott is widely useful because transaction cost economics identifies transaction efficiency and boundary decisions as a value source (Morris et al., 2005, p. 728) and is concerned with explaining the choice of the most efficient governance form given a transaction that is embedded in a specific economic context (Amit & Zott, 2001, p. 499). Positioning within the larger value network can be a critical factor in value creation because as part of its positioning, the firm must establish appropriate relationships with suppliers, partners, and customers (Morris et al., 2005, p. 728). The transactive framework also confirms the claim that business models can be defined objectively in the form of rules and principles by which organisations operate (Doz & Kosonen, 2010).

Even though each of these origins leads to a different conceptual understanding of business models, which is the basis for any business model change, there is a general consensus that a business model is oriented to creating and delivering value to customers (Amit & Zott, 2001; Demil, Lecocq, Ricart, & Zott, 2015; Teece, 2010), or broadly speaking to society (Porter & Kramer, 2011), and capturing value for the organisation (Massa & Tucci, 2014). A systematic examination of what the relevant determinants of business model change are and what kind of business model change they cause is missing from extant business model literature to date (Saebi, 2014).

1.3 Business Model Dynamics

1.3.1 Perspective Shift from Organisation-Centric to Customer-Centric Logic

One of the most provocative ideas about the future importance of business models is that we will not be discussing competition between companies, but competition between business models (Anthony, 2012; Casadesus-Masanell & Ricart, 2011). Since a successful business model represents a better way than existing alternatives, because it can offer more value to a discrete groups of customers, it may completely replace the old way of doing things, and become a standard of thinking and doing for the next generation of entrepreneurs to beat (Magretta, 2002, p. 4).

We can identify two research approaches relating to studying and better understanding business models (Demil & Lecocq, 2010, p. 228). The first approach is static and oriented to understanding the business model as a new concept in management science, and insists that the important word in the expression business model is “model”. The key studies in that stream are oriented to the coherence between the model’s core components (Afuah & Tucci, 2003; Baden-Fuller & Morgan, 2010; Morris et al., 2005; Osterwalder, 2004). The second use of the concept represents a change approach, where the business model is considered as a concept or tool to address change and focus on innovation, either in the organisation or in the business model itself (Aspara et al., 2013; Casprini, Pucci, & Zanni, 2014; Cavalcante et al., 2011; Chesbrough & Rosenbloom, 2002; Feasey, 2015; Khanagha et al., 2014; Markides & Sosa, 2013; Sosna et al., 2010).

However a business model is relatively rigid and naturally stable. This makes it hard to change the structure (Doz & Kosonen, 2010), and makes it a time-consuming process (Aspara et al., 2013; Sosna et al., 2010). There are several barriers related to business model change (Chesbrough, 2010); however, a new era of innovation, which is related to paradigm-shifting business models innovation, is here (Anthony, 2012, p. 45). Companies in an early stage compete on the basis of performance predominantly through product innovation. When the basis of competition shifts to reliability, companies tend to respond through process innovations and with a shift to convenience and cost; here, business model innovation often comes into play (Johnson 2010, p. 57).

A characteristic of business models is that they change the logic in an organisation from thinking how good they are to how useful they are (McGrath, 2010), and that change shifts the perspective of the organisation from organisation-centric business models to a customer-centric business model (Osterwalder & Pigneur, 2010, p. 128). Changing a firm’s business model logic literally involves changing the paradigm by which it goes to market, and inertia is likely to be considerable (Teece, 2010, p. 187). The simple set of question presented in Table 1 supports organisations to leave the old, organisation-centric business

model design and transform themselves into customer-centric, business model-oriented organisations (Osterwalder & Pigneur, 2010, p. 129).

Table 1: Questions which Reflect the Business Model Centric Logic

Organisation-centric business model design	Customer-centric business model design
What can we sell to customers?	What job(s) does our customer need to get done and how can we help? What are our customer's aspirations and how we can help live up to them?
How can we reach customers most efficiently?	How do our customers prefer to be addressed? How do we, as an enterprise, best fit into their routines?
What relationship do we need to establish with customers?	What relationship do our customers expect us to establish with them?
How can we make money from our customers?	What value(s) are customers truly willing to pay for?

Source: A. Osterwald and Y. Pigneur, *Business model generation*, 2010, p. 129.

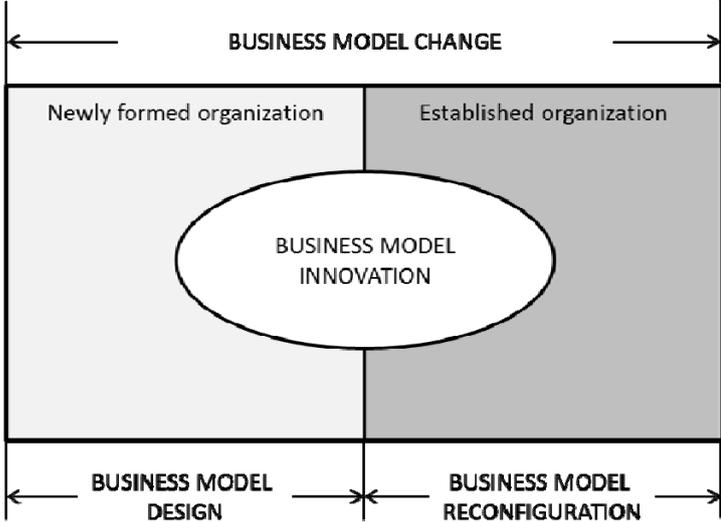
1.3.2 Business Model Changes

In the lifetime of a company, the initial design of its very first business model is based on a variety of external and internal factors (Casprini et al., 2014, p. 175); however, the on-going search for a better competitive position forces companies to change it (Chesbrough & Rosenbloom, 2002; Chesbrough, 2010; Kim & Mauborgne, 2004; Markides & Sosa, 2013; Osterwalder & Pigneur, 2010; Sosna et al., 2010; Teece, 2010).

Martins et al. (2015, p. 101) have identified three theoretical perspectives that characterised business model change. The first is the rational positioning view, which represents a search for a new optimal design that repositions the firm in response to any kind of significant changes in its environment. The second is the evolutionary view, which sees business model development as an initial experiment followed by constant fine-tuning and learning. The third is the cognitive view, which advocates that business model change is a consequence of managerial mental models, which accrue because of changes in the environment. These perspectives place emphasis on the external context as a determinant of business model change, and offer limited insight into the internal determinants of successful business model change (Martins et al., 2015, p. 103).

To clarify the difference between business model innovation and other types of business model changes I follow the concept defined by Massa and Tucci (2014), which is presented in Figure 2.

Figure 2: Business Model Innovation as a Subset of Business Model Design and Reconfiguration



Source: L. Massa and C. Tucci, *The Oxford Handbook of Innovation Management: Business Model Innovation*, 2014, p. 9.

Massa and Tucci differentiate business model innovation from business model design and business model reconfiguration; however, all three are parts of the business model change concept. They define a business model design as the entrepreneur activity of creating, implementing and validating a business model for a newly formed organisation and business model reconfiguration as a manager’s activity related to the reconfiguration of organisational resources to change the existing business mode. According to them, not all design or reconfiguration activities lead to business model innovation.

Thus, even though a business model itself could be a source of innovation, it is just a part of a broader business model change process in the phase of business model design or reconfiguration, as presented in Figure 2.

Business model change can be defined as the process by which management deliberately and actively (Doz & Kosonen, 2010) alters already established intra-organisational and/or extra-organisational systems of activities and their relations to environmental changes, and are mainly launched by reacting to technological and market-related forces (de Reuver, Bouwman, & Maclnnes, 2009, p. 10; George & Bock, 2011) and by refocusing from an organisation-centric to customer-centric business model (McGrath, 2010). It is likely that many existing business models in organisations will be replaced by an improved model that takes advantage of further technological or organisational

innovations (Shirky, 2008; Spender, 2015), or as a consequence of generative cognition – analogical reasoning and conceptual combination to create a new type of business model (Martins et al., 2015, p. 105). The output of business model change activities should be characterised by some degree of novelty, lock-in, complementarities and efficiency (Amit & Zott, 2001), which could be achieved by adding novel activities, by linking activities in a novel way, and by changing one or more parties that perform any of the activities (Amit & Zott, 2012). From the market perspective, successful business model change results from one of four objectives (Osterwalder & Pigneur, 2010):

- to satisfy existing but unanswered market needs,
- to bring new technologies, products or services to the market,
- to improve, disrupt or transform an existing market with a better business model, or
- to create an entirely new market.

1.3.3 Business Model Change Classification

The business model concept has encouraged broad reflection on the use of business models and hope that if we better understand them, we will be able to better identify their weaknesses, mismatches, failures, and shortcomings. Many companies have already made changes to their business models, either technologically (Apple, Amazon, Google) or organisationally (Dell, Walmart, Ryanair), which has encouraged many others to start thinking about their approaches to business model change.

While researchers mostly agree in their views on business models, taking into consideration their origins, much less attention of researchers has been devoted to the demanding process of firms' business model changes over time (Achtenhagen, Melin, & Naldi, 2013; Aspara et al., 2013), and those who have worked on that subject differ in their understanding of how firms develop such systems (Martins, Rindova, & Greenbaum, 2015, p. 100).

In the literature we can find different typologies of business model change with many interchangeable uses of the explained phenomena. Explanations of business model changes are related to different forms of change, which are: business model innovation (Chesbrough & Rosenbloom, 2002; Johnson, 2010; Osterwalder & Pigneur, 2010; Sosna et al., 2010), business model evolution (Casadesus-Masanell & Ricart, 2011; Demil & Lecocq, 2010), business model renewal (Doz & Kosonen, 2010; Khanagha et al., 2014; Sosna et al., 2010), business model replication (Dunford, Palmer, & Benveniste, 2010), business model learning and adjustment (Teece, 2010), business model erosion (McGrath, 2010), business model lifecycle (Morris et al., 2005), business model reconfiguration (Massa & Tucci, 2014), business model transformation (Aspara et al., 2013) business model ambidexterity (Markides, 2013), business model reinvention (Johnson, Christensen,

& Kagermann, 2008), and business model revision (Cavalcante et al., 2011). I present in Table 2 some illustrative quotations to show how different researches understand the business model change concept.

Table 2: Understanding the Business Model Change Concept

Business model change classification	How researchers understand the business model change
Business model evolution	“BM evolution is a fine tuning process involving voluntary and emergent changes in and between permanently linked core components.” (Demil & Lecocq, 2010)
Business model renewal	“For implementing the agreed changes, switching between business models, decoupling activities, modularising business processes and dissociating resources from rigid ownership as well as switching between parallel models and grafting capabilities and platforms to engender catalysing transformation are all ingredients and determinants of a successful business model renewal.” (Doz & Kosonen, 2010)
Business model renewal	“Dealing with two competing BM, findings indicate a need for recursive iterations between different modes of separated and integrated structures in line with the emergent nature of strategic intent toward the new business models. ...strategy formation to be a collective experimental learning process revolving around a number of alternative strategic intentions ranging from incremental evolution and transformation to complete replacement of the existing business model.” (Khanagha et al., 2014)
Business model learning and adjustment	“Changing the firm’s business model literally involves changing the paradigm by which it goes to market. ... Being fast in learning and making the requisite adjustments to the model is important.” (Teece, 2010)
Business model erosion	“Just as experimentation is central to business model creation, a new set of skills involving the early detection of any erosion of their business model will be at a premium for company leaders.” (McGrath, 2010)
Business model lifecycle	“A business model lifecycle involving periods of specification, refinement, adaptation, revision and reformulation. An initial period during which the model is fairly informal or implicit is followed by a process of trial-and-error, and a number of core decisions are made that delimit the directions in which the firm can evolve.” (Morris et al., 2005)
Business model reconfiguration	“Business model reconfiguration captures the phenomenon by which managers reconfigure organisational resources (and acquire new ones) to change an existing BM. Thus the process of reconfiguration requires shifting, with different degrees of radicalism, from an existing model to a new one.” (Massa & Tucci, 2014)
Business model transformation	“A change in the perceived logic of how value is created by the corporation, when it comes to the value-creating links among the corporation’s portfolio of businesses, from one point of time to another. (Aspara et al., 2013)

(table continues)

(continued)

Business model innovation	“Business model innovation results from one of four objectives. To satisfy existing but unanswered market needs, to bring new technologies, products or services to the market, to improve, disrupt or transform an existing market with a better business model, or to create an entirely new market.” (Osterwalder & Pigneur, 2010)
Business model innovation	“Firms need to understand the cognitive role of the business model, in order to commercialise technology in ways that will allow firms to capture value from their technology investments, when opportunities presented by its technology do not fit well with the firm’s current business model.” (Chesbrough & Rosenbloom, 2002)
Business model ambidexterity	“To manage two business models simultaneously, the firm has to design a context that will allow it to achieve a delicate balance: On one hand, it has to create enough distance between the two business models that they don’t suffocate each other; on the other, it has to keep them close enough to exploit synergies between the two.” (Markides, 2013)
Business model evaluation	“By making the right choices, companies can strengthen their business models’ virtuous cycles, weaken those of rivals, and even use the cycles to turn competitors into complementary players.” (Casadesus-Masanell & Ricart, 2011)
Business model revision	“Changes in core repeated standard processes therefore imply a change in the business model.” (Cavalcante et al., 2011)
Business model reinventing	“Companies have to focus on learning and adjusting as much as on executing.” (Johnson et al., 2008)

Source: Aspara et al., 2013; Casadesus-Masanell & Ricart, 2011; Cavalcante et al., 2011; Demil & Lecocq, 2010; Doz & Kosonen, 2010; Johnson, 2010; Khanagha et al., 2014; Markides & Sosa, 2013; McGrath, 2010; Morris et al., 2005; Osterwalder & Pigneur, 2010; Sosna et al., 2010; Teece, 2010.

One of the main characteristics which emerges from those interpretations of different types of business model change is that the state of business model equilibrium is difficult to achieve. Business model change is likely an on-going process (Casadesus-Masanell & Ricart, 2011; Khanagha et al., 2014; Morris et al., 2005) that is partly characterised by demanding changes (Aspara et al., 2013; Osterwalder & Pigneur, 2010; Sosna et al., 2010) and partly by fine-tuning changes (Cavalcante et al., 2011; Demil & Lecocq, 2010) of an existing business model.

Khanaga et al. (2014, p. 324) highlight that business model change activities can range from incremental changes in individual components of business models, extension of the existing business model, and introduction of parallel business models, right through to disruption of the business model, which may potentially entail replacing the existing model with a fundamentally different one.

The relevant capabilities needed to successfully utilise different types of business model change are different, and Saebi (2014) has classified them into three groups:

evolutionary, innovative, and adaptive change capabilities. Taking into account the mechanism with which an incumbent responds to technological changes with capability reconfiguration (Lavie, 2006, p. 160), Khanaga et al. (2014, p. 326) also propose three alternative strategic intents toward the emerging business model which are: incremental evolution, directed transformation and radical substitution. On the basis of these two classifications, I combined them into a new form and named the different forms of business model change as follows:

- Business model evolution, which combines evolutionary change capabilities and incremental evolution
- Business model innovation, which combines innovative change capabilities and radical substitution, and
- Business model transformation, which combines adaptive change capabilities and directed transformation

The main focus in my dissertation is directed transformation and the questions which determinants influence successful business model transformation and what their characteristics are.

1.3.4 Business Model Evolution

The main characteristic of incremental evolutionary business model change is that firms operate in environments characterised by low-intensity and gradual changes; therefore, they do not have a need to change their existing business model or they do not need to change it often and rapidly. As a consequence, the business model evolution path centres on standardisation, implementation and maintenance of the existing business model (Saebi, 2014) to improve its stability, which is required for company efficiency (Doz & Kosonen, 2010).

Business model evolution can be understood as a fine-tuning process involving voluntary and emergent changes in and between permanently linked core components (Demil & Lecocq, 2010), and Cavalcante et al. (2011, p. 1332) propose business model extension as an evolutionary business model change by adding new activities and/or expanding existing core processes to an existing business model. A key motivational driver for extension is to explore opportunities for enlarging the existing business and to exploit associated commercial opportunities (Cavalcante et al., 2011). An incremental evolution path tries to minimise the costs of transition and to retain the resources and capabilities within their existing business model. Because of factors such as path dependency (Tece, 2007) and inertia (Prahalad, 2004), it is quite often the natural choice for an industry incumbent to try and utilise new possibilities without damaging the on-going business.

1.3.5 Business Model Innovation

As opposed to incremental evolutionary business model change, there are situations when environmental shifts are generated by disruptive technologies (Christensen & Overdorf, 2000), by new competitors entering an industry, by major regulatory changes (such as airlines deregulation), by political regime changes (Saebi, 2014), or by economic turmoil (Giesen et al., 2010, p. 17). Business model innovations redefine the meaning of value to customers (Markides, 2006; Teece, 2010) and society (Porter & Kramer, 2011), and how it is provided to them (Osterwalder & Pigneur, 2010). If shifts in technology and markets have a devastating effect on the value of companies' capabilities and ways of doing business, replacing an existing business model can be inevitable (Khanagha et al., 2014, p. 326).

Companies respond to environmental change with different degrees of radicalism to assure a smooth transition from the existing to a new business model (Massa & Tucci, 2014), and successful companies take advantage of emerging opportunities in the new economic environment by innovating their business models in three ways (Giesen et al., 2010, p. 17):

- by designing a new revenue model and value propositions to respond to a different set of customer behaviours and market requirements (*revenue model innovation*);
- industry leaders with strong financial resources take advantage of the unprecedented industry transformation by introducing alternative industry models and disrupting their competitors (*industry model innovation*);
- organisations revisit their enterprise model during a downturn to reduce cost through new collaboration and partnership models and by reconfiguring the asset mix (*enterprise model innovation*).

Any type of business model innovation can lead to success; however, financial outperformers are more likely to be industry and enterprise model innovators than revenue model innovators (Giesen et al., 2010, p. 3). Companies need to have innovative change capabilities which provide an effective way for firms to get ahead of the competition and to “rewrite” the rules of the game by introducing a novel way of creating, delivering and capturing value (Saebi, 2014). In such conditions, an established firm will need to abandon or renew its capability and resource base and acquire new sets of capabilities in a short period of time (Christensen & Overdorf, 2000; Khanagha et al., 2014). Being fast in learning and making the requisite adjustments to the model (Teece, 2010), as well as experimentation (McGrath, 2010), are crucial processes for overcoming the barriers associated with business model innovation (Chesbrough, 2010).

Another important view of business model innovation is its time dimension. It is not about how to innovate a business model over time but when to start with the process of innovation and how fast it is possible to innovate it, so the ability to learn fast and implement the requisite adjustments to the model is important (Teece, 2010). Giesen et al. (2010, p. 19) suggest that companies should pursue new opportunities in their industries or should respond to competitive or technological threats. Based on the theory of the S curve, the best time to take action in reinventing a business model is when revenues from the current business model are substantive, profits are robust, and the company stock commands a hefty premium (Breene & Nunes, 2011).

Thus, exploratory learning processes become a key process of business model innovation, but organisations should be aware of two types of barriers related to business innovation (Chesbrough, 2010). The first is cognitive and is related to the dominant logic (Prahalad, 2004) or path dependency of the firm (Teece et al., 1997). As environmental shifts occur infrequently and rarely repeat, managers might be unable to detect the need for change in time or fail to recognise opportunities outside their current logic of doing business (Saebi, 2014). The second is related to the organisational challenges of reconfiguration of existing assets and the coordination and authority related to the business innovation process (Chesbrough, 2010). How Kodak missed the digital photography revolution is an excellent example of how company culture and bureaucratic structure can hinder a fast response to disruptive technology (Lucas & Goh, 2009).

Design or reconfiguration efforts will not necessarily lead to business model innovation (Massa & Tucci, 2014); quite the opposite, many of them lead to less novel but demanding fundamental business model change or transformation, i.e. how business is conducted, in order to cope with new and more challenging market environments (Chesbrough, 2010; Kotter, 1995; Teece, 2007).

1.3.6 Business Model Transformation

Somewhere in between incremental evolution and radical substitution is a range of transformation paths by which firms try to utilise existing means of value creation and acquire or develop new ones (Khanagha et al., 2014). It takes place periodically and affects a number of business model dimensions simultaneously (Saebi, 2014). Osterwalder claims that technology improvement is the main driver for business model changes (Alt & Zimmerman, 2014), which we can recognise from business trend announcements (Daugherty et al., 2015; Spender, 2015).

When technologies from another industry influence the way in which a business model is created and adapted (Baden-Fuller & Haefliger, 2013), technology improvement can be the source of industry improvement on both the buyer's side and the primary driver of business model transformation on the supplier's side. Adaptive or transformational change

capability can be defined as the firm's capacity to align its business model in response to conditions of environmental competitiveness by means of institutionalising routines, processes and incentives that facilitate adaptation activities on a continuous basis (Saebi, 2014).

If the strategic intent toward a new business model entails a transformation path, there will be a need to deal with the differing requirements of two business models (Khanagha et al., 2014). For implementing the agreed changes, switching between business models, decoupling activities, modularising business processes and dissociating resources from rigid ownership, as well as switching between parallel models and grafting capabilities and platforms to engender catalysing transformation, are all ingredients and determinants of a successful business model renewal (Doz & Kosonen, 2010) by means of directed transformation of the business model (Khanagha et al., 2014).

Business models evolve through a lifecycle which involves periods of specification, refinement, adaptation, revision and reformulation (Morris et al., 2005), and as Khanagha et al. (2014) have found, when dealing with two competing BM, there is a need for recursive iterations between different modes of separated and integrated structures in line with the emergent nature of strategic intent toward the new business model. To manage two business models simultaneously, the firm has to design a context that will allow it to achieve a delicate balance. On one hand, it has to create enough distance between the two business models that they don't suffocate each other, and on the other hand, it has to keep them close enough to exploit synergies between the two (Markides & Sosa, 2013).

Working with a new business model requires experimentation and divergent thinking that can be better achieved by flexible and decentralised structures, and continuing with the existing business model requires focus and is better accomplished via efficient and centralised structures (Khanagha et al., 2014). Business model transformation also requires a change of perceived logic of how value is created (Aspara et al., 2013). There are some potential barriers, which could prevent successful business model transformation. The first one is that companies dealing with severe environmental competitiveness have difficulties in detecting and anticipating market demands (Doz & Kosonen, 2010), and also that frequent adaptation is possibly challenging for an organisation to manage effectively (Saebi, 2014).

As business model transformation is, in its essence, an on-going process that is rooted in past experiences (Massa & Tucci, 2014), previous experiences have an influence on shaping future success and could work as a dominant logic which traps the development possibilities (Chesbrough, 2010) or serves as a launching pad for further activities.

Therefore, I define business model transformation as all activities related to the reconfiguration of existing organisational resources, capabilities, structures or governance

(or providing them if they are missing), which leads to fundamental change in how the company deliver value to the customers and society, and ensures its economic and technological progress. In addition, I understand that business model innovation is a part of business model transformation.

1.4 Determinants of Business Model Transformation

1.4.1 Key Research Streams

The question of how to transform a business model to spur technology improvements, even when the existing business model is highly profitable, has not yet been addressed. This is especially important in strategic alliances where hi-tech companies with innovating technologies complement their weaknesses and lack of capabilities with the strengths and capabilities of their strategic partners (Medcof, 1997), and after a period of success, transform their business model to adapt it to the external or internal factors which offer incentives for a transformation of the business model (Casprini, Pucci, & Zanni, 2014, p. 175).

There is still no common view of what makes a business model transformation successful, especially over a longer period of time when sequences of transformations might take place. When I think about the success of business model transformation, I think about a combination of financial and non-financial outcomes. Among the financial outcomes is growth in terms of total income and profitability, and among the non-financial outcomes are changes in new products / services, new markets /customers, changes in how value is generated or captured, and changes in key activities, resources and cost structure (Achtenhagen et al., 2013, p. 431).

As Martins et al. (2015, p. 102) highlight, current research approaches give primacy to the external context as a driver of business model change, while on the other hand the extant empirical literature on business models is still inconclusive about the key internal determinants and their interdependency during the process of business model transformation.

We could recognise the following research streams related to internal determinants, which profoundly influence successful business model change:

- The first is focused on experimentation which enables gradual organisational learning and effectiveness improvement (Achtenhagen, Melin, & Naldi, 2013; Chesbrough, 2010; McGrath, 2010; Sosna et al., 2010; Teece, 2010),
- the second is oriented to leadership characteristics (Doz & Kosonen, 2010; Foss & Stieglitz, 2014; Smith, Binns, & Tushman, 2010; Sosna et al., 2010),

- the third is oriented to capabilities of managing two business models simultaneously (Casadesus-Masanell & Tarzijan, 2012; Gilbert, Eyring, & Foster, 2012; Khanagha et al., 2014; Markides & Charitou, 2004), and
- the fourth emphasises a close collaboration with customers (Chesbrough, 2003; Osterwalder & Pigneur, 2010; Prahalad & Ramaswamy, 2004; Prahalad & Ramaswamy, 2000).

Among the studies we could not recognise the influence of employees and the influence of communications with the customers as determinants, which have an influence on successful business model transformation.

1.4.2 Experimentation Research Stream

Experimentation and evolutionary learning is linked with unpredictable outcomes in a fast-changing and high-uncertainty environment (McGrath, 2010, p. 253). Also many entrepreneurs when they start venture don't have clearly formed business model (Morris et al., 2005, p. 732) however they could progressively experiment with their business and find even channels which disrupt incumbents in the industry (Massa & Tucci, 2014). In the absence of sufficient data needed by managers or entrepreneurs to take decisions in a volatile environment, or when it comes to any type of innovation, managers and entrepreneurs often rely on irrelevant approaches, such as personal experience, intuition, or conventional wisdom (Thomke & Manzi, 2014, p. 73). The solution to avoid such an unreliable approach is to perform experiments, making sure to do so carefully (Thomke & Manzi, 2014).

Thomke and Manzi suggest a five-item checklist for running business experiments. The five items are: purpose, buy-in, feasibility, reliability, and value. It is not easy to perform scientifically accurate experiments and sometimes they could be replaced with trial-and-error experimentation (Nelson, 2008) or exploratory learning-by-experimenting (Kim, Song, & Nerkar, 2012) to assure sufficient individual and organisational learning. The acquired knowledge subsequently allows successful business model development to be performed (Sosna et al., 2010, p. 386). Taking into consideration that many forces which influence business model change are unknown –or are known but their effect on business model change is unknown –in advance, “it is more sensible to engage in experimentation and discovery than to try to assume the relevant information is all known” (Chesbrough, 2010, p. 357; McGrath, 2010, p. 253).

On the other hand, when managers decide to transform a business model, it is mostly unclear in advance what the final version of the business model will be, so learning and fine tuning elements of the business model or their interrelations is an appropriate approach (Morris et al., 2005, p. 732; Teece, 2010, p. 187). A cognitive barrier of managers to perform business model experimentation could slow the use of experiments

(Chesbrough & Rosenbloom, 2002, p. 358) since companies and managers as individuals could fall into the “dominant logic” trap (Prahalad, 2004). To overcome the barriers, widespread mapping is used for ideation on how a new business model should be like a canvas, as developed by Osterwalder et al. (Osterwalder & Pigneur, 2010), or IBM’s view of a component business model (Pohle, Korten, & Ramamurthy, 2005).

Experimentation is closely related with failures, which define outcomes that are unexpected; meanwhile, one can learn from them as was presented in the analysis of the single case of business model change of the company Naturhouse (Sosna et al., 2010, p. 392). Failures indicate not only the existence of a gap in organisational knowledge, but in many cases also provide a clear indication of where that gap may be. They also increase an organisation’s members’ willingness to search for new knowledge, and simultaneously provide a road map for showing where search activities may be most productive (Madsen & Desai, 2010, p. 454).

On the other hand, experiments should not be linked with mistakes that are outcomes of a badly planned or conducted experiment whose outcome cannot be interpreted, and consequently there is no learning value in it (Sosna et al., 2010). Creating, identifying and experimenting with new business opportunities has been confirmed as a critical capability also in a longitudinal study of 25 small and medium-sized firms (Achtenhagen et al., 2013). In this study it was learned that highly entrepreneurial experimenting was related to market research, new ideas and accepting making failures, which were treated as a basis for learning. In addition, six longitudinal case studies have revealed that a focused commitment to one single business model in combination with simultaneous experimentation is a relevant approach for business model development, and it can have an influence on the long-term survival of ventures operating in uncertainty (Andries, Debackere, & Looy, 2013, p. 288).

When synthesising the issues relevant to experimentation and its influence on business model transformation, the following conclusions can be made:

- Experimentation is widely accepted as a determinant which has an influence on successful business model transformation, especially if the business model change is directed with some degree of novelty.
- Experimentation is closely connected with organisational knowledge acquisition and is appropriate in volatile environments and in any type of unpredictable change including business model change.
- Experimentation with the use of mental maps could reduce initial costs connected with performing experiments because mental maps are developed in a “laboratory” environment, even though real experiments should be done in a real environment, so an organisation should have a positive attitude to failures together with the relevant costs.

- In the literature I could not find a case where business model experimentation was confirmed in the case of business model change together with the strategic alliance separation of a high-tech company.

1.4.3 Leadership Characteristics

From organisational science we know that management should have an active role in all phases of a transformation change process and that three key roles are (Cummings & Worley, 2009, p. 509):

- **Envisioning.** Executives must articulate a clear and credible vision of the new strategic orientation. They must also set new and difficult standards for performance, and generate pride in past accomplishments and enthusiasm for the transformational change in the organisation.
- **Energising.** Executives must demonstrate personal excitement for the changes and model the behaviours that are expected of others. Behavioural integrity, credibility, and “walking the talk” are important ingredients. They must communicate examples of early success to mobilise energy for change.
- **Enabling.** Executives must provide the resources necessary for undertaking significant change and use rewards to reinforce new behaviours. Leaders also must build an effective top-management team to manage the new organisation and develop management practices to support the change process.

The study of Naturhouse (Sosna et al., 2010) highlighted two phases of the business model transformation which were grounded in the founder’s vision to develop a business model which could eventually be franchised and would be able to capture more value from the market. A similar situation occurred at 3Com, one of the Xerox Corporation’s technology spin-offs, where Metcalf, who invented Ethernet LAN technology, sensed the technological opportunity and envisioned that it could yield more revenues if they developed the right business model (Chesbrough & Rosenbloom, 2002). Strategic sensitivity, which includes sharpening foresight in seeing the needs for a business model transformation, has been suggested as leadership meta-capability (Doz & Kosonen, 2010, p. 370).

Leaders must balance the company’s investment in sustaining growth and investment into new value proposition, which requires a new business model (Johnson, 2010, p. 168). In addition to achieving coherence between active and clear leadership, a strong organisational culture and employee commitment have been recognised as a critical capability in a study performed on a sample of 25 companies with numbers of employees ranging from twenty to more than 1000 (Achtenhagen et al., 2013).

The process of business model transformation lasts a number of years (Chesbrough, 2010); therefore, leaders should have enough authority and be able to inspire others to follow the change effort (Lucas & Goh, 2009, p. 48). Envisioning technological or organisational improvement plays an important role in the process of business model formation or transformation in self-dependent companies, but can be a source of problems in strategic alliances if the partners start to feel uncomfortable with the alliance (for whatever reason) and stop sharing the same vision (Peng, 2008).

If, during the strategic separation, an organisation runs a dual business model, with one oriented toward exploration and the other toward exploitation, ambidextrous leadership is proposed as a relevant leadership style. In ambidextrous leadership an authoritative and top-down role is appropriate for the exploitative business, and a visionary and involved style is appropriate for the exploratory business (O'Reilly III & Tushman, 2004, p. 80).

Strategic alliances are voluntary agreements between independent firms to develop and commercialise new products, technologies or services (Rothaermel & Deeds, 2006, p. 430) involving exchange, sharing, or co-developing of products, technologies, or services (Peng, 2008). The complementary capabilities represent one of the most important criteria used to select a strategic alliance partner (Hitt, Dacin, Levitas, Arregle, & Borza, 2000, p. 462) and an effective alliance facilitates learning through access to new resources as well as a unique combination of existing ones (Ireland, Hitt, & Deepa, 2002, p. 430).

In the case of strategic alliances in which partners split the domains of interest and one of them is more oriented to technology development, whereas the other assures access to the market, both partners benefit because of their mutual contribution in assuring a shared vision of success in the future. In such cases, the technology-oriented partner has relative freedom to develop and upgrade its solution as long as the other partner is able to identify needs on the market and sell solutions. If the technological partner sees technological opportunities but the sales partner is not able or interested in selling them, or vice versa, when the selling partner sees needs in the market but the technological partner cannot meet them, the balance between the partners is ruined.

A process of joint venture dissolution (Peng & Shenkar, 2002) is relevant also for strategic alliance dissolutions and leads, if the salvage is not successful, to a final separation which is specific for each of the partners. On the other hand, stakeholders, especially customers, are highly sensitive if their existing and future expectations are threatened because of a strategic separation, and they need to be persuaded that their fears are unfounded. If customers are involved in the creation of technological solutions, it presents an advantage, for during the alliance separation they maintain the same type of relationship with one or even with both partners. A clear technological vision shared by the company in the process of an alliance separation with the customer, in combination with

previous experiences, improves the likelihood of further successful cooperation and a positive outcome of the transformation.

The leadership challenge in the case of business model change lies in getting decision-makers to recognise the threats to the viability of their business models before it is too late, and then to mobilise their resources to address the concerns (McGrath, 2010, p. 257). Irrespective of the type of business model change, the organisation should tackle the following three challenges: inertia forces, the limits of ex ante planning, and maintaining the coherence among business model elements.

The following four roles of top management in leading business model change are proposed regarding the intensity of the business model change (Foss & Stieglitz, 2014):

- **The “monitor role”**, which is relevant for the incremental or evolutionary business model changes where the leaders’ primary role is to support the execution of the current business without an active role in the daily development of the business model. They ensure that employees do not change the existing business model core logic and ensure on-going improvements of the existing business model. They also observe changes to the external environment and evaluate how they influence the viability of the existing business model.
- **The “sponsor role”**, which is relevant for the radical business model changes where separation of the new and old business models, or structural ambidexterity (O’Reilly III & Tushman, 2008), is often the main challenge. Senior management has to act as an active sponsor of the new initiative, especially against internal pressure for capital and resource allocations. Top management must act as a residual boundary span between the old and new business models. A critical task in that regard is to overcome inertia in the traditional business model as the conservative pull there is especially strong.
- **The “moderator role”**, which is relevant when innovative changes affect the entire business model. In this role, top management provides support of system-wide interventions and signals the personal commitment to business model change. This role opens the in-house atmosphere for experimentation and tolerance for failing. The other dimension in this role is guiding searches and moderating conflicts, and it changes and changes to re-establish coherence among business models.
- **The “architect role”**, which is relevant for revolutionary business model changes which take an organisation to a completely new industry or market, and are associated with a high level of uncertainty. Top management becomes the architect that not just provides a broad roadmap, but who is actively involved in everyday experimentation and decision making to realise the perceived potential of her original entrepreneurial judgment.

When synthesising the issues relevant to leadership characteristics and their influence on business model transformation, I can conclude that even though leadership was recognised as an important determinant for business model change (Chesbrough, 2010, p. 361), since the capabilities exchange allocates resources at the highest organisational level (Gilbert, Eyring, & Foster, 2012, p. 72), there are rare attempts with limited range (Foss & Stieglitz, 2014) of what kind of leadership style (Yukl, 2010) is appropriate during business model transformation.

1.4.4 Managing Two Business Models Simultaneously

The search for a new business model often requires an extended period of co-existence between the current and new models (Chesbrough, 2010, p. 361), and how to align the “old” and “new” business models is recognised as a critical success factor (Osterwalder & Pigneur, 2010, p. 245). Running dual business models is demanding, and is many times cited as a leading cause of strategic failure (Casadesus-Masanell & Tarzijan, 2012, p. 132), because two business models probably require different and often incompatible value-chain activities (Markides, 2013, p. 313). Due to technology development, many companies are forced to run two business model simultaneously, such as in the case of Spanish publishing houses, where electronic publishing has been transforming the old “paper-based” way of operating (Cordon-Garcia, Linder, Gómez-Díaz, & Alonso-Arévalo, 2014).

Companies can run two business models when they see the opportunities of serving two different customer segments. In such cases, business models can complement each other, for example in the case of LAN airlines (Casadesus-Masanell & Tarzijan, 2012). There is also a proposition of running two business model transformations (Transformation A and Transformation B) and competing with them simultaneously as a relevant answer to threats from exogenous changes (Gilbert et al., 2012, p. 69).

Gilbert et al. propose that while Transformation A repositions the core business, Transformation B reinvents the new business model and “builds the future”. Results from fifteen case studies show that the most successful management of dual business models has the following characteristics (O’Reilly III & Tushman, 2011, p. 17): they had leaders who had developed a clear vision and common identity; they had built senior teams that were committed to the ambidextrous strategy and intended to explore and exploit, employed distinct and aligned subunits to focus on either exploration or exploitation, and built teams that could deal with the resource allocations and conflicts associated with exploration and exploitation.

The main challenge in managing two business models simultaneously is whether and how to exploit synergies between them (Markides, 2013); how to avoid the potential threat of getting “stuck in the middle”, as Porter argued regarding companies that follow multiple

positioning strategies (Porter, 1996); and how to know when to shift resources from the former to the latter business model because potential negative outcomes can have harmful consequences on managers' positions (Chesbrough, 2010, p. 361). Such dilemmas are even harder when one business model is oriented to exploration and another to exploitation, which require different capabilities of managers to run two completely different organisational alignments (O'Reilly III & Tushman, 2008, p. 190).

One of the key features of ambidexterity is the ability of the organisation to reallocate assets and capabilities to address new threats and opportunities (O'Reilly III & Tushman, 2011, p. 17). Exploitation is oriented toward a short-term perspective, efficiency, discipline, incremental improvement and continuous innovation, while exploration is characterised by a long-term perspective, autonomy, flexibility, openness to risk taking, and less formal systems and control (O'Reilly III & Tushman, 2008).

The study of exploring the role of senior team attributes and leadership behaviour in reconciling conflicting interests among senior team members and achieving organisational ambidexterity shows that organisational ambidexterity requires the development of a strong and compelling shared vision (O'Reilly III & Tushman, 2004, p. 81); however, it did not provide evidence that transformational leadership facilitates the commitment to and implementation of a senior team shared vision in ambidextrous organisations, and further research is recommended on this topic (Jansen, George, Bosch, & Volberda, 2008, p. 999).

A clear and compelling vision relentlessly communicated by the senior management team is crucial for building an ambidextrous design. Even though spatial separation of two business models is one of the proposed strategies for running two business models simultaneously (Christensen & Overdorf, 2000), there is no one solution which could be equally appropriate for all companies (Markides, 2008, p. 87). Markides proposes four possible strategies for managing dual business strategies (Markides, 2008, p. 87; Markides, 2013, p. 315):

- Complete separation, which is characterised by a new business model starting as an entirely new unit with no intention for later integration into the old business model.
- Complete integration, describing a situation when a new business model grows alongside an old business model and the company has no intention to spin it out.
- Phased temporal separation, describing a situation when a new business model grows alongside an old business model and the company spins it out over time.
- Phased temporal integration, which is characterised by a new business model starting as an entirely new unit with the intention of reintegrating it over time.

Based on the study of a large corporation's transition to a new business model, Khanaga et al. (2014, p. 336) claim that complete separation is not an optimal structural approach for dealing with two competing business models. They highlight the need for

recursive iteration between different modes of separated and integrated structures in line with the emergent nature of strategic intent toward the new business model.

Cannibalisation between business models, which is defined as reducing the value of a firm's existing assets and organisational routines when a company adopts a new proposition in the form of a product, service or business model (Chandy & Tellis, 1998), is recognised as one of the major risks of competing with two business models at once (Markides, 2008, p. 134). There are three proposed business model alignment mechanisms, which are (Velu and Stiles 2013, p. 454):

- Alignment via transcendence, where the approach to achieve alignment is to differentiate the reframed perspective with the existing proposition as well as find synergies with it.
- Alignment via separation, where the approach to achieve alignment is to differentiate the propositions between the new and old business models over time in order to also enable synergies between them to be leveraged.
- Alignment via integration, where the approach to achieve alignment is to differentiate the proposition by using the added alternative as a means to do so while highlighting synergies with the existing proposition.

When synthesising the issues relevant to managing two business models simultaneously, and its influence on business model transformation, I can conclude, following Markides (2013, p. 319), that the business model literature has focused mainly on structural solutions and that other elements rounding up the company's organisational context, such as values, vision, incentives, people and culture, are underexplored. This is especially relevant for the special cases of strategic separation when two companies which have been sharing a culture and vision begin to compete on the same market and simultaneously partially cooperate to avoid disruption on the market, which could harm them both.

1.4.5 Collaboration with Customers

The role of customers has evolved over time. Before the year 2000, they were mostly seen as passive buyers with a predetermined role of consumption (Prahalad & Ramaswamy, 2000, p. 80). Their role has changed since 2000 when armed with new technological possibilities, they transformed into active players wanting to interact with firms and co-create and extract value (Prahalad & Ramaswamy, 2004, p. 5). Almost at the same time, Amit and Zott (2001, p. 505) defined four sources of value creation in e-business. One of them is "lock-in", which is closely related to the idea of customer co-creation. Namely, lock-in refers to those business model activities which prevent customers and strategic partners from migrating to competitors (Amit & Zott, 2012).

Companies use different techniques to enhance lock-in: among them are loyalty programs; dominant design; trust; and customisation, which enables customers through different types of engagement to customise products, services or information to their individual needs. This definition is close to the one offered by Prahalad and Ramaswamy (2004), who defined the value co-creation as joint creation of value by the company and the customer. Their understanding of value co-creation was extended that value co-creation was equally necessary for problem identification and was not limited to just resolving the problem (Gebauer, Jahnsen, & Enquist, 2010, p. 515).

For example, five consumer engagement sub-processes were defined in a study of consumer engagement in an online brand community environment reflecting consumers' interactive experience within online brand communities, and value co-creation among community participants (Brodie, Ilic, Juric, & Hollebeek, 2013, p. 110). These five sub-processes are: learning, co-developing, socialising, advocating and sharing. The research highlights that consumer engagement is an interactive and experimental process which leads, if it is successful, to consumer loyalty and satisfaction, empowerment, connections and emotional bonds, and to trust and commitments.

Since 2004, from the co-creation perspective, suppliers and customers have interacted with each other based on service-dominant orientation (Karpen, Bove, & Lukas, 2012, p. 21), which represents a set of strategic capabilities (Karpen et al., 2012, p. 24) that enable an organisation to co-create value in service exchanges for the development of new business opportunities (Galvagno & Dalli, 2014, p. 643).

Increasingly, rethinking how to generate ideas and bring them to the market helped develop the concept of open innovation and open business models, which refer to the opening up of a company's research process to outside partners (Chesbrough, 2003, p. 37). Being open is a powerful generative mechanism to stimulate a great deal of innovation (Chesbrough, 2012, p. 21).

The bibliometric review of the concept of open innovation reveals that it is mainly but not exclusively rooted in technology and innovation management literature and with a strong focus on the user-centric perspective (Kovacs, van Looy, & Cassiman, 2015, p. 972). For example, the exploratory study of 605 innovative SMEs in the Netherlands highlighted that they are practicing open innovation activities extensively and that they are increasingly doing so. Open innovation in these firms was operationalised in the field of technology exploitation and technology exploration (van den Vrande, de Jong, Vanhaverbeke, & de Rochemont, 2009). The study also highlighted that the trend to openness is increasing and confirms that it is not limited to high-tech companies. Customers' contributions vary according to the topic of the competition and include contributing to the core business, product ideas, design concepts, ad campaigns, slogans and even movie trailers (Füller, Hutter, & Faullant, 2011, p. 261). The study of designers

and creative consumers invited from all over the world to engage in a 'jewellery design competition' community shows that new product design has been recognised as one of the major challenges of product innovation. However, not all lessons learned from the early adopters of the new concept may be applicable to the following firms due to different reasons, for example, followers are reluctant to accept organisational changes or the new concept is less attractive to them (Huizingh, 2011, p. 7).

The new service-dominant logic (compared to the old goods-dominant logic) is based on exchange of intangible resources, such as skills, information, and knowledge, and toward interactivity, connectivity and an on-going relationship (Vargo & Lusch, 2004, p. 15), which has ten foundational service-dominant premises (Vargo & Lusch, 2008, p. 7). Prahalad and Ramaswamy add that customers bring to a business a function of their willingness to learn and experiment, and their ability to engage in an active dialogue (Prahalad & Ramaswamy, 2000, p. 80). All the elements of the value co-creation process, which researchers define due date, were grouped into five pillars which are process environment, resources, co-production, perceived benefits, and management structure (Bharti, Agrawal, & Sharma, 2015, p. 579).

Becoming co-creative is impossible without the active involvement of managers at all levels and even more, every employee who interacts with customers has the same responsibility. Co-creation has the power to energise the whole organisation. (Ramaswamy, 2009).

When synthesising the issues relevant to customer co-creation and its influence on business model transformation, I can conclude that customer engagement gained great respect with the introduction of open innovation and open business model concepts. This concept applies to many industrial areas resulting in varying degrees of intensity and involvement of customers' collaboration with the company.

This blurs the picture of what their actual impact on business model transformation is compared to their impact of improved functioning of the existing models. This question is especially under-researched in the field of strategic alliance separation where the customer is caught in a dilemma of whether to continue collaborate with one, the other or both partners, and to what level of intensity. Whether cooperation with customers in such a delicate situation has a significant impact on the success of the transformation of the business model has yet to be studied.

1.4.6 Employee Cooperativeness

Business model transformation is in essence a change process (Massa & Tucci, 2014) and a demanding challenge (Amit & Zott, 2001). In general, it requires high flexibility not only among management but also among employees (Cummings & Worley, 2009, p. 350), who should be self-motivated to change (Prahalad & Ramaswamy, 2000, p. 87). Any type

of transformation effort in an organisation is impossible unless the employees believe that useful change is possible (Kotter, 1995, p. 63). It is not an easy task to create a state of behaviourally engaged employees compared to changing a price or a product (Macey & Schneider, 2008, p. 26).

Efforts to implement change in an organisation are more likely to be successful if a leader understands the reasons why people accept or resist change, the sequential phases in the change process, the different types of change, and the importance of using appropriate models for understanding organisational problems (Yukl, 2010, p. 297). Employees must learn how to enact the new behaviours required to implement new strategic directions, which typically involves new behaviours, assessing their consequences, and modifying them if necessary (Cummings & Worley, 2009, p. 509).

An even greater challenge is how to prepare employees not only to change and adapt to the new business model, but also to encourage their creativity and active involvement during its transformation. Autonomous motivation, including intrinsic, integrated, and identified forms, provides reasons to pursue change to achieve different future. However different forms of motivation work in different contexts (Parker, Bindl, & Strauss, 2010, p. 838). When employees choose to behave proactively, they are focused on the goal of meaningfully altering the self, external situation, or the contexts in which they are situated (Grant & Ashford, 2008, p. 9; Williams, Parker, & Turner, 2010, p. 302).

A number of studies have investigated the relationship between leadership style and employee creativity. For example, an explorative study in seven different companies emphasises the importance of daily communication and interactions between leaders with employees, which influences their daily perceptions, feelings, and performance, and ultimately influences the overall creativity of the work that they do (Amabile, Schatzel, Moneta, & Kramer, 2004, p. 25).

Another study finds that empowering leadership positively affects psychological empowerment, which in turn influences both intrinsic motivation and creative process engagement, both of which positively influence employee creativity (Zhang & Bartol, 2010, p. 117). It also finds that the expectation of subordinates serve as an important component in the evaluation of how subordinates respond to empowering leadership (Humborstad & Kuvaas, 2013, p.373). The study of the role of unconventional leaders' behaviour reveals that it enhances the effects of a leader's role, modelling creativity at the individual level, while at the group level, unconventional behaviour strengthens the cohesiveness of the group above and beyond transformational leadership (Jausssi & Dionne, 2003, p. 491).

An appropriate strategy from the perspective of employees to overcome internal resistance to business model change is to shift some parts of the user integration process,

and its associated responsibilities and abilities, from top to middle management, or to selected employees, in order to encourage wider acceptance of the new business model. This strategy was presented in a multi-case comparison among three large companies (Hienerth, Keinz, & Lettl, 2011, p. 358). To do that, the role of top management's psychological and emotional character is important as was revealed in the study of business model change through trial-and-error learning (Sosna et al., 2010, p. 400).

Individual and organisational learning is vital during the business model transformation because the right business model may not be apparent up front, (Teece, 2010, p. 188) and consequently knowledge sharing and evolutionary learning among individuals and groups plays an important role (Sosna et al., 2010). The survey among employees from a large multinational corporation highlights determinants of individual engagement in knowledge sharing. The self-efficacy, openness to experience, and perceived support from colleagues and supervisors are highly associated with sharing knowledge, and significantly predict employee participation in knowledge exchange (Cabrera, Collins, & Salgado, 2006, p. 259).

With the strategy of employee empowerment during the business model change, two internal barriers are addressed, the psychological "loss of control" and organisational "inertia" (Hienerth, Keinz, & Lettl, 2011, p. 358). Another approach focused on enabling transformational changes is learning directed by a vision of the future organisation and by the values and norms needed to support it. This approach occurs at all levels of the organisation, from senior executives to lower-level employees (Cummings & Worley, 2009, p. 508). There are different roles of employees linked with the different roles of top management (monitor, sponsor, moderator and architect) and a cohesive characteristic is that employees should be actively engaged in the process of business model change (Foss & Stieglitz, 2014).

We know a lot about employee engagement, their motivation and creativity encouragement. However the question how employee are actively involved into business model transformation is rarely directed. This is especially important when the period for business model transformation is limited and its successfulness depends on company's ability to assure among missing resources also product line which allows company to individually step out on the market.

2 METHODOLOGY

2.1 Qualitative Research

All research, whether qualitative or quantitative, is based on some underlying assumptions about what constitutes “valid” research and which research methods are appropriate (Myers, 2010, p. 35). Qualitative research, in contrast to quantitative, uses more of an interpretive, naturalistic approach to its subject matter (Denzin & Lincoln, 2011, p. 8). It is concerned with understanding phenomena, in contrast to quantitative research, which deals with explanation, hypothesis testing, and statistical analysis (Erikson & Kovalainen, 2008). Guba and Lincoln note that qualitative, as well as quantitative, methods may be used appropriately with any research paradigm and that questions of method are secondary to the question of paradigm, which is defined as the basic belief system or world view that guides the investigation (Guba & Lincoln, 1994, p. 105).

According to Charmaz, qualitative researchers have one great advantage over their quantitative colleagues; that they can add new pieces to the research puzzle or conjure entire new puzzles while they gather data, which can even occur late in the analysis. The flexibility of qualitative research permits them to follow leads that emerge (Charmaz, 2006).

Saunders et al. (2009) suggest four underlying paradigms for management research: positivism, realism, interpretivism and pragmatism. Many researchers suggest a similar categorisation with minor changes, or as Myers claims, “in practice of social science these distinctions are not always clear cut” (Myers, 2010, p. 36). In Table 3, I present a comparison between three traditional methodologies of research which I adapted from Gephart (2004, p. 456), who presents a simplified conception of three perspectives, which are a combination of positivism and post-positivism, interpretivism, and critical postmodernism.

As we can see, the goal of interpretive research is to describe meanings and improve understandings. Central to the interpretive framework is the notion of *Verstehen*, or understanding, and several philosophers and social scientists have emphasised the inseparability of understanding from interpretation. Glaser and Holton (2004) assert that in the case of qualitative data, the explicit goal is description. At some level, then, all social research is interpretive because all such research is guided by the researcher’s desire to understand (and therefore interpret) social reality (Bhattacharya in Fetterman, 2008, p. 464). The data collection techniques most often used in interpretivism, according to Saunders (2009), are small samples, in-depth investigation and qualitative research.

Table 3: Research Tradition Perspectives

Tradition	Positivism and post-positivism	Interpretive research	Critical postmodernism
Assumption about reality	Realism: Objective reality that can be understood by mirror of science (definitive / probabilistic)	Relativism: Local intersubjective realities composed from subjective and objective meaning: represented with concepts of actors	Historical realism: Material/symbolic reality shaped by values and crystallises over time
Goal	Discover truth	Describe meanings and understandings	Uncover hidden interests and contradictions, critique, transform and emancipate
Task	Undertake explanation and control of variables: discern verified hypotheses or non-falsified hypotheses	Produce a description of members' meaning and defining of situation: understand reality construction	Develop structural or historical insights that reveal contradictions and allow emancipation, spaces for silenced voices
Unit of analysis	Variable	Verbal or nonverbal action	Contradictions, critical incidents, signs and symbols
Methods focus	Uncover facts, compare these to hypotheses or propositions	Recover and understand situated meanings and systematic divergences in meaning	Understand the historical evolution of meanings, material practice, contradictions, inequalities

Source: R. P. Gephart Jr., *From the Editors: Qualitative Research and the Academy of Management Journal*, 2004, p. 456.

The strength of an inductive approach is that an understanding of the problem or phenomenon is gained from the perspective of those who are involved (Saunders et al., 2009) and, as opposed to a deductive approach, theory, explanations, and interpretations are made based on evidence which are collected first (Preissle, 2008, p. 15). When researchers follow the inductive research logic, they proceed from empirical research to theoretical results (Erikson & Kovalainen, 2008).

The major way qualitative research has been used in social science and business research is when prior insights about the phenomenon under scrutiny are modest, which implies that qualitative research tends to be exploratory and flexible because of unstructured problems (Erikson & Kovalainen, 2008).

The great advantage of exploratory research is that it is flexible and adaptable to change, and the researcher must be willing to change direction as a result of new data appearing or a new insight occurring to them (Saunders et al., 2009). On the other hand, because of this research flexibility, it is critical that qualitative researchers offer detailed accounts of their data sources and analysis (Bansal & Corley, 2012). “What” type research questions provide a justifiable rationale for conducting an exploratory study in order to develop a pertinent hypothesis and propositions for further research (Yin, 2009).

Qualitative research is important for management scholarship because it can (Gephart Jr., 2004, p. 455):

- provide insights that are difficult to produce with quantitative research,
- provide bases for understanding social processes that underline management,
- provide memorable examples of important management issues and concepts that enrich the field, and
- rehumanise research and theory by highlighting the human interactions and meanings that underlie phenomena and relationships among variables that are often addressed in the field.

Another common reason to use qualitative research is to provide a better understanding of issues that have remained unclear in quantitative studies (Erikson & Kovalainen, 2008, p. 5). If only limited theoretical knowledge exists concerning a particular phenomenon, an inductive research strategy that lets theory emerge from the data can be a valuable starting point (Siggelkow, 2007, p. 21). Two additional purposes of exploratory studies are “to identify or discover important categories of meaning” and “to generate hypotheses for further research (Marshall & Rossman, 2011).

2.2 Research Strategy

The purpose of this study is to investigate the little understood phenomenon of successful business model transformation with the aim to understand it better and determine the key determinants and their characteristic, as well as to generate a theory of successful business model transformations. Therefore, my underlying research paradigm is interpretivism.

Qualitative studies are often designed at the same time as they are being done, so they require highly contextual individual judgments (Gephart Jr., 2004, p. 455). In addition, they are open to unanticipated events, and they offer a holistic depiction of realities that cannot be reduced to a few variables. There are many research strategies for qualitative studies, such as; case study research, grounded theory research, ethnographic research, focus group research, action research narrative research, discourse analysis, feminist research, critical research (Erikson & Kovalainen, 2008), and many more.

In accordance with the initial research focus on how the completed set of factors explained successful transformations of business models, in order to help firms transform business models more successfully, I used a qualitative research approach in which I used two commonly used methods for inductive research. The used methodology involves a single case study from which data are derived, and for analysing, I used the grounded theory methodology of constant comparative analysis. By using both approaches I gathered relevant information about the on-going business model transformation and its determinants.

Case study research is an empirical inquiry that investigates and describes in depth particular instances of a contemporary phenomenon with its real-life context, especially when the border between phenomenon and context is not evident (Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Yin, 2009). At the same time, I used a grounded theory approach, which refers to both the method and the results of the research. Such a combination is widely used in different fields of research, such as health (Thomassen, Ahaus, & de Walle, 2014), software engineering (Adolph, Hall, & Kruchten, 2011), or tourism (Minnaert, 2014). The methodology consists of a specific set of procedures; however, it is not a mere method or technique for qualitative data; it has more ambitions toward theory development than empirical analysis. Its main characteristic is that the theory emerges through constant comparisons of the data (Erikson & Kovalainen, 2008, p. 154).

This case survey was special because at the time of its execution, the business model transformation process had not yet been completed. That kind of research (real world) is very rare (Sosna, Trevinyo-Rodríguez, & Velamuri, 2010). At the beginning of the study, our initial focus was broad, but it became progressively narrower as the study progressed (Saunders et al., 2009). However, according to Saunders et al. (2009), I gathered relevant information about the on-going business model transformation and its determinates flexibly “but not with absence of direction”. The initial definition of the research question, in at least broad terms, is important in building theory from case studies because it focuses the research and prevents it from becoming overwhelmed by the volume of data; however, the research question may shift over the course of the study (Eisenhardt, 1989).

2.3 Case Study

The case study is a research strategy which focuses on understanding the dynamics present within single settings (Eisenhardt, 1989) and when addressing complex organisational, managerial, and other business issues which are thought to be difficult to study with quantitative methods (Erikson & Kovalainen, 2008, p. 117). They can be divided from a methodological point of view into deductive, mostly quantitative research and an explanatory, positivist type of research (Myers, 2010, p. 72). The aim of such research is to produce statistical generalisation (Erikson & Kovalainen, 2008, p. 116).

On the other hand it can be used as a research strategy when addressing complex organisational, managerial or other issues where a qualitative and interpretative approach and understanding of the case is the aim. It is important to understand that business researchers make the case “a case” by transforming the object of study into the object of interpretation and understanding, and by doing this they also define the boundaries of the case, which can be defined in terms of time and place (e.g. an event, an activity, individuals or group of people) (Erikson & Kovalainen, 2008, p. 177) Regardless of the type of case study, the case approach does not favour any particular type of information – qualitative or quantitative (Locke, 2003, p. 17).

Case studies are used in many disciplines, but in business schools the most popular use is in teaching and research (Myers, 2010, p. 71). Research cases are used as empirical evidence to convince other researchers of the applicability (or inapplicability) of a particular theory or propositions, and consequently to contribute to the overall knowledge in a particular field. They can be used in the exploratory phase of a research topic to discover the relevant features, factors, or issues that might apply in other, similar situations or in the explanatory phase where a large body of literature on the subject already exists (Myers, 2010).

Stoecker suggests two types of case study: intensive and extensive. The aim of an intensive case study is to understand a unique case from the inside by providing a thick, holistic and contextualised description (Stoecker, 1991, p. 95). Building theory from cases is likely to produce theory that is accurate, interesting, and testable and is a natural complement to a mainstream deductive approach (Eisenhardt & Graebner, 2007). Conversely, the aim of an extensive case study is to elaborate, test or generate generalisable theoretical constructs by comparing (replicating) a number of cases. There are many definitions of case study research and common to the various definitions of case study research is an emphasis on the production of detailed and holistic knowledge, which is based on multiple and rich empirical sources (Tellis, 1997).

Even though theory building is the primary goal of an extensive case study using a multi-case approach (Eisenhardt, 1989), an intensive or single case could also be used to elaborate theory (Erikson & Kovalainen, 2008; Flyvbjerg, 2006). Myers (2010, p. 83) asserts that many qualitative studies make the mistake of thinking that one case is not enough, as they use sampling and statistical logic to judge the validity of the case method.

He claims that in case study research statistical concepts are meaningless. Instead of using sampling logic to justify case study research, it is much better to generalise one or more cases to theory. Yin, on the other hand, claims that the role of theory development, prior to conducting any data collection, is one point of difference between case studies and related methods such as ethnography and grounded theory (Yin, 2009, p. 35).

Such a claim is for Myers (2010, p. 75) proof that Yin advocates a positivist approach to case study research and he claims that other types of case studies, such as interpretive and critical case study research, do not require or recommend the use of propositions or hypotheses in research. Most importantly, theory-building research should begin as close as possible to the ideal of no theory under consideration and no hypotheses to test (Eisenhardt, 1989).

According to Yin, there are some prejudices against using the case study method, which are (Yin, 2009, p. 15):

- There is a lack of rigor, where an appropriate technique to minimise these potential threats is following the case study protocol and reports all evidence fairly.
- There is little basis for scientific generalisation, which is true. However, the goal of a single case is not statistical generalisation but analytic generalisation, which means expanding and generalising theory.
- The study takes too long and the results are massive, unreadable documents. According to Yin, this critique is relevant only for the case studies performed in the past and today such a view is more appropriate for other types of research strategies, such as ethnography. He even claims that today's approach to case studies means they could be carried out solely on the telephone or internet, depending on the topic being studied.
- There is a misuse of the case study for studies where a causal relationship is addressed, which pure case study research cannot directly address.

Myers emphasises another set of disadvantages of doing case study research, particularly in business settings. The major one is that it is not easy to achieve access to companies because of scepticism or worry that the research might take too much valuable time (Myers, 2010, p. 81).

Another disadvantage is that the researcher has no control over the situation, which could suddenly change due to various reasons. Especially hard is case study research for inexperienced researchers, who could end up with a huge amount of data, most of which turns out to be irrelevant. The last disadvantage is that it can prove to be extremely time consuming, even for experienced researchers (Myers, 2010, p. 81).

I followed an eight-step road map for theory building which synthesises previous work on qualitative methods where “substantial confusion about how to combine them, when to conduct this type of study, and how to evaluate it” existed (Eisenhardt, 1989). By using such an approach, I avoided a lack of rigor as I prepared a case study protocol and a case study database (Yin, 2009), which led me through the simultaneous data collection and data analyses period.

As a single case, I chose a hi-tech company that changed its business model during the period 2008-2014. The previously strategically-aligned company oriented into data acquisition (DAQ) software development changed its business model to assure independence, unlock its technological and economic potential, and manage its entire business process in-house. Such a business model transformation is distinct from other known transformations.

A single case may be justifiable when the research of a topic is in its early stages (Eisenhardt, 1989), is persuasive (Siggelkow, 2007) and represents a critical case in testing well-formulated theory, is an extreme or unique case, is a representative or typical case, is a revelatory case, or is longitudinal (Yin, 2009, p. 47). While the studied company was chosen purposefully as a productive sample, its specifics make it revelatory, illustrative and persuasive (Marshall, 1996) and, according to Yin, it corresponds as unique and longitudinal (Yin, 2009).

2.4 Grounded Theory

Grounded theory is a general method and it can be used on any data or combination of data (Glaser, 1999). All studies are by definition grounded in data in some way, but research grounded in data is not grounded theory, although many would have their work designated that way. It is grounded theory only when it follows the grounded theory methodological package (Glaser, 1999). A specific of grounded theory is that it is not developed with the initial theoretical framework but it is grounded with data generated by a series of observations (Saunders, Lewis, & Thornhill, 2009, p. 149).

One of the main differences between grounded theory and other qualitative research methods is its specific approach to theory development – grounded theory suggests that there should be a continuous interplay between data collection and analysis (Charmaz, 2011; Myers, 2010, p. 107; Suddaby, 2006) because grounded theory is much more than just simply a search for patterns in the data (Adolph, Hall, & Kruchten, 2011, p. 496) and contradicts the myth of a clean separation between data collection and analysis (Suddaby, 2006, p. 634).

The advantage of grounded theory strategies is that researchers may learn about gaps and holes in their data from the earliest stages of research and can locate sources of needed data and gather them (Charmaz, 2006, p. 48). Therefore, simultaneous data collection and analysis can help them go further and deeper into the research problem as well as engage in developing categories (Charmaz, 2006, p. 48). The essential element for grounded theory is the coding process of the data which is related to the general questions of how and in what way the researchers arrive at the interpretation made in the qualitative research, and how systematically these interpretations are being made (Erikson & Kovalainen, 2008).

Its most common and appropriate use is in exploratory research into phenomena about which little theoretical knowledge has been developed (Suddaby 2006), so it naturally fits with the exploratory type case study research. Grounded theory is a research tradition relying heavily (although not exclusively) on depth interviews, observation, and document analyses in search of processes people use to address the important problems they face (Mello & Flint, 2009). Grounded theory is one of many tools used in social psychological research, where research methods go in many directions, using many methodological approaches, both quantitative and qualitative and mixes of the two (Glaser, 1999).

Grounded theory was coined in the mid-1960s by Glaser and Strauss, who claim that it is much more sensitive to real life problems in contrast to the logico-deductive approach (Erikson & Kovalainen, 2008). They described an organic process of theory emergence based on how well data fits conceptual categories identified by the observer (Suddaby, 2006, p. 634). Over the years, both researchers went on to develop separate and independent, but inconsistent, versions of grounded theory: Glaser's positivist version or "classic grounded theory" (Glaser & Holton, 2004) and Strauss and Corbin's postpositivist version (Charmaz, 2011, p. 168).

Glaser and Charmaz contended that Strauss and Corbin forced data into "preconceived procedures" (Corbin & Strauss, 1990) and, because of that, lost the fundamental grounded theory emphasis on emergent theory. Based on academic critiques of several other researchers, Corbin, a co-author of the approach with Strauss, has modified their stance on procedures and states that they had not intended for readers to view their method as rule-bound (Charmaz, 2011, p. 168).

In the past decade, Bryant and Charmaz have developed a constructivist grounded theory, based on the earlier work of Glaser, which seeks an interpretive understanding rather than variable analysis that produces abstract generalisation separate from the specific conditions of their production. In contrast to Glaser, where the creating abstraction was removed from the particularities of time, space, and situation, a constructivist grounded theory aims to create interpretive understandings located in these particularities and to take into account how researchers' and research participants' standpoints and positions affect interpretation (Charmaz, 2011). A constructivist interpretation of grounded theory thus rejects Glaser's underlying philosophy of *discovering* an implicit theory with argumentation that "neither data nor the theories are discovered", and claims that researchers construct grounded theory through researchers' past and present involvements and interactions with people, perspectives and research practice (Kenny & Fourie, 2014, p. 6).

Grounded theory has become a general method of analysis, and coding and memo writing have become part of the broader lexicon of qualitative inquiry (Charmaz, 2011, p. 165). The major contribution of grounded theory to data collection is its emphasis on using

tentative theoretical categories to inform subsequent data collection (Charmaz, 2011). Charmaz sees the grounded theory method as a set of general principles, heuristic devices and practices, not as prescriptions or packages of “formulaic rules”, and it emphasises flexible guidelines, not methodological rules, recipes, and requirements.

According to this view, she suggests fewer rules and more flexible guidelines (Charmaz, 2006). However, she agrees that the defining components of grounded theory practice, which help researchers to control their research process and increase the analytic power of their work, should include (Charmaz, 2006, p. 5):

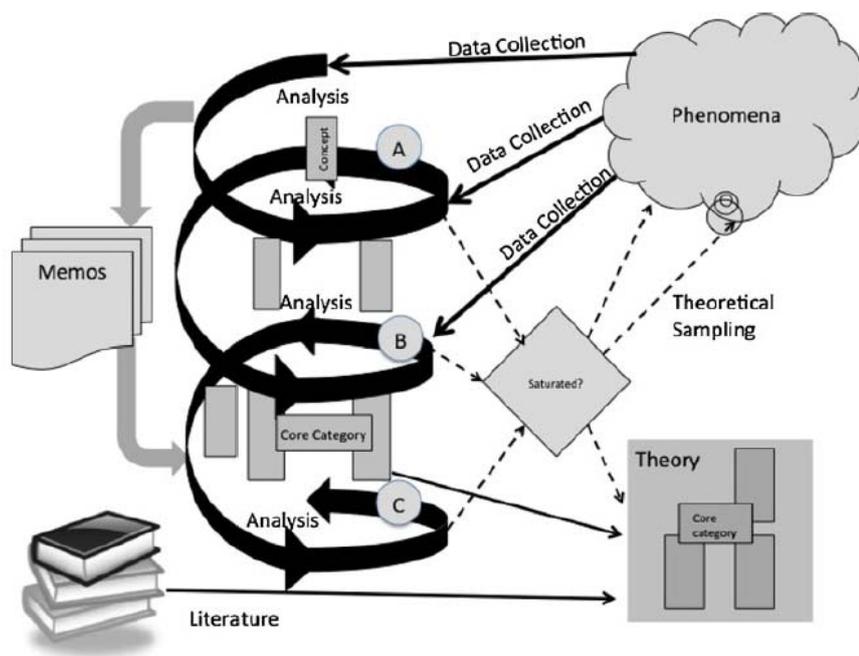
- simultaneous involvement in data collection and analysis,
- constructing analytic codes and categories from data, not from preconceived logically-deduced hypotheses,
- use of the constant comparative method, which involves making comparisons during each stage of the analysis,
- advancing theory development during each step of data collection and analysis,
- memo-writing to elaborate categories, specify their properties, define relationships between categories, and identify gaps,
- sampling aimed at theory construction, not for population representativeness,
- conducting the literature review *after* developing an independent analysis.

Grounded theory directs researchers to study the most fundamental process in a field setting and to construct a fresh theoretical analysis of it (Charmaz, 2011, p. 170). However, grounded theory can be used in part or in whole by researchers. When used in part, it is “adopt and adapt” with other research methods woven in based on the training and judgment of the researcher involved (Glaser, 1999).

I used the “adapt and adopt” grounded theory with the case study research and assured constructing emerging theory by using an interplay of three research sequences between data collection and data analysis in the manner presented in Figure 3 (Adolph et al., 2011). Based on their experience, doing research to study experience of software development by using grounded theory is not a straightforward, mechanical, and rigorous process in which the researcher makes easy progress. Just the opposite, they found it messy, tedious, and difficult, and it involved many “false leaps, blind alleys, and dead ends” (Adolph et al., 2011, p. 492).

There are two additional features of grounded theory which help set it apart from other qualitative methods (Mello & Flint, 2009, p. 113). The first is that it is not limited to a description of the phenomenon, but seeks to develop theoretical concepts, and the second is that it is not bound to a particular unit of analysis, time, or place. However, few researchers can avoid earlier theoretical and empirical studies in the area of their interests and Charmaz (2011, p. 166) suggests that grounded theorists should adopt a stance of “theoretical agnosticism” rather than aiming to enter their research as a *tabula rasa*. The real danger of prior knowledge in grounded theory is not that it will contaminate a researcher’s perspective, but rather that it will force the researcher into testing a hypothesis either overtly or unconsciously, rather than directly observing (Suddaby, 2006).

Figure 3: The Grounded Theory Method Developed in Three Sequences



Source: S. Adolph, W. Hall & P. Kruchten, *Using grounded theory to study the experience of software development*, 2011, p. 492.

There are three ways to prevent such an approach and none of them justifies ignorance of the existing literature (Suddaby, 2006, p. 635):

- Researchers should address more than one substantive area to prevent them from adhering too closely to just one.
- Researchers should be constantly aware that they are contaminated by a pre-existing conceptualisation of the subject area.
- Researchers should try not to overextend the objective of the grounded theory research.

Myers (2010) claims that grounded theory is not only realised if researchers use the method to progress from coding to theory generation, but that theories are firmly grounded in empirical phenomena in order to develop new concepts and theories of business-related phenomena.

A modifiability of grounded theory is crucial for two reasons (Glaser & Holton, 2004). First, in many preconceiving, verificational methods, it is the data that is poor, not the theory. Second, grounded theory shows that “all is data” – any piece of data, regardless of the quality, can constantly modify the theory through comparisons. Modifying the theory is crucial in order to keep it current as changes occur, thereby increasing its formal abstraction. It constantly corrects for poor data (e.g., response sets of interviewers) and it brings the theory into closer grounding (Glaser, 1999).

It is important to be aware that grounded theory is not a “universal law-like” product (Erikson & Kovalainen, 2008, p. 159), because it is oriented to a social science context which is not “homogenous over time” (Checkland & Holwell, 1998). Therefore, it is extremely important that it be generated by following rules such as abduction (induction, deduction and verification), by constant comparisons which lead to producing coded categories (between collected data and analysis of them), and by theoretical sampling (additional activities which are directed by evolving theoretical constructs).

In the study a constructivist grounded theory approach was used because I contend that I have constructed grounded theories through our past and present involvements and interactions with people, perspectives, and research practices (Charmaz, 2006, p. 10). During the research, these guidelines were followed:

- **Gathering data:** Data was collected from different sources and with different techniques in three research sequences. The great advantage of grounded theory is that the researcher can add new pieces to the research puzzle or conjure entire new puzzles while they gather data, and that can even occur late in the analysis. The flexibility of qualitative research permits the researcher to follow leads that emerge (Charmaz, 2006). As I did research in three sequences and progressed through the research, I collected more and more data from different sources and by collecting new data, I better understood even the existing data.
- **Coding data:** In the grounded theory process, it is crucial that codes arise from the researcher’s interaction with data and that they are not preconceived and applied to the data (Charmaz, 2006).
 - The first analytical step after cleaning and sorting the data is naming segments of the data with a label or open code that simultaneously categorises, summarises and accounts for each piece of data (Charmaz, 2006, p. 43). Pieces of data could come word by word, line by line, or segment by segment. I used segment by

segment coding based on the interviewees' responses. During coding I used comparative methods and compared data from every interview within each research sequence, and I subsequently compared the data between all three sequences. I followed the advice of Charmaz and rather than seeing recognised perspectives as truth, I tried to see them as representing one view among many (Charmaz, 2006, p. 54).

- The second analytical step is focused or “selective” coding (Glaser & Holton, 2004), which means using the most significant and/or frequent earlier codes to sift through large amounts of data. Focused coding requires decisions about which initial codes make the most analytic sense to categorise data incisively and completely (Charmaz, 2006, p. 60). After I developed focused code in each research sequence, I compare the data to these codes which helped me to refine them.
- The third analytical step is theoretical coding, which is used for specifying possible relationships between categories that have been developed during focused coding (Charmaz, 2006, p. 63).
- Theoretical codes conceptualise how the substantive codes may relate to each other as hypotheses or propositions to be integrated into the theory and give integrative scope, broad pictures and a new perspective. (Glaser & Holton, 2004).
- **Memo-writing:** Memos present informal analytical notes which could be different in form and length, according to the stage of the research project and the type of coding one is performing (Corbin & Strauss, 1990). They present theoretical notes about the data and the conceptual connections between categories (Glaser & Holton, 2004). Memos should be written from the beginning of the study; at the beginning they are about codes and data and later progress to theoretical categories, meaning they are written throughout the research process (Charmaz, 2006; Corbin & Strauss, 1990). According to Glaser, it is essential that the analyst interrupts coding to note in memos ideas as they occur if he/she is to reap the subtle reward of the constant input from reading the data carefully, asking the above questions and coding accordingly (Glaser & Holton, 2004). Memos are a “system” that helps the analyst to readily keep track of all the categories, properties, hypotheses, and generative questions that evolve from the analytical process (Corbin & Strauss, 1990, p. 10). Charmaz (2006, p. 80) notes that methods for producing memos rely on making them spontaneous, not mechanical, and adds that memos can remain private and unshared. She suggests that in memo-writing “do what works for you”. For example, Adolph et al. (2011) show that they use in their research three types of memos; category, process and speculative memos. In our research I started using memos immediately after the initial analysis of the first interview. I used a combination of two forms of memos, one was a classical record in a word format and the other was made up of sketches in which I drew on sheets of paper relations among row data, concept and categories. During my commute to the

field, which took one hour each way, to I was able to make voice recordings to catch ideas that flashed through my mind. Later I wrote them in classical memos.

- **Theoretical sampling, saturation, and sorting:** Theoretical sampling is the process of gathering, seeking, and collecting relevant data to elaborate and refine categories in the emerging theory. The researcher should conduct theoretical sampling to develop the properties of all categories until no new properties emerge. By doing this, they saturate the categories with data and subsequently sort them into an emerging theory (Charmaz, 2006, p. 96). The process of data collection is controlled by the emerging theory, so beyond the decisions concerning the initial collection of data, further collection cannot be planned in advance of the emerging theory. Only through the research process can the researcher discover codes and try to saturate them by theoretical sampling in comparison groups (Glaser & Holton, 2004). Sometimes qualitative researchers claim to use theoretical sampling but do not follow the logic of grounded theory. They mistake theoretical sampling for the following types of sampling (Charmaz, 2006):
 - Sampling to address initial research questions.
 - Sampling to reflect population distributions.
 - Sampling to find negative cases.
 - Sampling until no new data emerge.

Simply by saying initial sampling in grounded theory is where a researcher starts his/her project, whereas theoretical sampling directs them where to go (Charmaz, 2006, p. 100).

At the beginning of the research I conducted two interviews, one with each executive director. Based on the first input, I successfully developed initial categories and based on them went into collecting additional information by performing the third interview in the first research sequence and by collecting and analysing external secondary data. Based on the collected data, I developed tentative categories and presented them to the executives in the second research periods. Based on their comments and the additional data collected (two more interviews and internal secondary data), I constructed a second group of tentative categories at the end of the second research period. By extending the research to other informants in the third research sequence, I collected new data relevant for the existing categories and also gained new insight which enlightened my previous understanding of the analysed data. Based on that, I decided to recode all of the data again and I also decided to stop with further collection of data because many categories had reached saturation and for other practical reasons.

- **Constructing theory:** There are different views on what theory is. Positivist definitions of theory treat it as a statement of relationships between abstract concepts that cover a wide range of empirical observations. The objectives of theory are

explanation and prediction, and they seek causes, favour deterministic explanations, and emphasise generality and universality (Charmaz, 2006, p. 125). On the other hand, interpretive definitions of theory emphasise understanding rather than explanation. Proponents of this definition view theoretical understanding as abstract and interpretive; the very understanding gained from the theory rests on the theorist's interpretation of the studied phenomenon. This type of theory assumes emergent, multiple realities; indeterminacy; facts and values as linked; truth as provisional; and social life as procession. Constructivist grounded theory is part of the interpretive tradition and places priority on the phenomena of study. It also sees both data and analysis as created from shared experiences and relationships with participants and other sources of data (Charmaz, 2006, p. 130). Constructivism fosters researchers' reflexivity about their own interpretations as well as those of their research participants (Charmaz, 2006, p. 131). Formulation of a theory is the third stage in grounded theory. Different researchers have named this stage differently; e.g. theoretical coding (Charmaz, 2006, p. 63) or selective coding (Corbin & Strauss, 1990; Glaser & Holton, 2004). This stage, however, involves formulation of a theory where the aim is to create inferential and/or predictive statements about the phenomena, which is achieved by specifying explicit casual and/or correlational linkages between individual interpretive constructs (Myers, 2010, p. 110). In our research I used a constructivist view of grounded theory construction and follow the rules and guidelines carefully; however, at the same time I tried to "foster my own critical and creative inspiration" for building theory (Myers, 2010, p. 111).

2.5 Data Collection Techniques

2.5.1 Interview

As primary data collection methods, I used unstructured interviews, semi-structured interviews and direct observation. Direct observation was performed during the interviews, informal conversations, site walks, attended meetings and informal social gatherings.

An interview is a purposeful discussion, but not a dialogue, between two or more people about a "theme of mutual interest" (Kvale, 2006, p. 483). A discussion or talk between a researcher and an interviewee is organised into a series of questions and answers (Erikson & Kovalainen, 2008). It should be a guided conversation rather than structured queries (Yin, 2009, p. 106). Interviews are one of the most important data gathering techniques for qualitative researchers in business and management because they allow a researcher to gather rich data from people in various roles and situations (Myers, 2010, p. 121).

In general, we divide interviews, regarding the level of formality, into structured, semi-structured and unstructured (in-depth) interviews; regarding standardisation, interviews

could be standardised and non-standardised; and regarding the opportunity of interviewees to express themselves freely, there are informant and respondent interviews (Saunders et al., 2009, p. 320).

Structured and standardised interviews are used in positivist-oriented studies where the “what” type of questions arises. Such types of interviews are considered to be qualitative only if open questions are allowed (Erikson & Kovalainen, 2008, p. 81). A structured interview minimises the role of the interviewer during the interview itself, since there is no need for “improvisation” during the interview (Myers, 2010, p. 124).

Guided and semi-structured interviews are used to study “what” and “how” questions (Erikson & Kovalainen, 2008, p. 82). The tone of such interviews is rather informal even though the researcher should prepare beforehand an outline of topics, issues or themes. The nature of the interview allows variation in wording and question order in each interview (Erikson & Kovalainen, 2008, p. 82). New questions can emerge during the interview, and such improvisation is encouraged; however, the researcher should assure some consistency across all of the interviews, given that the interviewer usually starts with a similar set of questions (Myers, 2010, p. 124).

Unstructured, informal, open and narrative interviews are particularly useful when intensively exploring a broad topic from the participant’s point of view. Researchers often have some guiding questions or core concepts to ask about, but on the other hand they are free to move the conversation in any direction of interest that may arise (Erikson & Kovalainen, 2008, p. 82). Flexibility is the main characteristic of such an interview type and, based on the guiding question, the researcher allows the respondent to answer freely. With a supporting question, however, they just jog the respondent’s memory (Myers, 2010, p. 124). The strength of such interviews is that the respondent can also suggest other persons for the researcher to interview, as well as other sources of evidence (Yin, 2009. p. 107).

Probing is an appropriate technique, during unstructured and semi-structured interviews, for motivating respondents to elaborate or clarify an answer or to explain the reason behind an answer, and they help focus the conversation on the specific topic of the interview (Frankfort-Nachmias & Nachmias, 2008).

During the research I used two types of interviews. I used unstructured and open interviews in the first research sequence, and for the first two interviews I prepared an initial research question, since I didn’t have much information about the business model transformation in the company. Based on the gathered and initially analysed information, I used a combination of unstructured and semi-structured interviews in the second research sequence. In the last research sequence I used only semi-structured interviews.

For all interviews except one I used face-to face (personal) interviews, which is a type of one-to-one interviewing that can also be done by telephone or online by using computer-mediated technologies (Erikson & Kovalainen, 2008, p. 78). The personal interview is an interpersonal role situation in which the interviewer ask respondents questions designed to elicit answers pertinent to the research question (Frankfort-Nachmias & Nachmias, 2008, p. 213). Some advantages and disadvantages of personal interviews of which I was aware while I was preparing for the interviews are (Frankfort-Nachmias & Nachmias, 2008, p. 219):

Advantages of the interviews can be summarised as follows:

- Flexibility in the questioning proces: Interviews can range from highly-structured to unstructured, depending on the researech problem of examination. In focused and non-directive interviews the interviewer can clarify questions for additional information.
- Control of the interview situation: Interviewers determine who answers questions, where the interview is conducted, and the order in which questions are answered.
- High response rate: Respondents who would not ordinarily take time to reply to an impersonal mail questionnaire will often respond to a request for a personal interview.
- Collection of supplementary information: Interviewers are able to collect supplementary information from respondents, including background information and spontaneous reactions.

Disadvantages:

- Higher cost: Interviews can be expensive to conduct, especially when the respondents are widely dispersed geographically.
- Interviewer bias: Innate characteristics of the interviewer and differences in interviewers' techniques may affect respondents' answers.
- Lack of anonymity: The presence of the interviewer may make the respondent feel threatened or intimidated.

With the cofounders, I conducted a dyad interview. The cofounders were not present at the same location as all of the other respondents; therefore, I conducted the interview at their sales office in Austria. During the interviews which I had had with executives of the company, the two cofounders were many times referred to in tandem and as "the cofounders". Because they had been working together as business partners since 1988, and due to a lack of time, I decided to conduct a dyad interview with them. Dyad interviews are potentially useful when the topic under study is a shared experience by members of a dyad (Eisikovits & Koren, 2010).

The crucial difference between individual and dyadic interviews consists of the interaction between the participants in dyadic interviews, as the comments of one participant elicit responses from the other (Morgan, Ataie, Carder, & Hoffman, 2013, p. 1276). Even though dyad interviews share some similarity with group interviews, more time can be devoted to each participant in the former, allowing them to develop a more personal narrative with regard to the research topic. This creates the opportunity to gather data in more depth and detail from dyadic interviews compared to group interviews (Morgan et al., 2013, p. 1277).

2.5.2 Direct and Non-Participant Observation

I initiated on-site research in September 2013 when I began analysing 14 years of Dewesoft's existence. My main focus was on the period 2008-2014, when the key changes in the company's business model took place. My points of interest were not purely historical, however, and I had an opportunity to observe the behaviours and changes in the company during the business model transformation, for which I used another technique or "source of evidence" for collecting primary data (Yin, 2009, p. 109).

Non-participant or direct observation is a technique with which a researcher does not try to be a participant in the culture under study; they instead try to be as unobtrusive as possible (Erikson & Kovalainen, 2008, p. 87) and try to ensure that they are "watching people *from the outside*" (Myers, 2010, p. 138). When the researcher not only observes people doing things, but also participates in activities, talks and interacts with them and immerses himself in such activities, we are then talking about observing "*from the inside*" (Myers, 2010, p. 139). Myers (2010, p. 139) also expresses that these two categories are not completely different and that the researcher often alternately uses one or the other technique, and that these techniques are more a matter of degree than a hard and fast distinction.

The data obtained by observation or by field work, which Myers considers equal because it is not possible to do one without the other, can be of much value and can provide an additional dimension of understanding that could never be obtained from interviews alone (Myers, 2010, p. 138). Observational evidence is also useful in providing additional information about the topic (Yin, 2009, p. 110). Direct observation usually takes less time than participant observation, making it more suitable than ethnography, for which the period of study is much longer, for case studies (Erikson & Kovalainen, 2008, p. 87).

Some of the main differences between interviews and field work are (Myers, 2010, p. 138):

- Whereas an interview requires setting aside a specific time and place for the express purpose of questioning someone, fieldwork doesn't. The conversations and observation

that occur while researchers are doing field work can happen anywhere and at any time.

- Whereas the period of engagement with someone during an interview is relatively short (a few hours at most), field work usually involves an extended period of engagement with the group or organisation under study.
- Whereas an interview is a relatively formal occasion in which interviewees are in effect performing on stage, fieldwork often allows a researcher to engage in numerous informal conversations with people.
- Whereas in an interview informants will normally tell the researcher what they think he wants to hear (the official story), fieldwork allows a researcher to hear the unofficial story and to observe what people actually do.

Direct observation can involve observation of meetings, side-walk activities, factory work and the like, and less formal, direct observations might include field visits and even observation between interviews (Yin, 2009, p. 109). I used direct observation in each sequence, which is presented in tables 14, 15, 16, and 17. When I prepared for the observations, I followed and slightly adapted the guidelines suggested by Erikson and Kovalainen (2008, p. 88), which are:

- What happens during the event?
- Who is present? Who is involved?
- What are the participants' verbal and nonverbal communications?
- What is communicated, both verbally and nonverbally?
- How is this particular activity related to the other activities which are observed?
- How is this particular activity related to the gathered information from other sources?

2.5.3 Secondary Data

All data that have already been collected for some other purpose are known as secondary data (Saunders et al., 2009, p. 256). Documents record what someone has said or what has happened and they provide evidence that allows researchers to build a richer picture than that which could be built using interviews and fieldwork alone (Myers, 2010, p. 151). There are three types of secondary data (Saunders et al., 2009, p. 259): documentary, multiple source, and survey. Documentary data are further divided into written and non-written materials. During our research, I collected internal documents in addition to external, publicly-available documents.

I was able to collect the publicly-available external documents during the entire study, and many of them are available on the internet. The use of the power of the internet for

gathering data has mushroomed in recent years (Marshall & Rossman, 2011, p. 180). These documents include newspaper articles (about interviews given by company executives and company presentations), presentations of awards and recognitions, media accounts (TV), strategic partners' annual reports, secondary survey data from the project Gazele, academic work of Dewesoft's employees, and financial data from the database Gvin.

A disadvantage of secondary internal documents is their availability. I was not able to assure access to internal documentation at the beginning of the study, and only following a period of initial trust-building did Dewesoft's CEO and CTO express their willingness to disclose internal archives. In the second research sequences, I examined internal documents including business reports, financial reports, company presentations, email correspondence, catalogues, the company website, company videos and photo material related to the company's 10th anniversary celebration in 2011 and to the company's first independent measurement conference organised in 2013, and product presentations. The most important use of documents relevant for case studies is to corroborate and augment evidence from other sources (Yin, 2009, p. 103).

In the study I did not use multi-source secondary data, which are composed of different data sets that have been combined by prior researchers accessing the data, since they have already been analysed for their original purpose (Saunders et al., 2009, p. 259).

2.6 The Role of the Researcher in the Research Process

In contrast to a quantitative methodology where the researcher is detached from the dynamics of the research process, the researcher in the qualitative methodology is an integral part of the process (Brown, Stevens, Troiano, & Schneider, 2002). In qualitative studies, the researcher is an instrument (Marshall & Rossman, 2011, p. 112) or a research tool (Goulding, 2002, p. 18) through which data collection and analysis are conducted, and assumptions about the phenomenon being explored are critical to the research and should be clearly stated in the research report (Brown et al., 2002).

Because all data are filtered through the eyes of the researcher, the findings are often considered to be subjective, intuitive and value laden. An appropriate strategy is that researchers' personal discipline assists qualitative researchers in avoiding excessive subjectivity (Goulding, 2002). She adds that elements of such a strategy are:

- Qualitative researchers should adopt a rigorous and self-conscious examination for bias at each stage of the research process.
- Researchers should check for negative incidents in the data and account for occurrences that do not fit the emerging story.

- Researchers should make use of external referees, such as other fieldworkers, academics and the informants themselves, in order to check the accuracy of their interpretation.
- They should also check indirectly through the use of similar or related literature, which enables them to provide a comparative picture.

Two different roles for researchers in the process of grounded theory development are recognised as successful grounded theory research has a clear creative component (Corbin & Strauss, 1990, p. 19; Suddaby, 2006, p. 638). Glaser used the term “theoretical sensitivity” to describe the essential tension between the mechanical application of technique and the importance of interpretive insights (Suddaby, 2006, p. 638).

Glaser (in Erikson & Kovalainen, 2008) also sees researchers’ role as problematic in a way that the researcher could be biased during the interpretation of data. Strauss and Corbin (in Erikson & Kovalainen, 2008), meanwhile, see the researcher as an active part of the process who acts as an instrument. In grounded theory, a researcher must demonstrate two essential characteristics for the development of theoretical sensitivity (Glaser, 1999; Glaser & Holton, 2004):

- They must have the personal and temperamental bent to maintain analytic distance, to tolerate confusion and regression while remaining open, and to trust preconscious processing and conceptual emergence.
- They must have the ability to develop theoretical insight into the area of research combined with the ability to make something of these insights. He/she must have the ability to conceptualise and organise, make abstract connections, visualise and think multivariately.

The first step in gaining theoretical sensitivity is to enter the research setting with as few predetermined ideas as possible, especially logically deduced prior hypotheses (Glaser & Holton, 2004). Glaser claims that students who attempt grounded theory but cannot tolerate confusion and regression, and who need to continually feel in cognitive control, fall by the wayside. “They even get fed up and might even decompensate if they do not give up” (Glaser, 1999).

I am aware that a single investigator is a limitation of research as investigator triangulation, which involves more than one investigator in the research, is considered a good practice (Mathison, 1988).

2.7 Informants

The research was initiated in 2013 and data collecting was performed in the period between July 2013 and June 2015. Interviews were performed individually with selected internal and external informants, except in the case of the cofounders from Austria, with

whom I performed a dyad interview. All informants, which I present in Table 4, were split into five groups. The key informants (2 persons) were in the first group, named “G1: Executives”. This group comprised the founders, owners and directors of Dewesoft, Jure Knez, the CTO, and Andrej Orožen, the CEO.

The other groups of informants were; “G2: Cofounders” (2 persons), who ran the strategic alliance company Dewetron up to 2008, and later became sales representatives and directors at Dewesoft Austria; “G3: Experience Engineers” (3 persons), who had a remarkable technological influence on Dewesoft improvements and who were rewarded with shares in the company; “G4: Employees” (10 persons), consisting of heads of departments, young engineers and a person working in administration; and “G5: Partners” (4 persons), consisting of a developing partner, two subcontractors and a previous employee who still does contract work for the company. Altogether, 23 interviews were completed with 20 interviewees. All interviewees were aware of our role in the study and voluntarily agreed to participate in the study. The interviews lasted between 30 minutes and 90 minutes, and all were taped and transcribed. I also had informal conversations with most of the interviewees, and in addition, I had informal talks with one buyer from Sweden and a distribution partner from the Netherlands.

Table 4: Informants

Group of interviewees	# of interviewee in the group	Tenure (years)	Current position	Interview location	Gender
Executives	Person 1	14	CTO	Headquarters, Slovenia	Male
	Person 2	14	CEO		Male
Cofounders	Person 1	4	Sales manager	Sales office, Austria	Male
	Person 2	4	Sales manager		Male
Experienced engineers	Person 1	14	Leading SW engineer	Headquarters, Slovenia	Male
	Person 2	10	Leading SW engineer		Male
	Person 3	4	Leading HW engineer		Male
Employees	Person 1	14	Head of department	Headquarters, Slovenia	Female
	Person 2	12	Head of department		Male
	Person 3	9	Head of department		Male
	Person 4	8	Head of department		Male
	Person 5	8	Head of department		Male
	Person 6	6	Head of department		Male
	Person 7	5	Head of department		Male
	Person 8	3	Engineer		Male
	Person 9	3	Engineer		Male
	Person 10	3	Engineer		Male

(table continues)

(continued)

Partners	Person 1	14	HW supplier	Off site, Slovenia	Male
	Person 2	14	Developing partner	Off site, Slovenia	Male
	Person 3	14	Developing partner	Off site, Slovenia	Male
	Person 4	2	Previous employee	Off site, Slovenia	Male

I took notes during the interviews and attended meetings, while I took notes after the other forms of observation or informal conversations, but always on the same day.

2.8 Quality of Research Design

2.8.1 Introduction

The three concepts of reliability, validity and generalisability provide a basic framework for the evaluation of research in business studies and have many similarities with the concept of “trustworthiness”, which Lincoln and Guba used to substitute reliability and validity (Erikson & Kovalainen, 2008, p. 291). Validity refers to the extent to which conclusions drawn in research give an accurate description or explanation of what happened (Erikson & Kovalainen, 2008, p. 292).

In the validity process, I have followed the advice to use several validity procedures governed by two perspectives; the lens researchers choose to validate their study and the researchers’ paradigm assumptions (Creswell & Miller, 2000, p. 124). Tests (construct validity, internal validity, external validity or generalisability and reliability) that are commonly used to established the quality of any empirical social science research are also relevant to case studies (Yin, 2009, p. 40).

2.8.2 Construct Validity

The construct validity of a procedure refers to the quality of the conceptualisation or operationalisation of the relevant concept (Gibbert, Ruigrok, & Wicki, 2008, p. 1466) and is especially challenging in case study research (Yin, 2009). There are three tactics to assure it: using multiple sources of evidence, establishing the chain of evidence, and having key informants review the draft case study report (Yin, 2009, p. 41). Similar to the idea of construct validity is dependability, which ensures that the research process has been logical, traceable and documented, and conformability, which is about linking findings and interpretations to the data in ways that can be easily understood by others (Erikson & Kovalainen, 2008, p. 294).

During the stage of data collection, I used five types of sources (interviews, external documentation, internal documentation, direct observation, and informal conversation). The interviews were conducted with five groups of employees (G1, G2, G3, G4 and G5). In this way I ensured data triangulation (Mathison, 1988). By creating a database of basic research questions through a research protocol to the final report of the findings, I have ensured traceability of the entire research process and have enabled access to any outside observer in the course of research and development.

I made a tentative model of determinants at the completion of each sequence of the study, and presented it to the key informants in the company, the executive directors. During the presentation we had a debate in which they adopted conclusions, drew attention to the content that was needed for further monitoring and verification, and also rejected certain conclusions. They rejected, for example, the idea of scientific entrepreneurship as a characteristic of their business model after I had classified that concept as a challenge for future research.

2.8.3 Internal Validity

Internal validity, which is also called logical validity (Gibbert, Ruigrok, & Wicki, 2008, p. 1466), seeks to provide plausible, causal arguments (logical reasoning) to establish a causal relationship, which means that the researcher seeks to establish that certain conditions lead to other conditions, and it is mainly concerned with explanatory case studies (Yin, 2009, p. 40). There are several analytical tactics to strengthen internal validity, for example: pattern matching, explanation building, rival explanation and logic models (Yin, 2009, p. 136). Because I did an exploratory case study, this criterion is not relevant for my research.

2.8.4 External Validity or Generalisability

External validity or generalisability deals with the problem of knowing whether a study's findings are generalisable beyond the immediate case study (Yin, 2009). It is grounded in the intuitive belief that theories must be shown to account for phenomena not only in the setting in which they are studied, but also in other settings (Gibbert et al., 2008, p. 1486). Generalisation is an act of reasoning that involves drawing broad conclusions from particular instances; that is, making an inference about the unobserved or degree to which conclusions from a study could be generalised based on the observed (Polit & Beck, 2010, p. 1451). There are three types of generalisability, outlined as follows (Firestone, 1993):

- Sample to population, which is widely accepted also as a statistical generalisation (Myers, 2010; Polit & Beck, 2010). The argument made by Myers, Polit and Beck relies on sampling or probability logic and is appropriate for quantitative researches. Neither single nor multiple case studies allow for statistical generalisation (Gibbert et

al., 2008, p. 1468). It would be inappropriate to evaluate the case study research by the criteria of survey research, and consequently it would be inappropriate to evaluate that one case study is not enough, because statistical concepts such as confidence level or confidence interval are meaningless (Myers, 2010, p. 83). In statistical generalisation, cases should be selected from the population, with the goal of achieving representativeness (Polit & Beck, 2010).

- Analytic generalisation, which is more often used in qualitative research, is the second approach and one through which the investigator strives to generalise a particular set of results to a broader theory (Yin, 2009) with the aim to provide evidence to support a theory but not definitely prove it. Myers (2010, p. 83) highlights that it is just as possible to generalise from a single experiment as it is to generalise from a single case; however, the theory should “stand on its own feet” (Siggelkow, 2007, p. 23). Such a type of generalisation is present in this case study research. Firestone (1993) emphasises the importance of conditions that may affect the application of a theory. Successful replication under exactly the same conditions consolidates a theory and improves its reliability, whereas under different conditions it could prove the robustness of the findings.
- Case-to-case transfer, or transferability, is the third type of generalisability, which occurs when there is a transfer of learning from a case in one setting to another case in a different setting. Transferability is not about replication, but rather about whether some sort of similarity can be found in another research context. The idea of credibility, on the other hand, is concerned with the issue of whether another researcher could come relatively close to the given interpretations based on the used research approach (Erikson & Kovalainen, 2008, p. 294). While the transfer of findings from one case study to another is done by the reader, the researcher has an obligation to provide a rich, detailed, thick description of the case. Concepts similar to case-to-case transfer are *proximal similarity* (Campbell, 1986, p. 67), for considering how research might be extrapolated, and *fittingness*, suggested by Lincoln and Guba (in Polit & Beck, 2010). The main aim of intensive case studies is not to produce knowledge that can be generalised to other contexts; therefore, choosing a unique, critical or extreme case is enough to present its features to the audience (Erikson & Kovalainen, 2008).

From this perspective, I used a single case which fits all of the aforementioned criteria, as well as the longitudinal criteria determined by Yin (2009), which, he states, are the criteria for judging the potential to use a single case.

2.8.5 Reliability

Reliability refers to the absence of random error, enabling subsequent researchers to arrive at the same results in repeated trials (Gibbert et al., 2008, p. 1468) if they conduct the study along the same steps (Erikson & Kovalainen, 2008, p. 292). The key words of

reliability are transparency and replication (Gibbert et al., 2008). Transparency can be enhanced through careful documentation and clarification of research procedures, such as generating case study protocol.

On the other hand, replication can be accomplished by developing a case study data base, which allows other investigators to review the evidence directly and not be limited to the written case study reports (Yin, 2009, p. 119).

I show in table 5 how I ensured quality in the design and conduct of the research.

Table 5: Case Study Tactics for Assuring the Quality of Research Design

Criterion	Case study tactic	Phase of research
Construct validity	<ul style="list-style-type: none"> • Triangulation through multiple sources of evidence • Providing chain of evidence using research sequence tables • Allowing key informants to review after each research sequence 	<ul style="list-style-type: none"> • Data collection • Data collection • Data collection
Internal validity	<ul style="list-style-type: none"> • n. a. for exploratory research 	
External validity / generalisability	<ul style="list-style-type: none"> • Use of theory and specification of the population of interest (single case study) 	<ul style="list-style-type: none"> • Report / Discussion
Reliability	<ul style="list-style-type: none"> • Using a case study protocol • Developing a case study database 	<ul style="list-style-type: none"> • Data collection • Data collection

There are four threats to reliability in qualitative research, since both the participants and the researchers can make subjective mistakes (Robson, 2002):

- Participant error, which refers to elements that can influence participants' answers, such as time or location of research. I controlled that threat during the research by agreeing beforehand with the participants on which day the interviews would be conducted. Consequently, I even waited up to a month for the best possible date in order to avoid pressuring the participants.
- Participant bias, which refers to a situation when the interviewees give answers that are desired by their bosses. This is a particular characteristic in autocratic organisations. The culture of the organisation in this study is far from autocratic; nevertheless, I ensured that all interviews were conducted face to face in a room where the participants

felt relaxed, and where the interview would not be interrupted. Before the interview I always explained to the interviewees the purpose of the study and the purpose of the interview, and invited them to speak freely.

- Observer error, which is possible in studies that are conducted by several researchers. In order to minimise the possibility of this type of error, researchers should following a structured schedule. I conducted the study alone, which is certainly a limitation of this research; however, the possibility of such errors was eliminated.
- Observer bias, which refers to the different ways of interpreting replies if the study is conducted by several researchers. Observer bias was not present in this study since it was performed by me alone.

2.9 Ethical Issues

Any ethical consideration is much more than just ensuring informed consent and protecting participants' anonymity (Marshall & Rossman, 2011, p. 121). Also, it goes "beyond ethics" in the way that we constitute and justify knowledge of the research (Erikson & Kovalainen, 2008, p. 63). Research ethics relates to questions about how we formulate and clarify our research topic, design research and gain access, collect data, process and store data, analyse data and write up research findings in a moral and responsible way (Saunders et al., 2009, p. 184).

According to the recommendations of Erikson and Kovalainen (2008), I ensured that the following ethical issues were considered during the research:

- **Voluntary participation:** I made sure that everybody who participated in the study did so on a voluntary basis. In the preliminary phase of the research, I sent an invitation email (see appendix: 1) to five directors who I invited to participate in the research. All of them answered within days and confirmed their participation in the interviews. On the basis of prior consent of the executives, I invited a select group to continue participation in the research while I thanked the rest and explained to them why they would not be participating. In the chosen group, I included additional informants, besides the executives, to ensure data triangulation (Mathison, 1988). I explained to all of them before the interview the purpose of the research, and once again stressed that their participation in the interview was voluntary and that they could request that it be terminated at any time. I also obtained oral permission for the interview to be recorded.
- **Informed consent:** Because of the very open corporate culture at Dewesoft, and consequently the wide and easy access to information, we did not sign an "informed consent" document, although its contents were identified and confirmed orally. During my conversation regarding "informed consent", I explained to the directors their rights, such as the right to clarification if they do not understand the purpose of my question and the right to voluntary participation by all participants in the survey. We also

reached agreement on recording the interviews and how to deal with possible interruptions at any time during the interviews. Additionally, we agreed that parts of this doctoral dissertation or subsequent articles in which I will describe the relationship between the companies and their strategic partners will be checked by the company prior to any public announcement. We also agreed to regular validation of the interim and final results of the research, which has resulted in a series of informal meetings in which I presented the results and heard the opinions of both directors.

- **Anonymity, privacy and confidentiality:** I did the coding of the responses of the participants to ensure their anonymity, and the responses from individual informants were hidden under the name of the individual groups. For example, the answers of person A, who belongs to the group of employees, were marked with code G4, which means “Group 4 = Employees”. The same procedure was followed in the case of the executives, although I sometimes revealed their identities because it was necessary to understand the comprehensive information of the business model transformation. Confirmation of this method of labelling was given by both directors.
- **Assured professional integrity:** To ensure free access to all the data collected and to understand the logic of their collection and analysis, I created a case study protocol and case study database. The contents of both are available to the research community.

3 ABOUT THE COMPANY

3.1 Industry Presentation

3.1.1 Data Acquisition Market

Data acquisition is the process of capturing and measuring physical data and the conversion of these results into digital form that is further manipulated (storage, analysis, presentation) by a computer program. Data acquisition systems, also called measurement systems, are used in various fields, ranging from the automotive industry to the aircraft industry, the space industry and electrical engineering (Kos, Kosar, Knez, & Mernik, 2011, p. 361).

Predictions show that hardware (HW) and software (SW) markets for data acquisition measurement systems are on the rise. Estimated by an independent expert, the overall Sound and Vibration Market, Test and Measurement is worth \$2.5B; 80% belongs to the measurement of vibration and the rest to the measurement of acoustic signals (Sakion, 2014b). That is much greater than estimated by the market research agency Frost & Sullivan in 2011, which calculated a compound annual growth rate (CAGR) at 6.4 per cent from 2011-2018 and predicted that world data acquisition hardware and software market would exceed \$1.8 billion by 2018 (Kimbara, 2012). Their research shows that the contribution of the hardware segment is 87%, compared to the share of the software segment at 12.4%. According to VDC Research, a Market Intelligence and Advisory Firm, global data acquisition solutions markets are segmented into (Shea & Rezendes, 2011b):

- Regional markets: Americas (North, Central and South) and EMEA (Europe, Middle East and Africa), and Asia-Pacific.
- Product categories: external chassis and modules with 72.4%, Plug-in Analog Input/Output Boards with 20.1% and DAQ SW with 7.5% of market revenue share.
- Vertical markets or industries where top five are the following: Military/Aerospace, Electric Power, Environmental Monitoring, Automotive and Testing Laboratories with approximately 65% of market revenue share. Other industries include: Alternative Energy, Consumer Electronics, Electrical Products, Food & Beverage, Medical/Health Care, Pharma, Nuclear Power, Oil & Gas, Petrochemical, Semiconductor, Universities, and Water/Waste Water.
- Application coverage, like on-line process control, on-line Discrete Manufacturing Lab/Research & Development, Lab/Science, Military/aerospace and off-line product Test/Quality Control.

Similarly, Frost & Sullivan have looked at that market from an end-user perspective, and found that Aerospace and Defence (A&D) held the largest market share in terms of

sales revenue, followed by the power energy segment and the automotive segment, although they predicted that the majority of new leads and sales will come from the energy sector. There are increased areas of development in the smart grid sector, including renewable or conventional energy. Furthermore, the market leaders are seeing the cost-value and importance of focusing on green energy, such as solar energy in hybrid cars. This is translating into the need to acquire data and therefore new demand for data acquisition systems (Kimbara, 2012).

Dewesoft's internal experts divide the measurement systems market into three major segments: research and development, automation and maintenance. Exceeding the other two, automation is by far the greatest market which Dewesoft is still preparing to enter. So far, the company has been present primarily in research and development, which is a small niche market where Dewesoft has been active mainly in the automotive industry. The company is yet to enter the maintenance market. Their biggest clients in the research and development market include the German company Volkswagen and the American company General Motors. According to their estimate, in 2013 Dewesoft controlled 20% or even 25% of the global market for vibration measurement systems solely for shock absorbers (Bratanič, 2013).

3.1.2 Future Trends for Data Acquisition

Light-weighting will be an emerging trend in the DAQ industry over the next few years as the deployment of autonomous mobile machines will become more widespread. Manufacturers should look to reduce weight without sacrificing durability through the use of new material, and manufacturing process. Lightweight components are particularly important in drones, automotive, automated guided vehicles, and robotics (Bertini & Rommel, 2014).

There are also some general drivers affecting the overall future trends on the data acquisition solutions market, like (Shea & Rezendes, 2011a):

- The increasing pressure on companies and organisations to compete more effectively in general and in particular with suppliers from low-cost countries, is creating a growing need to collect, gather and analyse data in greater volumes and to do so with faster response time and also with increasing accuracy.
- The increasing reliance on computer functionality to manage a growing number of applications is creating an opportunity for suppliers to sell products which interact with personal computers using network interfaces such as universal serial bus (USB), Ethernet and various application layer Ethernet networks protocols. The adoption of Ethernet is also accelerating with growing confidence around interoperability and ease of integration, which is driving demand for data acquisition hardware and software.

Many opportunities are resulting from the increasing use of Ethernet in the market (Kimbara, 2012).

- The need among customers to increasingly maximise their return on investment (ROI) on data acquisition investment is creating a growing demand for modular data acquisition systems which enable them to customise their required sensor inputs without having to make unnecessary investment which may provide “overkill”.
- Customers are increasingly developing new applications where the requirements for data acquisition solutions may be present, increasing the demand for data acquisition products and related software.

In addition to these trends, the market agency Frost & Sullivan added (Kimbara, 2012):

- There will be an increasing adoption of wireless data acquisition systems on the data acquisition (DAQ) market. Technically, wireless applications will allow companies to differentiate themselves on the market with the continuous monitoring of data acquisition remotely for the control of electrical, mechanical and acoustical signals.
- From a technological perspective, mobile and cloud are areas of future interest. Frost & Sullivan’s report quotes Todd Dobberstein, the National Instruments Manager of data acquisition technologies, who claims that “integrating DAQ systems with cloud and mobile technologies represents a future direction of the market.” Working seamlessly with the cloud provides DAQ companies the opportunity to differentiate themselves from the competition and gives users the ability to access their data from anywhere.

According to VDC Research, even the largest industry players such as National Instruments and Spectris are not able to “be all things to all people” and focus on serving those larger customers segments for which their solutions are best suited. This allows the smaller market segments to be served by players who focus on specific niche segments that may possess unique application or performance requirements, such as very fast data rates, high accuracy requirements or high channel counts (Shea, 2011a).

3.1.3 Data Acquisition Software Choices

Many measurement system producers provide application programming interfaces (APIs) or program languages to use their products. Those program languages are further used by the customer’s programming engineers to build software according to their specific needs (Kos et al., 2011, p. 362). Despite the popularity of programming tools specifically made for data acquisition applications, it is generally known that the learning curve is always a factor. The more powerful the tool, the longer it takes to learn (Knez, Tuma, & Smith, 2002). As a customer’s programming engineers do not necessarily possess knowledge about the problem domain, they have to work with domain experts (field engineers) to prepare the desired product. Thus, prepared measurement procedures can be

defined by programming engineers and further used by domain experts (Kos et al., 2011, p. 362).

The development of a custom solution in-house is sometimes the only way to achieve a particular set of functionalities, but such efforts must then be maintained continuously; domain experts need to work with programming engineers to prepare another measurement procedure increasing their actual cost geometrically; what is more, such development is time-consuming (Knez et al., 2002; Kos et al., 2011). For an ideal measurement system, domain experts could prepare the measuring procedures alone without the interference of programming engineers (Kos et al., 2011).

To support domain experts in programming their own measurement procedures and enable them to fine tune these procedures during measurement, Dewesoft has reinvented and continuously improves a unique, non-programmable measurement software package which allows domain experts (field engineers) to build their own measurement system without the interference of programming engineers (Knez et al., 2002).

The general challenge for measurements system users from different industries to solve their problems and answer their development needs is whether to select a programmable or non-programmable measurement package. What must be considered are its technical capabilities and also additional costs incurred to the user if they have to employ programming engineers.

Changes of software provider are costly, however, users of measurement system are always interested in better capability and flexibility of measuring systems which could save them time and money and allow them to put a new product on the market faster than their competitors. The most important DAQ SW selection criteria are: compatibility with the operating system, ease of use, accuracy, customisable/configurable, communication network capability and reliability (Shea, 2011b).

An additional important characteristic of any system design measurement software is that it has open architecture supports for external software and hardware interfaces in order to be able to integrate with nearly any hardware from any vendor in one environment. The main representatives of programmable measurement SW package are: labView from National Instruments, dasyLab from DasyTech, Agilent VEE from Keysight, and Ateasy from Marvin test Solutions.

Products from those companies are treated like substitutes for non-programmable measuring systems. Moreover, companies, which are the providers of testing and measurement systems and use such programs in their offer are treated as competitors to companies which produce non-programmable measurement systems.

Meanwhile, the main representatives of non-programmable measurement solutions are, in addition to Dewesoft with the package Dewesoft, also Ipetronik with the package Ipeemotion, HMB with the package Catman, and Siemens PLM Software with Lms Test.Lab.

An important characteristic of Dewesoft's direct competitors is that they are part of larger corporate groups, and, often, of financial investors.

- Ipetronik is a portfolio company, part of the corporate group Indus Holding AG,
- HBM is a wholly-owned subsidiary of Spectris plc, a group specialised in precision instrumentation and electronic controls,
- Dewetron is part of the corporate group Augusta Technologie AG and became part of the TKG group in 2015,
- Siemens PLM Software is part of the Siemens group.

VDC Reports expects on-going and increased mergers and acquisitions activities in the data acquisition market and suggests that rather than investing capital and time into developing new products and training new people, larger corporations should look toward their smaller, profitable counterparts for opportunity (VDC Research, 2014).

Dewesoft is an example of a potentially disruptive company with low cost, high-quality measurement instrumentation and software specifically for sound and vibration, test and measurement market (Sakion, 2014b), which is, unlike their major competitors, a small and flexible company independent in terms of ownership. In fifteen years of its existence, Dewesoft has managed to position itself alongside the biggest international manufacturers in the global data acquisition market. In order to achieve this position, the company has radically transformed its business model over the past seven years.

3.2 Basic Facts about Dewesoft

3.2.1 Born Global

Dewesoft is a limited liability company active primarily in the fields of computer programming and the production of electronic components, i.e. measurement instruments and measurement systems. It was founded on December 28, 2000, with the head office in Trbovlje, Slovenia.

Since its beginnings, the company has been an early adapter of internationalisation. This is characteristic of businesses which, from an early stage, seek superior international business performance by applying knowledge-based resources to the sale of outputs in multiple countries (Knight & Cavusgil, 2004, p. 124).

Both in terms of development and sales, the company has managed to achieve in fifteen years the status of a leading global developer of data acquisition hardware and software to major customers in general test & measurement, automotive, aero & defence, transportation, power & energy, industrial, and civil engineering industries.

They started out ambitiously, by developing their own software and taking on many small-scale, specialised projects for acquiring and processing measurement signals. Thus, they were able to test the software in practice and improve it. Technological innovation is the key to Dewesoft's success with products that meet a wide range of applications, from small tool-box data loggers to high speed, high channel-count systems, with support for video, global positioning system (GPS), and a wide range of sensor types.

Dewesoft slowly disrupts the industry by capitalising on the major factors to leverage their success, which are (Sakion, 2014a):

- high-quality hardware and software at reasonable prices,
- simple/versatile products,
- offering complete instrument and software designs,
- high response to evolving customer needs,
- vertically integrated solutions allow them to control the entire product experience including extremely competitive pricing, and
- an outstanding support network that actually listens to customers.

Most other manufacturers in this market area are either too large to be responsive or too small to have the resources to create cutting edge hardware and software solutions (Sakion, 2014b).

Dewesoft's products are used in research labs of companies around the world, including: Nasa, Honeywell, Volvo, Scani, Renault and Caterpillar, Alfa Romeo, American Boa, Audi, BMW, Ferrari, ADD Korea, Boeing, Gency Japan, United Space Alliance, Alstom, Bombardier, Deutsche Bahn, Kawasaki, Bayer, Bosch, Canon, Nokia, Panasonic, Siemens, McLaren Mercedes, and many others.

3.2.2 From Excellent Software to World Class Hardware Provider

To be the global leader in fast acquisition, processing and display of data is the universal, main goal of the company. This is reflected also in its business mission, vision and commitment, which formally came to life when the company started to become independent and transform its business model. They attest to the company's global and technological orientation, and a strong focus on creating solutions together with the customers and product users (Dewesoft, 2015).

- Mission: *“Our mission is to provide the best possible test and measurement solutions by working in close collaboration with our valuable customers. The solution starts with having robust mechanical housing and great electronics. Both together combined with powerful software provide a strong base for different applications.”* Unlike most of their competitors who are looking for resources globally to optimise their business, Dewesoft decided for the model “one company = complete solution” and provides all the necessary resources basically from one location. They have research and development hardware and software offices, testing facilities, a mechanical workshop and production facilities all in one location.
- Vision: *“Single software package with highly integrated hardware, providing turn-key, easy-to-use solution for any application.”* The decision Dewesoft has adhered to since the beginning and which has been confirmed by the latest market research (Shea, 2011b) is that customers want easy, capable, reliable and high-quality software solutions. This was ensured with a universal software package which is being constantly upgraded. Since 2008, they have produced as many as 14 versions, each with several important improvements.
- Commitment: *“We are here for you. Our global network of people provides the best possible local service and support with fast response times. This is the base of our success. Our motivation and inspiration for the future comes from great relations that were established with our customers worldwide.”*

The company’s development strategy is in complete agreement with the findings of VDC Research which believes the most successful suppliers sell solutions to alleviate customer pain points rather than just offering products in order to make a sale (Shea, 2011b).

3.2.3 Selected Performance Indicators

During the business model transformation period (2008-2014) from a strategically aligned DAQ SW company toward an independent total solution company, Dewesoft established its own global sales network in 38 countries and brought to market more than 45 innovative DAQ HW measurement instruments perfectly fitted with their own DAQ SW. The total turnover achieved at the end of 2014 was €10.7M which is 7.64 times more than at the end of 2007 (€1.4M). It raised the employee added value from €98,800 (2007) to €150,800 (2014), even though the average number of employees in Slovenian head office rose from 9.6 to 38.3 and together with partners from the global sales & marketing network to over a hundred colleagues.

Next, I will discuss three periods important for understanding the company’s business activities:

- student entrepreneurship period (1996 - 2000),

- development partnership period (2001 - 2007), and
- business model transformation period (2008 - 2015).

The student entrepreneurship period is presented briefly to get an impression about the fundamentals of the company. Meanwhile, the development partnership period and the business model transformation period are presented in a way which allows us to get an impression about the changes which happened during the business model transformation.

3.3 Developmental Stages

3.3.1 Student Entrepreneurship Period (1996 - 2000)

For the purposes of this dissertation, the period before the establishment of Dewesoft d.o.o. is called student entrepreneurship period. It is closely connected with the creative endeavours of Jure Knez, co-founder and CTO of Dewesoft, during the course of his studies. At this time, the technological foundation on which the company later based its development was established. The period starts with Knez's business idea presentation in his diploma thesis entitled 'Analysis of measurement signals from vibration measurements on turbogenerator' (Knez, 1996). The idea was previously tested in practice. Knez concludes his diploma thesis with these words: *"I hope that the thesis represents the start of an extensive study of vibration control and analysis systems."*

This was more than successfully achieved by Knez, both technologically and economically. His thesis spurred the interest of Peter Dolenc, a measurement specialist, director of the company IMS and a partner of the Bruel&Kjaer corporation—the leading international provider of sound and vibrations solutions in Slovenia. Dolenc invited Knez to collaborate with him and introduced him to Bruel&Kjaer representatives; however, they failed to see any cooperation potential in Knez. Despite the rejection, Dolenc invited Knez to collaborate with him and advised him on designing and producing SW for transferring data from Bruel&Kjaer instruments and on producing a measurement protocol for assessing stress in the living environment.

In addition to collaborating with Dolenc, Knez also continued his studies and worked on his own measurement system. Soon, he was able to introduce the first upgrade of the vibration measurement system called "Steam turbine rotordynamic behaviour" (Knez, 1999). That same year, he met Andrej Orožen who at that time was a sales representative of the Austrian company Dewetron and a specialist in the area of mobile entry of measurement data and integration of an industrial computer with a measurement instrument. The company's customers were active in all industrial sectors, in particular the automotive industry. At that time, Dewetron generated approx. 75% of its sales in Austria, but the export ratio was increasing due to the establishment of sales branches in Central Europe and the US (Haas & Zimmer, 1998).

In his work, Knez used different measurement instruments, including Dewetron's. For these, he made his own software upgrade enabling the acquisition, processing, storing and display of measurement signals on personal computers. Knez and Orožen started to look for new business and development opportunities in the area where also Dewetron was underperforming, leading to further SW development.

At the beginning of 2000, they presented their solution to the directors of Austrian Dewetron, Franz Degen and Herbert Wernigg, who loved it but also saw room for improvement and adjustments in order to make the product suitable for the global market. Knez began improving and adjusting the software for the first Dewetron measurement instrument. In a few months, by the end of 2000, the first marketable version of the measurement software package Dewesoft 5.0 was produced and sold that same year in the USA and in the Far East. That meant an excellent foundation for future business and development cooperation, leading to the decision to establish a company together in Slovenia.

The commitment, innovation and excellent results during the student entrepreneurship period are also confirmed by annual submissions of innovative solutions to the Regional Chamber of Commerce and Industry Zasavje. The Zasavje Chamber, in accordance with its Rules on granting awards and recognitions for innovations, presents gold, silver and bronze awards and recognitions to innovative solutions produced as a result of local, regional knowledge. During this period, Jure Knez and his colleagues won seven awards for different measurement solutions, including the software package Dewesoft 5.0 in 2000, as shown in Table 6.

Table 6: Awards for Innovative Solutions in 1996-2000

Year	Title	Authors	Award type
2000	Measurement system Dewesoft 5.0	Jure Knez, (Slovenia), Gerald Zotzek (Austria), Grant M. Smith (USA)	Bronze award
	Production of machines and devices for customers	Uroš Kovačič, Andrej Orožen, Jure Knez, Ivan Pavlič	Bronze award
1999	Data control and measurement system for mechanical material testing devices Control	Jure Knez, MSc, Igor Kovše,	Bronze award
1998	Software for measuring Environmental Noise 1.0	Jure Knez, Peter Dolenc	Recognition

(table continues)

(continued)

	System for measuring the characteristics of shock absorbers FAM-1000	Zdenko Savšek, Darko Koritnik, Jure Knez, Marko Agrež	Silver award
1997	Computer-aided vibration measurement system	Jure Knez, Janez Makovšek, Marko Agrež, Borut Hodej	Silver award
1996	Turbomachine dynamics analysis based on non-contact motion sensors	Jure Knez	Silver award

Source: http://www.rtcz.si/podjetje/inovacije/inovacije****.htm (instead of **** insert year number).

3.3.2 Development Partnership Period (2001-2007)

3.3.2.1 *Ownership and Management Structure*

The company was founded by four entrepreneurs, two from Slovenia and two from Austria. Their ownership shares were: Jure Knez 50%, Franz Degen 20%, Herbert Wernigg 20%, and Andrej Orožen 10%.

The managerial positions were taken by Jure Knez, who became the CTO, and Andrej Orožen, who became the CEO of the company. Franz Degen and Herbert Wernigg did not assume management positions in the newly founded Dewesoft as they were already the executive directors of its partner company Dewetron which they founded in 1988 and sold to the corporate group AUGUSTA Technologie AG in 1998. By entering the ownership structure of Dewesoft, Degen and Wernigg ensured a long-term strategic partnership with great development potential in a field where the Austrian company did not have sufficient development potential.

According to the initial agreement of the co-founders, namely that Knez would gradually reduce his ownership share by up to 10% and distribute it to the most successful/deserving employees, the ownership structure had changed by the end of 2007—the first development engineer received 2% of the company for his substantial contribution in SW development.

3.3.2.2 *Organisational Structure*

Despite only having three regular employees at the beginning, Dewesoft was already formally divided into three departments:

- Management and Administration: led by Andrej Orožen, CEO. The department was responsible for the sales of partner's products in Central Eastern and South Eastern European markets, and also for purchases, promotion, logistics, and increasingly for HR management of new colleagues.
- SW development: led by Jure Knez, CTO. The department was primarily responsible for cooperation with the strategic partner and for continuous software development, both for the partner company and for use in Dewesoft's own projects. In addition, the department oversaw the professional development of colleagues.
- HW development: led by Uroš Kovačič. The department was responsible for developing new measurement solutions for specialised projects and producing additional, less challenging HW products.

As a result of good relations and plenty of orders from the strategic partner, the SW development team increased in number and its intellectual power continued to grow all the time, much more so than the HW part of the company. The Dewesoft Annual Report for 2004 includes the following statement: *“The development of Dewesoft has completely focused on the development of Dewesoft software, where version 6 is now at a very good stage for automotive, telemetry and power measurement.”*

3.3.2.3 *Product Development*

The company's basic product was data acquisition software which connected classical measurement instruments (e.g. oscilloscope, frequency analyser) and PCs into one powerful unit, thus eliminating a host of previously known technological shortcomings in the acquisition and processing of measurement signals. One HW solution and one SW package brought together all classical measurement instruments, enabling them to function simultaneously. Measurement SW performed five basic functions (Knez, Tuma, & Smith, 2002):

- Data acquisition from different input modules including all common levels of voltage, currents, vibration, force, torque, temperature, distance, displacement, and more.
- Mathematical analysis like filtering, triggering, fast Fourier transform (FFT) analysing, and more.
- On screen instruments like scope, recorder, x-y, FFT, overview, and more.
- Data storing (flat file, permanent, sorted database) to prevent data loss during measuring and keep data for years, and
- Data analysis and data reporting by exporting data to all major post-processing software applications, including FlexPro®, Matlab®, Microsoft Excel®, Ideas®, Ideas-Ati®, Diadem®, and delimited American Standard Code for Information Interchange (ASCII) for compatibility with almost any application.

Due to its high capacity and adaptability to different analogue input signals and their digital converters, Dewesoft measurement SW was suitable for applications in different industries. The instrument served as a vital middle-ground between general purpose systems, ineffective in most real-world applications, and both custom solutions and overly specific systems, which are rarely configurable beyond a small range of functionalities (Knez et al., 2002).

The main capability of the Dewesoft DAQ SW was soon patented. It allowed for a synchronised presentation of all acquired and mathematically transformed signals on PCs, and even in case of an error the software did not stop - it continued with the execution, recorded the nature of the error, including the module where it occurred along with the time and date, into a special error log (Knez et al., 2002).

Dewesoft looked for additional business opportunities by developing specialised projects connected with the use of high-capacity SW, which meant a continuation of ideas first developed during the student entrepreneurship period (see Table 4) and production of specialised products (e.g. GPS cameras); however, these did not sell in large quantities. In addition, they collaborated with contractual colleagues to produce a limited number of measurement instruments.

An intensive and focused development was reported in Dewesoft's Annual Report for 2003 where it is written: "*Financial year 2003 has been marked by reducing the amount of special projects done in the past and just making a few products which should be sold in large quantities.*" The decision to focus on just a small number of products was also prompted by the fact that Jure Knez successfully completed his PhD, in which he further expanded and upgraded the research content which he previously dealt with in his diploma and master's theses. Knez's doctoral dissertation became the basis for further SW development. The title of his dissertation was *Stability of machine operation based on vibration measurements* (Knez, 2002).

In terms of development and recognition of Dewesoft, a seminal moment was the start of direct cooperation with NASA, which had been the client of Dewesoft's Austrian business partner for some time. In less than three years of successful cooperation between the two companies, Dewetron was chosen among fierce competition to renew telemetric control instruments at NASA Kennedy space centre on Florida. That invitation led to Dewesoft's first visit at NASA Kennedy space centre where its engineers started solving demanding telemetric problems in close cooperation with NASA's engineers.

In the following three years of intensive development and solving NASA requirements, Dewetron eventually sold its hardware with 35 software licences to NASA in 2006. During that journey, a spontaneous response received from Operation Lead from the United Space Alliance in 2005 characterised the experience (company documentation):

“Our customers were very impressed with the power of the Dewesoft. It was allowing them to report values with accuracy and resolution that they had no idea they ever could have. The engineers in the firing rook couldn’t believe them.”

A success with NASA accelerated the cooperation between Dewesoft and Dewetron, so the period 2003-2007 was characterised by very intensive Dewesoft development of powerful non-programmable data acquisition SW not only for the aerospace industry but also for many reputable development laboratories from different industries like automotive, defence, transportation, power, energy, industrial and civil engineering.

Towards the end of the development partnership period and of adopting a basic business model, Dewesoft also successfully completed the independent development of two new HW products. The first of these was a human body vibration meter for Bruel&Kjaer, and the second a special SPI/analogue-digital controller area network (CAN) device for Dewetron and their customer Wabco. The latter constituted an important foundation for the first independent instrument development, leading Dewetron to alter its business model and paving the way for its future independent entry on the global market.

3.3.2.4 Strategic Partnerships

Dewesoft was a classic high tech start-up company and from its beginning became a strategic alliance partner and provider of data acquisition SW to Dewetron (Austria). Based on a perfect strategic business fit of the two companies as a traditional partner selection criterion (Medcof, 1997), Dewesoft participated in alliance non-programmable data acquisition SW and its fast development and supported the strategic partner also with some simple printed circuit boards (i.e. GPS camera), while the strategic partner Dewetron ensured:

- Immediate entry to the global market and all the necessary marketing and sales product support thanks to Dewetron’s existing global sales network. This meant that all the major, important customers were notified of the new partner and new SW support for measurement instruments ‘the next day’ through Dewetron’s sales network.
- Access to experienced and supportive experts in measurement systems and global sales who presented requests for improving and expanding the existing SW and communicated customers’ experience and feedback.
- Direct access to and cooperation in the area of development with buyers who quickly responded to Dewesoft’s SW and started looking for its upgrades and additions.
- Access to a broad range of HW on which Dewesoft’s SW package had to be installed/upgraded.

- Steady income stream from SW licence sales which began almost immediately, ensuring the means for investments into development and new employees.
- Use of the name Dewesoft, a direct derivative of the Austrian partner's name Dewetron, which facilitated the connection with the previously established trademark Dewetron and ensured easy recognisability of a new trademark (Dewesoft).

Even though Dewesoft was connected with its Austrian partner company in terms of strategy and development, the connection was open and non-binding. Dewesoft retained the freedom to connect with other partners in areas which did not represent competition to Dewetron's business operations. This freedom enabled Dewesoft to not only develop SW, but also a limited number of measurement solutions for use with the SW which were then directly applied in practice.

For example, by 2002 Dewesoft and IMS developed a noise level meter for nightclubs. The instrument was offered to Bruel&Kjaer which assumed the marketing, sales and distribution of the product, while Dewesoft produced it. However, unlike Dewesoft's Austrian partner, the Danish partner did not provide development guidelines and instructions. Consequently, Dewesoft became increasingly connected with its Austrian partner in the area of development, enabling it to grow fast in this field.

3.3.2.5 *Development of Financing*

A combination of three activities: SW development, specialised projects implementation, and a limited production of measurement instruments started to generate a steady income and profit for Dewesoft. The generated profit was invested almost fully back into the company and its development. From the very beginning, Dewesoft led a policy of no borrowing, which meant that it took out no bank loans and obtained no venture capital for start-ups either at the early stage or in the period of additional growth.

The only funding used for company development and growth which was not directly obtained from sales in its primary activities were the national (Slovenian) and European development funds. The amount of obtained funding and its share in comparison to net sales revenue is shown in Table 7.

The percentage of development funding obtained in this way was low, although gradually increasing especially as a result of specialised equipment purchases for project implementation and the desire for lesser dependence on suppliers to meet company's special requirements.

Table 7: Amount of Funding Obtained in 2001-2007

	2001	2002	2003	2004	2005	2006	2007
Amount of funding obtained (in 000 €)	2.73	0	10.27	0	45.52	11.26	0
Share of funding obtained in relation to net sales revenue (%)	3.09	0	3.37	0	5.11	0.95	0

Source: Online database with financial information - www.gvin.com.

3.3.2.6 *Marketing and Promotion*

During the period of growth and development, Dewesoft did not invest much in international recognition and promotion as this aspect was completely taken care of by their strategic partner through its website, global network of distributors, participation at fairs and direct contact with customers. The name of the company also resembled the name of its strategic partner because of the same first four letters (**Dewesoft** in **Dewetron**), much like Dewesoft's visual identity resembled in colours and design that of its strategic partner. According to CEO Andrej Orožen, their customers were often not aware that Dewesoft was a separate company and therefore had the feeling that customers treated them like a SW department of their Austrian partner. Dewesoft actually invested into direct promotion mostly in an indirect manner: by meeting with their end users and providing fast and high-quality solutions for their needs.

Despite not actively marketing themselves abroad, Dewesoft did occasionally present its work in Slovenia through professional/promotional articles published in the specialised journal *Automatics* and by participating at professional fairs together with its strategic partner. To the general Slovenian public, the company became known in 2003 as a successful start-up with great potential after receiving recognition from the *Finance Business Daily* for the best entrepreneurial idea and being praised for providing their users with the sixth version of user SW in less than three years after being founded.

As CEO Orožen explained, Dewesoft did not seek promotion in Slovenia due to its orientation towards the global market and excellent cooperation with the Austrian strategic partner, and added that those customers who needed them in Slovenia could easily find them. *"In general, companies try to gain broader recognition through advertising; they present their work in specialised journals and papers. We haven't been making such appearances yet because we are very much directed at the foreign markets and have been swamped with work. Anyway, recognition is a relative term: if you ask around, nobody has*

probably ever heard of the company Kalmer, but if you ask where there are issues with vibrations, you'll get a completely different answer."

By meeting customers' demands, talking to them, and tackling practical challenges on the field, the Dewesoft team gained an increasingly intensive and in-depth knowledge of market characteristics, customer expectations on the market, new opportunities and their economic potential. Business achievements such as working for demanding users and especially producing technological solutions which formed the foundation of their efforts, along with participating at international conferences and specialised fairs, enabled Dewesoft to gain recognition as one of the leading world experts in their field.

3.3.2.7 Human Resource Policy

Not being burdened with the pressure of sales, being free of debt, doing everything to meet the expectations of demanding customers and having a reliable, steady income all meant that Dewesoft could concentrate on acquiring the most talented human resources gradually and, during the first period of its business operation, in a very deliberate manner (see Table 8), focusing on their development and creating optimum conditions for their work. The system of HR acquisition and development was set at the very beginning and the basic philosophy stayed the same to this day, as explained by CEO Orožen: *"As far as employment opportunities go, our philosophy is still the same as it was the first day. All new colleagues always join us for a fixed term of one year. If they don't accept these terms, we end it right there. Then it's better they don't apply at all. Although after the first year, we never concluded another fixed-term contract. Either we decided the person wouldn't stay or we gave them a permanent employment contract. We did that always, with everyone. During the first interview, we stated that clearly so it was accepted and understood in mutual interest."*

For each new colleague, Dewesoft looked at two things: first the desire and capacity for fast learning, and second the level of prior knowledge an individual brings to the company. The main thing was that they encouraged and enabled all colleagues to grow professionally. When it comes to the abilities of his team, Knez proudly states that the company gradually developed a world-class team in the global sense.

Whereas the CTO was actively involved in training professionals in SW development, the company obtained experienced specialists for mechanical production of prototypes from the local environment. The region of Zasavje has always been famous (apart from coal mining) for its mechanical production. Companies with over 5,000 people in total were producing excavators, gearboxes, moulding tools and many other products. This type of manufacturing was declining in the years following the breakup of former Yugoslavia, so there was an excellent opportunity to obtain experienced people who knew very well how to produce mechanical parts.

Table 8: Growth of Employee Numbers for the Period 2001-2007

	2001	2002	2003	2004	2005	2006	2007
Average number of regular employees on the last day of the year	3.0	4.5	5.5	5.5	6.0	11.6	9.6

Source: Online database with financial information - www.gvin.com.

Part of the learning process for employees on which the CTO insisted was also working with customers at their own offices. This had two positive effects. First, employees could get a good idea of the customers' actual issues and, second, the customers became familiar with a developing specialist mentored by the CTO or, later on, by a more experienced colleague. Thus, the customers gradually started to perceive the company as a strong team, not only as a strong individual. As pointed out by the CEO: *"The implementation of practical knowledge basically means that Knez was always in touch with end buyers. He would visit them in the labs. And whenever he made such a visit, he would take one or two colleagues with him."*

3.3.2.8 Revenue Model

From the very start, the sales policy of Dewesoft was to sell SW solutions to their direct customer, the Austrian partner company, for the price of the agreed licence, and Dewetron had its own sales policy for end buyers. A special feature of the license sales ensured by Dewesoft was that the licenses were not limited in duration to one year, but rather remained valid for the entire lifespan of the product.

A further bonus was that the license price included a freeware package for end users, featuring:

- Free development of specific requirements under the condition that the solution had a sufficiently big sales potential on the market, thereby increasing the capacity or simplicity of the existing solution.
- Free content upgrades of the SW package for the development stage (lifespan) of SW.
- Free use of SW package to display information, unlike their competition who charged separately for data acquisition SW and for data display SW.

3.3.2.9 Relationship with Strategic Partner

The main characteristics of Dewesoft's relationship with its Austrian strategic partner were fast and innovative SW development and constantly increasing recognition from the

Austrian partner, leading to increased sales and many new ideas on how to further improve measurement instruments and their SW. Over time, Dewetron became increasingly dependent on Dewesoft which was gradually becoming their only partner in SW development.

Owing to their excellent knowledge of various HW components and a great insight into the needs of customers with whom Dewesoft worked on development, and consequently a broad understanding of industry development trends, Dewesoft formulated suggestions, ideas, and proposals to its strategic partner on:

- Type A) Changes in Dewetron's existing HW so that it could function even better when used with the SW solutions and produce greater capacity.
- Type B) Completely new HW products to supplement existing Dewetron's HW program.
- Type C) Completely new approach to the basic concept of measurement, namely the transition from multi-channel measurement to distribution measurement.

Type A ideas, suggestions and proposals were being increasingly accepted; however, Dewetron was not open for more radical proposals of types B and C. Orožen, CEO of the company, described the relationship with these words: *“Where in the beginning we were only following Dewetron's demands or, rather, the demands of their buyers, in the period 2006-07 Jure took the incentive and suggested that SW could offer much more if Dewetron was to renew or adapt its hardware.”*

Besides developing a powerful DAQ SW solution, Dewesoft's small group of engineers realised its unused potential. If the hardware was to be developed in a way allowing a perfect fit with the software, instruments would work much more efficiently and capably. That recognition led to the intention of SW and HW integration in exactly the opposite way from the one followed so far, where Dewesoft SW was supporting different types of Dewetron HW developed by different producers in its global partnership network. That intention is stated in Dewesoft's Annual report for 2007 (February, 2008). *“The future development of electronics for Dewetron (Austria) should be focused on making whole devices and systems to perform special tasks (like a system for brake testing, developing distributed acquisition modules, and other tasks), rather than developing simple PCB.”* That announcement was still in line with the basic strategic alliance partnership direction; however, an intention to have a different, much stronger position in the field of future DAQ HW development was already present with Dewetron.

3.3.2.10 Financial Indicators

Table 9 shows selected financial indicators for the first seven years of the company's business operation, marked by a stable, although moderate growth of total turnover and a

constant increase of assets and equity. Over 70% of Dewesoft's turnover was generated in the foreign markets, primarily through its Austrian strategic partner Dewetron and also through the Danish company Bruel&Kjaer. Earnings before interest and taxes (EBIT) and the net profit saw a positive trend, where net profit was just a little lower than EBIT. What is more, the employee value added kept increasing gradually until its peak at €98,000 per employee in 2007, with the total number of employees in that year (less than 10) still being very small. Further characteristics of this period are that the company was not selling measurement instruments under its own brand name and did not have its own operating sales network.

Table 9: Selected Financial Ratios for the Period 2001-2007

	2001	2002	2003	2004	2005	2006	2007
Total turnover (M€)	0.09	0.2	0.3	0.6	0.9	1.2	1.4
Assets (M€)	0.067	0.072	0.164	0.356	0.825	1.204	1.518
Equity (M€)	0.036	0.039	0.083	0.156	0.316	0.550	0.826
EBIT (M€)	0.02	0.05	0.05	0.09	0.29	0.27	0.44
Net profit (M€)	0.02	0.004	0.04	0.07	0.26	0.23	0.38
Return on assets	29.68	6.82	37.93	28.78	44.95	23.03	27.64
Return on equity	54.82	12.51	73.16	62.67	112.32	53.93	54.69
Employee Value Added (000 €)	12.5	16.4	24.5	34.1	71.6	45.6	98.0
# of employees on average per year	3.0	4.5	5.5	5.5	6.0	11.6	9.6
# of SW products – under brand name Dewesoft ^{*1}	1	1	1	1	1	1	1
# of HW products – under brand name Dewesoft ^{*2}	0	0	0	0	0	0	0
# of Dewesoft's partners in sales network ^{*3}	0	0	0	0	0	0	0

Source: Online database with financial information - www.gvin.com: Own information for *1,*2 and *3.

3.3.3 Business Model Transformation Period (2008-2015)

3.3.3.1 Ownership and Management Structure

Even though the management structure of Dewesoft stayed the same all the time, the second period of business operations was marked by many changes in the company's ownership structure.

In accordance with the agreement on partial transfer of ownership shares to the engineers, four engineers who helped the company grow in terms of development with their knowledge and commitment entered the ownership structure in 2009 and 2014, thus receiving ownership shares of the company of 1% or 2%.

A key change occurred with the exit of the company's Austrian co-founders from the ownership structure. Their share was acquired by the company, which meant that the ownership was completely Slovenian. Already in 2008, the strategic partner's owners unexpectedly changed the management, which meant that Dewetron's founders and its long-time CEOs (even long after the company was sold) left the company in 2008. That meant that all of a sudden, despite still being co-owners of Dewesoft, they were no longer ordering development solutions and buying Dewesoft's products. Instead, they helped the Slovenian company develop its own sales network, first by leading Dewesoft's sales office from Austria in 2009.

At the beginning of 2011, the CEO at Dewetron was unexpectedly changed again. The new CEO soon proposed that Dewetron would have developed its own software development team to eliminate a strong DAQ SW dependency on Dewesoft developed in ten years of well-working strategic partnership. One way of solving the issue of this dependency was for the Austrian partner to buy the Slovenian company, or vice versa. But an agreement failed to be concluded, even though the Austrian partners were willing to sell their shares. Just a few weeks later, another announcement came: Dewetron was going to be sold on the market.

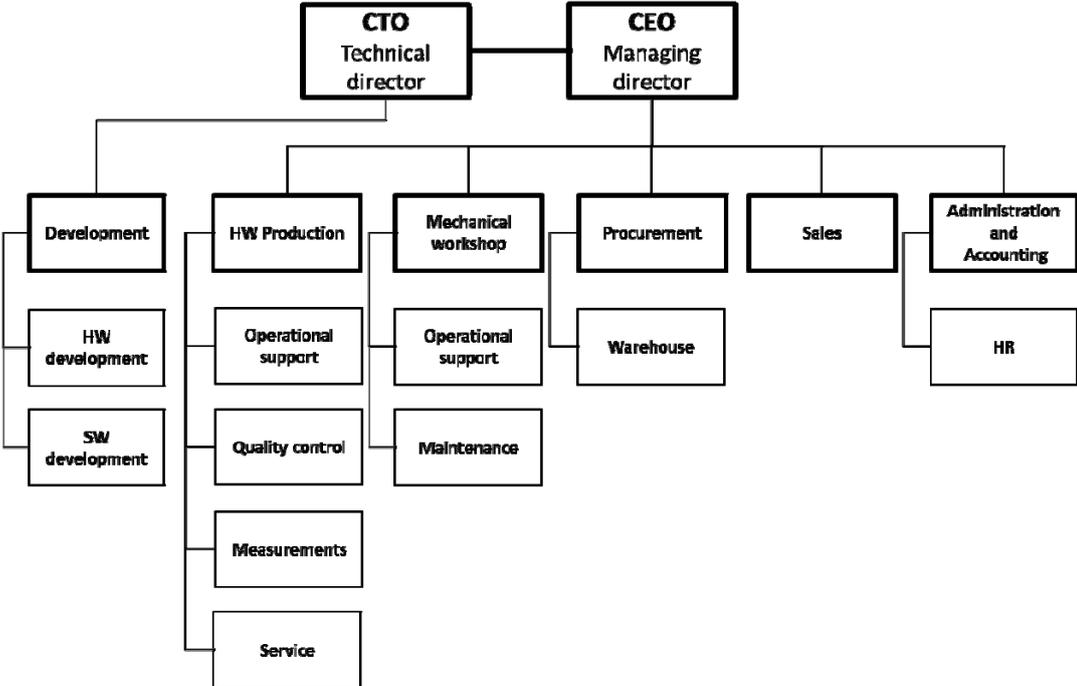
Without any prior communication between strategic partners about that intention and not knowing if the potential buyer would like to cooperate or would prefer to squeeze them from the market and use only the potential of Dewetron's technological knowledge and global sales network, Dewesoft treated that situation as a serious risk. Luckily, the technological mission of Jure Knez, CTO of Dewesoft, once again came through, namely his sincere desire for developing world-class products. Together, Dewesoft's founders decided to continue the strong course of development and to transform Dewesoft, while also, after long deliberation and by mutual consent, deciding to end joint ownership after 10 years of cooperation, but to retain business cooperation. Thus, Degen and Wernigg sold their company shares in 2011 and at the same time assumed their role as managers of the

newly founded company Dewesoft Austria and started to help building a global sales network for Dewesoft.

3.3.3.2 Organisation

Excellent sales figures, a growing number of employees and an increasing volume of HW measurement component production gradually lead to the first company reorganisation and the establishment of a new organisational structure. The following new departments were created: instrument and software development, instrument production, metal products production, purchases, sales and administration with accounting, as shown in Figure 4.

Figure 4: Dewesoft’s Organization Scheme in 2015



Source: Internal Dewesoft’s documentation.

Dewesoft was aware that entering the market as an independent player and aiming for continuous company growth meant that they had to convince their existing and potential buyers also with the quality of development and manufacturing processes, as well as organisation and commitment to the environment, therefore they ensured their work processes conformed with the requirements of standards ISO 9001 and 14001, and received these certificates in January 2014.

3.3.3.3 *Product Development*

In 2008, Dewesoft successfully developed its first data acquisition measurement instrument (Dewe-43) still under the brand name of Dewetron with its SW, thus adding to the existing Dewetron's hardware family. Unfortunately, the strategic partner was not interested in selling it because of its low added value. One of the directors at Dewetron at the time stated: *"The instrument was too small. Dewetron measuring instruments were in price range 15-30,000 euros and this instrument was in the range of 3,000 Euros. With 3,000 euros you only lose money."*

Despite the strategic partner's unwillingness for joint development and sales of HW products, Dewesoft independently continued to pursue its development activities. At the end of 2011, they brought out a new, innovative measuring instrument (Sirius). The production of the first measuring instrument (Sirius) which was to be marketed under the brand name Dewesoft for the first time represented a great challenge for the company. The new instrument Sirius, which soon grew into a family of instruments, represented a modular, flexible innovative HW design, in accordance with global development trends. Where a customer bought fixed 8 channels with the instrument Dewe-43, the first model of Sirius enabled them to select any 8 channels and compose an instrument best suited to their needs.

The instrument was a success with the customers, as confirmed by the CTO who quoted the head of department at NASA: *"We can get much more done and even accomplish things we couldn't even dream of before. We have more work now, but the output of our laboratory is much larger than before."* In the middle of 2012, the CTO received this feedback from the development buyer at General Motors who had previously bought 80 Sirius instruments and replied when asked if they were planning any further sales of the product: *"Your instruments are so flexible that we can basically combine them for different measurements and your software enables us to do everything. We can use one instrument in a hundred different ways, so the eighty instruments we have now allow us to do everything. We use them daily, in a million different ways and with various applications."*

The innovative development of measurement instruments continues. The year 2014 was marked by the end of development of a new family of instruments for the so-called distributed measurement acquisition (Krypton). Previously, Dewesoft's development was directed towards greater capacity of measuring instruments which competed with the former strategic partner's instruments, but new development represented a shift into an area which the former strategic partner does not cover at all. Distributed measurement acquisition means that small Krypton modules allow perfect placement near the source of data. All that needs to be done is to connect with single cable for data, power and sync.

Short sensor wires save cost and improve the signal quality. As explained on Dewesoft's website: "*Krypton DAQ modules are engineered precisely to withstand all conditions and operate flawlessly in cold places, hot places, dust, mud, water and snow. Kryptons are shock proof, vibration proof, milled out of full block of aluminum and filled with rubber.*" The first Dewesoft measurement instruments had the capacity of acquiring only eight signals at a time, but the latest measurement systems allow the acquisition of up to 1,300 measurement channels at a time. Combined with their reliability and capacity, this makes them perfect not only for laboratory use but also for use in different industry settings.

Along with the rapid development of Dewesoft's measurement instruments, the measurement SW also continued to develop at a fast rate. Because the cooperation of strategic partners was starting to gradually erode after 2011, it soon became clear that an important aspect of the separation of the two companies was how to present the differences of measurement SW between Dewetron's and Dewesoft's measurement instruments to the customers. In the beginning of 2013, this led Dewesoft to divide the SW package into two parts, representing development and marketing products: Dewesoft 7.x and Dewesoft X.x.

Dewesoft 7.x continued to be used as a support to Dewetron's instruments and the customers using them, but it no longer included basic development, only maintenance. All the development changes were now included into Dewesoft X.x. As of February 2013, Dewesoft X is no longer commercially available, but rather given to customers free of charge as an application for the selected instrument.

3.3.3.4 Strategic Partnerships

The new management team at Dewetron which was set up in the middle of 2008 was even less in favour of Dewesoft's intentions related to further DAQ HW development. At first, they were also reluctant to sell the new instrument (Dewe-43) through the existing sales network. Consequently Dewesoft launched, however in agreement with Dewetron, a web shop for selling the new instrument in April 2009.

Based on initial sales success and positive customers' feedback, and based on further technological ideas of how the existing instrument should be improved and developed to assure a perfect fit with the software, Dewesoft suggested many times to its strategic partner which technological changes should be implemented in HW development, yet their proposals were regularly refused. As a consequence, Dewesoft was still working mainly on DAQ SW development and improvements and because the web shop was not as successful as expected, Dewesoft opened its first independent sales office in Austria in late 2009.

After a second change in the management team at Dewetron, Dewesoft did not feel economically threatened. Nevertheless, they realised that assuring their technological

vision in cooperation with the strategic partner was becoming ultimately impossible. After deliberating different options, both partners came to an agreement to act as independent companies. The Austrian partner went into developing its own SW team, and the Slovenian partner went into intensive DAQ hardware development and successfully brought to the market, in just under four years, an extremely capable DAQ hardware family perfectly bundled with its new Dewesoft DAQ software: a line-up that offers total solutions for data acquisition and analysis. Today, Dewesoft successfully manages its entire business process in-house, from hardware design, manufacturing and software development to sales, marketing and support; a thing which was unimaginable just a few years before.

3.3.3.5 *Development of Financing*

A huge increase of revenue stream resulting mainly from selling new HW allows Dewesoft to keep its financial policy. The company funded its development and expansion still largely with their own resources and, to a limited extent, with the Slovenian or European development funds. Most of the funding was received in 2008 when the company started developing its first instrument and continued to purchase specialised equipment intended for the development and testing of measurement equipment, which was previously not their task. As shown in Table 10, the amount of funding received was low, although slightly higher compared to the first period of business operations (2001-2007).

Table 10: Amount of Funding Obtained in 2008-2014

	2008	2009	2010	2011	2012	2013	2014
Amount of funding obtained (in 000 €)	199.08	113.62	13.01	99.89	110.94	116.77	238.09
Share of funding obtained in relation to net sales revenue (%)	11.71	5.88	0.35	2.52	1.74	1.43	2.17

Source: Online database with financial information - www.gvin.com.

3.3.3.6 *Marketing and Promotion*

With its first independent and integrated measurement instrument Dewe-43, Dewesoft produced an instrument for which the team believed could fill a gap in the market in a user-friendly and functional way, and also represent the basis for future marketing of more

complex instruments. Because the strategic partner failed to see any sales potential in the product, Dewesoft founded a new company called Dewedirect for internet sales. By establishing a web shop, the company cleverly gained access to a broad range of actual and potential users, while at the same time sending a strong signal to the market that it had the ability to independently develop capable HW, to produce it and distribute it. Even though internet sale is not the usual channel for the sale of high value measurement instruments, it allowed Dewesoft to gain direct access to end users with each instrument sold or even expressed interest. The instrument immediately drew attention of specialists across the world, receiving the Instrument of the Month award and Instrument of the Year award in the specialist journal NASA Tech Briefs Product of the Year in 2009.

Even more than making a profit, Dewesoft was thrilled to be recognised on the market and to be accepted as a developer of excellent HW solutions which were complementary with Dewetron's measurement equipment. A timely and well-judged response to the economic downturn of 2008, coupled with capable HW, low price and intensive marketing and sales activities, drew the attention of the market and resulted in an increase of sales in 2009. Here, it must be emphasised that the internet sales of Dewe-43 were just a starting measure eliminated by the end of 2010.

A further drift between the partners forced Dewesoft to quickly develop its own global sales network, because they could not sell HW which was the direct competition of Dewetron's products through the Austrian company's sales network. Dewesoft transformed the Austrian sales office into the company Dewesoft Austria, managed by Degen and Wernigg who also set about establishing a sales network for the European and Asian markets. The sales network for the American and Russian markets was established by Dewesoft independently. In only four years, the company had its own branches in Austria, Germany, the USA, Singapore, India and Taiwan, in addition to having representatives in 38 countries from around the world.

When Dewesoft began establishing its own sales network, its relationship with customers changed. It was clear that if they wanted to address the customers 'in their own way' and similarly in all markets, they had to train partners in the emerging sales network accordingly. Coincidentally, Dewesoft celebrated its 10th anniversary in August 2011 and therefore organised a measurement conference in Trbovlje with a large number of participating customers, sales partners and special guests, where it also announced its new measurement instrument Sirius.

A measuring conference is a targeted professional, promotional and social meeting of employees, users and business partners. The main goal of the conference, organised biannually since the first one in 2011, is to educate partners in terms of sales and technology so that they may adopt 'Dewesoft's philosophy of customer care', and to present them with the technological vision of future development. Thus, Dewesoft

promotes partners' loyalty to the company, ensuring a safe future for themselves and their partners.

3.3.3.7 Human Resource Policy

During the reorganisation period, the human resource policy of Dewesoft remained the same, although the number of regular employees began to increase rapidly. Because the sale of Dewetron became known, the management did not prevent its specialists who supported Dewesoft's development paradigm from leaving the company. Dewesoft took full advantage of this fact and invited four specialists to cooperate with them, especially in the field where their competences were lacking: human resource development.

By doing so, Dewesoft immediately obtained enough resources for rapid development of measurement instruments. At the same time, the number of employees began to increase fast because, unlike their former strategic partner which had specific development and production functions scattered across the world, Dewesoft decided to combine all the business functions under one roof. This fact is also reflected in their slogan: 'One company = complete solution. Dewesoft manages the entire business process in-house. From hardware design, manufacturing and software development to sales, marketing and support'. Consequently, in just four years (2011-2014), the number of employees increased by 23 (as shown in Table 11), whereas in ten years prior to that the number of employees grew only to 15.

Table 11: Growth of Employee Numbers for the Period 2008-2014

	2008	2009	2010	2011	2012	2013	2014
Average number of regular employees on the last day of the year	11.6	16.3	15.6	20.2	25.9	33.5	38.3

Source: Online database with financial information - www.gvin.com.

3.3.3.8 Revenue Model

Starting to sell measurement HW through its own sales network also led Dewesoft to set a new sales model which, combined with the other elements of the company's business model, had a positive influence on increasing the sales volume.

Looking at the history of the company, it becomes clear that there have been three sales models and that the introduction of a new sales model was always connected with new, upgraded products. Moreover, previous sales models were never terminated but rather

continued to exist alongside new models, which means that all three sales models continue to contribute towards the company's success.

Sales models of Dewesoft are:

- **Sales model no. 1:** Sales of licences for the SW packages Dewesoft 5.x, 6.x and 7.x, charged directly to Dewetron for different HW. Dewesoft could not influence the final price of the HW and SW combination which Dewetron sold to end users through its sales network.
- **Sales model no. 2:** Independent sale of 8-channel measurement instrument DW43 with fixed measurement channels for a fixed price. The price includes both HW and SW (Dewesoft 6.x and 7.x); buyers could not purchase them separately.
- **Sales model no. 3:** The sale of basic licences with enabled functional upgrade for the modular measurement instruments Sirius and Krypton, with the capacity and functionality to be set by the customer. Dewesoft enables the modular design of instruments according to the customer's wishes. The basic licence for the SW is embedded in the basic product (sales model no. 2) and comes free of charge for the user. However, a functional upgrade needs to be purchased for any additional mathematical functions and analyses. The total price therefore depends on the capacity and complexity of a measurement channel, and represents the sum of the values of all individual channels. When a customer purchases the measurement instrument together with the embedded SW, additional SW upgrades remain free of charge, like in the past.

3.3.3.9 Relationship with Strategic Partner

Former strategic partners, Dewetron and Dewesoft, who for a decade appeared on the market with the combination of Dewetron measuring instrument and Dewesoft measurement SW, have since 2011 been competitors also in the field of measurement HW. Regardless, they have retained a sales business relationship, with Dewesoft providing SW sales and maintenance.

In the years 2011-2013, they were already selling separate HW solutions which continued to be supported by the same SW until September 2013. This represented an obstacle for the development of the trademark Dewesoft and for making a clear distinction of companies and trade names Dewesoft and Dewetron.

The greatest challenge in the process of separation (now in its final stage) is the fact that the companies used to act together in their dealing with customers, whereas now they act as competitors. Dewesoft tackled this issue in two ways:

- The first is price policy. The price for the instrument Sirius positioned Dewesoft near Dewetron and other competitors, because they wanted to encourage customers to make a purchase based on product characteristics, not based on the price.
- The second is ‘friendly’ persuasion. According to Dewesoft’s estimate, the total volume of sales for both companies is approximately 6% of the global measurement equipment market, with both companies generating around €30 M turnover. Dewesoft is convinced that the companies should not fight a battle for the 6% when there is still 94% of the market share available. Therefore, they made the decision to enter new markets with a new measurement concept, and leave the customers from the 6% pool to decide by themselves who they want to cooperate with in the future based on the assessment of product characteristics and solutions, not the price.

3.3.3.10 *Financial Indicators*

Table 12 shows selected financial indicators for the second seven-year period of business operation in which the business model transformation took place. This period is characterised by a sharp growth of total revenue, with two watersheds in 2009 and 2011 where the income growth was especially pronounced. The share of export activity was gradually increasing until it reached almost 90%.

Importantly, the total share of export created through the former strategic partner was down to only approximately 15% by 2011. Earnings before interest and taxes (EBIT) and the net profit increased dramatically compared to the previous period (2001-2007) and continued to enjoy a positive trend, which translates into a 14-year positive trend.

Employee added value increased in 2009 before falling slightly due to a greater number of employees, but then soared again when the sales of Dewesoft’s own HW products began to increase in 2012. An important characteristic of this period and one of the key changes in the business model is that the company started to sell measurement instruments under its own brand name and through its own sales network.

In 2013, SW was divided into two branches. The first was primarily intended to provide SW maintenance for existing customers who were using SW in combination with former strategic partner’s measurement HW, thus ensuring continuity and safety of operation. In the second branch, SW development continued and was connected exclusively with Dewesoft’s own measurement HW.

Table 12: Selected Financial Ratios for the Period 2008-2014

	2008	2009	2010	2011	2012	2013	2014
Total turnover (M€)	1.90	2.00	3.72	4.07	6.49	8.73	11.76
Assets (M€)	1.745	1.992	2.499	3.585	4.953	7.526	11.572
Equity (M€)	1.220	1.409	1.932	1.354	2.826	5.259	9.229
EBIT (M€)	0.66	0.37	0.68	1.07	1.85	3.09	4.55
Net profit (M€)	0.55	0.33	0.59	0.92	1.61	2.60	4.19
Return on assets	33.57	17.82	26.30	30.15	37.85	41.69	43.87
Return on equity	53.51	25.32	35.34	55.82	77.30	64.35	57.84
Employee Value Added (000 €)	108.8	58.3	83.7	94.4	113.9	115.6	150.8
# of employees on average per year	11.6	16.3	15.6	20.3	25.9	33.5	38.3
# of SW products – under brand name Dewesoft ^{*1}	1	1	1	1	1	2	2
# of HW products – under brand name Dewesoft ^{*2}	0	2	3	6	6	21	> 40
# of Dewesoft's partners in sales network ^{*3}	0	1	1	3	15	28	45

Source: Online database with financial information - www.gvin.com; Own information for *1,*2 and *3.

4 RESULTS

4.1 Outline of Research Sequences

4.1.1 Introduction of Major Research Sequences

Each project of qualitative research is distinctive, as the object of observation changes across space and time – as opposed to natural sciences where fundamental physical laws are immutable and homogenous – and is, as such, almost never subject to replicability (Checkland & Holwell, 1998. p.11).

In addition, the exact mode of research planned at the outset sometimes cannot be realised in practice, causing a spontaneous necessity to adapt to current situations, make use of unexpected opportunities, and abandon plans that prove difficult to execute even though they seem well designed. The value of qualitative research thus lies precisely in its flexibility in the uncovering of data that eventually leads, in systematic and constructive manner, to a truthful answer to the proposed research question.

As already indicated, the study presented in this dissertation was conducted over a period between July 2013 and June 2015, encompassing a total of 24 months. During this journey I encountered numerous dead ends and blind alleys. Gradually, I was able to develop a high degree of trust among key informants and gatekeepers, something I had known would be a necessary challenge at the start of my research journey.

Following the grounded theory approach, I began by establishing the main research question and proceeded to gather information by employing a stance of theoretical agnosticism (Charmaz, 2011, p. 166), where research phases were not rigidly defined so I could keep an open mind and stay flexible, adapting to any new findings as I went.

The major research sequences that resulted from this process are presented in table 13 below.

Following the first and second research sequence, I developed a tentative model of key determinants of business model transformation, which was then completed after the third research sequence when it was also comparatively assessed with the existing literature and theories.

Table 13: Major Research Sequences and Research Questions

Research sequences	Research questions	Main outcomes
Preliminary research sequence: July-August 2013	<ul style="list-style-type: none"> • Is the success of your company related to the transformation of your business model? 	<ul style="list-style-type: none"> • Accepted decision to shift to a single-case study
First research sequence: September 2013 – April 2014	<ul style="list-style-type: none"> • What was the course of your business model transformation from the time of your company’s establishment up until now? • Why did you decide to transform your business model and in what ways did you achieve this task? • What were the characteristics of the business model transformation process? 	<ul style="list-style-type: none"> • Tentative model 1 of key determinants of successful business model transformation
Second research sequence: June 2014 – November 2014	<ul style="list-style-type: none"> • Do the interviews and their data describe the process of business model transformation to a sufficient degree? • Have I missed any significant factors or events that also affected the process of the model’s transformation? • Which changes occurred during the past 8 months of business model transformation (9/2013 – 6/2014)? • What is your opinion of the presented tentative model 1? • Which changes occurred during the past 4 months of business model transformation (8/2014 – 11/2014)? • What is your opinion of the presented tentative model 2? 	<ul style="list-style-type: none"> • Tentative model 2 of key determinants of successful business model transformation
Third research sequence: November 2014 – June 2015	<ul style="list-style-type: none"> • How was the development and transformation of the Dewesoft business model perceived by the co-founders / senior engineers / employees / external partners of the company? • How do the co-founders / senior engineers / employees / external partners of the company interpret the key characteristics of their business model transformation? • What is your opinion of the research’s presented final model? 	<ul style="list-style-type: none"> • Final model of key determinants of successful business model transformation • Hypothetical model for successful business model transformation

4.1.2 Preliminary Research Sequence

4.1.2.1 *Duration of the Preliminary Research Sequence*

The preliminary research sequence was conducted in July and August of 2013. Companies were selected from the ranks of small and medium-sized enterprises on the basis of their past business results and excellence awards received.

- Company 1: Recognised as one of the a fast growing company in Slovenia in 2013
- Company 2: Recognised as a fast growing company in Slovenia in 2012
- Company 3: Recognised as one of the best companies in Slovenia in 2010, according to the Chamber of Commerce
- Company 4: Recognised as one of the best companies in Slovenia in 2009, according to the Chamber of Commerce

The main initial research question posed to the interviewees was: “Is the success of your company related to the transformation of your business model?” I have previously conducted various services and business consultancy activities for all the participating companies, which resulted in my personal acquaintance with the executives, in turn allowing me to conduct direct interviews.

I first sent an email (Appendix 1) to all the executives I wished to interview, where I explained the purpose and intention of the pilot interview and asked them to cooperate. I also asked for their permission to record the interview, along with offering them the possibility to sign a confidentiality agreement beforehand, with a statement that their disclosed data will be used exclusively for the purpose of the research. All those I addressed responded, and all were prepared to give an interview and allow me to record it. No written confidentiality agreements were demanded aside from my personal verbal guarantees.

Interviews were conducted on location, in the offices of participating executives, and ranged between 45 minutes and 1 hour in length. All the interviews were recorded, along with notes being taken of any significant proposal. I directed the interviews by asking probing questions, but the interviewees were free to develop detailed answers and explain their perspective. I further re-examined each recorded interview the same evening, putting down notes of key ideas and conclusions.

The course of the preliminary research sequence is presented in Table 14.

Table 14: Course of the Preliminary Research Sequence

Sequence code	Sequence period	Sequence activities	Informants	Outputs
P-1.0	• July-August 2013	<ul style="list-style-type: none"> • Ensuring access for the initial interviews • Interview preparation 	/	<ul style="list-style-type: none"> • Access confirmed
P-1.1	• August 2013	<ul style="list-style-type: none"> • Unstructured interviews (4x) 	• G1	<ul style="list-style-type: none"> • Taped interviews • Field notes • Taped interview review
P-1.2	• August 2013	<ul style="list-style-type: none"> • Quick analysis 	/	<ul style="list-style-type: none"> • Decision to continue the research with a single company

Legend: G1=executives

The fundamental goal of the preliminary research sequence was to identify and contact several suitable companies for researching business model transformation processes on the basis of a multiple-case study. Having found out that the executives of all but one of the companies did not attribute their success explicitly to the transformation of their business model, I was compelled to restructure my research approach. I thus focused on the company that clearly connected its growth with the change of its business model, and verified whether it met all the recommended criteria for a single-case study (Siggelkow, 2007; Yin, 2009). I was able to establish that the company did indeed satisfy all the below criteria, which resulted in my decision to continue the research with a single company. The criteria were as follows:

- Longitudinal case: I was able to observe the same case throughout different points in time, during a seven-year period between 2008-2015.
- Unique case: as an active observer, I had the opportunity to record current changes in the business model during the phase of strategic separation, for which I found no equivalent example in relevant literature.

I contacted the selected company again, and verified their willingness to participate in a single-case research study. They granted me their full cooperation, and we then outlined the scope of research and the number of individuals that would participate.

Since the company was still undergoing its process of business model transformation which had already brought visible business results, I was able to directly observe the process of successful business model transformation. It should be noted that real-time observation in this context is seldom found in research literature (Sosna et al., 2010), as researchers normally describe transformation processes retroactively.

4.1.2.2 *Key Limitations of the Preliminary Research Sequence*

The main disadvantage of the preliminary research sequence is that, due to the findings, I was forced to change the course of my research and focus the research on a single case study. That change later prevented me from replicating the final findings among case studies, which remains a challenge for future research.

4.1.3 **First Research Sequence**

4.1.3.1 *Duration of the First Research Sequence*

The first research sequence, which lasted from September 2013 until the end of April 2014, was divided into five sub-sequences that followed one another. Information that was collected during the preceding sub-sequence represented the foundation for the execution of each following sub-sequence. Sub-sequences are coded as S-1.1 to S-1.5. and presented in Table 15.

Table 15: Course of the First Research Sequence

Sequence code	Sequence period	Sequence activities	Informants	Outputs
S-1.1	<ul style="list-style-type: none"> September 2013 	<ul style="list-style-type: none"> Interview preparation 	/	<ul style="list-style-type: none"> Questionnaire A Questionnaire B
S-1.2	<ul style="list-style-type: none"> September 2013 	<ul style="list-style-type: none"> Unstructured interviews Direct observation Informal conversation Secondary data gathering, external 	<ul style="list-style-type: none"> G1 	<ul style="list-style-type: none"> Taped interviews Field notes Transcript
S-1.3	<ul style="list-style-type: none"> October 2013 	<ul style="list-style-type: none"> Early or initial analysis Secondary data gathering, external – continuation Financial data gathering Interview preparation 		<ul style="list-style-type: none"> Memos Questionnaire C
S-1.4	<ul style="list-style-type: none"> October 2013 	<ul style="list-style-type: none"> Unstructured interview 1st “BMT process” validation 	<ul style="list-style-type: none"> G1 	<ul style="list-style-type: none"> Taped interviews Field notes Transcript
S-1.5	<ul style="list-style-type: none"> November 2013- April 2014 	<ul style="list-style-type: none"> Secondary data gathering, external – continuation Data analysis Initial open coding 	/	<ul style="list-style-type: none"> Building the 1st model of determinants Drafting the development story

Legend: G1=executives

In the first separately conducted interviews with two executives, I used the unstructured interview approach with an opening question followed by probe questions focusing on the company's early development stages and business model transformation perceptions.

The initial research questions were open-ended and worded as follows:

- In what ways was your fundamental business model developed and changed since your company's establishment?
- Why did you decide to transform the business model and what steps are you taking to accomplish this task?
- What were the characteristics of the business model transformation process?

To assist me in the preparation of the initial questionnaire (Appendix 2: Questionnaire A) I examined, besides the following the initial research question, reports about the company that were created within the framework of the national "fastest growing company" excellence awards during the years 2009, 2011 in 2012, while the second and third questionnaire (Appendix 3: Questionnaire B and Appendix 4: Questionnaire C) was prepared on the basis of an analysis of data collected during the first two interviews, and a partial examination of the secondary data gathered.

One characteristic of the first research period was a significant time interval between the conducted interviews, which occurred due to time constraints of the interviewees. 14 days thus passed between the first and second interview, and then 30 days between the second and third. This allowed me to analyse the recordings and develop ideas as well as identify shortcomings or missing information. I shored up these deficiencies during subsequent company visits and informal conversations. On the basis of all these, I began to construct a database. After each interview, a transcript was created, so that it was at my disposal before the next interview began. The person providing the transcript was given precise instructions on how to mark pauses, shifts in emotion, stressed parts of speech and segments of meaning. I compared each transcript with the original recording to make sure it was completely faithful and that its structure represented an exact copy of the information contained in the recording. On the basis of the transcript, I then drew up the early analysis (Miles & Huberman, 1994, p. 50) by defining significant content blocks in the transcript text, which were relevant to the respective research questions. This was conducted using Microsoft Word and the comments functionality.

My first interview with the CEO was wrapped up with a tour of the company, while my interview with the CTO ended with an informal conversation of future company plans, where the CTO explained the forthcoming structural and technological changes in their business.

During the first data collection period, I familiarised myself with the accumulated data, which I then cleaned and structured, as both respondents were providing statements in their personal dialect. I then analysed interview transcripts and consulted additional data from the site visit and informal communication to highlight any inconsistencies requiring further examination.

Within the first interview, I recognised 68 significant content blocks (statements relating to a particular research topic) and within the second 84. I treated the content blocks with initial coding used to summarise, interpret, and sort out information.

Code	Example: marked as representing this pattern in raw data
Strategic separation	<i>“So when we decided to manufacture things by ourselves, we said we’d first make something they don’t carry so there would be no hard feelings.”</i>
Co-creation	<i>“If you can show customers they have a say in how the software is developed, that you’re listening to their feedback, it makes everything better ... even when things aren’t a hundred per cent. They know the functionalities they require will be up eventually, and it’s important to them. This was always key in software development. And in hardware development, I think it’s the same.”</i>

In addition to sorting out the content blocks, early analysis also shed light on two shortcomings. The first was that some of the described events and timelines did not seem to precisely match, or that insufficient information was collected to understand the correlation. This prompted me to conduct an extensive analysis of external documentation and arrange an additional interview. The second shortcoming was that I was still unable to secure access to the company’s internal documents.

The intent of the third interview was twofold. It served as a way to acquire additional information and clarify information from the existing transcripts, as well as verify and confirm my current understanding of the process. The third interview was analysed independently from the findings of the first and second one, and produced 139 significant content blocks. Altogether, thus, the first research sequence resulted in (68 + 84 + 139) 291 coded content blocks.

Having executed the third interview, I continued to search for and analyse documentation. On the basis of all the information I had at my disposal, I drafted the development story in addition to defining axial coding for the most important content blocks. Using axial coding, I specified 29 sub-categories that were further analysed for similarities and shared characteristics, resulting ultimately in the generation of 6 main

categories that served as the constituent parts of the first tentative model of key determinants of successful business model transformation.

The idea to put together the Dewesoft business development story sprang up after the first interviews. Drafting the story was extremely helpful in the understanding of the company's development, reasoning and decision making. The story also served as a research log, since I regularly updated it with all the newly acquired understanding. In this context, it is worthy to note that I found the company's historical memory quite disorganised, not in the sense of what activities were happening but in the sense when precisely they were happening.

At this stage, I used data sequential analysis to synthesise a draft of the Dewesoft business model development story.

4.1.3.2 *Key Limitations of the First Research Sequence*

- Primary information was received from only two executives, which created the issue information might be distorted through the lens of their personal views. In this part exclusively, I partly rectified this circumstance by utilising input from direct observation and informal interviews.
- Secondary data was acquired on the basis of external documentation only.
- Initially, the degree of confidence between the researcher and the company was insufficient, which reflected in my inability to access internal documentation and extract extensive information from critical staff.
- I had already been in contact with the company in the pre-research period, having been charged with assessing their business success in the context of the “fastest growing company” award project (2009 and 2012), which might have inadvertently affected my research approach.
- The research was initially conceived as a multiple-case study, but the findings of pilot interviews made me reconsider this approach in favour of a detailed single-case study. Because the company's process of business model transformation was still actively running, I was able to observe its development in real-time, but on the other hand this meant I was not able to precisely specify the course and scope of all the research activities beforehand, so I had to shape the research as I went.

4.1.4 Second Research Sequence

4.1.4.1 *Duration of the Second Research Sequence*

The second research sequence (see Table 16), which lasted between June 2014 and the end of November 2014, was also divided into five sub-sequences. By sending my

Dewesoft development story to the two executives at the completion of the first research sequence, I was able to greatly increase their engagement and interest in my research as well as secure access to confidential information. A practical result was the CTO’s own invitation to a second set of interviews, which he conveyed with the following statement: *“Your foundation probably needs a couple inside details, things that went on in the background as we were making our hard business decisions ... so the record is in top shape.”*

Table 16: Course of the Second Research Sequence

Sequence code	Sequence period	Sequence activities	Informants	Outputs
S-2.1	• May 2014	<ul style="list-style-type: none"> • Interview preparation • Financial data gathering for 2013 	/	<ul style="list-style-type: none"> • Questionnaire D • Draft of the development story
S-2.2	• June 2014 – July 2014	<ul style="list-style-type: none"> • Unstructured interview • Informal conversation • Direct observation • Internal data gathering • 2nd “BMT process” validation 	• G1	<ul style="list-style-type: none"> • Taped interviews • Field notes • Memos • Transcript
S-2.3	• July 2014	<ul style="list-style-type: none"> • Informal conversation • 1st tentative theory validation 	• G1	<ul style="list-style-type: none"> • Taped conversation • Field notes • Memos • A brief summary of the conversation
S-2.4	• August 2014 – November 2014	<ul style="list-style-type: none"> • Internal data gathering – continuation • Phone follow-up data verification • Data analysis • Re-examining open and axial coding 	/	<ul style="list-style-type: none"> • Building the 2nd model of determinants
S-2.5	• November 2014	<ul style="list-style-type: none"> • Informal conversations • 2nd tentative theory validation 	• G1	<ul style="list-style-type: none"> • Conversations tapes • Field notes • Memos (audio) • A brief summary of the conversation

Legend: G1=executives

Additional information was collected using a combination of the structured and unstructured interviews with each executive separately. The initial research questions were in both cases the same:

- Do the interviews and their data describe the process of business model transformation to a sufficient degree?
- Have I missed any significant factors or events that also influenced the course of your business model transformation?
- Which changes occurred during the past 8 months of business model transformation (9/2013 – 6/2014)?
- What is your opinion of the presented tentative model 1?

Since the Dewesoft business model was undergoing transformation throughout the research process, the third question made a lot of sense as the period was sufficiently long to result in significant changes to company business, which ultimately also proved to have been the case. As previously, I first interviewed the CEO and did another tour of company premises, which had in the meantime expanded as well as hired additional employees. The interval between the two interviews was once again quite long, nearly thirty days, as I conducted my interview with the CEO on 17.6.2014 and my interview with the CTO on 16.7.2014.

The complete process of recording and treating findings was repeated in the same manner as during the first research sequence. On the basis of subsequent analysis, I recognised 71 content blocks / codes within the content of the first interview, and 69 content blocks / codes within the second. Both interviews were analysed independently from the previous findings. A key feature of the second research sequence was securing the willingness of the Dewesoft CEO and CTO to disclose their internal company archives, which was achieved by building personal familiarity.

Another feature of this sequence was that I was able to present to the executives my first tentative model of key determinants of successful business model transformation (immediately after the interviews and prior to the analysis of newly available internal documentation). This model was formulated on the basis of the findings of the first research sequence. In the ensuing discussion, 3 major categories of the study out of the proposed 6 were confirmed as suitable work concepts. The confirmed categories were: ‘Customer co-creation’, ‘Technology vision’ and ‘Industry solution’.

The remaining three major categories were not confirmed by the executives. ‘Scientific entrepreneurship’ was rejected as a factor of their business model transformation, whereas ‘Collaboration with cofounders’ and ‘Experimenting’ were considered relevant but were recontextualised under different names.

Since the tentative work model was created without an analysis of internal company documentation, to which now I had access, this analysis was my first task following interviews of the second research sequence. It resulted in additional vital information that enabled me to understand the broadest context of the company's operation. In light of all the newly acquired data, I re-examined previous conclusions and recreated the initial coding, which resulted in 71 content codes recognised on the basis of the fourth interview, and 69 additional content codes on the basis of the fifth, in total 140 content codes resulting from the second research sequence.

New content codes were joined with existing ones, resulting in the creation of new axial coding for all the gathered information, where 14 sub-categories were recognised and developed into a total of five major categories. I began the formulation of the second tentative model of key determinants of successful business model transformation, which was then presented to the executives in late November 2014. The second draft of the model transformation document and the tentative determinants of success it described resulted in an emerging theory that encouraged the company's CEO and CTO to open the doors to other crucial informants, which allowed me to broaden the social interactions and data scope of the research study. By the end of the second research sequence, I was able to develop extensive trust with company officials and employees and engage in productive theoretical discourse.

4.1.4.2 *Key Limitations of the Second Research Sequence*

During this research sequence, I realised that the very fact I was observing the transformation of the business model in real-time resulted in limited access to certain aspects of executive information, on account of current events in the executives' relationship with the former strategic partner they were in the process of separating from.

- In the course of my interviews, I was made aware that the relationship with the former strategic development partner was experiencing difficulties, which might have affected the range and tone of information received from Dewesoft executives.
- Primary information was secured from only two company executives, which created a risk of subjective perception.
- The scope of internal documentation acquired was limited.

4.1.5 Third Research Sequence

4.1.5.1 *Duration of the Third Research Sequence*

The third research sequence, which lasted between December 2014 and the end of June 2015, was divided into six sub-sequences (see Table 17). In the third information collection period, 18 semi-structured interviews were conducted with four groups of

additional informants (cofounders-G2, senior engineers-G3, employees-G4 and partners-G5), ranging in duration between 30 and 60 minutes. They were all transcribed at the end of the day.

The research question I put forward there was the following:

- How was the development and transformation of the Dewesoft business model perceived by cofounders / senior engineers / employees / external partners?

I first conducted interviews with cofounders and then with employees in no particular order, finishing up with external partner interviews. The order arose spontaneously depending largely on the availability of individuals. I performed interviews at the company headquarters and on the location of the partners and cofounders. Through my interviews with the cofounders, I was able to understand the essential importance of good communication with the sales network and the customer base, whereas interviews with experienced engineers and employees showed that the engagement, involvement and dedication of employees was vital in the successful transformation of the business model.

Table 17: Course of the Third Research Sequence

Sequence code	Sequence period	Sequence activities	Informants	Outputs
S-3.1	• December 2014	• Preparation of the interviews	/	<ul style="list-style-type: none"> • Questionnaire E (G2) • Questionnaire F (G3 and G4) • Questionnaire G (G5)
S-3.2	• December 2014	<ul style="list-style-type: none"> • Semi-structured interview • Informal conversation • Direct observation (i.e.: site visit) 	<ul style="list-style-type: none"> • G2 • G3 • G4 	<ul style="list-style-type: none"> • Taped interviews • Field notes • Memos (new insights) • A brief summary of the conversation
S-3.3	• January 2015-February 2015	<ul style="list-style-type: none"> • Semi-structured interview • Informal conversation 	<ul style="list-style-type: none"> • G5 	<ul style="list-style-type: none"> • Taped interviews • Field notes • Memos • A brief summary of the conversation
S-3.4	• April 2015	• Informal conversation	<ul style="list-style-type: none"> • Customer • Sales partner 	<ul style="list-style-type: none"> • Field notes • Memos

(table continues)

(continued)

S-3.5	<ul style="list-style-type: none">• April 2015-June 2015	<ul style="list-style-type: none">• Data analysis - recoding• Open coding• Selective coding	/		<ul style="list-style-type: none">• Building the final theory
S-3.6	<ul style="list-style-type: none">• June 2015	<ul style="list-style-type: none">• Informal conversation• Final theory validation		<ul style="list-style-type: none">• G1	<ul style="list-style-type: none">• Final theory confirmation

Legend: G1=Executives, G2=Cofounders, G3=Experienced engineers, G4=Employees, G5=Partners

Furthermore, I was invited to four company meetings, conducted site visits on three separate occasions and held numerous additional informal conversations throughout this research period. Following each activity, I put down relevant notes, which were then used in the process of data analysis. Altogether, more than 200 pages of transcripts were accumulated. By extending my direct observation to other informants, I obtained a variety of different viewpoints and valuable new insight for improving my theory on the key determinants of successful business model transformation. During this period, I was unexpectedly invited to the third Dewesoft Measuring Conference which took place in Slovenia in April 2015. The conference was also an excellent opportunity for direct observation and informal conversations with customers and sales partners with regard to my research question.

At the measuring conference, I conducted two informal interviews. The first one was with a major customer (Volvo), with which Dewesoft had signed a global cooperation contract, and the second one was with a representative of the Dewesoft sales network based in the Netherlands. The initial question I put forward in my talks with customers and sales partners was:

- Which traits of Dewesoft motivated you to extend your cooperation with the company even after the transformation of their business model?

At the conclusion of the third research period, I decided to once again recode all the information since a wealth of new data and input into the course and consequences of the business model transformation was made available for the purposes of my research. The new coding displayed a total of 322 content codes (Appendix 9). An ensuing process of finding interconnections between content blocks produced 17 sub-categories that were streamlined into 6 main categories. The construction of the main categories is outlined in Appendix 9.

4.1.5.2 Key Limitations of the Third Research Sequence

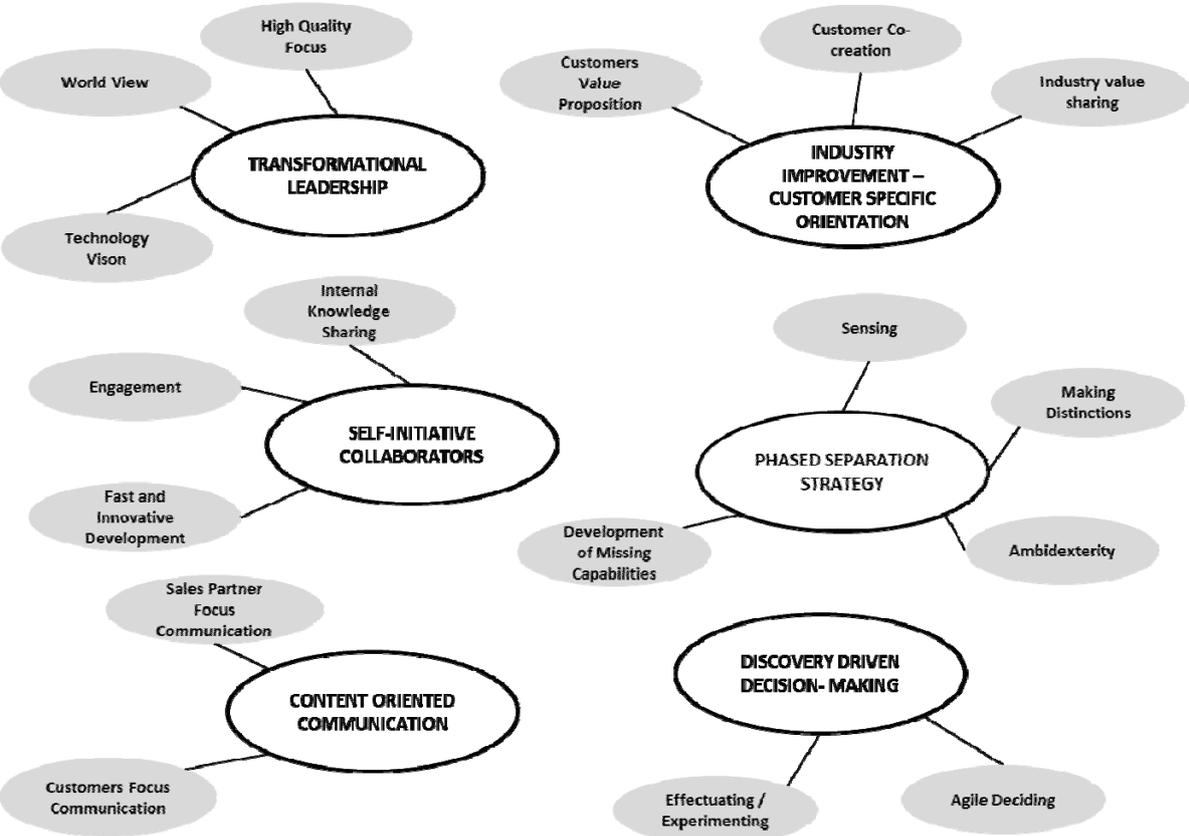
The third research sequence was characterised by many new insights about the company from the perspectives of those who were interviewed, which eliminated the weakness of previous research periods. However, I would emphasise that the main

limitation in the last research sequence was still that the scope of internal documentation acquired remained limited, which is recognised as one of the main disadvantages of doing case study research in business settings (Myers, 2010, p. 81).

4.2 The Model of Determinants of Successful Business Model Transformation

The result of my study is a developed model of determinants (see Figure 5) of a successful business model transformation in the case of one organisation in which I have identified six determinants that are supported with seventeen subcategories.

Figure 5: The Determinants of Successful Business Model Transformation



The determinants and their subcategories I named as follows:

- **Transformational leadership:** high quality focus, technology vision and world view.
- **Discovery-driven decision making:** effectuating / experimenting; agile deciding.

- **Industry improvement - customer specific orientation:** customer value proposition, customer – co-creation, industry value sharing.
- **Content-oriented communication:** customer-focused communication, sales partner-focused communication.
- **Self-initiative collaborators:** engagement, internal knowledge sharing, fast and innovative development.
- **Phased separation strategy:** making distinctions, sensing, ambidexterity, development of missing capabilities.

Each determinant has a different subset of categories, all of which I examined in turn. At the beginning of the next chapters, I present each determinant with corresponding operational definitions for related subcategories. This is followed by a display of codes which were the basis for establishing a comprehensive description of determinants supported by representative statements.

In these particular impressions I show separately quotes gathered from the executive directors and other informants. In chapters that deal with the manifestation of categories defined by the research, I showcase arguments confirming the respective category on the basis of statements obtained from informants and other sources. All the statements appear in *italic* text, and each ends with a code in brackets that specifies the group giving the statement or its source. Individual respondents are not disclosed by name, with the exception of the executives where this is necessary for clear understanding since there are only two of them. I finish the presentation of determinants with a display of all other representative quotations, observations, or extracts from secondary sources, which reinforces my observation.

4.3 Transformational Leadership

4.3.1 Operational Definitions and Codes

The transformational leadership determinant consists of three subcategories, which are presented in Table 18 and are supported with the operational definition that reflects the meaning of each of them.

Table 18: Operational Definitions of Transformational Leadership Subcategories

Subcategories	Operational Definition
Technology vision	<i>Long-term understanding of the direction of the company's technological development and the ability to transfer this vision to all involved parties.</i>

(table continues)

(continued)

High quality focus	<i>A focus on creating above-average products and innovative services that exceed the expectations of the consumer.</i>
World view	<i>Fundamental philosophical orientation of the company that guides the pace, course and intensity of its business operations.</i>

Each subcategory given above is supported with codes from the third research sequence, which are presented in Table 19. The first two codes, which are in bold, are supported in Table 20 with the full quotes gathered during the interviews.

Table 19: Transformational Leadership Codes

High Quality Focus	Technology Vision	World View
1. Orientation into top-quality products in global demand - G1.1	1. Personal technology vision - G1.2	1. Employees own a stake in the company - G1.2
2. Improving and speeding up procedures - G3.3	2. Technological insight and understanding - G3.3	2. Jure has “a big heart” - G3.3
3. Focus on technological perfection - G1.1, G1.2	3. Knowledge of potential technology development avenues - G1.1	3. Staying open to cooperation with external parties - G1.1
4. Focus on the constant updating of successful products - G1.1	4. 5-year plan of future technology development - G1.1	4. Maintaining a “go with the flow” business culture - G1.1
5. Understanding that gradual development is an essential factor of creating stable platforms - G1.1	5. Guiding the technological development of customers, too - G1.1	5. Ensuring financial independence G1.1
6. Optimum vs. maximum - G1.1	6. Technological management alongside technology vision - G1.1	6. Maintaining ownership independence - G1.1,
7. Simple yet high performance products - G4.3	7. Strive to be “cutting edge” in the technology sense - G1.1	7. Applicative research entrepreneurship culture - G1.1
8. “Apple” quality - G4.3	8. Personal vision of company development - G1.2	8. Freedom to make decisions - G1.1,
9. Cancelling projects or manufacture when quality is subpar - G4.3	9. Development of the vision in harmony with the needs of customers and the direction of the industry’s trends - G3.3	9. Organic growth - G1.1
10. Awareness of things that need change and how to go about it - G4.3	10. New technology vision - G3.3	10. Co-operative and co-ownership models involving employees - G1.1
11. Looking two or even three steps ahead - G4.3	11. Cooperating in the vision’s implementation - G3.3	11. Sensitivity to the progress of broader society - G1.1
12. Ability to maintain high productivity in stressful situations - G4.3	12. Global reach and availability - G3.3	12. Helping develop the industry - G1.1
13. Identifying and addressing any recurring errors in the work process - G4.3	13. Focus on the connection between SW and HW - G3.3	13. Avoiding the inverse effect of stagnant capital - G1.1 – article
14. Making a truly valuable instrument - G5.3	14. Technology vision as a foundation of business transformation - G3.3	14. Fostering personal independence - G1.2
	15. Co-creating the company vision - G3.3	15. Research and applicative freedom G1.2
	16. Vision that brings employees together - G3.3	16. Making money is not the primary focus - 1.2
		17. Technology-driven development G1.2
		18. Helping make the world a better place - G1.2
		19. Calm and respectful poise - G1.2

(table continues)

(continued)

17. Jure's vision is our prime directive - G3.3	20. Professional transformation - G2.3
18. The power of technological aspirations - G5.3	21. Separation but staying on good and productive terms - G2.3
	22. Personal respect and consideration G3.3, G4.3
	23. Re-focusing from profit to other concepts once stability is achieved - G3.3
	24. Capitalism with a human face - G5.3

Legend:

- G1.1 – Interviews conducted with group G1 during the first research sequence.
- G1.2 – Interview conducted with group G1 during the second research sequence.
- G3.3, G4.3, G5.3: Interviews conducted with groups G3, G4 or G5 during the third research sequence.

The codes, and their accompanying quotes, allow me to give a detailed description of the transformational leadership determinant, which I present in next chapter.

4.3.2 Manifestation of Transformational Leadership

The technology vision consisted of a combination of the CTO's personal perspective of future technological developments and the leadership's effective understanding of the current and near-future needs of end users of company products, as well as the industry field as a whole. A perceived danger to the realisation of the technology vision was in fact one of the key causes for the necessity of business model transformation, and the leadership's ability to openly communicate its perspective and work hand in hand with employees was one of its key facilitators. The CTO's closest colleague and company cofounder had this to say in his interview: *"We're tremendously fortunate to have the opportunity of working with Jure, as he's someone that will go above and beyond his duties to make sure we stay on top"* (G1.1). A senior engineer described him like this: *"Jure has hands-on practical experience in addition to being well versed in theoretical concepts, and he's able to develop a clear vision for the future, like a Steve Jobs for example, only that Jure has a really big heart"* (G3.3). *"He's a technological visionary"* (G3.3), was the description of another experienced engineer.

In connection with the business transformation, an external partner pointed out the following: *"When Dewesoft put its first successful independent instrument on the market in 2008, Jure already had a plan for the instruments they will be making 5 years ahead."* (G5.3) Such opinions of his co-workers were readily corroborated by CTO himself, who added: *"Our long-term plans are always, personally up to me. That's something I reserve for myself, it's just how it is. Before 2008 I felt we lacked a solid long-term vision, in the sense of knowing exactly where we wanted to be, say, three years down the line. It's something that was missing and something I consider essential"* (G1.2).

The realisation of the technology vision went in harmony with a focus on the gradual but persistent achievement of state-of-the-art quality and product performance. When the company weighed its dilemma of creating optimal-efficiency or maximum-quality products, they opted for maximum-quality. One example is their software for the acquiring, processing and display of data, which is still the same core product it had been at the company's establishment, and one they are constantly updating. Focus on a single product enabled its gradual but constant improvement based on customer feedback, and allowed the company to steer clear of various flash-in-the-pan business opportunities that could have brought a lot of money in the short term but also distracted focus and redirected resources away from a maximum-quality product.

The following statement of the CTO showcases their dedication to quality: *"I believe in finding a single concept to work on. And I believe in sticking to it, taking small but sure steps forward, and always trying to make it better. I think that's extremely important"* (G1.1). The focus on perfection and user-demanded performance is closely connected to the company's technology vision, and both these pillars of their business encourage employees to seek out new ways to improve the product. During the course of the company's business model transformation when development decisions passed fully into the hands of Dewesoft – as opposed to before when they had frequently been dictated by the strategic partner – this focus paid off when it came to the perception of the customer base and even their competitors. *"We feel that Dewesoft is a respectively world-class solution for the non-programmable part of the DAQ market"* (competitor). Employees and partners likewise perceived the focus on quality and performance to have been one of the key characteristics of the transformation period, as attested by the following statements of an employee: *"Jure doesn't rush into fields where we don't see ourselves among the very best"* (G3.3) and one of the partners: *"Their essential goal, as I understand, is to make a really top-notch instrument, develop a really top-notch solution"* (G5.3).

Preserving focus and being able to remove any potential obstacles is a critical issue. There are many challenges that could disperse the company's technological development such as *"...making more money with something that is not core business"* (G1.1) as one executive said, reacting to *"each and every customer's demand,"* as an experienced engineer put it, or even *"amassing a debt to spur development was, for me, never an option"* (G1.1) as another executive expressed himself. Focusing on updates and step-by-step development brings steadiness to the technology vision realisation process, a belief that reflected in the comments of many employees, and ensures the highest long-term performance.

An important element of the leadership charisma that enabled the CTO to influence the operation of the complete company is also his particular world view. This trait did not change on account of the business model transformation, to the contrary, it was what to a large extent influenced the decision to undergo transformation and the shape of the

process. This world view is well illustrated by the CTO's answer to a journalist question asking how he sees the individual's ability to change the world: *"Being small compared to the rest of the world isn't an excuse to stay passive. Everyone should do their best to pitch in, help out and make the world a better place, it all adds up."* This also reflected in the company's business model transformation as the CEO explained, saying: *"the backdrop of our decision to go independent was not connected to making more money, in that case, we'd still just be doing SW ... I remember me and Jure talking and coming to a realisation that our instrument can actually bring something positive to the people out there, and so we simply had to make it."*

A sentiment Jure corroborated by saying: *"if your fundamental goal is just to make money, you will generally be less successful in the long term, and ultimately make less money, too."* The CTO's world view also played a key role in the ownership structure of Dewesoft, as he believes: *"My goal is to run a company whose success benefits everyone involved, which means employees should have a stake in the company."* In accordance with this viewpoint, the procedure of business model transformation also resulted in the granting of ownership stakes to key engineers, a test implementation of a new salary scale and the preparation of an upcoming co-operative system involving all employees.

In Table 20 I present illustrative quotes and other observations and excerpts which I gathered during the data collection periods.

Table 20: Transformational Leadership: Other Illustrative Quotes, Observations and Excerpts

	High Quality Focus	Technology Vision	World View
Interview – G1 only	<p>Orientation into top end quality and globally useful products: <i>"Our motto was always to make one thing but make it incredibly well, then try to sell it in as many geographical regions and application fields as possible."</i> G1.1</p>	<p>Personal technology vision: <i>"Our long-term plans are always, personally up to me. That's something I reserve for myself, it's just how it is. Back when Franz and Herbert were in charge, I felt we lacked a solid long-term vision, in the sense of knowing exactly where we wanted to be, say, three years down the line. It's something that was missing."</i> G1.2</p>	<p>Employee co-ownership: <i>"My goal is to run a company whose success benefits everyone involved, which means employees should have a stake in the company. I also want them to keep running the company when it's time for me to step back. This was one of the main reasons Franz and Herbert left, because they didn't agree with an ownership structure like that."</i> G1.2</p>

(table continues)

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Interview – G2, G3, G4 or G5	<p>Make even better products even faster: “It’s an everyday thing for us, thinking how to increase the quality and pace of production. These two are constant questions.” G3.3</p>	<p>Technological visionary: “If I had to compare Jure to Franz and Herbert, I’d say the two of them are more like salesmen-entrepreneurs while he is more of a technological visionary.” G3.3</p>	<p>Jure has “a big heart”: “Our CTO has tons of hands-on experience in addition to being well versed in theoretical concepts, and he’s able to develop a clear vision for the future, like a S. Jobs for example, only that Jure has a really big heart ... which maybe wasn’t that true for Jobs as far as I understood from the book.” G3.3</p>
Direct observation	<p>During my first tour of the company, the CEO led me from product to product and explained why each one performs well and how it had been improved from its previous version.(observation during site walk)</p>	<p>At the Measuring Conference in April 2015 I was there when the CTO predicted and presented the technological novelties for the following 5 years in the section Area 51.(observation at biannual measurement conference)</p>	<p>Dewesoft supports young entrepreneurs in a similar way to the support they received from the Austrian cofounders. They have launched a start-up accelerator, provided entrepreneurs with know-how, and allow them to use Dewesoft facilities and test equipment. (observation during informal conversation and site walk)</p>
Documents - excerpts	<p>“If we compare the Dewesoft X1 to X2, the reaction time of output vs input decreased a lot. This is allowing almost real time command execution and is possible only because we are developing both HW and SW in-house which enables us to push the limits of our solution” (Dewesoft, 2014).</p>	<p>“Sirius is not just a new measurement instrument, it’s the first in a brand new generation on the market. By developing our own sales network, we aim to become a fully independent global provider of high-end solutions in measuring technology.” (Dewesoft, 2013b)</p>	<p>“Capital and companies owned by financial conglomerates stagnate, as they are subject to the inverse effect of focusing on capital – if your fundamental goal is just to make money, you will generally be less successful in the long term, and ultimately make less money, too.” (Knez, 2013)</p>

4.4 Discovery-Driven Decision Making

4.4.1 Operational Definitions and Codes

The discovery-driven decision-making determinant consists of two subcategories, presented in Table 21, and are supported with operational definitions reflecting the meaning of each.

Table 21: Operational Definitions of Discovery-Driven Decision-Making Subcategories

Subcategories	Operational Definition
Effectuating / Experimenting	<i>The constant development and execution of new modes of operation with the intent of acquiring experience and information for the purpose of successful decision making.</i>
Agile deciding:	<i>Ability to adopt business model transformation decisions that are of current strategic importance to the company.</i>

Each of the above subcategories is supported with codes from the third research sequence, presented in Table 22. The first two, bolded codes are supported in Table 23 with the full quotes gathered from the informants.

Table 22: Discovery-Driven Decision Making Codes

Experimenting / Effectuating	Agile Deciding
1. Unsuccessful online sales - G1.2, G2.3	1. Modification of the market logic - G1.2
2. Setting up conditions for independent global sales via partnership network - G2.3	2. Attempt to provide non-competing HW - G2, G1.2
3. Attempt to purchase the existing strategic partner - G1.1, G1,2	3. Decision to manufacture competing HW - G2.3
4. Attempt to consolidate HW and SW sectors - G1.1, G3.3	4. Decision to become fully independent - G1.1
5. Developing ways to provide non-competing HW - G1.1	5. Understanding the window of opportunity - G1.1
6. Delivery of own instrument onto the market G1.1, G2.3	6. Awareness of possible development alternatives - G1.1
7. Establishment of a new web store - G1.1, G1.2, G3.3	7. Decision to establish global sales network - G1.1
8. Combination of online sales and direct marketing - G1.2	8. Decision to offer in-house HW supported by own SW - G1.2
9. Ability to upgrade the complete approach based on experience - G1.2	9. Cancellation of online sales - G1.2
10. Establishment of an independent sales network - G2.3	
11. Sales and marketing centre - G2.3	
12. Cooperation with new partner to round out the sales programme - G1.2, G2.3	
13. Incorporation of company in Austria as a key condition for the subsequent development of the sales network - G2.3	

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14. Technologic experimenting - G3.3
 15. Step-by-step realisation of technological ideas - G3.3
 16. Complete visual image design - G4.3
 17. Ambitious experimenting once basic stability is ensured - G4.3
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I am able to thoroughly describe the discovery-driven decision-making determinant, presented in the next chapter, as a result of the codes and their supporting quotes.

4.4.2 Manifestation of Discovery-Driven Decision Making

Participants in my research believe that their willingness to accept risk and experiment with business practices and technological innovation was essential for the success of business model transformation, as it resulted in vital business and technological experience. The research further established that the executives didn't know how it would look and function once transformation was complete. Many decisions were made on the basis of "as-you-go" information and understanding developed from experimenting and the will to pursue ideas.

Experimenting comes with unexpected outcomes but results in useful experience both ways, and interviewees shared belief in a leadership that embraces the possibility of negative outcome. *"Even today, we can't say for sure we'll be staying afloat, but the environment changes all the time anyway. It's a sin not to try new things, don't you think?"* The subjects of the company's experimenting were closely tied to transformational leadership and the inherent technology vision of the company, so it's not a surprising fact that their first experiment dealt with finding ways to change the relationship with the strategic development partner in a way that would enable Dewesoft to further improve the performance of their measuring equipment.

As one executive explained, *"In early 2008 we realised that the SW had almost reached a peak given the HW around, so we came up with the idea to build our own mini instrument and show that its performance in combination with our DAQ SW could be much better."* The design of the in-house instrument was followed by an attempt to enter the market in new ways, because the strategic partner was not interested in the sales and marketing of the new instrument.

Dewesoft tried their hand at online sales, which proved to be far less successful than they had envisioned. One executive commented: *"When we looked at the success of our internet sales, we were forced to admit they were a failure. And we had to cancel them, sure. But it all ended up being the first step on our way to independence."* The co-founder

agreed: *“It was well planned, it was aggressively priced, but the web store just didn’t work. On the other hand, we learned a whole lot.”*

Each of the company’s experiments was followed by an analysis of its effects and the adopting of new decisions, which normally ended up being of strategic importance to the company and carried over to the transformation of the strategic model. Thus, failure to reach good sales online helped leadership decide to establish the company’s own sales office in Austria, whereas their understanding that the global market could not be penetrated since having only two measurement instruments available was not enough, no matter how capable the software, brought successful cooperation with a company whose instruments were not directly competing with the existing sales programme of the strategic partner.

Reasons for starting this cooperation were described as follows by a co-founder: *“It was not feasible to start with just two HW products. Global sales require more versatility. I contacted an old friend in the company Gartner and told them, hey, you have nice HW modules for the model automation market, why don’t you make some more for us. I offered them the chance for Dewesoft to support their products, and so our cooperation began. With the DS-net component and the two ensuing products, DW43 and DW101, plus the DAQ SW, we were able to reach our customer base and start selling worldwide. That was how we made it happen, and the products we offered went side by side with what Dewetron was offering.”* G2.3

On the basis of the technology vision, and the understanding that the company can gradually develop top-quality measurement instruments that did not pose a direct competitive threat to the strategic partner, they underwent a series of attempts to establish common development structures, which were not accepted by the partner. When key cooperation conditions of the strategic partnership changed, Dewesoft also attempted to purchase its strategic partner.

The purchase transaction did not go through, but on the basis of all these events, the company was able to realise it must break free if it wishes to follow its own technology vision, or as the CEO explained: *“On one hand, we were committed not to stop or ruin our cooperation with Dewetron, we really didn’t want to change the good parts of us working together and I can say that with complete honesty, but on the other hand we felt a firm resolve to go fully independent.”*

In Table 23 are relevant quotes and other observations and excerpts which were collected during the data gathering periods.

Table 23: Discovery-Driven Decision Making: Other Illustrative Quotes, Observations and Excerpts

	Experimenting / Effectuating	Agile Deciding
Interview – G1 only	<p>Unsuccessful online sales: When we looked at the success of our internet sales, we were forced to admit they were a failure. And we had to cancel them, sure. But it all ended up being the first step on our way to independence. G1.1</p>	<p>Modification of the market logic: We had our own SW, our own HW was on the way, and they were still making a profit off our SW and calling the shots. It just didn't seem right, and it didn't allow us to channel our efforts into optimal long-term development. Overall, it was not how we saw our future in hardware, so I called Franz and I told him: "This isn't going to work for us, let's switch things around, we'll get the modules and make the casings. And we'll create an instrument that is best on the market, hands down. And then we'll sell it ourselves, instead of having other parties sell it. That was the disruptive idea we suddenly had, to just design and manufacture SW and HW together instead of just providing SW for other companies to use. G1.2</p>
Interview – G2, G3, G4 or G5	<p>Setting up conditions for independent global sales: "I contacted an old friend in the company Gartner and told them, hey, you have nice HW modules for the model automation market, why don't you make some more for us. I offered them the chance for Dewesoft to support their products, and so our cooperation began. With the DS net component and the two ensuing products, DW43 and DW101, plus the DAQ SW, I was able to reach my customer base and start selling worldwide. That was how we made it happen, and the products we offered went side by side with what Dewetron was offering." G2.3</p>	<p>Decision to provide non-competing HW: "Why didn't Dewetron accept this? Franz thought it was "too small". Dewetron's instruments were sold in the price range of 15-30,000 Euro, and our DW43 was in the 3000 Euro range. They said that at 3000 Euro, they would only lose money on it. So we thought about selling it ourselves, and that led to the idea of Dewedirect web sales. Jure was open to trying it out, and so we did". G2.3</p>
Direct observation	<p>During the initial phase of implementing the new variable type of rewording of employees, one of them refused such a proposal. I was invited to the meeting in which the CTO and CEO spent two hours to persuade the employee that such a scheme has significant advantages compared to the old one. (observation during meeting)</p>	<p>During an informal talk with the CTO and his head of marketing, I was able to learn about the company's many experiments in various fields, for example even when it came to the colour combinations of their instruments. (<i>observation during informal conversation</i>)</p>

(table continues)

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Documents – excerpts	<p>Global distribution in effect. In 2010, 2011 and 2012 we strengthened the Dewesoft brand considerably, and we were able to expand our sales network by incorporating companies in Austria, Germany, the USA and Singapore – from where we’re also able to export to Taiwan and India. In addition to all these, the Dewesoft China branch comprising four locations in China is doing extremely well. Then, we have Dewesoft Hong Kong, and we’ve secured partnerships across many other countries. All in all, we’re present in over 20 markets worldwide (STA, 2013).</p>	<p>Dewesoft - Dewetron partnership Dewesoft and Dewetron were always independent companies, though they have been successfully collaborating for over 10 years. Together we have worked on top of the line measurement solutions that are widely embraced by customers all over the world. Both companies manufacture independent hardware lines which are mostly complementary, but in some cases also competitive. The products are sold through different sales channels on the available markets. This gives the customer an extra selection of quality hardware solutions. Independent of that, Dewesoft and Dewetron continue to work together on the Dewesoft software, which is the major engine for both their platforms (Dewesoft, 2012)</p>
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4.5 Industry Improvement - Customer Specific Orientation

4.5.1 Operational Definitions and Codes

The industry improvement - customer specific orientation determinant consists of three subcategories which are shown in Table 24. They are supported with the operational definition that reflects the meaning of each of them.

Table 24: Operational Definitions of Industry Improvement - Customer Specific Orientation Subcategories

Subcategories	Operational Definition
Customer value proposition	<i>Clever way of offering added value to end users.</i>
Customer co-creation	<i>Encouraging the active cooperation of customers and partners in the process of constant product improvement, so that end users (and sales agents) have a say in how technological solutions are designed.</i>
Industry value sharing	<i>Ensuring that solutions developed for specific purposes are then accessible to everyone.</i>

Each subcategory given above is supported with codes from the third research sequence, which are presented in Table 25. The first two codes, which are in bold, are supported in Table 26 with the full quotes given by the informants.

Table 25: Industry Improvement - Customer Specific Orientation Codes

Customer Value Proposition	Customer Co-Creation	Industry Value Sharing
1. Use of software without annual licensing fees - G1.2	1. Planning development together with customers - G1.1, G4.3	1. Providing free access to new technological solutions - G1.1
2. Licensing philosophy - G2.3, G3.3	2. Understanding and reacting to customer needs - G3.3	2. Lifetime upgrade and solution sharing - G2.3,G3.3, G4.3
3. 3-stage added value: performance plus simplicity - G1.1, G1.2, G3.3, G4.3	3. Exceeding expectations - G1.1,	3. Development is public-oriented - G1.1, G1.2, G3.3
4. Free-of-charge updates policy - G1.1	4. Listening to initiatives proposed by the marketers and end users - G1.1	4. Communication between customers - G1.1
5. Free result assessment SW - G1.2, G3	5. On-demand development of customer capacities - G1.2, G4.3	5. Autonomous development planning - G1.1
6. Differentiation according to superior product performance G1.1	6. Encouraging cooperation in development - G1.2	6. Lifetime upgrade and solution sharing G2.3,G3.3,G4.3
7. Lifetime free updates for any given product - G1.1, G1.2	7. Co-creation with the “heroes” G1.2	7. Developing solutions suitable for multiple customers - G3.3
8. Simplification of signal interpretation for laymen decision-makers - G1.1	8. Technical sales - G2.3	
9. Online price quotes - G1.1	9. Redirection of development communication channels - G3.3	
10. Adaptable sales policy - G1.1	10. Developing solutions together with the customer base - G4.3	
11. Simple-to-use and intuitive - G4.3	11. Inclusion of customers and sales partners into future design and improvement plans - G1.1	
12. Simple upgrade of core measurement SW - G3.3	12. On-site cooperation with customers G4.3	
13. User friendly - G4.3	13. Rapid reaction to customer demands - G1.1	
14. Pricing policy - G5.3	14. Supporting content - G1.1	
15. Responsiveness to customer needs and demands: post-sale services - G4.3	15. Comprehensive user support - G1.1	
	16. Ste-by-step development of cooperation - G1.1	
	17. Critical proposals of the “heroes” - G1.1	
	18. Value one idea over another, as opposed to one customer over another - G1.2	
	19. Flexibility - G4.3	
	20. Including customers into product testing - G1.2, G4.3	
	21. Helping customers acquire the most suitable solution - G3.3,G4.3	
	22. Paying close attention to the initiatives of the customer - G4.3	
	23. Generating ideas - G5.3	

The codes and the quotes behind them allow me to describe in depth the industry improvement – customer specific orientation determinant, which is presented in the next chapter.

4.5.2 Manifestation of Industry Improvement - Customer Specific Orientation

On the basis of all the evidence acquired in the interviews, observations and analysis of company documentation, I have established that the company is not only focused on creating added value for their customers, but also extremely willing to listen to their feedback and incorporate it into solutions which then manage to push technological boundaries. Therefore, it is not surprising that the company's written mission strongly advocates close cooperation with the customer base when it comes to developing their product.

The first significant dimension of the company's industry improvement - customer specific orientation is creating added value for the customer. It is particularly important because, having separated from the strategic partner, the company was still addressing the same market segment as before, and was now competing in the HW department. Looking at the information I acquired, it is accurate to state that the company created the added value in question on the basis of:

- technological perfectionism, innovation, product performance, user-friendliness and regular pace of updates and fixes to both its SW as well as HW, in reaction to customer base feedback;
- pricing policy, which matched the price of competing products while the company then provided superior performance as well as indirect savings, or as the CTO said: *"We set our prices in line with the rest of the field, and our customers are able to focus on performance which is superior. That's where we come out ahead."* G1.2
- a free-of-charge bundle of extra services that provided customers with updates, maintenance and technological upgrades distributed to everyone, as well as a free software package for the analysis and display of data once it was captured by the Dewesoft measurement software. The CTO describes their free model like this: *"Once you sell your software, if you don't charge extra for the updates, the product is seen as reliable and gets more and more popular, eventually becoming a household name, a standard if you will,"* which the cofounder corroborated by saying: *"The good idea that differentiates us from the competitors is the licence philosophy. Our philosophy is that you buy our SW along with our HW, but you buy it only once. Whatever you then want to use it for, you can use it for free, whether that's processing, analysis, presentation, all parts of your business, whatever we develop, it works like a pdf reader and it gets updated. Our customers appreciate this a lot and it is a huge factor of our success."* G2.3

Another important characteristic of industry improvement - customer specific orientation that Dewesoft has been successful with, as I found out from the answers of the respondents, is that they were especially oriented into co-creation with their customers in the development of solutions. This attitude had always been their trait, but prior to strategic

separation, they did not have direct enough access to the customers to perform it to a satisfactory degree. The business model's transformation created a situation where the customers had to accept changes in their trusted brand without knowing what uncertainties the separation might bring, but by communicating its technology vision proactively and consistently, and presenting upcoming technological possibilities that encouraged customer involvement, Dewesoft turned what seemed like a shortcoming into an advantage. By keeping a close and responsive relationship with its customer base and providing the best possible support on all levels from sales to tech support, the company gained trust as well as expanded its social network.

One of the executives described an example of this relationship by quoting a customer from Dewesoft's Measuring Conference in August 2013, who had this to say when he visited the presentation of future technology possibilities showcased in the research and development section Area 51: *"Once you get this novelty up and running, at any stage of development, just let us know. We'll test it, and we'll be happy to work with you as always."* G1.1. Such a high degree of customer confidence arises from open and regular communication as one experienced engineer explained: *"We impress customers with our fast response and openness to their suggestions."* G3.3 The company's accessible and responsive orientation was also confirmed by the customers, who said: *"Dewesoft reacted right away to our particular needs, and the other makers didn't, so it became a pretty easy choice looking forward ... and that's why we chose them."* (secondary data)

Additional ways of customer involvement consist of the company's on-going technological discussion, which is held across different channels such as expert web forums, company tours and measuring conferences. At their last measuring conference in April 2015, the company introduced a special system for voting on upcoming ideas customers want developed during the next three years, building upon its active communication with the customer base, or as the CTO illustrated: *"We did this open voting, and it's really fascinating to see people's impressions about certain products, how differently they view their impact. This kind of input, I think, makes people feel connected, like they can contribute to the future of the company and what it is doing."* (G1.2)

Similarly, the company also let customers decide on a new name for an instrument initially launched on the US market as "Titan" because Another company issued a copyright claim on the name and they had to choose a new one. Company representatives, who were just attending a trade fair in the US, brought with them a suggestion board and decided on a new name ("Krypton") together with potential customers.

Based on the collected information, I was also able to ascertain that their next dimension of industry improvement - customer specific orientation is aimed at the development of industry-wide solutions that push the technology forward for all users, promoting fundamental development. This capacity lets the company find solutions before

the customer base even realises they are needed. Cutting-edge design rests on systematic technological development, coupled with a broad understanding of end-user issues and expectations as well as close understanding of the industry as a whole, through cooperation with top experts in the field of automotive, aircraft, space and power technology fields. As the CEO said: ... *“It was shocking to find out even NASA was prepared to let us make the products we developed specifically for them available to everyone else. We don’t believe in exclusivity in science. Everything we ever developed became an update to our core software. 15 year later, we still keep upgrading the same one. And all the improvements are public, freely available to anyone who ever purchased our product.”*

Another executive told me how they were able to persuade an indecisive customer by stressing the free development and constant updating of the DAQ software, telling him: *“look, whatever we develop with anyone we’re working with, it will immediately be available to you, free of charge.”* With free SW upgrades, the customer only has to buy a SW licence once, and then all the new versions and expansions are free of charge throughout the life cycle of the SW.

This approach was made even more customer-friendly in the late stages of business model transformation, and since then, the SW is completely free when you buy one of their measurement instruments. As the company writes on its website: *Step by step, we are continuing to utilise the advantages of powerful Dewesoft hardware to achieve major software improvements. Dewesoft X2 is the fastest software we’ve ever made. And by faster we really mean faster. Dewesoft X2 is a major upgrade for all users of Dewesoft instruments, and it’s free of charge!* In the context of free development and industry-wide availability, one executive said: *“We had to correct our solution for one client three different times, but now it’s actually suitable for the whole automotive industry.”*

The approach that adds all customer-specific solutions to the core software package used by everyone makes it incrementally more capable and reliable, in turn attracting a wider and wider circle of customers. Faith in the product is revealed by personal responses like: *“Thanks for all the new features that are being included in Dewesoft. It’s already fantastic and deserves to become the ‘Microsoft Word’ of data acquisition software!”* or *“The combination of HW and SW and the Polygon plugin is really great. From what I’ve seen this is exactly what we need, and on top of that we can use it for so many things. It’s just what we’ve been looking for!”* In a concise manner, the company’s orientation was well illustrated by another customer, who simply said: *“They share, they don’t hide.”*

With the launch of the Dewesoft PRO training, an online learning platform that teaches professionals how to use Dewesoft software and hardware, Dewesoft extended its influence across the complete industry since the platform is free even for non-customers. As one expert in the DAQ industry put it: *“With so many companies making training a ‘profit thing’, it’s refreshing to see advanced resources available at no charge. Thanks Dewesoft!”* (Sakion, 2015).

In Table 26 I present additional quotes, along with observations and excerpts, which I recorded during the data collection periods.

Table 26: Industry Improvement - Customer Specific Orientation: Other Illustrative Quotes, Observations and Excerpts

	Customer Value Proposition	Customer Co-Creation	Industry Value Sharing
Interview – G1 only	<p>Free software updates without annual licensing fees: “If you offer customers good SW and they can use it without the hassle of renewing subscriptions or things like that, and then you patch it and update it for free, the product gets more and more popular as time goes by, and it also gets better. Eventually, it starts to become a standard of sorts, and that means global success. That’s what we believe in, and it’s working for us so we don’t intend to change it.” G1.1</p>	<p>Development hand-in-hand with customers: “The best example were those 27 Siriuses in GM. Three times, we had to listen to their input to adapt this thing ... so it would fit the automobile industry, and finally we managed to develop a Sirius that is incredibly useful to everyone who makes cars.” G1.1</p>	<p>Providing free access to new technology solutions: “This feeling of solving problems, it’s like ... it’s like a partnership between everyone, so that when one customer wants something developed, they know it’s going to make life easier for other companies, too.” G1.1</p>
Interview – G2, G3, G4 or G5	<p>Licensing philosophy: “The good idea that differentiates us from the competitors is the licence philosophy. Our philosophy is that you buy our SW along with our HW, but you only ever buy it once. Whatever you then want to use it for, you can use it for free, whether that’s processing, analysis, presentation, all parts of your business, whatever we develop, it works like a pdf reader and it gets updated. Our customers appreciate this a lot and it is a huge factor of our success.” G2.3</p>	<p>Fast response to the customers’ expectations: “Every little thing NASA wanted, we did it right away. When C.B. told us they needed something done, we always got back to him in a couple of hours, next morning at the latest. We’re much more responsive than, say, National Instruments.” G3.3</p>	<p>Free SW updates and improvements for the lifetime of the HW: “The idea is that a customer can keep upgrading the SW they already own with all the new bells and whistles we program, regardless of who they were developed for. This is our unique idea and plugins are the only exception.” G2.3</p>
Direct observation	<p>During informal conversations with the representative of a major automobile maker, it was confirmed that extra SW demands (custom plugins) are payable, while all other updates and expansions are completely free. (observation at biannual measurement conference)</p>	<p>At the measuring conference in April 2015, 11 different buyers showcased presentations of common development. I was personally able to test the functionality “eye tracking in Dewesoft”, which is being developed in cooperation with SMI, France. (observation at biannual measurement conference)</p>	<p>During an informal conversation with the representative of a major automobile maker, Dewesoft’s willingness to give new knowledge away was confirmed by several sources, with one summarising it like this: “<i>They share, they don’t hide.</i>” (observation at biannual measurement conference)</p>
Documents - excerpts	<p>“Step by step, we are continuing to utilise the advantages of powerful Dewesoft hardware to achieve major software improvements. Dewesoft X2 is the fastest software we’ve ever made. And by faster we really mean faster. Dewesoft X2 is a major upgrade for all users of Dewesoft instruments and is free of charge.” (Dewesoft, 2014)</p>	<p>“Our customers were very impressed with the power of the Dewesoft. It was allowing them to report values with accuracy and resolution that they had no idea they ever could have. The engineers in the firing rook couldn’t believe them.” (customer testimonial)</p>	<p>“Thanks for all of the new features that are being included in Dewesoft. It’s already fantastic product and deserves to become the ‘Microsoft Word’ of data acquisition software.” (customer testimonial)</p>

4.6 Self-Initiative Collaborators

4.6.1 Operational Definition and Codes

The self-initiative collaborators determinant includes three subcategories, which are presented in Table 27. The subcategories are supported by the operational definition that reflects the meaning of each of them.

Table 27: Operational Definitions of Self-Initiative Collaborators Subcategories

Subcategories	Operational Definition
Engagement	<i>Selection and development of personnel that proactively strives to realise the company's technology vision, on the individual as well as team levels.</i>
Internal knowledge sharing	<i>It is key to create an atmosphere that encourages each individual to contribute their maximum share to the realisation of common goals and stress the importance of everyone's involvement.</i>
Fast and innovative development	<i>The ability to perform fast and innovative development is tied to the upgrading of existing products and the utilisation of a broad mix of industry knowledge and expertise.</i>

Each subcategory given above is supported with codes from the third research sequence, which are given in Table 28. The first two codes, in bold type, are supported in the Table 29 with the full quotes given by the informants.

Table 28: Self-Initiative Collaborators Codes

Engagement	Internal Knowledge Sharing	Fast and Innovative Development
1. Self-initiative worker development - G1.1	1. Knowledge transfer policy - culture of learning - G1.1, G1.2, G2.3	1. Innovative upgrades to existing solutions - G1.1, G4.3
2. Focus on individual contribution to the whole - G4.3	2. Personal example, sharing profound expertise –G1.2, G2.3, G3.3, G4.3	2. Rapid development capabilities - G3.3, G4.3, G1.2
3. Letting everyone work on what they are best motivated / able to contribute to - G1.1, G4.3	3. Learning while working - G4.3	3. High performance, patent protection of key hardware solutions - G1.1
4. Global presence results in highly motivated personnel - G1.1, G4.3	4. Fostering healthy relationships, harmonious teams - G1.1, G2.3	4. Shared and upgradeable technologic platform - G1.1
5. Co-ownership models involving employees - G1.1 (also questionnaire)	5. Ability to put together and manage a team of experts, develop promising staff - G1.2, G2.3	5. Outstanding team of experts - G1.3
6. Personal contact with the “real life” environment - G1.1, G4.3, G5.3	6. Constant search for new sources of scientific and theoretical knowledge - G1.2	6. Combining solutions from different industry fields - G1.1
		7. All in one house - G1.1
		8. Pace of HW development - G1.2, G2.3, G3.3, G4.3

(table continues)

(continued)

7. System of internal incentives - G1.2	7. Exclusion of coworkers that distract the team spirit or cannot fit in - G3.3	9. Creating conditions for rapid development - G1.2
8. Knowledge growth - development of top experts - G1.2	8. Mentoring - G4.3 Incentives and constructive critique - G4.3	10. Product placement focused on performance (creates an incentive for quality development) G1.2
9. Learning as a value - G1.2	9. Allowing individuals to grow, directing them on the way - G5.3	11. Policy of making things simpler to use G1.2
10. Enjoying work and the creativity it provides - G3.3, G4.3	10. Learning from customers and suppliers - G5.3	12. Policy of constant product improvement - G4.3
11. Personal autonomy and responsibility - G3.3		13. Innovative and user friendly focus - G4.3
12. Positive work environment - G3.3		14. Cooperating with customers and suppliers when it comes to development - G5.3
13. Leadership culture that motivates workers - G4.3		15. Adaptable solutions that can then be widely applied - G5.3
14. Respect of superiors due to personal example - G4.3		
15. Culture of entrepreneurship - G4.3		

The codes and supporting quotes allow a detailed description of the self-initiative collaborators determinant to be given. It is presented in the next chapter.

4.6.2 Manifestation of Self-Initiative Collaborators

The entrepreneurship logic of Dewesoft is a fundamental pillar of their operation, as I was able to conclude from information received from the interviewees, and it played a significant role in guiding the actions of personnel throughout the process of business model transformation. Their logic is characterised by the significant autonomy of each employee, coupled with extensive encouragement of proactive contribution to the company's goals on both the individual as well as team levels.

On the other hand, the ability to co-create applicative research for major global companies provides a high degree of personal motivation to ambitious young engineers, who are eager to excel and prove their professional worth, or as one of them said: *"When I was at the fair and saw just how much famous companies value Dewesoft's solutions, it made me rethink my work ethic, and since then I want to do my best even I have to be here all day..."* G4.3

One way of reinforcing employee dedication is the gradual inclusion of deserving personnel into the co-ownership model, in accordance with the worldview presented in the category 'Transformational leadership', and it's not surprising that all the senior engineers now already own a stake in the company (even though most came there as inexperienced young professionals). The general climate of productivity also carries over to suppliers, as illustrated by one of their statements: *"When they tell us that it's urgent and serious, we get our hands dirty. If we have to, we'll work for them overnight."* G5.3

Employee dedication is also bolstered by the reciprocity of being able to count on the assistance of colleagues, where various kinds of knowledge transfer in the form of

mentorship and guidance also play an effective role. The willingness to actively share personal expertise is also one of the most outstanding personal traits of the CTO, and the attitude is carried over to those working in the same environment. Dewesoft leadership offers guidance to personnel and expects them to share knowledge between one another, creating a culture of learning not only in the company's internal dealings but also in its relationship with customers and suppliers. The value of knowledge exchange is confirmed by numerous interviewee statements: *"The first thing we teach our employees is how to fly by themselves, and if they need directions, they can ask,"* as the CTO stated.

One employee confirmed this sentiment by saying: *"I really appreciate that everybody was willing to help me when I started working for the company"*, while another told me: *"Since I was employed here, I feel like my mentor gave me so much experience..."* The learning culture is corroborated by the statement of a supplier who said: *"What is crucial at Dewesoft is that they always transfer knowledge to new team members with ease. They know how to evaluate people and give them the right tasks, real challenges that are just difficult enough so the boys can develop."* G5.3

When two previously strategically aligned companies go their separate ways, it is important that each of them knows how it will position itself on the market following separation. If a company decides to stay on the same market and address the same customers, the key question at the outset is how it will be ensuring its differentiation. Most of the respondents expressed that they used technological differentiation as a strategy for distinction. The weakest point in this context was that, at the beginning of the business model transformation, the company started with only two instruments under its own brand name. If they wanted to be a relevant market competitor, they had to ensure a complete range of instruments in a relatively short period of time.

Transfer of all the development activities to one location, fast information sharing among engineers, knowledgeable and committed engineers with the ability to share experience from different application areas, and the shared software platform were the most important elements of fast solution development. As the CTO said, an important determinant of rapid development is the ability *"...to develop a single powerful software package that can cover all areas of application, and to ensure that the design, development, manufacture and control of hardware and software are all performed in-house"*. This position was confirmed by a senior engineer who told: *"Now, when we do it all by ourselves, problems are solved in one day. It's a huge advantage to be developing HW and SW in the same room."* G3.3

In addition, the company has had past experience in supporting different types of hardware, which presents another significant advantage when it comes to rapid development. Another issue especially related to the capability of fast operation was establishing a reliable global sales network, a decision brought by unsuccessful internet

sales experimentation that ultimately convinced them a different model was necessary, resulting in the establishment of a sales and marketing office in Austria that ended up being the first of their many successful foreign offices. The network was set up by relying on the social capital and personal experience of key players charged with the task.

In Table 29, other illustrative quotes, observations and excerpts which I gathered during the data collection periods are presented.

Table 29: Self-Initiative Collaborators: Other Illustrative Quotes, Observations and Excerpts

	Engagement	Knowledge Sharing	Fast and Innovative Development
Interview – G1 only	Self-initiative worker development: “Many employees have already become independent experts in a wide range of fields.” In this context, workers were able to learn everything they needed from colleagues and customers, on account of encouraging traits such as constant learning, professional excellence and independent creativity. G1.1	Knowledge transfer policy: “Since the start, we’ve conducted a policy of sharing knowledge, helping everyone. Any new guy is given a mentor, is assisted in their work, there’s no problem if you have to ask for information or advice, people take their time to help you out so you can help others out when you become an experienced pro”. G1.1	Innovative upgrades to existing solutions: “It’s a first in the world of measurement technology. We took everything that was already working, perfected part of it and upgraded the other part with our own innovation, and so we’re able to stay a big step ahead of the competition.” G1.1
Interview – G2, G3, G4 or G5	Individual contribution to the whole: “I can always feel this atmosphere in the workplace where everyone is doing their best to make things happen, and everyone is aware they can contribute massively to the success of the product. Even though we’re all team players, every individual can come up with that next big solution.” G4.3	Learn as you work: “My goal is to get these guys up to my own level.” G4.3	Rapid development capabilities: “It’s definitely much easier and faster to put out a new product when you’re developing HW together with SW. For example when I’m working on a project and I have an idea, I just head over to the HW section and we have a discussion if it’s feasible, and then sometimes things can be adjusted in 15 or 30 minutes.” G3.3
Direct observation	One of the employees has the mechanical workshop located at his home on a mountain farm. All relevant machinery is there and he is available for the company 24 hours a day. (observation during site visit)	During the regular meeting among executives, heads of departments and experienced engineers, everybody was actively participating and sharing their ideas. Even the shape of the table was triangular so nobody was “at the top”; just the opposite, they were all equals. (observation at meeting)	Informal conversation with a sales agent from the Netherland indicated innovation and creativity were seen as marketable Dewesoft traits. He explained they don’t try to reinvent the wheel but instead find new ways of putting existing components together. (observation at biannual measurement conference)
Documents - excerpts	Proactive behaviour: “In the future I want to keep working with my hands, because I believe a good engineer must be able to build the product he is designing so he can understand how it’s working in practice, and how to make it better. ... that would allow us to build things even faster.” (Excerpt from the annual briefing with employees)	We took this chance and started creating a new company project – the Dewesoft Pro University. The idea behind it is to teach people measurement techniques in the context of measuring vibration, and transfer knowledge onto customers and end-users. (Dnevnik, newspaper article from 24.2.2014)	The company’s power point presentation showcasing the launch of new products during the period 2009-2013.

4.7 Content-Oriented Communication

4.7.1 Determinants and Operational Definition

The content-oriented communication determinant consists of two subcategories, which are supported with the operational definition that reflects the meaning of each of them, and are presented in Table 30.

Table 30: Operational Definitions of Content-Oriented Subcategories

Subcategories	Operational Definition
Customer-focused communication	<i>Using effective means to inform customers continuously and at the right moments about possibilities for future development.</i>
Sales partners-focused communication	<i>Ensuring conditions for the establishment of an effective network of sales partners willing to work with a young company on the rise.</i>

Each of the above subcategories is supported with codes from the third research sequence. The codes are presented in Table 31. The first two codes, which are bolded, are further supported in Table 32 with the full quotes gathered from the informants. The codes and the quotes behind them allow me to thoroughly describe the content-oriented communication determinant, which is presented in the next chapter.

Table 31: Content-Oriented Communication Codes

Customer-Focused Communication	Sales partners-Focused Communication
1. Informing about changes in software development - G1.2	1. Direct communication of technology vision to partners - G1.1, G4
2. Showcasing development and production facilities - G4, G1.1	2. Putting partners at ease concerning future stability (post-separation) G2.3
3. Re-contextualising the existing customer perception (what does Dewesoft stand for) - G1.1	3. Understanding market sensitivity to the “wrong kind” of information - G1.2
4. Severing ties with the separating strategic partner - G1.1	4. Selective informing about changes to the strategic partnership relationship - G1.1
5. Showcasing long-term development potential - G1.1	5. Second phase of independence - intensive communication G2.3
6. Customer training - G1.1	6. Stressing long-term business stability - G4.3
7. Working prototype presentations - G1.1	7. Catalogues, website, company visits, trade fairs, ...
8. Understanding market sensitivity to the “wrong kind” of information - G1.1	
9. Planned marketing and sales activities - G2.3	
10. Sales engineering - G2.3, G5.3	
11. Rapid pace of update development and launch - G2.3	
12. Clear communication of technology vision A51 - G4.3	

4.7.2 Manifestation of Content-Oriented Communication

Focus on strategic, planned, diverse and constant communication with customers and sales network partners was seen as another vital factor in the success of Dewesoft's business model transformation, according to the gathered information. A new period in communication began in early 2008 with the website redesign and the promotion of the company's first independent measurement instrument, which received the Nasa Tech Briefs 'instrument of the month' showcase in July 2009, and then the prestigious Product of the Year 2009 award from the same publication. That year, the company also opened its sales office in Austria and published its first product catalogue. As one of the cofounders remembers: *"In 2009 we published our first catalogue which featured just a few HW pieces, but it was a necessary start to approaching the customers and sales networks"*. All these activities served to inform the customers, and some were also aimed at reinsuring them that Dewesoft was able to independently develop capable non-competing instruments which it was offering at the time. Once it was made clear that complete separation from the former strategic partner was unavoidable, the approach to communication with customers and the sales network was refocused on Dewesoft as an independent provider of quality hardware in combination with excellent SW for turn-key, easy-to-use measuring solutions. On the company's website, the following news were posted on 10.7.2012: *"Dewesoft and Dewetron were always independent companies, though they have been successfully collaborating for over 10 years. Together we have worked on top of the line measurement solutions that are widely embraced by customers all over the world. Both companies manufacture independent hardware lines which are mostly complementary, but in some cases also competitive. The products are sold through different sales channels on the available markets. This gives the customer an extra selection of quality hardware solutions. Independent of that, Dewesoft and Dewetron continue to work together on the Dewesoft software, which is the major engine for both their platforms"* (Dewesoft, 2012).

Dewesoft also began organising regular measurement conferences (taking place in 2011, 2013 and 2015) at the location of the company's head office where they invited their customers and business partners. The primary purpose of these conferences was to present new products and improvements, exchange experience and transfer expertise, in addition to reinforcing the status of a company that was growing and stable in the long-term in spite of its on-going separation from the strategic partner. Measuring conferences also provided the opportunity to directly showcase the company's research & development facilities, including remote ones, as one of the executives commented: *"Buyers, even from Nasa, already visited us here on the hill where we make aluminium casings, and they can see first-hand it's not a cheap product but rock solid"*. One of the key messages relayed to the customer base and sales network was sent out in 2013, when the company launched a second, new generation of software that was not available on the HW platforms of its former strategic partner, or as the CEO explains: *"We split our software into two branches. One reason we did this was technological, as the engine itself needed an upgrade so it can*

be made faster and better. The other reason had to do with business. Users are aware that the further development of Dewesoft 7 is coming to an end, and that the product being updated most often is Dewesoft X, which comes only with our own HW.” This event is also illustrated by the company’s new software platform launch news from 10.4.2013 which state: “Dewesoft software was always limited by the hardware it supported. To overcome this limitation, we have created a highly innovative line of instruments called Dewesoft Instruments. For the first time ever, we now have a chance to create a perfect fit between software and hardware. As Dewesoft Instruments were designed specifically for Dewesoft software, our new generation software platform Dewesoft X, which comes exclusively with our hardware, grants users a comprehensive integrated solution for the most demanding test & measurement tasks” (Dewesoft, 2013a).

Throughout this stage of model transformation, communication was supported by sales engineering and regular participation in established international trade and industry fairs, alongside the extensive dissemination of information via the company’s website and digital channels.

In Table 32 I present other illustrative quotes, along with observations and excerpts, which I gathered during the data gathering periods.

Table 32: Content-Oriented Communications: Other Illustrative Quotes, Observations and Excerpts

	Customer-Focused Communication	Sales Partners-Focused Communication
Interview – G1 only	Informing about changes in software development: “We split our software into two branches. One reason we did this was technological, as the engine itself needed an upgrade so it can be made faster and better. The other reason had to do with business. Users are aware that the further development of Dewesoft 7 is coming to an end, and that the product being updated most often is Dewesoft X, which comes only with our own HW”. G1.2	Direct communication of technology vision to partners: “At each of these meetings, we host the so-called Area 51 experimental section. It’s named after that secret testing site in Nevada where you’ve got things flying around that supposedly don’t exist. Well, in our Area 51 we have products that don’t exist yet either, and the people, not only scientists and experts this year but also customers, are curious to see what we’re going to come up with in the future.” G1.1
Interview – G2, G3, G4 or G5	Showcasing development and production facilities: “Buyers, even from Nasa, already visited us here on the hill here where we make aluminium casings, and they can see first-hand it’s not a cheap product but rock solid.” G4.3	Putting partners at ease concerning future stability: “Partners in our network were aware of the DD separation and they were worried about it. That highly motivated us to immediately offer stable and well-performing solutions.” G2.3
Direct observation	Part of the programme of the April 2015 measuring conference was also a tour of company facilities for customers and sales partners. So there was no difference in communication for them. The company opened their doors and showcased their research and development, manufacturing and testing capabilities. When asked how they financed all this, the CEO explained funding was allocated from their own resources and partly from EU funds, as the company is strictly committed to staying debt-free. (observation at biannual measurement conference)	Company has established a range of approaches for how to learn to use and sell their product line. They perform classic and youtube educational clips, have a strong support centre, and at the last measuring conference, in April 2015, they presented new educational web portal, Dewesoft PRO. (combined observation during whole research period)

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Documents - excerpts	Dewesoft news 10.4.2013: “Dewesoft software was always limited by the hardware it supported. To overcome this limitation, we have created a highly innovative line of instruments called Dewesoft Instruments. For the first time ever, we now have a chance to create a perfect fit between software and hardware. As Dewesoft Instruments were designed specifically for Dewesoft software, our new platform Dewesoft X, which comes exclusively with our hardware, grants users a comprehensive integrated solution for the most demanding test & measurement tasks.” (Dewesoft, 2013a)	At the same time, the transfer of knowledge to the sales part of the business is crucial, as well as the transfer of knowledge in terms of capacity and use of products to our customers. Exactly that was the point of this year’s measurement conference, which was held at Dewesoft last week. Commercial successes largely depend on the argumentative presentation of products all over the world. With the conference we wanted to achieve that sales engineers, in addition to good products that they represent, could show a high level of technical expertise in various technical fields (STA, 2013).
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4.8 Phased Separation Strategy

4.8.1 Operational Definitions and Codes

The phased separation strategy determinant is made up of four subcategories, which are presented in Table 33. They are supported with the operational definition that reflects the meaning of each.

Table 33: Operational Definitions of Phased Separation Strategy Subcategories

Subcategories	Operational Definition
Sensing	<i>Executives carefully observe all the moves and decisions conducted by former strategic partner and regularly adopt counter-measures.</i>
Making distinction	<i>Ability to differentiate the company from former strategic partner, coupled with the audacity to compete on the same market.</i>
Development of missing capabilities	<i>Capabilities that were assured by the former strategic partner had to be developed.</i>
Ambidexterity	<i>Ability to share resources between the old and new business models during the period of transformation.</i>

Each subcategory given above is supported with codes from the third research sequence, which are presented in Table 34. The first two codes, in bold, are supported in Table 35 with the informants’ full quotes.

Table 34: Phased Separation Strategy Codes

Sensing	Making Distinction	Ambidexterity	Development of Missing Capabilities
1. Realistic situation assessment - G1.1, G1.2 G3.3, G5.3	1. Production of non-competing products – phase one - G1.1	1. Independent and indirect market entry G1.1, G1.2	1. Establishment of own sales network - G1.1, G2.3, G3.3, G4.3
2. Trying to find ways to stay in the partnership -G1.1	2. Entry into “vacant” technological fields - G3.3, G1.1, G1.2	2. Willingness to coexist and co-develop - G1.1, G1.2, G2.3, G3.3	2. Starting sales under own brand - G2.3,G5.3
3. Attempt to purchase the strategic partner - G1.1	3. Technologic differentiation of products - G1.1, G1.2	3. Use of two sales channels to reach the same customers - G1.1	3. Setting up internal systems, relieving pressure on the CTO - G3.3
4. Decision to move to “vacant” product segments - G1.1, G2.3	4. Complementing the partner’s sales programme - G1.1	4. Step-by-step independence, development of in-house measurement hardware G1.1	4. Establishment of formal organisation structure G1.1, G1.2
5. Decision to establish own manufacture - G1.1	5. Entering new markets - G1.1, G1.2	5. Securing continued access to existing resources - G1.1, G2.3	5. Realistic strategy of technology development - G1.1
6. Small step development philosophy, preventing hazard of cannibalism - G1.1	6. Launching a new generation of software - G1.1, G1.2	6. Delivering a comprehensive product catalogue (sales programme width and depth) - G1.1	6. Preserving culture of entrepreneurship - G1.1
7. Assessment of strategic separation consequences - G1.1	7. Selling non-competing hardware - G2.3	7. Simultaneous development of independent production and sales capabilities - G1.1	7. Accumulation of financial capital - G1.1
8. Understanding how market will react to the news of separation - G1.1	8. Selling competing hardware based on different technology - G2.3	8. Understanding time limitations of doing business using two models - G1.1	8. Ability to access, secure, harness and combine resources - G1.1
9. Decision to enter new territories - G1.1	9. Logo change - G2.3, G4.3	9. Ability to reach business compromises with former strategic partner - G1.2	9. Establishment of production support information systems - G1.1
10. Changing the former strategic partner into a customer / sales partner - G1.1	10. Building the brand name - G2.3 G5.3	10. Step-by-step manoeuvring towards complete independence - G5.3	10. Securing quality personnel - G1.1, G3.3, G4.3, G5.3
11. Understanding how to reach the full technological potential of products - G1.1			11. Securing quality equipment - G1.1, G3.3
12. Understanding the time limits of the separation process - G1.1			12. Standardisation of procedures and components - G1.1
13. Sensitivity to shifts in the partner’s business behaviour - G1.1, G1.2			13. Sales team training - G1.1, G1.2
14. Trying to find ways to preserve cooperation - G1.1, G1.2			14. Information support for business management G1.1
15. Observing and strategically assessing the former partner’s market behaviour - G1.2			15. Variable incentives scheme - G1.1
16. Understanding the development partnership has disintegrated - G1.1, G2.3			16. Brand development and marketing - G1.2, G3.3
			17. Learning from negative experience - G1.2
			18. Identifying, replacing unsuitable workers - G1.2
			19. Integration and activation of latent resources - G2.3
			20. Networking and team building - G2.3

(table continues)

(continued)

17. Understanding the sales network is also at risk - G2.3	21. Finance-driven company -G2.3
18. Correct risk assessment and reaction - G5.3	22. Freeing up the CTO's time - G3.3
	23. New communication channels - G3.3,G4.3
	24. Establishment of missing processes - G4.3
	25. Sales engineering - G5.3

The codes and their accompanying quotes enable me to give a detailed description of the phased separation strategy determinant, which I present in the next chapter.

4.8.2 Manifestation of Phased Separation Strategy

A special category in the establishment of an independent company that previously existed as part of a close development partnership is the phased separation strategy. Strategic partnerships are characterised by the practice of pooling necessary resources and capabilities. When one side feels the deal is no longer working in its favour, it will attempt to rearrange the cooperation conditions or cease partnership.

In the latter case, the process of separation is a delicate one since partners have a limited time window to organise any capabilities they are now missing, and prove to customers that they are still worthy of trust even when operating as independent entities. In this context, respondents stated that the accurate interpretation and assessment of the business behaviour of the former partner was crucial in the process of decision making and market positioning, as both executives agreed. The first one stated: *“We realised that our strategic partner was looking for ways to become more independent from Dewesoft, and that meant we had to become more independent, too. That was the breaking point in our cooperation.”* while the second one corroborated: *“We realised they had the ability to go fully independent in just a few years’ time. That was our clock to develop our own independence or risk losing business.”*

Knowing that they will compete on the same market, and initially for the same exact customers, the companies must differentiate themselves from their former strategic partner. Dewesoft chose to initially offer similar products based on different technology, which were not directly competing with the range offered by the former partner, as illustrated by the following statement of the CEO: *“When we started making instruments, we said we’d make something they don’t carry, so there would be no hard feelings.”* G1.1 According to the technology vision, the instruments’ development was focused on top quality and performance. When Dewesoft finally started competing with its former ally, it did not try to dump prices but instead offered superior products at the same price, in addition to launching a new generation of measurement software that took maximum advantage of its

own hardware. The company's capacity for rapid development then allowed it to quickly position itself in those technology fields that were still unoccupied by the former partner. As one senior engineer said *"We're quite good when it comes to data acquisition, we have a lot of range there, and now we want to explore the controller side, data output. A completely new field that would really set us apart from Dewetron"* G3.3. Hand-in-hand with technology differentiation, the company also began to develop and push its own brand, which received a complete visual image overhaul.

In a strategic partnership, no side generally wants to cease cooperation too abruptly, since manufacturing resources or capabilities continue to be entangled until any missing ones can be secured. The most suitable strategy that provides both partners with time sufficient for the establishment of autonomy is thus agreement on a period of continued cooperation. Such a period facilitates the separation process for both parties, allowing them both to ease into autonomous operation without scrambling for resources. The executives' account of this period is supported by the first bi-annual 2013 report of the conglomerate Augusta, the owner of Dewetron. As the report states: *"The risks presented in the 2012 annual report remain valid. We have intensified our development activities in relation to our own software following the termination of a software delivery agreement at Dewetron in June 2013 combined with a two-year subsequent delivery period for the software"* (Federmann, 2013).

Judging by the respondents' statements, I was able to conclude the company first secured all the personnel deemed necessary for technologic development, and then focused on the establishment of its own sales framework. One of the cofounders stated the following: *"Our next step was how to persuade and motivate the sales channels in the network of our ex strategic partner to start selling our hardware, initially still under the Dewetron name and then soon under the Dewesoft brand,"* while the CEO said: *"Now, we do it all. We set up sales offices, we do marketing, we're always building the brand, but we're also not in conflict with anyone, we're supper happy working with the rest of the Dewe-world and we don't want to alienate any of the companies we're cooperating with."*

Phased separation also obliged the company to continue providing SW development for the former strategic partner for the duration of the extended cooperation agreement, in addition to getting its own HW up and running. It was thus a period of hectic pressure as independence also brought the necessity to gradually secure all the missing sales channels, business connections and resources. Thus, the decision to guarantee the ex partner continued SW support was a pragmatic one, because uninterrupted software development was bringing in steady revenue as well as making sure the market was not having any doubts in with regard to Dewesoft's performance and reliability during the sensitive period when the company was becoming full autonomous.

The CEO said the following: “*Even now, we still support Dewetron and we do it properly, we provide software for their products but that’s it.*” Navigating the phased separation strategy requires sensitivity to the measures conducted by the separating partner, execution of any particular countermeasures, assurance of uninterrupted operation and market stability, as well as fast reaction to new developments. Once Dewesoft had developed a sufficiently broad range of instruments and was on its way to having a fully independent sales network, it was naturally able to secure a much stronger negotiating position in its dealings with the former partner, which ultimately resulted in the cessation of next-generation software development for non-Dewesoft HW platforms.

The company now only performs updates and maintenance on its old-generation software but no longer develops expansions and innovative functionalities that are reserved for new-generation Dewesoft X. Thus, the company is able to focus the bulk of its resources on its own product, further accelerating complete financial and market autonomy. Other illustrative quotes, observations and excerpts, which were collected during the data collection periods, are presented in Table 35.

Table 35: Phased Separation Strategy: Illustrative Quotes, Observations and Excerpts

	<i>Sensing</i>	<i>Making distinction</i>	<i>Ambidexterity</i>	<i>Development of Missing Capabilities</i>
<i>Interview – quotation - executives</i>	Realistic situation assessment: “We realised they had the ability to go fully independent in just a few years’ time. That was our clock to develop our own independence or risk losing business.” G1.1	Making non-competing products – phase one: “When we started making instruments, we said we’d make something they don’t carry, so there would be no hard feelings.” G1.1	Independent and indirect entry onto the market: “We continue to adequately support Dewetron by making software for all their products.” G1.1	Establishment of own sales network: “Our sales network used to be closely tied to that of the strategic partner, so we had to achieve independence in this field, too.” G1.1
<i>Interview – quotation</i>	Trying to find ways to stay in the partnership: “Dewetron wanted to be more independent from Dewesoft, and because of that, Dewesoft had to become more independent in response. Until that realisation we were focusing entirely on cooperation.” G1.1	New technology orientation: “We’re quite good when it comes to data acquisition, we have a lot of range there, and now we want to explore the controller side, data output. A completely new field that would really set us apart from Dewetron.” G3.3	Willingness to coexist and co-develop: “Jure’s initial idea was to cooperate in such a way that we are making things they aren’t making and vice versa.” G3.3	Starting sales under own brand: “Our next step was how to persuade and motivate the sales channels in the network of our ex strategic partner to start selling our hardware, initially still under the Dewetron name and then soon under the Dewesoft brand.” G2.3
<i>Observation – description</i>	In an informal conversation the CEO let me know that the partner was suing them. (observation during informal conversation)	I recognised three stages in corporate logo development. The second logo development started at the beginning of 2008 and the third one started at the beginning of 2013. (observation during informal conversation)	During my second tour of the company, the CEO explained principles of production for new instruments, which were established in new facilities. Meanwhile, the SW development was still at the same location. (observation during site visit)	Informal discussion with the CTO where he explained the many activities launched to quickly secure all the missing resources (after the first and after the second interview). (observation during informal conversation)

(table continues)

(continued)

<i>Documents - excerpts</i>	By making our own instruments, and because of the strategic partner's problems, we decided to approach the market independently. (power point presentation)	After more than 10 years of close cooperation and between Dewetron and our vendor Dewesoft, the two companies are moving in different directions. ... Dewesoft split the Dewesoft DAQ SW into two versions: DS-7 which supports Dewetron hardware, and DS-X, which supports Dewesoft hardware (Dewetron, 2013)	We took the decision for the new computer application because our production had been focused on the manufacturing of measuring instruments for some years (SAOP, 2013).	For various projects, Dewesoft has received 263,770.00 from the European Social Fund and 239,006.00 Euros in funding from the European Regional Development Fund (Ministry of Economic Development and Technology, 2013).
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5 DISCUSSION

5.1 Transformational Leadership

Leadership has been identified as an important success factor in many studies (Achtenhagen et al., 2013; Doz & Kosonen, 2010; Gilbert et al., 2012; Sosna et al., 2010) related to business model transformation. A study of companies launching e-business ventures finds (Brown & Gioia, 2002) that leadership styles should be adapted using new business models relevant for the new dot.com environment. Doz and Kosonen (2010, p. 376) assert that “lettre morte” is all efforts for business model change and renewal without a collective commitment to taking risks necessary to venture into a new business model and abandon the old ones. In addition, they found that leadership unity is one of the three meta-capabilities that they identified based on a study of a dozen companies from the information technology industry which had successfully reconceived their business models. On the other hand, Teece (2007, p. 1331) asserts that “no amount of good governance and leadership is likely to lead to success if the wrong business model is in place.”

In the research process, I recognised in the emerging form of the business model strong unity among leaders on two levels. The first was among the cofounders – a Slovenian couple who are executives at Dewesoft and an Austrian couple who were previously shareholders in Dewesoft and executives at Dewesoft’s strategic partner from Austria but are currently sales directors responsible for Dewesoft’s sales in Europe, the Middle East and the Far East. The second level of unity was among technical leaders, persons who are responsible for leading small teams in areas like hardware design, SW development, production, distribution, control and testing, technical support and mechanical workshops.

One of the three vital processes for changing the business model in an already existing organisation is the process of leading change in the organisation (Chesbrough, 2007, 2010). The person who leads the change should have enough authority to accept decisions related to the other two processes, which are effectuating and experimenting, and solving eventual conflicts caused as a result. Chesbrough further claims that serving a dual function as owner and CEO could be ideal for small companies; however, he sees a problem in the interconnectivity between the CEO and the business model due to the fact that the CEO’s current position was achieved via the current business model and, therefore, he/she is familiar with it and is less willing to change it. This may be true in general but we should also be attentive to the personal capabilities of the leading person and his/her personal leadership style.

Leadership theory affirms that there are two distinct but interrelated types of leadership: transactional and transformational. Transactional leadership involves contingent reinforcement where followers are reinforced by appealing to their self-interest

and exchanging benefits (Yukl, 2010, p. 263), which take the form of different types of leaders' promises, praise, and rewards, or they are corrected by negative feedback, reproof, threats, or disciplinary actions (Bass & Steidlmeier, 1999, p. 184). As opposed to transactional leadership, transformational leadership appeals to the moral values of followers in an attempt to raise their awareness about ethical issues and to mobilise their energy and resources to reform institutions (Yukl, 2010, p. 263), and contains four components (Bass & Steidlmeier, 1999, p. 184):

- charisma or idealised influence (attributed or behavioural), where leaders serve as an ideal role model for followers and are thusly admired,
- inspirational motivation, where leaders have the ability to inspire and motivate followers,
- intellectual stimulation, where leaders demonstrate genuine concern for the needs and feeling of followers, which brings out the best efforts from each individual, and
- individualised consideration, where leaders challenge followers to be innovative and creative.

Bass and Steidlmeier (1999) further claim that a majority of leaders exhibit a profile of the full range of leadership that includes both transformational and transactional factors.

My study finds that executives are the leading force of business model transformation, especially the CTO of the company and the main shareholder, who never works from a position of authority. They inspired co-workers or "*members of the team*", as the CTO always expressed himself during interviews, and motivated them by personal behaviour, learning abilities and technological professionalism. Regarding charisma or idealised influence, the CTO was treated by members of the team as a role model, and he was admired for his technological vision, strict insistence on the highest quality possible, and for his ethical behaviour as part of his world view, which characterised his authentic transformational leadership style (Bass & Steidlmeier, 1999, p. 185). By technological vision, I mean the mental picture, an idea and energy, which can be achieved with existing and emerging technologies in the field where the company works in a three- to five-year horizon.

What constitutes vision (Yukl in Brown & Gioia, 2002) and its time horizon (Larwood, Falbe, Kriger, and Miesing in Brown & Gioia, 2002, p. 411) is ambiguous. Technological vision is something that everybody can imagine in some form and in some time frame. I discovered that even in the company vision published on the firm's web site (Dewesoft vision; *Single software package with highly integrated hardware, providing turn-key, easy-to-use solution for any application.*), we can trace the strong impact of technology.

Researchers in studies to date have not defined what types of leaders have led business model transformations, with few exceptions. Sosna et al. (2010) identified that the exploratory phase of the transformation of the business model was “strongly influenced” by the entrepreneur or owner-manager who was the main decision-maker and “was encouraging his team to learn and experiment by sharing information and was involving them in decision making”, which are all elements of transformational leadership.

5.2 Discovery-Driven Decision Making

The next determinant which I recognised in my research of successful BMT is related to experimentation / effectuation and agile deciding, and I named it “discovery-driven decision making”.

In highly uncertain, complex and fast-moving environments, experimentation and, consequently, evolutionary learning are the “tool of choice” for how to discover the most effective business model, since it cannot be fully anticipated in advance (2010, McGrath, p. 253). Chesbrough (2010) agrees that “only experimentation can help” in discovering a new business model, and business model experimentation is a “potent source of competitive advantage” as asserted by a longitudinal study of more than 20 companies conducted in an array of industries (Sinfield, Calder, McConnell, & Colson, 2012). Sinfield et al. defined business model experimentation as the pursuit of growth through the methodical examination of alternative business models.

There are many studies which confirm the use of experimentation during business model renewal, such as a longitudinal study on how an incumbent organisation responds to a disruptive business model (Khanaga et al., 2014) or a longitudinal in-depth single case study which confirmed that experimentation, in combination with leadership of organisational transformation, are required for a successful business model change in an incumbent organisation (Sosna et al., 2010).

In addition to experimentation, effectuation is also a possibility for collecting data and gaining experience when actors (e.g. entrepreneurs) prefer taking action rather than analysing the environment in depth (Chesbrough, 2010). The logic of effectuation is “to the extent we can control the future, we do not need to predict it” and it is focused on the controllable aspects of an unpredictable future (Chesbrough, 2010). The effectual principle of “affordable loss” or “acceptable risk” prescribes making a commitment in advance to that which one is willing to lose instead of investing in projects with the best expected returns (Sarasvathy, 2001, p. 251). Both experimentation and effectuation are recognised as relevant approaches related to how an organisation can develop a new business model that has already been designed with tools such as maps of the business model (Chesbrough, 2010).

In my study I also discovered that the studied company didn't use any such type of mental mapping to predict the future form of the business model. To the contrary, they knew from the beginning of the business model transformation process what kind of business model they wanted to establish. The business model was not exactly innovative and new to this world, but it was highly new to the firm. The research also confirms that experimentation and effectuation has a crucial role in business model transformation and was a "state of mind" in the company for learning and gaining relevant experience on how to adjust different aspects of the company to the emerging business model.

I found that the researched company performed experiments and effectuation in very different fields, such as technology (new instruments), acquisition (an offer to buy the strategic partner), market access (web sales), human resource motivation (an incentive scheme) or even at the level of product name development (Titan, Krypton). This included the corporate identity, a graphic sign, a symbol and a logotype with different colour combinations, and a slogan with which the company positioned itself on the market becoming visually recognisable and distinct from its previous strategic partner. Not all experiments were successful (web sales, acquisition); however, within the company they were treated as "failures rather than mistakes" (Thomke & Manzi, 2014).

A discovery-driven planning approach is a natural contrast to conventional strategic planning in a stable environment, where the plan's success is measured by how close projections come to actual achievements (2010, McGrath, p. 258). The success of discovery-driven planning is maximal learning at the lowest possible cost (McGrath, 2010). Nevertheless, learning is not enough; managers should have the ability to take action based on the results of experiments (Chesbrough, 2010), another finding in my research. The outcomes of all experiments were organisational learning and improved information, which have an influence on the decision making process among the leaders. A business model is composed of choices related to policies, assets and governance, and consequences which could either be flexible or rigid (Casadesus-Masanel and Ricart 2011, p. 102). In the studied company I found a close connection between discovering and deciding or taking action, such as: success with the first instrument (experiment) led to global web sales (decision); global web sales failure (experiment) led to opening the first sales office abroad (decision); acquisition of strategic partner failed (experiment), which led to a stronger HW development team in the company (decision).

5.3 Industry Improvement - Customer Specific Orientation

Even though there is not unanimous agreement among researchers on the meaning of "business model" (DaSilva & Trkman, 2014, p. 379; Demil, Lecocq, Ricart, & Zott, 2015, p. 1; George & Bock, 2011, p. 83), there is a strong consensus that focusing on value proposition, which creates value for customers (Achtenhagen et al., 2013; Chesbrough, 2010; Johnson, 2010; Osterwalder & Pigneur, 2010; Porter & Kramer, 2011; Teece, 2010;

Zott et al., 2011), for customers and society simultaneously (Porter & Kramer, 2011), or for the “bottom of the pyramid” (Prahalad, 2012), is one of its main characteristics.

Value proposition is the set of benefits which a company promises to deliver to its customers to satisfy their needs (Kotler & Armstrong, 2006, p. 9) and presents the reason why customers turn to one company over another: because it solves their specific problems (Osterwalder & Pigneur, 2010, p. 22). The value offered to customers has two components: perceived use value and exchange value (Bowman & Ambrosini, 2000, p. 4). The former is subjective and is based on customers’ perceptions of the usefulness of the product on offer. The latter is realised when the product is sold and represents the amount paid by the buyer to the producer for the perceived use value (Bowman & Ambrosini, 2000, p. 4).

With the emergent concept of business models and using new technologies, many new elements exist which could contribute to customer value creation; some of them could be innovative and present a new or disruptive offer, while others could be similar to existing market offers, but with added features and attributes (Osterwalder & Pigneur, 2010, p. 22). Realising how to deliver created value to the customer and to capture value while doing so are the key issues in designing a business model and it is not enough to do the first if the second is absent (Teece, 2010, p. 184).

My empirical findings confirm Teece’s claims as Dewesoft’s customer value proposition was changed, adapted and improved during the process of business model transformation. Customer value proposition, in harmony with other characteristics, defines Dewesoft’s industry improvement – customer specific orientation determinants. I found out that the set of value proposition elements at Dewesoft were in line with a list of elements proposed by Osterwalder & Pigneur (2010, p. 24) and Amit & Zott (2001, p. 504), which are:

- Newness or novelty: This is defined by a situation in which companies introduce new ways of conducting and aligning commercial transactions and satisfy an entirely new set of needs that customers previously had not perceived because there was no similar offering. My research disclosed that newness was achieved by on-going technological innovation incentives by coupling hardware and software development, and by using technology by means of knowledge and experience from different sectors (Baden-Fuller & Haefliger, 2013, p. 424). For example, a solution developed for combustion analysis in the automotive industry and a solution for the power and energy industry were combined as an innovative solution for the automotive industry oriented toward improving the efficiency of electric cars. From the research, I also recognised a convenience and usability of solutions as an important element which is related to a high quality focus.

- Performance or efficiency: Improving product or service performance in terms of its capacity or speed has traditionally been a common way to create value. I found that the company didn't use a cost differentiating strategy; quite the contrary, it used a product and performance differentiating strategy. For this reason, they were recognised by customers as a company that assures fast and innovative solutions, which leads to lower prices for customers.
- Customisation or lock-in: By tailoring products and services to the specific needs of individual customers or customer segments, customers are motivated to repeat transactions or maintain and improve the association between supplier and customer. My research reveals that such lock-in was achieved in a variety of ways. The first was with the company's licence philosophy and free accessibility of any software development once the customer bought an instrument with the software. Another approach was in the close connection with the technology vision that was realised fast and mostly in cooperation with customers. This is because in the first period (2008-2011) of the business model transformation, customers were mostly from corporate research laboratories, and for them it was essential that they were able to reduce the risks to the successful termination of their projects.
- Complementaries: These are present if a company provides goods bundled together which present to customers more value than the total value of acquiring each of the goods separately. I found out that during the BMT, Dewesoft used different approaches when offering a combination of measuring HW and SW. At the beginning of the BMT they offered a limited scope of measuring HW, which was supported by very powerful and accessible software. The company split SW into two streams in the middle of the BMT. One was for its strategic partner and, due to the split, was not developed any more in line with the other stream, which continued to be developed and adapted strictly for the company's HW solutions. This approach changed again at the end of the BMT process, when Dewesoft started offering SW completely free of charge but only in combination with its hardware.

There are other possible elements which can contribute to customer value creation (Osterwalder & Pigneur, 2010), such as brand/status, which I recognised in the study as an emerging element with future potential from a global perspective.

I found that customer co-creation was one of the most important dimensions during the business model transformation. It was especially important because, during the business model transformation, Dewesoft was co-creating solutions with the customers who were simultaneously customers of their previous strategic partner. To a lesser extent, the capability of co-creation solution with customers was developed even before the business model transformation; however, during the business model transformation it became crucial. I conclude that Dewesoft spontaneously used the DART (dialogue, access, risk assessment, and transparency) model of value creation (Prahalad & Ramaswamy, 2004, p.

6). In the first part of the business model transformation, Dewesoft's orientation was mainly in SW co-creation, unlike the second part of the business model transformation when co-creation was mainly oriented to HW instruments and measuring solutions.

During the whole business model transformation period, Dewesoft performed an on-going, focused, oriented communication (dialoguing) and developed a new IT system which allowed customers to access data on its manufacturing process. Because customers were actively engaged in co-creating solutions and because of this direct communication, they were constantly aware of the possible risks. By continuously improving its website, Dewesoft assured customers by providing access to all relevant information and ensured transparency about products and technologies.

Based on the challenging question "What needs to be done to create an organisation to be truly fit for the future?", a group of scholars and business leaders created 25 ambitious and sometimes overlapping management challenges relevant for tomorrow's volatile world (Hamel, 2009). I found that many of them are relevant for Dewesoft and led the company through its successful business model transformation; however, the first one is especially important. It proposes ensuring that the work of management serves a higher purpose and focuses on the achievement of socially significant and noble goals (Hamel, 2009).

Such an intention was clearly recognisable at Dewesoft, and I named it "industry value sharing". At Dewesoft they didn't strive just to maximise shareholder wealth – just the opposite, in fact – they strove to find a way to maximise the use of technology which was locked into the initial business model and develop new types of measuring instruments and solutions, all in line with their "world view". And further according to their "higher purpose", they ensure that all users who have already bought a licence, and with the licence access to the latest technology, have free access to the SW solutions developed for any specific customers. That means that all of Dewesoft's customers, who work in a "virtual network", unintentionally, but on the other hand consciously and with formal consent, help each other and share best practices and knowledge, which embodies Dewesoft's capabilities in its products. With such an approach, all customers from the same industry benefit and improvements quickly move the boundaries of an industry's capabilities far ahead.

Such cooperation is understood as an extension of customer value co-creation, where in the foreground is a supplier-customer relation (Galvagno & Dalli, 2014; Karpen et al., 2012; Vargo & Lusch, 2008), compared to my findings, which put in the foreground the supplier-customer-industry relation. Almost nothing is developed just for one customer; always in the background is a decision about how the industry and all current Dewesoft customers can benefit. Such an approach is in line with calls for "creating shared values", which is defined as policies and operating practices that enhance the competitiveness of the company while simultaneously advancing the economy and social conditions (Porter &

Kramer, 2011, p. 66). It is also comparable with the sustainability approach and its initiative to encourage companies to share sustainability-related patents and other intellectual property, as presented in the case of Nike (Epstein, Buhovac, & Yuthas, 2010).

5.4 Self-Initiative Collaborators

The next identified determinant of successful BMT has three subcategories: employee engagement, internal knowledge sharing, and fast and innovative development. I named this determinant self-initiative collaborators which is similar to the concept of individual-level proactive behaviour, well-known in the organisational behaviour literature (Grant & Ashford, 2008; Parker et al., 2010). However, the self-initiative collaborators are distinct comparing to proactive employees in change-orientation which is not related only to themselves but also to the collaborators to whom they help “to fly by themselves”.

The process by which leaders appeal to followers’ values and emotions is a central feature in current theories of transformational and visionary leadership in organisations (Bass, 1985, p. 31). Employees who follow their leaders and are engaged in their work are fully dedicated to their work, immersed in their work activities connected with their work roles, and consequently function in an active, positive work-related state that is characterised by vigour, dedication, and absorption (Bakker, Albrecht, & Leiter, 2011; Bakker, 2011) and are willing to invest oneself and expend one’s discretionary effort to help the employer succeed (Macey & Schneider, 2008, p. 7).

In the studied organisation I recognised that people firmly believe in the executives and their ideas, while at the same time accepting their legitimate and expert power. At the beginning of the business model transformation process the number of employees was still low (ten in total); therefore, there was no problem creating a “guiding coalition” (Kotter, 1995, p. 62), and CTO was a direct leader to all of them, despite there not being a formal organisational structure. At the end of the BMT process, when there were 39 employees at the company, I clearly recognised that the executives had started developing the missing capabilities related to leading a greater number of employees. However, the employees expressed that they had a clear stake in the company’s prosperity, that the future of the company was bright, and that they had a lot of opportunities to prosper in their preferred field. When I spoke with the employees who had joined the company more recently and compared them with those who had been employed longer, there were no differences in their answers.

The results of the studies suggest that distrust often motivates employees to hide knowledge from their colleagues (Connelly, Zweig, Webster, & Trougakos, 2012), which was not the case in my research. I recognised that a high degree of trust among employees was related with transformational leadership, which resulted in employee participation in an internal transfer of knowledge. The hiding of knowledge was unimaginable in the

company and the executives set an important example that knowledge sharing was the spirit of the company. I found that knowledge sharing was not only present in the hierarchical level but also among engineers on the same level, i.e. horizontal level. Wang and Noe found several practical implications based on reviews of qualitative and quantitative studies of individual-level knowledge sharing. These are (Wang & Noe, 2010, p. 127):

- the importance of organisational culture lies in its ability to have a direct effect on employees' knowledge sharing. In my research I found that the organisational culture was oriented towards strong repudiation of knowledge hiding and that a culture of openness and willingness to help and support was ubiquitous.
- management and supervisor support is critical for the success of knowledge management and knowledge sharing initiatives. Organisations should require managers, and reward them, for providing the support necessary for encouraging knowledge sharing among employees. In my research I didn't find that the organisation rewarded anybody for knowledge sharing. The first who demonstrated knowledge sharing was the CTO and it would be inexcusable for anybody not to act identically. Executives were aware that, from the customer's point of view, the company is small and, because of that, more risky in assuring and developing all requirements. That was another reason to build a team that could support customers' demands.
- the importance of increasing individuals' confidence in sharing useful knowledge with others. Based on my research findings, I conclude that all employees were proud of themselves when they reached a position of internal "networking and cooperating". This means that after the introductory period with the full support of a supervisor, when a new co-worker achieved an appropriate level of independence, he/she became a person who started transferring knowledge and experience to others.
- there is not one universal set of practices that can be used to facilitate knowledge sharing in global organisations. The company in this study has been globally oriented in terms of product sales since it was set up; however, in the first period of its existence, it was strategically aligned with a company that already operated globally. It became a truly global company during the business model transformation if we take into consideration its sales network. Some of its network partners are equity linked and some are franchised; however, all are in the network and present an extension of the company on the market. In that way, knowledge sharing also goes in a direction through different channels such as webinar, in-class education and online support.

Fast and innovative development and upgrading existing solutions is another characteristic of self-initiative employees. It was influenced by the technological vision of the company and the capabilities of its employees on the one hand, while taking into

account the situational characteristics in the relationship with its strategic partner (agreed limited time frame for achieving product comparability) was a huge challenge, even pressure for the company.

The firm was ensuring many important resources in house, which had previously been unimaginable due to the different business model of the strategic partner, which has different facilities around the world (HW development in South Korea, special drivers development in Vienna, SW development in Slovenia) and coordination of all partners was demanding and time consuming. The logic which I recognised in my research is “one company = complete solution”, which is exactly the opposite of what it was before.

5.5 Content-Oriented Communication

Osterwalder and Pigneur (2010, p. 28) distinguish between several categories of relationships with a customer's segments, driven by customer acquisition, customer retention or boosting sales, which could change over the life-cycle of a business model. Such a view is confirmed with an understanding of customer relationship management as a crucial asset of the firm (Reimann, Schilke, & Thomas, 2010, p. 329) and of the systematic process to manage customer relationship initiation, maintenance, and termination across all customer contact points to maximise the value of the relationship portfolio (Reinartz, Krafft, & Hoyer 2004, p. 299). Reinartz et al. confirm with their quantitative study on the consumer market that implementation of customer relationship management (CRM) is associated with better company performance in two out of three stages. The strongest is customer relationship maintenance, followed by customer relationship initiation, and the weakest is customer relationship termination.

I found that in the first phase of the business model transformation, when the company started selling its own products under its own brand name which didn't compete directly with the strategic partner's product line, they set up web sales, a completely new approach for such a type of instruments, which allowed them to start building a direct relationship with end-users and to try to retain them and attract new ones. The main goal in that period was to ensure that customers were aware that the company was capable of developing and producing its own simple range of highly effective measuring instruments. In accordance with this goal, the company opened its first sales office abroad, redesigned its web site, prepared its first catalogue, assured mutual development and even competed for and won a reputable award for the first instrument. Everything was oriented towards persuading customers that they are able to develop and assure stable production, all in-house, which was the slogan of the company at that time. Taking into consideration that I studied a business model change in a company which was in the process of strategic partnership dissolution, I recognised an awareness among executives that the dissolution could potentially affect customers and sales partners of both previously related companies.

According to Biggemann's case study, information sharing has an essential role in relationship development among business partners (Biggemann, 2012). He defined it as having two dimensions: mutual disclosure, through which the partners are willing to exchange meaningful information; and multi-contact, which describes the establishment of various points of contact to make the information flow more intense and fluid (Biggemann, 2012, p. 525).

The case study of fall of strategic alliance between two multinationals emphasises a need of a direct communication with the customers during the strategic alliance dissolution (Hyder & Eriksson, 2005, p. 790). The importance of communication in the opposite situation is noted by Epstein in a study of determinants of successful post-merger integration (Epstein, 2004, p. 178). Among the five determinants which Epstein recognised is a strong emphasis on communication. He stresses the importance of communication in dealing with customers who must be apprised of the direction of the new company and how it affects their relationship. It must be significant, constant and consistent, which I found to be true also in my research. From the customer's perspective, a merger brings uncertainty, and the best reassurance comes from a combination of strong performance and strong communication efforts (Epstein, 2004). I found a similar situation in my study, keeping in mind that the companies didn't merge but diverged.

The executives at Dewesoft were aware that planned communication, to build trust for further continuous cooperation with the customers, was vital. During the process of dissolving the strategic partnership and becoming a more and more independent company, they strengthened the relationship with customers in a way to ensure trust and long-term predictability related to future development, which was achieved by a multi-channels approach. For example they implemented internal measuring conferences at the company's location, performed customer visits, were in on-line contact, attended international conferences, and implemented an online learning platform. By using such an approach, they persuaded customers in a way that they could "see, touch and smell" the company and got a feeling for their capabilities.

A different approach was established with the distributors' network, which didn't exist under the name Dewesoft until mid-2010, when the first distributor was established. In the very first period of the BMT, the company was still using its strategic partner's distribution channels. Some of them were equity linked with the Austrian company and some of them were independent distributors. Distribution channels are more than a simple collection of firms tied together by various flows. They are complex behavioural systems in which people and companies interact to accomplish individual, company and channel goals (Kotler & Armstrong, 2006, p. 365).

When the strategic partner closed its sales channels for Dewesoft's products, Dewesoft was in a position to establish its own distribution network as fast as possible and

simultaneously started developing a broad range of measuring instruments. The company employed the tactic of opening its own companies abroad and contracted local dealers in some markets. In both situations they were assured exclusive rights for the region, product training and promotional support. Many personal visits were also made to the distributors, and later the company even established an online learning platform and motivational scheme for distributors as well as for customers.

5.6 Phased Separation Strategy

Peng and Shenkar (2002, p. 95) propose a four-stage joint venture dissolution process where the separate stages are: initiation, going public, uncoupling and aftermath.

Making distinction: The initiation stage is related to the discomfort one of the partners begins to feel regarding the joint venture. I could say, based on findings, that Dewesoft started feeling uncomfortable when they realised they were missing technological opportunities and giving many suggestions which were declined or not accepted willingly by their strategic partner. This led to a soft distinction when Dewesoft decided to develop and produce its first non-competing measuring instruments on their own, by which they sent a message to the market that they were able to develop capable instruments with a partner. This stage is characterised by renegotiation between partners with the aim to save the alliance with some modification (Peng & Shenkar, 2002, p. 96).

In my case renegotiation between Dewesoft and the strategic partner resulted in an agreement that allowed Dewesoft to develop non-competing measuring instruments and sell them through a distinct sales channel (web shop), after the first positive feedback from the market, as well as through the partner's global network. However, Dewesoft's partner was not willing to accept its technological suggestions and made changes in its development, which resulted in Dewesoft's further dissatisfaction. Once the initiator judges the attempt to change the partner's behaviour to have been unsuccessful, it will set out to change its own behaviour in anticipation of a possible termination (Peng & Shenkar, 2002, p. 97). In my case the company opened its first sales office in Austria, and started with direct communication with the market even though the main transaction and selling still went through the partner in Austria. For example, for each measuring device sold through the web shop, the principal and sales partner received a commission without having done anything.

The main characteristic in this stage is that not all activities are public and directly visible for the customers, who could only assume that some changes between the strategic alliance partners had taken place. Going public is the second stage of the process model of joint venture dissolution when the parties disclose their intentions (Peng & Shenkar, 2002, p. 97). In the case of Dewesoft, their disclosure came during the first independent measuring conference in August 2011, when they publicly presented their developments,

reasons for success, and future ambitions. They simultaneously put the first instrument which was competitive with their partner's product line on the market and signalled a new reality. The two previously joined companies become competitors, and customers suddenly had an opportunity to buy similar instruments from either company. In a classic marketing segmentation, each firm must differentiate its offer by building a unique bundle of benefits that appeals to a substantial group within the segment (Kotler & Armstrong, 2006, p. 216).

I recognised the same situation in the case of the strategic alliance dissolution in which Dewesoft chose to differentiate itself from its previous strategic partner by selecting a "more for the same" overall positioning strategy (Kotler & Armstrong, 2006, p. 220). A "more for the same" value proposition related to product differentiation is characterised by customers receiving more benefits for the same price. In the case of Dewesoft, they priced new instruments at the same level as the strategic partner and offered, by coupling their own developed HW and SW, a much higher capability of the products.

Another element of distinction which supports "more for the same" positioning and an emphasis on differentiation was the decision to split SW development into two branches early in 2013. One branch dealt only with maintenance and was connected with the previous partner, and the other one engaged all resources on the further developing and coupling with the new series of HW. This decision was supported with clear communication with customers and the market. By developing even higher capacities and a new innovative product line, Dewesoft supported even further product differentiation in the process of decoupling and business model transformation and successfully entered new markets. Whereas previous customers were mostly highly-developed research laboratories in global companies, Dewesoft succeeded in entering the global manufacturing market.

Peng and Shenkar (2002, p. 98) claim that the formal process of uncoupling, as a third stage in the process of dissolution, doesn't start until the parties initiate their demands as the basis for separation negotiations. The studied companies started with the process "sell your company to us or buy ours" simultaneously with the going public phase and because this process was unsuccessful, they further negotiated for the best outcome for themselves, as well as for the market, from the dissolution. They also agreed that in the middle of 2015 both companies should be ready to be completely independent, and that by then they would still be working mainly together. The aftermath is the final phase when the new era starts, when companies search for new alliance opportunities or continue on their own based on previous experiences, which is in my case out of the scope of the study.

Sensing: The process of separation is delicate, because the partners should regain the newly missing capabilities for further functioning and they must assure their customers, if they want to retain them, that they will not be affected by the alliance dissolution. Monitoring each other for clues, the parties in a relationship constantly learn, interpret, and re-orient themselves (Peng & Shenkar, 2002, p. 96). Especially if the alliance dissolution

simultaneously leads to business model change, as was the case of Dewesoft, a strategic sensitivity, which “sharpens the perception of, and the intensity of awareness and attention to, strategic developments”, is proposed as a meta capability which managers need (Doz & Kosonen, 2010, p. 371).

Mostly the reorientation or outcomes of such moves are highly unpredictable and companies should be willing and capable of experimenting and being simultaneously prepared for failure, but they should also be able to learn from them quickly (Doz & Kosonen, 2010; McGrath, 2010; Sosna et al., 2010). Just as experimentation is central to business model creation, a new set of skills involving the early detection of any erosion of their business model will be at a premium for company leaders (McGrath, 2010, p 256).

Sensing in terms of observing a strategic partner’s reactions and moves was extremely important for Dewesoft since I couldn’t recognise it as the initiator of the strategic alliance dissolution, but more as a partner in the alliance who responded to opportunities (technological) or threats (culture) in relation to the partner (Sadowski & Duysters, 2008, p. 309). Based on an explorative case study, sensing was confirmed as an ability for business model change (Mezger, 2014, p. 438) with two underlying capabilities, which are: technology sensing, which is the ability to translate technological possibilities to new business model ideas; and business model sensing, the ability to recognise alternative business model configurations at competitors and across industry boundaries.

I would add another dimension of separation sensing, which was present in the studied case of strategic alliance separation: the ability to wait on a strategic partner’s decisions and react fast when they appear. Mezger further identifies that firms showing a low level of distinct sensing in a combination with seizing, and reconfiguring capabilities, lack proficiency in BMT and have difficulties engaging in this transformational change (Mezger, 2014, p. 434).

Ambidexterity: There are many dualities which companies could benefit from: cost vs. differentiation, exploration vs. exploitation or differentiation vs. integration (Gulati & Puranam, 2009, p. 429), as well as managing two business models simultaneously (Gilbert, Eyring, & Foster, 2012). To manage two business models simultaneously, the firm has to design a context that will allow it to achieve a delicate balance: on one hand, it has to create enough distance between the two business models that they don’t suffocate each other; on the other, it has to keep them close enough to exploit synergies between the two (Markides & Charitou, 2004, p. 23; Markides, 2013).

Gilbert et al. (2012) propose dual transformation as a response to changes such as market shifts, ground-breaking technologies or disruptive start-ups. Dewesoft was in a position during its business model transformation to run its first business model where it was selling its own SW solution to the strategic partner and was without direct access to

the end users. Simultaneously, after recognising the opportunity-threats signals they started running another business model in which they were selling, in the beginning, their HW solutions via the partner's sales network to the end users. The same approach was later adopted with selling complete solutions via their own sales network while keeping the original business model active the entire time.

Some researchers claim that competing with a dual business model and consequently with dual value positioning risks damaging the existing business, confusing customers, and alienating various stakeholders, including a firm's own managers (Porter, 1996), and that they will experience major inefficiencies (Charitou & Markides, 2003).

They propose as a relevant solution "spatial separation" (Markides, 2013, p. 314), which means keeping two business models separate in two distinct organisations. O'Reilly III and Tushman (2008, p. 193) add that ambidexterity entails not only separate structural subunits for exploration and exploitation, but also different competencies, systems, incentives, processes and cultures—each internally aligned. A study on 98 established companies suggests that the higher the degree of decision-making autonomy given to a new unit, and the greater the synergies between it and the parent company, the more effective the company is at playing two games simultaneously (Charitou & Markides, 2003). In the case of Dewesoft, such an approach (spatial separation) was not an option, and they recognise just the opposite, keeping two business models temporally together was a huge benefit because they were able to interconnect resources.

According to Markides (2013, p. 315), researchers have identified additional possibilities for managing duality; a temporal separation and a contextual separation. A temporal separation is twofold: the first type is a "phased integration strategy", when the firm starts out by putting the new business model in a separate unit but reintegrates it into the main business over time. And the second type is a "phased separation strategy", in which the firm starts by putting the new business model within the existing business but separates it over time. A phased separation strategy is preferable when there are serious conflicts between the two business models but the market is strategically similar to the existing business (Markides, 2013, p. 316).

In the case of Dewesoft I recognised a slightly different approach, but it was similar to the phased separation strategy. During the business model transformation, they used the new business model more and more; however, they never ceased using the first model for two pragmatic reasons. The first is that customers who use the product from the first business model could become their first tier customer in the future, and the second is that the revenue stream of the first business model was still substantial. Such a transition is similar to the directed transformation proposed by Khanaga et al., where organisations try to utilise existing means of value creation and acquire or develop new ones (2014, p. 326). In a directed transformation toward the emerging business model, separated structures with

some strong linkages to the existing business model are essential (Taylor and Helfat in Khanagha et al., 2014, p. 326) and dynamic capabilities are at the heart of the ability of a business to be ambidextrous (O'Reilly III and Tushman, 2008, p. 190).

In addition to spatial ambidexterity, contextual ambidexterity applies this principle to the challenge of managing two conflicting demands. If an organisation wants people to display ambidextrous behaviours, it must first create the appropriate organisational context for such behaviours to emerge (Markides, 2013, p. 316). In the case of Dewesoft, I can confirm such a finding, because the company has created an appropriate culture in close relation with its technology vision, it has assured knowledgeable members of the team in the fields of HW and marketing (establishing global sales network), and it has even started setting up its first company abroad.

Development of missing capabilities: Better capabilities, just like better technologies, allow firms to more efficiently or effectively choose and implement the activities necessary to produce and deliver products and services to customers (Collis, 1994, p. 145). Capabilities are classified as a multi-level typology where the first three levels are all concerned with the ability of firms to perform an activity (static, dynamic or creative) more effectively than competitors, while the fourth level deals with meta-capability, which allows a “learning to learn” variety of capabilities *ad infinitum* (Ambrosini & Bowman, 2009, p. 33; Collis, 1994, p. 145). The ability to implement business model creation, adjusting, improving or replacing is foundational to dynamic, or “third level”, capabilities (Teece, 2007, p. 1330).

Business model design requires choices (Teece, 2007, p. 1330), which include the question of “joint ventures vs. licensing vs. go-it-alone”, and choices on how to capture value help determine the architecture or design of a business. Strategic alliances as a type of joint venture are voluntary agreements between firms involving exchange, sharing, or co-developing of products, technologies, or services (Peng, 2008). Based on such agreements, two companies that are aligned provide each other with missing capabilities. Conversely, when two companies terminate a strategic alliance, each must assure or develop the capabilities that were previously assured by the strategic partner (Hyder & Eriksson, 2005, p. 791), if it wants to keep the same business model, or should even assure new resources and capabilities if a business model change takes place simultaneously with the alliance termination.

In the case of Dewesoft, I see that based on the executives’ decision to “go-it-alone” and to become a total solution company, which manages the entire business process in-house, from hardware design, manufacturing and software development, to sales, marketing and support, the company has had to assure or develop many missing resources and capabilities. Among them were: capability of selling globally, promoting its own brand name, HW development, logistics performance, control of production in one house, and

developing organisational changes. The capacity of creating, adjusting, honing, and, if necessary, replacing a business model is foundational to dynamic capabilities; however, it also requires assembling the evidence needed to validate conjectures and hunches about costs, customers, competitors, complementors, distributors, and suppliers (Teece, 2007, p. 1330).

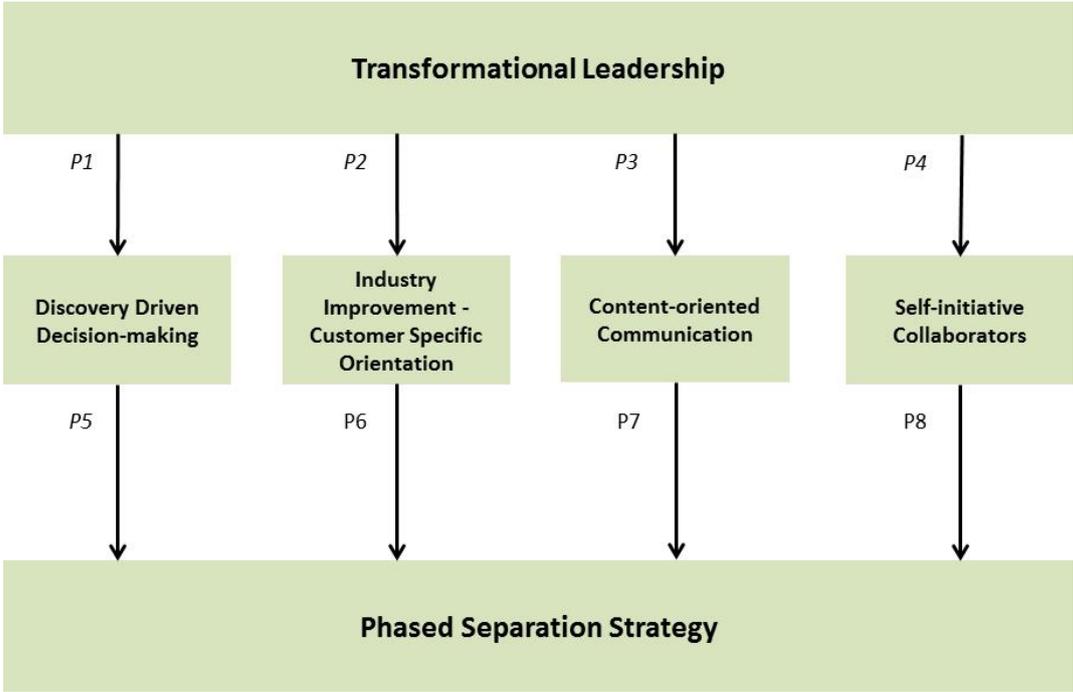
5.7 Challenges for Future Research and Limitations

Careful examination of the business model transformation suggests that this topic is in its early stages of development. I provide here directions where priorities for future model development might lie. The determinants I discovered are contextually conditioned, meaning there is a realistic possibility that other determinants in another research context exist, which could have a profound influence on successful business model transformation. Future research in another organisational setting may enrich the set of identified determinants.

The characteristics of the identified determinants could be enlarged by research in other types of organisations. Based on the identified determinants, a multi-case study would be a great opportunity to check and confirm the replicability of the proposed model of determinants of successful business model transformation.

In the hypothetical model which I present in Figure 6, all determinants are interconnected.

Figure 6: Hypothetical Model for Business Model Transformation



I propose that transformational leadership simultaneously and positively influences four determinants which all together and with different intensity influence the phased separation strategy that characterises the business model transformation process.

Additionally, testing the hypothetical model for business model transformation in a real environment, firstly with qualitative and later also with quantitative methods, would be of great help for further clarification of the determinants and their interrelations on the proposed hypothetical model.

The next challenge for future research is that I proposed a determinant which was not confirmed by the executives after the first research sequence. I named it “scientific entrepreneurship” and I believe that it has potential. The construct is close to the concept of “technology entrepreneurship”, which focuses on how the creation and discovery of novel opportunities are fostered through innovations in science and engineering (Beckman, Eisenhardt, Kotha, Meyer, & Rajagopalan, 2012, p. 90). According to Beckman et al. (2012), technology entrepreneurship exists when developments in science and/or engineering constitute a core element of the opportunity and may lead to business models that rely on network effects, first-mover advantages, technical standards and declining costs.

The critique of this concept is that firms which perform technology entrepreneurship policies are corporate rather than university spin-offs, and most do not undertake large amounts of in-house research and development, most do not have protected intellectual property (IP), and only a small minority are backed by venture capital (Brown & Mason, 2014, p.773).

Lengthiness, or multi-year transforming of the business model, is a feature which was uncovered by Chesbrough (2010) and a number of studies of successful business model transformation have confirmed his claims (Aspara et al., 2013; Sosna et al., 2010). Also my study confirms that business model transformation is a long-lasting process, because the studied case took seven years, from 2008 to 2015. Doz and Kosonen (2010, p. 371) claim that business models tend to be naturally stable and hard to change because of their subjective and objective nature. Even though I highlight six determinants, the question of how these determinants influence not only successful business model transformation but also how they influence the speed of successful business model transformation remains a challenge for future research.

An exploratory study has, in its nature, a number of limitations, even though it is an appropriate research design to gain familiarity with a problem that has not been clearly defined, or to acquire new insights which allow more precise problems to be formulated or hypotheses developed (Erikson & Kovalainen, 2008). The exploratory nature of this

research means that the findings are tentative and need to be confirmed in other settings by other researchers, including quantitative large-scale studies.

One of the major limitations is the sample size. I did research on a unique single case, which limits the observed variability and decreases the external validity. Conducting a single case study certainly has advantages, since I was able to perform an in-depth study. However, the findings and conclusions are difficult to generalise over a larger population (Myers, 2010, p. 9). In addition, the choice of the case has its limitations because it is a purposive sample, deliberately chosen with the aim that it would serve as an example of successful business model transformation, but, on the other hand, during the research there was no possibility to replicate the findings and strengthen them.

The context and the boundaries of the case also present limitations, because the business model under investigation was a company that went into a business model transformation during the process of strategic alliance separation. The sample was from a business to business industry, medium-sized, privately-owned and globally-oriented company from the measuring industry. The next limitation which comes out of the context is that the data collected from the interviews could be coloured by the views of the informants. To avoid this limitation, I did a comprehensive data triangulation, and observed the case in a longitudinal manner.

Another limitation is that I performed the research as a single investigator, which did not allow me to perform the investigator triangulation that occurs when more than one investigator is involved in the research process (Mathison, 1988, p. 14). To avoid subjective interpretation of the collected data, I regularly checked my findings with the key informants after each research sequence.

CONCLUSIONS

To sum up, I believe that this dissertation provides new and important insights into the understanding a successful business model transformation and especially which determinants and their characteristics influence on it. I found that many determinants have been found in different context and surely the context of business model transformation which is the successful business model transformation during the process of strategic alliance separation is uniqueness of this research.

Based on the results of my survey, I claim that theoretical developments of the research contribute to the knowledge in the field of business models and their successful transformation and supplement the set of clarified determinants of successful business models transformation. There is also confirmation that previously recognised determinants are valid in the context of strategic alliance separation.

From a managerial perspective it is important to understand that leadership style is profoundly important, and in the case of the transformational style has crucially influenced other determinants. I conclude that without such a leadership style collaborators would have been shown less self-initiative, and the company would have been less oriented into industry improvement and, simultaneously, in customer specific orientation.

In addition, also the discovery-driven decision making would have had produced different types of decisions, probably most likely less explorative ones. Because of the special situation when that featured both previously aligned company companies increasingly become competitors have during the business model transformation, became more and more competitors which were competing on the same market for the same customers, at least oat the beginning of the process of separation, a content content-oriented communication driven by transformational leadership was also crucial. All determinants which are driven by transformational leadership simultaneously and permanently influence on the phased separation strategy, which is the key determinant of successful business model transformation.

I believe that the model of the determinants get gains an explanatory power of significant impact in all cases of business model transformation related with to the alliance separation. Further research and dissemination of the model into other areas will gradually lead to the development of a comprehensive model of business model transformation which, by testing in different environments and regular improvement, will eventually achieve general validity.

It is my firm belief that the model of the determinants which is the result of my dissertation has an explanatory power in cases of business model transformation, especially those related with strategic alliance separation. Further research should gradually lead to the development of a comprehensive model of business model transformation which, when tested in different environments and continuously improved, should eventually achieve general validity.

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APPENDICES

LIST OF APPENDICES

Appendix 1: Key Facts about Dewesoft's Business Model Transformation.....	1
Appendix 2: Questionnaire (A) for the First Interview with the Dewesoft Chief Executive Officer, Andrej Orožen.....	2
Appendix 3: Questionnaire (B) for the First Interview with the Dewesoft Chief Technological Officer, Jure Knez.....	4
Appendix 4: Questionnaire (C) for the Second Interview with the Dewesoft Chief Executive Officer, Andrej Orožen.....	5
Appendix 5: Questionnaire (D) for the Third Interview with the Chief Executive Officer, Andrej Orožen and Second Interview with the Chief Technological Officer, Jure Knez.....	6
Appendix 6: Questionnaire (E) for the Interview with the Austrian Cofounders	8
Appendix 7: Questionnaire (F) for the Interviews with Dewesoft Employees	10
Appendix 8: Questionnaire (G) for Interviews with External Partners of the Company	12
Appendix 9: Number of Content Blocks in the Third Research Sequence	14
Appendix 10: A List of Frequently Used Abbreviations.....	15
Appendix 11: Summary in Slovenian / Daljši povzetek disertacije v slovenskem jeziku ..	16

Appendix 1: Key Facts about Dewesoft's Business Model Transformation

Location: Domžale

Date: 7 June 2013

Dear Sir,

As I mentioned to you during our recent conversation, I am currently conducting PhD studies at the Faculty of Economics, University of Ljubljana, where I am researching the *determinants and characteristics of successful business model transformation*. My research is focused on flexible and successful medium-sized enterprises in Slovenia, which includes your own company.

I wish to kindly ask you to participate, at a time of your convenience in July or August, in an unstructured interview within the framework of my preliminary research activities. The discussion would be aimed at obtaining your viewpoints and experiences with the company's business model transformation process during the period of the past five years (2007-2012), and learning what criteria you used to assess the success of transformation. Identical interviews will be conducted with four other company executives by the end of August. The information I thus collect will assist me in my research and the writing of my PhD dissertation.

The interview is scheduled to last approximately 1 hour, and there is no need to prepare beforehand. With your permission, I would also like to record the conversation so that the data might be accurately captured. Prior to our conversation I can sign any confidentiality statements you might require, assuring information will be used exclusively for the purposes of the dissertation.

If you are willing to participate in the interview, please let me know by email at nenad.savic@unikaturn.si along with your preferred date and time. I suggest we meet in the premises of your company.

Yours faithfully,

Nenad Savič, MSc

Appendix 2: Questionnaire (A) for the First Interview with the Dewesoft Chief Executive Officer, Andrej Orožen

RESEARCH QUESTIONS IN THE FIRST RESEARCH SEQUENCE

1. What was the course of your business model transformation from the time of your company's establishment up until now?
2. Why did you decide to transform your business model and in what ways did you achieve this task?
3. What were the characteristics of the business model transformation process?

OPEN-ENDED QUESTIONS FROM THE INTERVIEW WITH THE CEO

- Can you present Dewesoft in brief and tell us about its activities and organization structure?
- How would you describe the business model of Dewesoft? Furthermore, how would you describe the process of its transformation in recent years?
- What is the course of your current business development?
- How has your business model changed since the time of your company's establishment? Can you describe any particular phases or periods?
- Why did Dewesoft decide to change its business model?
- Can you present some issues you've encountered along the way, and the key characteristics of your business model transformation during the past five years (2007-2012)?
- Did transformation involve a project plan? If yes, was it based on the four-action plan:
 - Raise: what factors should be raised well beyond the previous practice?
 - Eliminate: what factors should be eliminated that the previous practice has taken for granted?
 - Create: what factors should be created that the previous practice has never offered?
 - Reduce: what factors should be reduced well below the previous practice?
- Can you describe fundamental differences between the current and former business model?

- Which dangers and risks were perceived during the process of business model transformation? How did you address them?
- What did you learn during the process of business model transformation?
- Which criteria did you use to assess the success of the transformation process? How often did you measure or analyse these criteria?
- Who was in charge of the transformation process?
- What was the course and timeline of the business model transformation activities? Which activities were initially seen as challenging and which as simple?
- How do you communicate your ideas to interested parties?
- What is the human resource policy of your company, and what is your policy on internal employee cooperation?
- What is your timeline and plan for the full completion of business model transformation?

Appendix 3: Questionnaire (B) for the First Interview with the Dewesoft Chief Technological Officer, Jure Knez

RESEARCH QUESTIONS IN THE FIRST RESEARCH SEQUENCE

1. What was the course of your business model transformation from the time of your company's establishment up until now?
2. Why did you decide to transform your business model and in what ways did you achieve this task?
3. What were the characteristics of the business model transformation process?

OPEN-ENDED QUESTIONS FROM THE FIRST INTERVIEW WITH THE CTO

- Can you present Dewesoft in brief and tell us about its activities and organisation structure?
- Please tell us about the fundamental philosophy of the company.
- Why did you decide on a strategic partnership when you were establishing your company?
- Can you explain the structure of your initial business model?
- What were the principles on which your initial business model was built? Do these principles still apply to your business today?
- Did transformation involve a project plan? If yes, was it based on the four-action plan:
 - Raise: what factors should be raised well beyond the previous practice?
 - Eliminate: what factors should be eliminated that the previous practice has taken for granted?
 - Create: what factors should be created that the previous practice has never offered?
 - Reduce: what factors should be reduced well below the previous practice?
- Which activities were planned insufficiently or wrong during the transformation process and had to later be changed or reworked?
- How did the competition react to your technological solutions once you entered the market with a different business model?
- When did Dewesoft start developing the initiative to manufacture its own HW?

- What were the dynamics of software module development (e.g.: 2007 – completion of the telemetry software module) and how did they affect your decision to transform the business model?
- Did you always want to become an independent company some day?
- How were you able to attract top personnel, and how were you able to develop your own?
- Why did you decide to change your sales model? What are the main characteristics of your new sales model?
- How did the ownership structure of the company change across time, and how did it affect the transformation of the business model?
- How did you react upon finding out your strategic development partner was on sale?
- What would happen had Dewetron not announced the company was being sold? What would the development of Dewesoft be like in that case?
- Why did you build your own sales network from scratch instead of leaning on another strategic partner – can you tell us the advantages or benefits?
- How were you able to manage simultaneous HW and SW development?
- Which activities were conducted to promote the visibility of the Dewesoft brand?

Appendix 4: Questionnaire (C) for the Second Interview with the Dewesoft Chief Executive Officer, Andrej Orožen

PRIMARY RESEARCH QUESTIONS IN THE FIRST RESEARCH SEQUENCE

1. What was the course of your business model transformation from the time of your company's establishment up until now?
2. Why did you decide to transform your business model and in what ways did you achieve this task?
3. What were the characteristics of the business model transformation process?

OPEN-ENDED QUESTIONS FROM THE SECOND INTERVIEW WITH THE CTO

- Can you explain the role played by the technology vision of your partner Jure (CTO) when it comes to Dewesoft and its business model transformation?
- What was the timeline of separation from your long-time strategic development partner?
- What is your customer value proposition like?
- How did you and your former partner agree to inform regular customers about the separation and business model transformation of the companies?
- Going independent, how did you differentiate yourself from the former strategic partner?
- How did you manage to secure or replace the resources and capabilities that were lost because of the separation (e.g. sales network, expert HW developers)?
- Can you explain the changes to your sales policy?
- How did you approach the search for new markets and customers?
- What are the main reasons for the changes to the ownership structure of Dewesoft? How did this affect the dynamics of business model transformation?
- Can you explain how you were able to run and develop your business without taking a bank loan or any other form of debt? Was that ability a decisive factor in the business model transformation concept?
- What are your internal knowledge transfer practices? How do you manage to attract top personnel to your company?

Appendix 5: Questionnaire (D) for the Third Interview with the Chief Executive Officer, Andrej Orožen and Second Interview with the Chief Technological Officer, Jure Knez

RESEARCH QUESTIONS IN THE SECOND RESEARCH SEQUENCE

1. Do the interviews and their data describe the process of business model transformation to a sufficient degree?
2. Have I missed any significant factors or events that also affected the process of the model's transformation?

3. Which changes occurred during the past 8 months of business model transformation (9/2013 – 6/2014)?
4. What is your opinion of the presented tentative model 1?

OPEN-ENDED QUESTIONS FROM THE INTERVIEW WITH THE CEO AND CTO

- I recently sent you my description of the development and transformation of Dewesoft's business model. Could you please elaborate on the unclarities and subjects that require additional information, as marked in the text?
- Do you agree with the statements relating to the period of student entrepreneurship?
- Do you agree with the statements relating to the period of intensive development partnership with the former strategic partner?
- Do you agree with the statements relating to the period of business model transformation?
- Do you agree with the statements describing the major changes introduced to the business model?
- Can you describe key changes that occurred during the last 8 months of business operation (since the time we last met) that significantly affected the business model's transformation?
- Would you say that the following determinants had an essential impact on the business model transformation process:
 - Technology envisioning
 - Experimenting
 - Industry improvement orientation
 - Customer co-creation
 - Collaboration with cofounders
 - Scientific orientation
- Can you please describe how you developed the employee co-ownership idea?
- What difference is there in communication with the sales network or the customer base?
- What was the course of your own sales network's development and growth?

Appendix 6: Questionnaire (E) for the Interview with the Austrian Cofounders

RESEARCH QUESTIONS IN THE THIRD RESEARCH SEQUENCE

1. How was the development and transformation of the Dewesoft business model perceived by the co-founders?
2. How do the co-founders interpret the key characteristics of their business model transformation?

QUESTIONS FROM THE INTERVIEW WITH THE COFOUNDERS

- How do you remember the beginnings of your cooperation with Jure (CTO) and Andrej (CEO), and your first meetings before Dewesoft was established?
- Why was Jure's measurement capturing software solution so appealing? What were its properties and advantages?
- Why did you opt for co-ownership in the newly established Dewesoft company?
- How would you describe your business cooperation in the period between 2000-2008?
- What benefits did the strategic partnership bring to Dewetron, and what to Dewesoft?
- How did the development sectors (SW and HW) of the two companies cooperate?
- What was your perspective when it came to Dewesoft connecting with other partners?
- What was the sales model between Dewetron and Dewesoft?
- Did Dewesoft ever decline a good business opportunity, and if yes, what were the reasons?
- How would you describe the Dewesoft technology vision up until 2008?
- How would you describe the added value of Dewesoft products and services to its end users?
- Why did Dewesoft decide to offer updates and expansions free of charge? How did the two of you perceive this free development model?
- Do you consider free updates and expansions to be a part of customers' industry development?
- How was knowledge and experience transferred between Dewetron and Dewesoft?

- What was the nature of your cooperation when it came to the development of measurement hardware? Did Dewesoft ever offer ideas or suggestions? If yes, how did Dewetron react?
- According to your views, what made Dewesoft decide to independently make its first measurement instrument?
- As co-owners (and former Dewetron executives), what is your perception of the cooperation between Dewesoft and Dewetron following your departure? What were the main characteristics of that period?
- What role did you play after your departure from Dewetron (2008-2011)?
- How would you describe the beginnings of cooperation between Dewesoft and the Austrian manufacturer Gantner Instruments in 2010?
- Why was a Dewesoft subsidiary incorporated in Austria?
- What plans did Dewesoft have at that time? What was the focus of their development?
- What was Dewesoft's reaction when the strategic development partner replaced its second CEO within a period of three years?
- How did Dewesoft start going independent after 2011?
- After 2011, why was Dewesoft able to develop software so quickly? How come such a pace of development was not possible while still cooperating with the former strategic partner?
- How was the company able to get such a successful sales network up and running so fast? What was the procedure of establishing international subsidiaries?
- How did Dewesoft position its new products on the market in relation to the competition?

Appendix 7: Questionnaire (F) for the Interviews with Dewesoft Employees

RESEARCH QUESTIONS IN THE THIRD RESEARCH SEQUENCE

1. How was the development and transformation of the Dewesoft business model perceived by the senior engineers / employees?
2. How do the senior engineers / employees interpret the key characteristics of their business model transformation?

QUESTIONS FROM THE INTERVIEW WITH THE EMPLOYEES

Name and surname	Field of work	Company position

The interviews aim to be open, genuine and relaxed. I will ask you a few initial questions, and then you're invited to freely discuss the key characteristics of business model transformation, and your impressions of the process.

- Year of your first employment in Dewesoft?
- Year of starting regular employment in Dewesoft?
- What made you chose this company as your employer?
- What was your test / mini project like? How was it successful?
- What is the personal potential you contribute to Dewesoft? What creates your "value" to the company and its customers?
- Who was your first mentor? In what ways did they help you? What traits of the person did you find positive and encouraging?
- Have you been a mentor to someone in the company? What parts of mentorship did you like best?
- Were you ever sent on a trip to a customer company, as a reward for good performance? Did it / would it mean a lot to you?

- What personal significance do you attach to the fact that Dewesoft works for major global companies?
- What would you say is the biggest differentiating advantage of Dewesoft compared to its competition?
- The company is currently growing. The scope of its operations as well as the number of its employees are increasing. In your mind, why was Dewesoft able to develop so quickly following the years 2010/ 2011?
- How would you describe the technology vision of the company's CTO? What is your personal perception of the vision? Does it affect your work ethic and motivation?
- Would you say his vision is an important element in bringing employees together and encouraging creativity? If yes, can you explain why?
- Would you say his vision is an important element of the step-by-step development policy of Dewesoft? If yes, can you explain why?
- Do you think the CTO's vision is a factor in the customers' willingness to cooperate with Dewesoft? If yes, can you explain why?
- According to you, what are the essential traits of a good / ideal leader?
- Is there any other issue you wish to speak about?

Appendix 8: Questionnaire (G) for Interviews with External Partners of the Company

RESEARCH QUESTIONS IN THE THIRD RESEARCH SEQUENCE

1. How was the development and transformation of the Dewesoft business model perceived by the external partners of the company?
2. How do the external partners of the company interpret the key characteristics of their business model transformation?

QUESTIONS FROM THE INTERVIEW WITH THE EXTERNAL PARTNERS

- How would you describe the key characteristics / distinctions / differences of Dewesoft's business models today and 10 years ago?
- Which traits of Dewesoft have not changed since the start? Which have? What was your role in these changes, particularly in relation to the business model transformation?
- What was the fundamental reason behind Dewesoft's decision to transform its business model?
- Would you describe Dewesoft as a:
 - Profit driven company?
 - Customer satisfaction driven company?
 - A company that tries to move technological boundaries for its customers and assist them in the growth of their own competitiveness and technology level?
- How do you remember your role in the beginnings of Dewesoft? What is your relationship with the company today?
- How come Dewesoft was able to preserve its focus on development so well?
- Why did Dewesoft decide to enter the measurement instrument (HW) business in addition to its measurement software (SW) business when it found itself at a crossroads during 2009-2011? Which factors enabled it to succeed in this endeavour?
- What are the reasons, according to you, for Dewesoft's decision to offer all their software updates and expansions free of charge?

- How do you perceive Dewesoft's innovation policies? Does the company favour experimenting? Do they favour experimenting in all kinds of different fields (organisation, marketing ...) or only when it comes to technology development? Can you state some examples of these experiments?
- What is your notion of Dewesoft's product development practices? Are these shaped according to the company's own understanding of the market, or on the basis of active cooperation with the customer base? Can you state some examples of their successful customer co-creation?
- How did Dewesoft combine its own ideas with those of customers and partners?
- Has Dewesoft ever refused a good business opportunity, and if yes, what were the reasons?
- How would you describe the CTO's vision prior to 2008? And after that period?

Appendix 9: Number of Content Blocks in the Third Research Sequence

		Seq. 1	Seq. 2	Seq. 3.1	Seq. 3.2	Seq. 3.3	Seq. 3.4	Total blocks
	Group	G1	G1	G2	G3	G4	G5	
Transformational leadership	High quality focus	5	1	0	1	7	1	15
	Technology vision	5	2	0	10	0	1	18
	World view	11	7	2	3	3	1	27
Discovery-driven decision making	Effectuating / Experimenting	5	6	7	4	2	0	24
	Agile deciding	4	4	1	0	0	0	9
Self-initiative collaborators	Engagement	5	3	0	3	7	1	19
	Internal knowledge sharing	2	4	4	2	3	2	17
	Fast and innovative development	4	5	1	2	5	2	19
Industry improvement – customer specific orientation	Customer value proposition	7	4	1	3	4	1	20
	Customer –cocreation	7	5	3	4	7	1	27
	Industry value sharing	4	1	2	4	2	0	13
Phased separation strategy	Sensing	15	4	3	1	0	2	25
	Making distinction	6	4	4	1	1	1	17
	Missing capabilities development	12	5	4	7	4	7	34
	Ambidexterity	8	3	2	1	0	2	16
Content-oriented communication	Customers-focused communication	7	1	3	0	1	1	13
	Sales partners-focused communication	2	1	2	0	2	2	9
Number of statements		109	60	39	46	48	20	
Total number of statements		169			153			
		322						

Legend: G1: Executives, G2: Cofounders, G3: Experienced Engineers, G4: Employees, G5: External partners
(Note: The table shows only statements acquired during formal interviews)

Appendix 10: A List of Frequently Used Abbreviations

- BM – Business model
- BMT – Business model transformation
- CEO – Chief executive officer
- CTO – Chief technological officer
- DAQ HW – Data acquisition hardware
- DAQ SW – Data acquisition software
- EBIT – Earning before interest and taxes
- FFT - Fast Fourier transform
- HW – Hardware
- SW – Software

Appendix 11: Summary in Slovenian / Daljši povzetek disertacije v slovenskem jeziku

Opis znanstvenega področja

V zadnjem desetletju smo soočeni z dramatičnimi spremembami v globalnem gospodarstvu in še večje spremembe, ki bodo pomembno vplivale na potek sodobnega poslovanja, lahko pričakujemo v prihodnje. Globalizacija in digitalizacija poslovanja sta bila v letu 2015 še večja izziva, kakor sta že bila v preteklosti (Korsten, 2008, str. 48, Global Risks, 2011, str. 15). Ocenjeno je, da bodo novi tehnološki trendi imeli pomemben vpliv tudi na oblikovanje novo nastajajočih poslovnih modelov (Daugherty, Banerjee & Blitz, 2015). Do leta 2017 naj bi kar 70 odstotkov uspešnih digitalnih poslovnih modelov imelo namerno nestabilne procese, da se bodo lahko hitro prilagodili na hitro se spreminjajoče zahteve kupcev (Spender, 2015). To predstavlja izziv managerjem, kako preoblikovati obstoječe ali zasnovati nove poslovne modele.

Navdušenje nad poslovnimi modeli, ki je nastalo v povezavi z začetkom internetnega poslovanja in njegovega vpliva na rast in zaslužek podjetij, se je poleglo konec leta 2000, ko je razpadel dot.com balon (Wirtz, 2011, str. 9) in kmalu je bilo ugotovljeno, da je nastajajoči koncept poslovnega modela nezadostno razumljen tako med uporabniki kakor tudi med raziskovalci (Amit & Zott, 2001). To je spodbudilo akademske raziskovalce k poglobljenemu preučevanju poslovnih modelov in od takrat dalje lahko prepoznamo dve smeri raziskovanja. Prva je umerjena v statični koncept razumevanja poslovnega modela, njegovih sestavnih delov ter odnosov med njimi medtem, ko druga daje pozornost dinamiki poslovnega modela, njegovemu nastajanju in preoblikovanju, vključno z inovativnimi spremembami v organizaciji ali na samem poslovnem modelu (Demil & Lecocq, 2010, str. 228). Kljub obsežnemu raziskovalnemu delu, je znanstvena literatura usmerjena v razumevanje vplivnih dejavnikov preoblikovanja poslovnih modelov, še vedno nepopolna (Saebi, 2014).

Iskanje nove oblike poslovnega modela je sproženo z vrsto notranjih in zunanjih dejavnikov (Chesbrough & Rosenbloom, 2002; Giesen, Riddleberger, Christner, & Bell, 2010; Kim & Mauborgne, 2004; Markides & Charitou, 2004; Osterwalder & Pigneur, 2010), samo preoblikovanje pa zahteva dolgo obdobje sobivanja dveh poslovnih modelov, prejšnjega, ki ga podjetje želi opustiti in novega, ki postopoma nastaja (Chesbrough, 2010; Johnson, 2010; Khanagha, Volberda, & Oshri, 2014).

Uporaba novih tehnologij je pomembno vplivala na proučevanje njihovega vpliva na poslovanje in inovativne spremembe, ki jih hkrati prinaša, zato se je zanimanje za proučevanje inovativnih poslovnih modelov zelo povečalo. Temu so bile posvečene tudi posebne izdaje znanstvenih revij kot na primer Long Range Planning (2010), Harvard Business Review (2011) in Strategic Entrepreneurship Journal (2015), a vendar se je kmalu izkazalo, da ne pomenijo vse spremembe poslovnih modelov dejansko inovativnih

sprememb in nekateri raziskovalci so opozorili, da je tudi manj inovativno vendar zelo zahtevno transformacijsko preoblikovanje poslovnih modelov, še vedno premalo raziskano področje (Aspara, Lamberg, Laukia, & Tikkanen, 2013; Chesbrough, 2010; Doz & Kosonen, 2010).

Raziskovalci, ki so se usmerili v analizo razumevanja sprememb poslovnih modelov, so torej vstopili na področje analize dinamičnih sprememb in pogosto uporabljajo izraze povezane s temi spremembami na neenoten način. Čeprav obstajajo različne razlage razumevanja preoblikovanja poslovnih modelov (Aspara, Lamberg, Laukia, & Tikkanen, 2013; Demil & Lecocq, 2010; Doz & Kosonen, 2010; Markides, 2013; Massa & Tucci, 2014; Morris, Shirokova, & Shatalov, 2013; Sosna et al, 2010; Teece, 2010) se avtorji strinjajo, da je preoblikovanje poslovnega modela verjetno stalen proces (Casadesus-Masanell & Ricart, 2011; Khanagha, Volberda, & Oshri, 2014; Morris et al., 2005), v katerem prepoznamo tako velike in inovativne spremembe (Aspara et al, 2013; Osterwalder & Pigneur, 2010; Sosna et al, 2010), kakor tudi manjša prilagajanja obstoječih poslovnih modelov (Cavalcante et al, 2011; Demil & Lecocq 2010). V najbolj zahtevni obliki pride tudi do popolnega preoblikovanja delovanja obstoječih modelov in njihove nadomestitve s popolnoma novimi (Khanaga et al. (2014).

Massa and Tucci (2014) sta naredila enostavno klasifikacijo sprememb poslovnih modelov, ki sta jo prikazala tako na primeru razvoja novih poslovnih modelov kakor tudi na preoblikovanju obstoječih. Vendar tudi ta opredelitev ne določa jasne ločnice med inovativnimi poslovnimi modeli čeprav je na drugi strani jasno opredeljeno, da je inovativni poslovni model del širšega koncepta preoblikovanja poslovnih modelov.

Sam opredeljujem transformacijsko preoblikovanje poslovnega modela kot vse dejavnosti, povezane z rekonfiguracijo obstoječih organizacijskih virov, sposobnosti, strukture ali upravljanja (oziroma povezane z njihovim zagotavljanem, če jih organizacija nima), ki vodijo do korenitih sprememb v odnosu, kako je podjetje zagotovi dodano vrednost za kupce in širše za celotno družbo in hkrati zagotavlja gospodarski in tehnološki napredek organizacije same. Poleg tega sledim opredelitvi, da je inovativno preoblikovanje poslovnega modela le del transformacijskega preoblikovanja.

Značilnost dosedanjih raziskav in hkrati njihova pomanjkljivost je tudi, da so večinoma usmerjene v proučevanje sprememb poslovnih modelov na primeru samostojnih in neodvisnih podjetij (Aspara et al., 2013; Demil & Lecocq, 2010; Johnson, 2010; Khanagha et al., 2014; Markides & Sosa, 2013; Massa & Tucci, 2014). Poznamo mnoga preučevana podjetja, ki so že spremenila svoje poslovne modele bodisi na tehnološki podlagi (Apple, Amazon, Google), bodisi na organizacijski podlagi (Dell, Walmart, Ryanair), kar je spodbudilo mnoga druga podjetja, da začnejo razmišljati o svojih pristopih, kako spremeniti poslovni model in to spremembo tudi izvesti. Hkrati je nekaj raziskovalcev opozorilo tudi na zahtevnost spreminjanja zaradi ovir, ki lahko vplivajo na uspešnost

spreminjanja poslovnih modelov (Chesbrough, 2010; McGrath, 2010; Teece, 2010) in s tem opozorilo na ovire in nevarnosti, ki jih lahko neuspešen pristop k preoblikovanju poslovnega modela prinese s seboj.

Drugi izziv v tej disertaciji je, da ne vemo kako se transformacija poslovnih modelov izvaja v okviru razhajanj dveh podjetij, kjer je njihov prvotni poslovni model temeljil na tesni medsebojni povezavi v okviru strateškega partnerstva. Proces ločevanja partnersko povezanih podjetij je občutljiv, kajti partnerji morajo ponovno pravočasno zagotoviti zmogljivosti, ki jih je pred tem zagotavljal strateški partner in hkrati ohraniti kupce in jih prepričati, da njihov obstoj ali razvoj kljub razhajanju strateških partnerjev, ni z ničemer ogrožen. V času razhajanja so medsebojno opazovanje, interpretiranje namenov drugega partnerja in pridobivanje novih spoznanj pomembni dejavniki, ki vplivajo na orientacijo in spremembo orientacije poslovanja posameznega od partnerjev (Peng, 2008).

Vprašanje, kako preoblikovati poslovni model, ki bi pospešil boljše izkoriščanje tehnologije tudi, ko je obstoječi poslovni model še zelo donosen in profitabilen, še ni bilo obravnavano. To je ravno tako zelo pomembno v primeru strateških partnerstev, kjer visokotehnološka in novo nastajajoča podjetja z inovativnimi tehnologijami dopolnjujejo svoje slabosti in pomanjkanje zmogljivosti s prednostmi in zmožnostmi izbranih strateških partnerjev (Medcof, 1997) in kjer se je nekoč finančno in tehnološko uspešno sodelovanje izkazalo, da lahko postane ovira za prihodnji razvoj in uspeh enega od podjetja. Kljub temu, da so takšne strateške povezave lahko zelo donosne za povezana podjetja, lahko eno od njih pristopi k preoblikovanju poslovanja zaradi želje in zmožnosti, da bi čim bolj izkoristilo tehnološki potencial ali zaradi občutka ogroženosti, da bi tehnološki potencial v obstoječi povezavi ne bi moglo popolnoma izkoristiti. Posebej zanimivo in neraziskano področje je, kako tako podjetje pristopi k transformaciji poslovnega modela ter hkrati tekmuje z nekdanjim partnerjem na istem trgu s konkurenčnimi izdelki. Čeprav lahko najdemo veliko podobnih situacij v poslovnem svetu uspešnih start-upov, ki se odločajo za podoben začetek poslovanja z uporabo strateških zvez in zavezništov, se podobne situacije lahko prav tako pojavljajo pri starejših podjetij v različnih kombinacijah, kar je bilo do sedaj spregledano področje pri raziskovanju preoblikovanja poslovnih modelov.

Namen doktorske disertacije in raziskovalna vprašanja

Namen te disertacije je raziskati malo razumljen pojav uspešnega preoblikovanja poslovnega modela in zagotoviti njegovo boljše razumevanje z razumevanjem ključnih dejavnikov in njihovih značilnosti, ki vplivajo na trajno in uspešno poslovno rast. V tej študiji sem osvetlil proces tretje oblike preoblikovanja (transformacijsko) poslovnega modela ter dopolnil obstoječ nabor identificiranih dejavnikov in hkrati razširil njihovo veljavnost tudi na področje ločevanja strateško povezanih podjetij na naslednji način:

- Z razvojem modela determinant uspešnega preoblikovanja poslovnega modela, ki je še posebej pomemben za razumevanje poslovnih odločitev v primerih ločevanja strateško povezanih podjetij, kjer obstoječ in na novo se razvijajoči poslovni model sobivata v celotnem obdobju preoblikovanja.
- Nov konceptualni model sem razvil s pomočjo poizvedovalne longitudinalne študije primera in induktivnega pristopa z uporabo utemeljene teorije, kjer je bil model determinant sistematično ustvarjen v iterativnem procesu v celotnem raziskovalnem obdobju na podlagi vseh zbranih podatkov (Charmaz, 2006).
- Ta študija zagotavlja z vidika managementa celovito razpravo o uspešnem preoblikovanju poslovnega modela, ki je utemeljen s študijo primera in zagotavlja podlago za ponovitve ugotovitev. Prepoznavanje dejavnikov, ki zaznamujejo preoblikovanja poslovnega modela, je lahko v veliko pomoč managerjem, ki vodijo proces preoblikovanja še posebej ob hkratni povezavi s procesom ločevanja strateških partnerjev.

Cilj raziskave v okviru doktorske disertacije je torej raziskati ključne dejavnike in njihove značilnosti uspešnega preoblikovanja poslovnega modela. Glavno raziskovalno vprašanje je:

Kateri so ključni dejavniki in značilnosti uspešnega preoblikovanja poslovnih modelov?

Rezultati disertacije so:

- obogatitev znanstvene literature iz vidika preoblikovanja poslovnih modelov z razširitvijo nabora determinant povezanih z njim,
- identifikacija determinant uspešnega preoblikovanja poslovnega modela in njihove značilnosti iz perspektiv akterjev, ki so sodelovali pri preoblikovanju,
- omogoča znanstvenikom boljše razumevanje preoblikovanja poslovnih modelov saj dosedanje vedenje na tem področju še ni uspešno pojasnilo, kateri dejavniki vplivajo na njihovo uspešnost, zlasti na področju ločevanja strateških partnerjev.
- predlagani model determinant lahko pomaga razvijalcem novih poslovnih modelov razumeti in izpeljati najprimernejše pristope ter prednostne naloge za zagotovitev uspešnega transformacijskega preoblikovanja poslovnih modelov.

Struktura in vsebina doktorske disertacije

Doktorska disertacija je sestavljena iz petih povezanih poglavjih. Prvemu poglavju, ki predstavi obstoječe stanje na področju razumevanja koncepta poslovnega modela in

njegovega preoblikovanja sledi metodološko poglavje. Če v prvem poglavju razložim, zakaj raziskujem obravnavano področje v drugem pojasnim, kako se lotim raziskovanja, v tretjem predstavim podjetje in njegov poslovni model, ki je predmet raziskave. V četrtem poglavju obširno predstavim rezultate in ugotovitve, ki jih v petem poglavju v okviru diskusije primerjam z obstoječimi ugotovitvami ter v zaključku podam omejitve obstoječe raziskave ter priložnosti za nadaljnje raziskovanje. V zaključnem poglavju zaokrožim celotno disertacijo in odgovorim na raziskovalno vprašanje.

V prvem poglavju predstavim zgodovinski pregled razvoj koncepta poslovnega modela za katerega je ugotovljeno, da se je prvič pojavil v znanstveni literaturi leta 1957 (Osterwalder et al., 2005). Njegova pojavnost je bila do leta 1995 zanemarljivo majhna potem pa je doživela skokovit porast predvsem v zvezi s prvimi poskusi prehoda poslovanja preko interneta (Wirtz, 2011; Zott et al., 2011). Če je bil prvi val raziskovanja poslovnih modelov usmerjen predvsem v razumevanje, kaj poslovni model je, kako je sestavljen ter kako so njegove komponente povezane med seboj, so raziskave kmalu šle tudi v smer preoblikovanja poslovnih modelov in njegove vloge pri tem v kombinaciji s klasičnimi temami v teoriji managementa, kot so doseganje konkurenčnih prednosti ter povezovanje s strategijami oziroma njihovo implementacijo. V nadaljevanju poglavja predstavim šest izhodišč, kako so dosedanja raziskovalci pristopili k razumevanju izhodišč poslovnega modela, pri čemer vsa izhodišča temeljijo na statičnem razumevanju koncepta poslovnega modela in ne na dinamiki njegovega preoblikovanja (George & Bock, 2011). Sistematično proučevanje kaj so relevantne determinante, ki vplivajo na uspešnost preoblikovanja poslovnega modela, je še vedno premalo raziskana tema in ne da odgovora na vprašanje kaj so determinante, ki vplivajo na uspešnost preoblikovanja poslovnih modelov (Saebi, 2014). Na podlagi klasifikacije sposobnosti za preoblikovanje poslovnih modelov - evolucijske, inovativne in situacijske (Saebi, 2014) ter na podlagi opredelitve strateških iniciativ za razvoj novo nastajajočih poslovnih modelov - postopna evolucija, radikalna zamenjava in usmerjena prilagoditev (Khanagha et al., 2014), opredelim tri vrste preoblikovanja poslovnih modelov, ki jih poimenujem:

- **evolucijsko preoblikovanje**, ki je usmerjeno v preoblikovanje obstoječega poslovnega modela, brez namena po njegovem spreminjanju. Ravno nasprotno osnovni namen takega preoblikovanja je želja po njegovi ohranitvi.
- **inovativno preoblikovanje**, ki je usmerjeno v celovito preoblikovanje in je pogosto, a ne izključno povezano z inovativno uporabo novih tehnologij. Inovativno preoblikovanje redefinira vrednost, ki jo podjetje ustvarja v odnosu do kupcev in ji pogosto pripiše popolnoma nov pomen, pred tem še neodkrit ali zanemaren.
- **transformacijsko preoblikovanje**, ki leži nekje vmes, med evolucijskim in inovativnim preoblikovanjem in pogosto meja med enim in drugim ni popolnoma jasna.

Poglavje zaključim s predstavitvijo determinant, ki lahko vplivajo na uspešnost preoblikovanj poslovnih modelov, pri čemer se osredotočim predvsem na determinante notranjega izvora. Pri tem izpostavim raziskovalna področja povezana z: eksperimentiranjem, voditeljstvom, s sposobnostjo upravljanja dveh poslovnih modelov istočasno, sodelovanjem s kupci ter z aktivnim sodelovanjem zaposlenih v povezavi s preoblikovanjem poslovnih modelov.

Ključni poudarek prvega poglavja je, da je kljub obsežni literaturi, koncept poslovnega modela po mnenju mnogih avtorjev še vedno premalo raziskan in da primanjkuje znanja o tem, kaj naredi poslovni model preoblikovanja uspešen v daljšem časovnem obdobju in še posebej v posebnem poslovnem kontekstu razdruževanja nekoč uspešno povezanih strateških partnerjev.

Metodologijo, ki jo uporabim v raziskavi predstavim v drugem poglavju. V skladu s prvotno raziskovalno usmeritvijo opredeliti determinante, ki pojasnjujejo uspešno transformacijo poslovnih modelov, uporabim kvalitativni raziskovalni pristop z dvema pogosto uporabljenima metodologijama induktivnega raziskovanja. Uporabljena metodologija vključuje študijo primera (Yin, 2009), ki je bila podlaga za pridobivanje podatkov. S postopkom nenehne interakcije med zbranimi podatki, njihovo analizo in razumevanjem ter dodatno zbranimi podatki izboljšam njihovo razumevanje, za kar sem uporabil metodologijo utemeljene teorije (ang. *Grounded theory*) (Glaser & Holton, 2004). Na začetku raziskave sem sprejel naravnost "teoretičnega agnosticizma" (Charmaz, 2011) tako, da nisem bil obremenjen z nobenimi predhodno zbranimi podatki, raziskavami ali ugotovitvami. Podatke sem zbiral v treh raziskovalnih sekvencah, ki so skupaj zaokroževale obdobje od julija 2013 do junija 2015.

Za študijo primera sem izbral visoko tehnološko podjetje, ki je spremenilo svoj poslovni model v obdobju 2008-2014 z namenom, da zagotovi maksimiranje izkoristka tehnološkega potenciala, ki je bil zaklenjen in premalo izkoriščen v prvotnem poslovnem modelu. Študija primera je upravičena, če je raziskava usmerjena v tematiko, ki je še v zgodni fazi raziskovanja (Eisenhardt, 1989), služi razodetju pomembnih vidikov, ki jih še ne poznamo na obravnavanem področju (Yin, 2009) ter je prepričljiva (Siggelkow, 2007).

Podjetje, ki ga raziskujem, predstavim v tretjem poglavju. Najprej predstavim panogo v kateri podjetje deluje in nato predstavitev podjetja razdelim v tri časovna obdobja, ki skupaj pomagajo razumeti podjetje in njegov razvoj. Največji poudarek dam obdobju, v katerem je podjetje dejansko tudi preoblikovalo svoj poslovni model.

- Prvo obdobje poimenujem *obdobje študentskega podjetništva*, v katerem prikažem podlage, ki so pripeljale do ustanovitve podjetja in takojšnjega povezovanja s strateškim partnerjem iz Avstrije.

- Drugo obdobje poimenujem obdobje *razvoja partnerskega sodelovanja*. V njem izpostavim oblikovanje poslovnega modela skozi različne poglede ter predstavim temeljne podlage, ki so imele pomemben vpliv na odločitev o preoblikovanju in na potek samega preoblikovanja poslovnega modela.
- Tretje obdobje poimenujem obdobje *preoblikovanja poslovnega modela* in v njem izpostavim ključne spremembe, ki so se zgodile na posameznem področju in so hkrati odražale smer in intenzivnost preoblikovanja poslovnega modela.

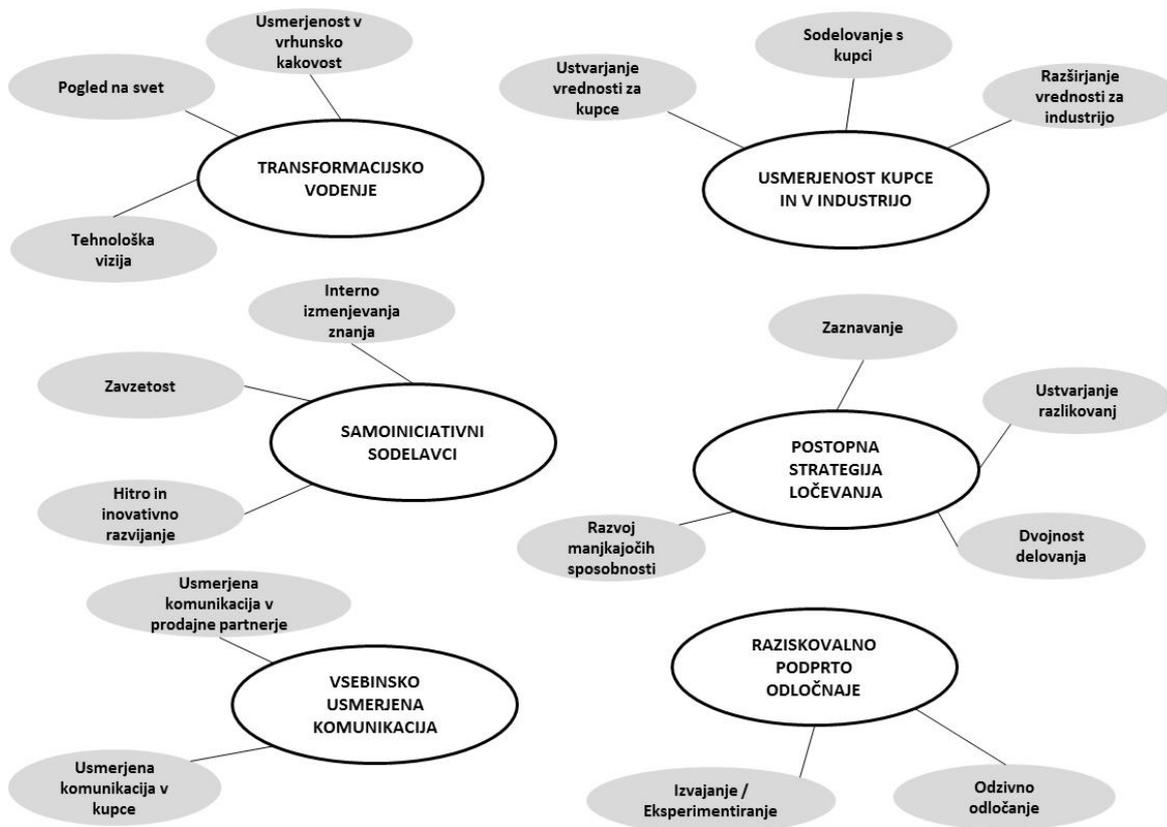
Zbrane rezultate in njihovo razlago predstavim v četrtem poglavju. V začetku poglavja predstavim raziskovalno potovanje, ki je razdeljeno na preliminarno raziskovalno fazo ter tri raziskovalne sekvence.

V preliminarni fazi sem k sodelovanju povabil 4 podjetja vendar se je izkazalo, da je le eno od njih dejansko primerno za nadaljnje raziskovanje glede na raziskovalno vprašanje, ki sem si ga zastavil. To je vplivalo na nadaljnji koncept raziskovanja, ki sem ga opravil v treh raziskovalnih sekvencah. V prvi raziskovalni sekvenci sem se seznanil s podatki, ki sem jih pridobil v intervjujih z izvršnima direktorjema in soustanoviteljema podjetja, podatki neposrednega opazovanja ter podatki sekundarnega izvora, ki sem jih pridobil v prosto dostopnih virih. Vse zbrane podatke se prečistil in uredil ter odstranil morebitne neskladnosti. Urejene podatke sem tolmačil, kodiral ter razvrstil. Postopek kodiranja sem oprl na izjave informatorjev. Na tej stopnji sem z analizo podatkov izdelal tudi prvi delovni model šestih determinant.

V drugem obdobju zbiranja podatkov sem zbral, prečistil in uredil nov sklop podatkov, ki sem jih pridobil z intervjuji z izvršnima direktorjema ter osebnih opažanj. Prav tako sem pridobil dostop do interne dokumentacije. Z ugotavljanjem vzorcev in povezav z zbranimi podatki sem opredelil drugi delovni model determinant. Uporaba več virov dokazil (internih arhivov, javno dostopni podatki, itd), mi je omogočila, da sem trianguliral ugotovitve in tako zagotovil višjo stopnjo verodostojnosti zbranih podatkov. Ob koncu druge raziskovalne faze sem si toliko povečal zaupanje v raziskovanem podjetju, da sem dobil dostop do širšega kroga informatorjev.

V tretjem obdobju zbiranja podatkov sem imel omogočen dostop do razširjenega kroga informatorjev (soustanovitelji podjetja, izkušeni inženirji, drugi zaposleni ter zunanji partnerji). V intervjujih zbrane podatke, ki so v veliki meri potrdili predhodne ugotovitve in hkrati odprle uvid v nova spoznanja, sem ponovno reorganiziral in združil vse do sedaj zbrane podatke. V nadaljnji analizi sem oblikoval kode, ki sem jih postopoma združil in na koncu poenotil v šest končnih determinant preoblikovanja poslovnih modelov s skupno sedemnajstimi podkategorijami prikazanimi v sliki 1.

Slika 1: Determinante uspešnega preoblikovanja poslovnih modelov



V petem poglavju obširno obravnavam vsako od prepoznanih determinant in podrejenih kategorij ter jih primerjam z obstoječimi ugotovitvami.

- *Transformacijsko vodenje*, katerega značilnost je usmerjenost v visoko kakovost ter jasno dolgoročno tehnološko vizijo, prepleteno s specifičnim pogledom na svet, se je pokazalo kakor pomemben dejavnik vpliva na uspešno preoblikovanje poslovnega modela. Ta ugotovitev je skladna z dosedanjimi raziskavami, ki opredeljujejo voditeljstvo kot pomemben dejavnik, ne opredeljujejo pa tipa vodenja.
- *Samoiniciativni sodelavci* je druga prepoznana determinanta s tremi kategorijami. Mnoge raziskave potrjujejo pomembnost vloge zavzetih sodelavcev pri spreminjanju poslovanja, a nobena do sedaj še ni izpostavila njihove vloge pri preoblikovanju poslovnega modela. V naši raziskavi ugotovim, da zaposleni ne samo, da so zavzeto sodelovali pri izvajanju nalog, temveč so tudi aktivno prispevali k uspešnemu preoblikovanju.
- Determinanta *Usmerjenost v kupce in v industrijo* razširja dosedanje razumevanje, kako je organizacija usmerjena v ustvarjanje dodane vrednosti za kupce. V

raziskovanem podjetju usmerjenost v razvoj dodane vrednosti za kupce vsekakor ni bila zanemarjena, prepoznal pa sem, da ima njihova usmerjenost v kupce še dodatno dimenzijo vpliva na razvoj industrije, v kateri delujejo njihovi kupci.

- *Raziskovalno podprto odločanje* je značilnost podjetij, ki delujejo v nestabilnem okolju in so hkrati usmerjena v inovativno razvijanje produktov ali organizacije same. Ta ugotovitev je skladna z dosedanjimi raziskavami, ki opredeljujejo eksperimentiranje kakor eno od pomembnih determinant preoblikovanja poslovnih modelov. V naši raziskavi smo to potrdili in ga v okviru nove determinante neposredno povezali z agilnim odločanjem.
- *Vsebinsko usmerjena komunikacija* je nova determinanta, ki izhaja iz posebnosti obravnavanega primera, kjer je podjetje, tudi v času preoblikovanja in ločevanja od strateškega partnerja, poslovno sodelovalo s predhodno skupnimi kupci, na istem trgu in s konkurenčnimi izdelki prejšnjemu strateškemu partnerju.
- *Postopna strategija ločevanja* je determinanta, ki osvetljuje zahtevno obdobje, ko mora organizacija poslovati z dvema poslovnima modeloma ter hkrati zagotoviti vse manjkajoče resurse (izgubljene zaradi ločitve od strateškega partnerja). Organizacija ne samo, da je pozorna na dogajanje na trgu in skuša ustvariti razliko v očeh kupcev v odnosu do strateškega partnerja, hkrati mora biti pozorna tudi na dogajanje v odnosu s do njega.

Zaključek

Če povzamem, menim, da moje raziskovanje, predstavljeno v tej disertaciji, daje nov vpogled v razumevanje uspešnega preoblikovanja poslovnega modela in predvsem katere determinante in njihove značilnosti vplivajo nanj. Ugotovil sem, da številne determinante najdemo tudi v drugačnem poslovnem kontekstu. Zagotovo je kontekst procesa ločevanja strateških partnerjev posebnost te raziskave in hkrati tudi priložnost, da se ugotovitve preverijo tudi v podjetjih v podobnih situacijah.

Na podlagi rezultatov raziskave menim, da teoretični prispevek raziskave prispeva k znanju na področju poslovnih modelov in njihove uspešne transformacije in dopolnjuje nabor pojasnenih dejavnikov uspešnega preoblikovanja poslovnih modelov in hkrati potrjuje, da so že znane determinante lahko veljavne tudi, v nekoliko drugačni obliki, v kontekstu ločevanja strateško povezanih podjetij.

Iz vidika managementa je pomembno spoznanje, da je stil vodenja izjemno pomemben in da transformacijski stil vodenja odločilno vpliva na preostale dejavnike. Ugotavljam, da bi brez takega stila vodenja bili sodelavci manj samoiniciativni in podjetje kot celota manj usmerjeno v izboljšanje panoge in hkrati v zadovoljevanje specifičnih zahtev kupcev. Poleg tega bi tudi na raziskovanju utemeljeno odločanje pripeljalo do drugačnih odločitev.

Zaradi posebnega položaja, ko nekdanje strateško povezane partnerje postajata bolj in bolj konkurenta na istem trgu, je imela tudi vsebinsko orientirana komunikacija, na katero je vplivalo transformacijsko vodenje, pomemben vpliv na uspešnost preoblikovanja poslovnega modela.

Verjamem, da bo model predlaganih determinant dobil dodatno pojasnjevalno moč v preoblikovanju poslovnih modelov povezanih z ločevanjem strateško povezanih partnerjev v nadaljnjih raziskavah. Nadaljnje raziskave in preverjanje uporabnosti modela na drugih področjih bo postopoma privedlo do razvoja celovitega modela preoblikovanja poslovnega modela, ki bo upajmo s testiranjem v različnih okoljih in izboljševanjem sčasoma dosegel splošno veljavnost.