# REINVENTING BUSINESS MODELS WITHIN THE POST-ACQUISITION PROCESS

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Reinventing business models within the post-acquisition process

*Master thesis*

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*Executive Summary*

Acquisitions remain an effective vehicle for growth. This study contributes to the research themes acquisition and business model innovation which help to explain how businesses create and capture value within the integration. This thesis elaborates the moderating effect of the level of human integration and the level of task integration on the relation between the level of autonomy of an acquired firm and business model innovation.

With text-mining techniques and using an existing survey database which is collected with the purpose to gain better understanding of best practices and special problems in the integration process of international acquisitions in the period between 2009 and 2013, all constructs are gauged.

Results show a internally and externally classification scheme of business model innovation (BMI) where a partnering and market type approach in the external classification is recognized. Furthermore, results show that post-acquisition integration is multi-dimensional with a distressed moderation on business model innovation. This contradictory moderating effect of the constructs level of human and task integration is presented and described in a concave upward or downward relationship between autonomy of the acquired firm and business model innovation.

At high level of autonomy of the acquired firm, high levels of task integration weakens $BMI_{External\ market\ and\ partnering}$ whereas low levels of task integration strengthens $BMI_{External\ market\ and\ partnering}$. At low level of autonomy, high levels of task integration strengthens $BMI_{External\ market\ and\ partnering}$ whereas low levels of task integration weakens $BMI_{External\ market\ and\ partnering}$.

At high level of autonomy of the acquired firm, high levels of human integration strengthens $BMI_{External\ partnering}$ whereas low levels of human integration weakens $BMI_{External\ partnering}$. At low level of autonomy, high levels of human integration weakens $BMI_{External\ partnering}$ whereas low levels of human integration strengthens $BMI_{External\ partnering}$.

*Table of contents*

# 1 Introduction

Since the internet evolution, firms have been focussing on how to integrate this new technology in its organizational DNA in order to raise firm performance. Since this period in time the concept business model innovation (BMI) reaches scholars. Although, academic research on business model innovation lags behind practice, Zott et al (2011) show an increasing interest in the concept of business model innovation. Even in mergers and acquisitions (M&A) the literature confronts this new concept; reinventing business models acquisition is the basis for growth and differentiate by creating new ways of doing business (Christensen et al, 2011). In a pre-acquisition process the question can be raised how to cope with the business model of the acquired firm. How can innovation be embedded in the DNA during or after a M&A? Questions which implicate the post-acquisition integration strategy. Within this integration strategy, design choices take place on a continuum from the need for organizational autonomy to the need for strategic interdependence between acquirer and acquired firm. The success of a particular acquisition depends on the managers' ability to reconcile the need of strategic interdependence between the two firms that is required to transfer strategic capabilities and the need for organizational autonomy of the acquired firm (Haspeslagh & Jemison, 1991). Kale et al (2009) states instead of assimilating the business they have taken over, to retain their independence and to partner with them. This partnering approach positively influences business model innovation. The notion of partnering with an acquired firm reflects the level of control in strategic decision which is granted by the acquirer, or better; the level of autonomy of the acquired firm. Hence, the autonomy of the acquired firm has a relation with the concept business model innovation.

The concept M&A and related processes is elaborated by scholars extensively. Post-acquisition processes have been analyzed in depth and focus on culture aspects and the complex realization of synergies through integration processes, respectively the level of human integration and the level of task integration (Birkinshaw, J., Bresman, H., & Håkanson, L., 2000). Though, the success or failure of an acquisition lies in the nuts and bolts of the

integration (Christensen et al, 2011). So an acquirer has a dilemma. At one side of a coin the acquirer has a motive to buy a specific firm and wants to integrate or partner with these resources in order to innovate its core. And at the other side of the coin, the acquirer needs to take into account the nature of a particular post-acquisition integration strategy (Zott & Amit, 2008). Since these integration processes can be complex and demanding for management and organizational units of the acquired firm, it can be suggested that the level of human and task integration alters the strength and direction between autonomy of the acquired firm and business model innovation. Literature on M&A or business model innovation has not taken into account the combination of these constructs. Moreover, it is interesting to see the unknown extent of this moderating effect of the level of human integration and the level of task integration on the relation between the autonomy of the acquired firm and business model innovation.

### 1.1 Research focus

This research focus on the understanding of the relationship between the autonomy of the acquired firm and business model innovation. Furthermore, this research measures the effect of the level of human integration and the level of task integration as a moderating variable.

The focus and aim of this study leads to the following problem definition underlying this paper; *What is the effect of the level of human integration and the level of task integration on the relation between the level of autonomy and business model innovation?*

The next section elaborates the relevance of this topic and specify in detail the relevance for managers and scholars.

### 1.2 Relevance

This study elaborates and extend previous work by focusing on the post-acquisition integration and business model innovation. An integration process needs to take into account; (1) innovation, because of the social aspects and the required embedding, (2) customer centred approach regarding the value proposition and the capture of value, in order to (3) gain competitive advantage and differentiate (Voelpel et al, 2005). Knowing that several constructs

in the post-acquisition integration process can be in conflict regarding to innovation, it will be relevant for the post-acquisition strategy; since business model choices often go unchallenged for a long time (Zott & Amit, 2012). The relevance for managers and scholars will be elaborated next.

An acquisition will change the setting of strategic control within the acquired firm. Bauer & Matzler (2014) state that M&A success is a function of the interplay among strategic complementary, cultural fit, and integration, and it furthermore supports the need for an integrative perspective. Hence managers of the acquirer need to take into account that decisions regarding the autonomy of an acquired firm has impact on business model innovation directly and also through the moderating role of the integration process. The integration process has distinctive characteristics that may affect important organizational activities and outcomes (Jemison et al, 1986). Managers who are actively involved in the integration process need to know which design considerations (Pablo, 1994), in the level of human and task integration, can positively or negatively influence business model innovation in order to deliver a successful integration and value creation for all stakeholders (Tantalo & Priem, 2016).

Contribution for scholars is to highlight the extend of the mechanisms between the post-acquisition process and business model innovation which directly inflict on the value creation of an acquired firm (Bauer & Matzler, 2014). Despite the agreement on what a business model is (Zott et al, 2013) this study contributes to the research theme of this new unit of analysis and particular on the constructs which help to explain how businesses create and capture value within the post-acquisition integration (Cartwright, 2006).

### 1.3 Structure of research thesis

This thesis is structured in five sections. In the following section, the literature review begins by outlining the construct business model innovation. Furthermore the other constructs of the conceptual framework will be reviewed to determine their definition; autonomy of the acquired

form, level of human integration and level of task integration. This section will also define the relationship between the different constructs and hypothesis will be formulated. In section three, an outline of the research design will describe data sources and how the different variables will be gauged. Section four presents the research results and in section five the discussion is elaborated.

# 2 Theoretical framework

The aim of the literature review is to provide an extensive analysis of the current state of the literature on the several constructs. This section will elaborate the constructs of the conceptual framework and its interrelationships, starting with; (1) business model innovation, (2) autonomy of the acquired firm, followed by its relationship; (3) the relation between business model innovation and autonomy of the acquired firm. Then the constructs (4) level of human integration and (5) the level of task integration will be described. This section will end with the moderating role of the level of human (6) and (7) task integration, types of moderators and description of the mechanisms of the moderators.

## 2.1 Business model innovation

Various researchers indicate (e.g. Zott et al., 2013; Baden-Fuller & Haefliger, 2013), the literature on business model innovation is in the early stage of development. The definitions defined by scholars only partially overlap (e.g. Zott et al, 2013; Casadesus-Masanell and Zhu, 2013), which result in multiple possible interpretations of a business model and decrease in the understanding of the business model (Teece, 2010). There is a lack of independence of the concept business model innovation from other levels of analysis, like for instance strategy (Zott & Amit, 2013). This section will elaborate on (1) the understanding of the business model, (2) what it is not, (3) its taxonomy and mechanisms how to innovate the business model and (4) when to innovate the business model.

A business model can be seen as an architectural framework that shows the way how the firm conducts its business. The business model describes the system of interdependent activities that are performed by the firm and by its partners and the mechanisms that link these activities to each other (Zott & Amit, 2010; Zott & Amit, 2013; Girotra & Netessine, 2014). It's design emphasize the conceptualization of the way how value is created and captured. Zott et al (2011) elaborates that business models centre on the logic of how value is created for all stakeholders, not just on how it is captured by the focal firm. It frames activities performed by the focal firm as well as by partners, suppliers, and even customers play an important role.

Business models emphasize a system-level, holistic approach toward explaining how firms “do business” (Voelpel et al, 2005). The terminology ‘’holistic’’ approach is used to explain how firms do business in terms of the relation between the business model components as well as between the firm and its environment (Morris et al., 2005; Osterwalder & Pigneur, 2010; Casadesus-Masanell & Ricart, 2010).

There is distinction between business models and (1) business process models, (2) strategy, (3) execution and implementation (Osterwalder et al, 2005). Business process models is the activity of modeling processes (Aguilar-Savén 2004) and not business models. A practical distinction describes business models as a system that shows how the pieces of a business fit together, while strategy also includes competition (Zott & Amit, 2008). Furthermore strategy includes execution and implementation and outlines a plan in time in order to develop goals (Casadesus-Masanell and Ricart, 2010). Coupling strategy analysis with business model analysis is necessary in order to protect whatever competitive advantage results from the design and implementation of new business models (Teece, 2010). Although scholars have made explicit differences in definitions in constructs, this research needs to address the unconscious bias regarding these differences.

When looking at the emerging literature on business models, the taxonomy of the business model show resemblance. The taxonomy of Johnson et al (2008) identifies four constructs; (1) customer value proposition, (2) profit formula, (3) key resources and (4) key processes. These elements can be mapped on the business model canvas of Osterwalder & Pigneur (2010), which recognize; (1) value proposition, (2) revenue streams, (3) cost structure, (4) key partners, (5) key activities, (6) key resources, (7) customer relationships, (8) channels and (9) customer segments. Hence both taxonomies resemble each other in taxonomy and underlying constructs. This means that a business model can be seen as a template that shows the way how the firm conducts its business. Holistic changes in this taxonomy means that an architectural design is needed. This design isn’t drawn in a single motion but assumed to be developed through a process of iterative experimenting (Teece, 2010). Content, structure and

governance are the three design elements that characterize a company's business model, or innovation through (1) adding new activities, (2) linking activities in novel ways or (3) changing which party performs an activity (Zott & Amit, 2012). Hence, business model innovation is an activity or process within a firm in order to renew value. Novelty, lock-in, complementarities and efficiency are four major business model value drivers (Zott & Amit, 2001). Novelty captures the degree of business model innovation that is embodied by the activity system. Lock-in refers to those business model activities that create switching costs or enhanced incentives for business model participants to stay and transact within the activity system. Complementarities refer to the value-enhancing effect of the interdependencies among business model activities. Efficiency refers to cost savings through the interconnections of the activity system. Zott & Amit (2012) suggest that the presence of each of these value drivers enhances the value creation potential of a business model.

Following Zott et al (2011), the business model is conceptually placed between a firm's input resources and market outcomes, and it "embodies nothing less than the organizational and financial 'architecture' of the business" (Teece, 2010: 173). The core logic of a business model, instead, revolves around a firm's revenues and costs, its value proposition to the customer, and the mechanisms to capture value. This resembles the concept of Voelpel et al (2005): the particular business concept as reflected by the business's core value proposition for customers, its configured value network to provide value, consisting of own strategic capabilities as well as other value networks; and its continued sustainability to reinvent itself. In this research the definition of business model innovation is a model that depicts the content, structure and governance of transactions designed so as to create value through the exploitation of business opportunities (Amit and Zott, 2001).

This section described the understanding of the business model, what it is not and its taxonomy and mechanisms how and when to innovate the business model. In the next section the autonomy of the acquired firm will be elaborated.

## 2.2 Autonomy of the acquired firm

Autonomy of the acquired firm refers to the level of control between acquirer and acquired firm and who makes decisions over strategic capabilities (Reus & Lamont, 2009; Lee & Shenkar, 2008; Li et al, 2009; Haspeslagh & Jemison, 1991). The decision to transfer or preserve capabilities determines the appropriate integration approach. Haspeslagh & Jemison (1991) elaborated three approaches that can be distinguished. Their framework describes two dimensions, the need for organizational autonomy and the need for strategic interdependence in which three distinct post-acquisition integration strategies have been observed; (1) absorption, where the two organizations become one; (2) preservation, which implies safeguarding the cultural identity of the acquired firm; and (3) symbiosis, which represents a mutual adaptation of the organizations.

One limitation of Haspeslagh and Jemison's research that it is relying upon the resource-based view by focusing solely on value creation acquisitions and not on value creation strategy (Angwin & Meadows, 2015). They identified five distinct post-acquisition integration strategies. Three of these integration strategies confirm Haspeslagh and Jemison's post-acquisition integration strategy typology, and two further strategies have been identified and added to the framework; "Intensive Care" and "Reorientation" strategies. These strategies reflect on a moderate level of autonomy of the acquired firm. Hence, this research explicitly needs to take into account the moderate level of autonomy.

This section describes the construct autonomy of the acquired firm. Three levels of autonomy are distinctly identified; low, moderate and high. In the next section the relation between the autonomy of the acquired firm and business model innovation will be described.

## 2.3 Business model innovation and autonomy of the acquired firm

Several differences have been defined in integrating and partnering with your acquisitions (Kale, Singh & Raman, 2009). Partnering is defined as, to allow acquisitions to retain their independence. Hence, partnering resembles the typology of Haspeslagh & Jemison's

preservation. The level of autonomy of the acquired firm is high and the strategic decisions are made by top management of the acquired firm. The acquired firm is kept separately with its own organizational structure. A selection of key activities will be coordinated with the acquirer. In the partnering approach, or symbioses, growth revenues will be accomplished by entering new markets or new products and sharing best practices (Anand & Khanna, 2000). The acquired firm has complementary, superior, or unique resources. The knowledge transfer will be bidirectional and the acquirer is willing to learn (Dyer & Singh, 1998). Hence, this reflects the business model value drivers novelty, lock-in and complementary. It is to be expected that a positive relation exists between innovation in the activity system, or the value-enhancing effect of the interdependencies among business model activities, and the high autonomy of the acquired firm.

Integrating the acquisition resembles the typology Haspeslagh & Jemison's absorption. Activities are being integrated in the core of the acquirer, top executives replaced and the autonomy very limited or none. The strategy decisions will be made by the acquirer. The integration approach is most suitable for the value to reduce costs by combining assets and activities or gaining economies of scale. This reflects the notion of an efficiency business model value driver. The acquired firm will have similar resources compared to the acquirer. The knowledge and capabilities transfer from acquirer to acquired. It is to be expected to have a positive relation between cost savings through interconnections of the activity system within the business model and the low autonomy of the acquired firm.

Angwin & Meadows (2015) states to anticipate on a moderate level of autonomy by the acquired firm. Current literature doesn't support implications on the business model innovation for this scenario. Though, it is to expect that strategic control decisions made by management of acquirer and acquired firm are ineffective which lead to no integration or no partnering at all. Acquirers need to address the autonomy dilemma by recognizing that the effect of structural form on innovation depends on the development stage of the acquired firm (Puranam, Singh and Zollo, 2006). Hence, it is to be expected to have a negative relation between autonomy of

the acquired firm and the innovation in the activity system, or the value-enhancing effect of the interdependencies among business model activities. The following hypothesis is proposed:

> *Hypotheses 1: Autonomy of the acquired firm has a concave upward relationship with business model innovation; the variance in business model innovation is curvilinear related (U-shaped) to the autonomy of the acquired firm.*

In this section a full U curved relationship developed by theorization of the low, moderate and high level of autonomy and confronting these concepts with business model innovation and its value drivers. In the next section the level of human integration will be elaborated.

### 2.4 Level of human integration

The human integration within the post-acquisition is risky. But without any integration, on the level of sociocultural, production, marketing and system integration (Bauer et al, 2014), the decline of the cultural gap is not feasible. Human integration is to be seen as the creation of positive attitudes towards the integration among employees on both sides with the goal to create a shared identity (Birkinshaw et al, 2000; Bouchikhi, 2012). The terminology ‘’both sides’’ reflect the notion that the cultural distance between acquirer and acquired firm needs to be small in order to create positive attitudes. Investing in the creation of social capital will create value (Tsai & Ghoshal, 1998). Although it seems obvious that cultural similarity fosters integration, Reus & Lamont (2009) elaborate that cultural distance is a double-edged sword with costs and benefits. The costs emphasize the impeding effect of cultural distance on the development of integration capabilities. The benefits emphasize that making acquisitions in culturally distant countries is associated with an enriching effect on the application or use of existing integration capabilities (Reus & Lamont, 2009). Thus, cultural distance positively moderates the interdependence between integration capabilities and international acquisition performance. Furthermore, Reus & Lamont (2009) state that communication influences acquisition performance because it allows for the development of trust and commitment in the newly combined firm. The influence of the communication process during the integration is

also confirmed by Birkinshaw et al (2000). This research focus on the level of change of the level of human integration. Cording et al (2008) defines the level of human integration as the reduction of uncertainty among employees to generate a shared identity. Uncertainty followed from organizational change from the acquisition. Hence, this definition reflects the notion of an organizational change in structure, culture and personnel management.

In cases where strategic control is centralized at the acquirer and the level of autonomy of the acquired firm is low, an integration strategy is followed. It is to be expected that personnel experience high levels of uncertainty. Voluntary personnel loss will be applicable (Ernst & Vitt, 2000). The level of human integration is expected to be high since more activities need to be developed in order to create positive attitudes to create a shared identity. Birkinshaw et al (2000) describes, human integration leads to a relatively more comprehensive integration of two companies, in terms of organizational culture convergence and mutual respect. When the acquired firm is the decision maker in overall strategy, thus a high level of autonomy of the acquired firm, it is assumed that less human integration is applicable since the creation of a shared identity is not so much needed and the acquired firm can have an identity of its own.

### 2.5 Moderating effect of the level of human integration

Making changes to a company's business model rather than optimizing individual activities can be demanding and requires systematic and holistic thinking. Taking advantage of a new opportunity within a M&A, rethinking an entire business model may not always be top of mind of management. Facing a change in ownership, people need assurances about their future and it is unavoidably accompanied by uncertainty and individual fears. Especially when the acquirer absorbs the acquired firm. Individual fears, organizational politics and departure of employees will reflect on the high level of creation of positive attitudes towards shared identity. These high levels of human integration will reflect on the relation between the autonomy of the acquired firm and business model innovation, since these processes will negatively influence the search towards cost savings through interconnections of the activity system within the business model. Thus, it is expected that high level of human integration will positively

influence the efficiency value driver of business model innovation at a low level of autonomy of the acquired firm.

Partnering resembles a high level of autonomy and is expected to be joined with high levels of business model innovation through the value drivers novelty, lock-in or complementary. Whenever an acquirer stimulates a lot of focus on the creation of positive attitudes towards shared identity, it is to be expected this will negatively influence business model innovation, since this partnering notion resembles a high autonomy of the acquired firm which expects to have his own identity in order to be successful and be competitive. The following hypothesis is suggested.

> *Hypothesis 2: The level of human integration moderates the U-shaped relationship between the autonomy of the acquired firm and business model innovation in such a way that acquired firms with a low level of autonomy will benefit more from the high level of human integration than acquired firms with a high level of autonomy.*

In this section the moderating effect of the level of human integration on the curvilinear relationship between business model innovation and the autonomy of the acquired firm is developed by theorization of an multiplicative turning point shift type moderator (Haans et al, 2015). The moderator will flatten one side of the curvilinear side and can change the turning point without changing the slope of the other side of the curvilinear shape. The next section will describe the level of task integration.

### 2.6 Level of task integration

Task integration is defined as the identification and realization of operational synergies with the goal to create value (Birkinshaw et al, 2000). In the context of an acquisition, the level of integration of the acquired unit resembles the complexity of the organizational task. Organizational integration disrupts the capacity for innovation of the target firm (Puranam et al, 2003). The higher the level of integration, the larger is the number of organizational and functional units that need to coordinate and cooperate in order to achieve the desired structural

and operational unity (Zollo & Singh, 2004). Hence, the number of integration mechanisms used will be higher and the number of problems encountered during integration will be higher and each individual problem will have more impact on the integration process.

Whenever strategic control is centralized at the acquirer and the level of autonomy is low, an integration strategy of the acquired firm is followed. It is assumed that activities regarding consolidation, standardization and coordination of IT, production processes and other staff are high, compared to an integration strategy of an acquired firm which can have al systems separated and standalone from the acquirer.

### 2.7 Moderating effect of the level of task integration

Integrating the acquired firm resembles a low autonomy of the acquired firm and an absorption strategy is to be followed. Possibilities to reinvent the business model can be found in efficiency value drivers. It is to be expected that a high level of task integration will negatively influence the possibilities to innovate the business model, since the task integration process is demanding for management and operational units of the acquired firm.

Partnering with the acquired firm reflects on the autonomy of the acquired firm which is preserved in its state. The autonomy of the acquired firm is high and this reflects on possibilities to reinvent the business model through novelty, lock-in and complementary value drivers. The high autonomy reflects on the low level of consolidation and coordination in order to identify and realize operational synergies. Most likely synergy is realized through independence in the operation. These low levels of task integration will reflect on the relationship between the autonomy of the acquired firm and business model innovation, since these processes will negatively influence the process to reinvent the business model. The following hypothesis is suggested.

> *Hypothesis 3: The level of task integration moderates the U-shaped relationship between the autonomy of the acquired firm and business model innovation in such a way that at*

*low and high level of autonomy of the acquired firm it will weaken business model innovation.*

In this section the moderating effect of the level of task integration on the curvilinear relationship between business model innovation and the autonomy of the acquired firm is developed by theorization of a flattening type moderator (Haans et al, 2015). Flattening of the curvilinear shape changes the overall shape, though the turning point of the relationship need not to change.

Figure 1 visualizes the proposed conceptual model. The model depicts the assumed u-shaped relationship between the autonomy of the acquired firm and business model innovation. Additionally, it shows the moderating effect of the level of human integration and the level of task integration.

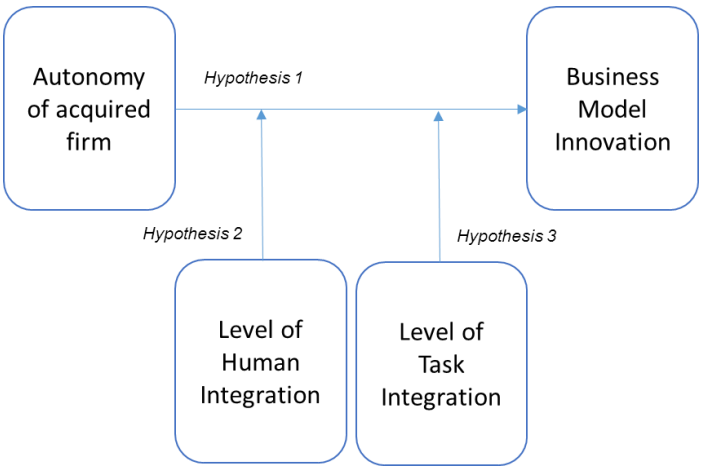


*Figure 1 Overview of the conceptual framework*

It is to be expected that the variables level of human integration and the level of task integration act as a moderator and interact on the interdependence between the level of autonomy of the acquired firm and the construct business model innovation. The individual constructs of the conceptual framework will be elaborated in the next section, the research design.

# 3 Research design

## 3.1 Sample

To analyse (1) the autonomy of the acquired firm, the level of (2) human and (3) task integration within the post-acquisition process, a survey database is used that is collected by Taco Reus and Riccardo Valboni in 2016. The purpose of their research is to gain better understanding of best practices and special problems in the integration process of international acquisitions. The survey targeted managers of enterprises which encountered with international acquisitions in the period between 2009 and 2013. The survey have been send to 600 enterprises. Each company have been called to ensure follow up of the survey. Respondents have had the option to fill out the questionnaire and email a scan or to complete it online. A total of 146 persons filled out the questionnaire. The survey is structured in four sections; (1) pre-deal characteristics, (2) post-deal activities, (3) performance and (4) background information. In order to reliably identify only respondents representing enterprises that were selected, the survey started in the pre-deal characteristics with a screening question. Respondents first indicated the name of the acquired firm. Requirement is that each respondent described one acquisition deal. Secondly, the survey asked the top three motives to engage in this particular acquisition and rank them in order of importance. Thirdly, to check to what degree (sales, assets, relation) the acquirer was present in the country of the acquired firm before the acquisition. The last question of the pre-deal characteristics section is to check whether relatedness existed between acquirer and acquired firm before the acquisition.

From the respondents 57% is in a responsible position of the firm like CEO,CFO, Head of a department (of M&A) or director. 43% percent is categorized as other. 65% of the acquired firms have business activities on different continents. 41% of the acquired firms have activities in the region surrounding its home country and 39% of the acquired firm’s business activities were for over 90% in its home country. Over 80% of integrations started within 6 months after the announcements of the acquired company. 63% of the integrations is completed within 18 months after start and 88% of the integrations is completed within 36 months.

Due to missing data, the final sample consisted of 103 deals.

Harmen's single factor test indicated 6 interpretable factors, three for each multi-item construct and three factors gauging the construct Business Model Innovation. Variance for a single factor is less than 50%. The total variance with the first factor explaining less than 30 percent (EigenValue = 1,589), suggesting common method bias is not a concern.

## 3.2 Variables

In the subsections below the independent and control variables will be described.

### 3.2.1 Independent variable

Following prior research (Reus et al, 2016; Reus & Lamont, 2009), autonomy of the acquired firm is measured using the mean of three items, gauging decision making, regarding to; (1) strategic direction, (2) competitive strategies and (3) performance goals. A 5-point Likert scale is used. A score of one indicates acquired firm's decisions makers and a score of five, acquiring firm's decision makers. In order to gauge high autonomy with high value, the Likert scale is inverted and values recoded. Cronbach's alpha is 0,798, indicating consistency across the three categories.

In prior research (Bauer et al, 2016), the level of human integration is gauged by three items; (1) change in organisational structure, (2) culture and (3) personnel management. Key employee retention, refers to the extent to which the acquirer, during integration, retains organizational members from the acquired unit who are crucial to potential resource advantages (Reus and Lamont, 2009). Hence, key employee retention is a proxy to gauge change in personnel management. Key employee retention is addressed in the area of top management, middle management, as well as employees in the areas of research and development, manufacturing and operations, marketing, sales and distribution, and finance, legal and other staff. Respondents are asked the extent to which employees are retained. The following scale is used; 0%, 25%, 50%, 75%, 100% or not applicable. In order to measure

change in personnel management the scale is inverted and values recoded, except for system missing values. Cronbach's alpha is 0,925 , indicating consistency across the six categories.

Following prior research (Bauer et al, 2016), the level of task integration is measured by the degree of integration so far, regarding (1) production & engineering, (2) R&D, (3) human resources/ personnel management, (4) marketing, sales and distribution, (5) budget control systems and (6) IT systems. A 5-point Likert scale is used. A score of one indicates not at all and a score of five, completely, followed by not applicable. Cronbach's alpha is 0,870, indicating consistency across the six categories.

### 3.2.2 Dependent variable

Computer-aided text analyses (CATA) is used in order to analyse the construct business model innovation. This section will describe the method which is used to gain the dependent variables. First the method CATA will be described and which documents have been determined for text analyses. Secondly, the process to determine a text dictionary for CATA will be described. Last, an overview of potential errors which can occur using CATA.

CATA is a form of content analysis that enables the measurement of constructs by processing text into quantitative data on the frequency of words (McKenny et al, 2016; Short et al, 2009). Duriau et al (2007) states that such a methodology approach is based on the premise that theoretically meaningful cognitive associations can be derived from the analysis of language and patterns in its usage that reflects deep-level concepts by the user. The chairman's letter is a unique component of a firm's annual report. The letter to the shareholders is an unaudited narrative (Geppert & Lawrence, 2009). Previous research shows that archival data sources, like annual reports, are well suited to explore changes over time and provide consistent and comparable sources of data on renewal actions throughout a period of time (Fiol, 1995). Hence, annual reports can be seen as highly reliable and valid sources of information. The reliability and validity are ensured because annual reports do not suffer from retrospective sense making, which is a potential bias in longitudinal research (Ben-Menahem et al., 2013).

Furthermore these reports do not significantly differ from internal documents on strategic issues and facts as indicated by Fiol (1995).

The annual reports of the enterprises of the 146 respondents of the survey have been analysed. This research has taken into consideration that integration processes and innovation trajectories can develop over time. It is more useful to use a longitudinal rather than a cross-sectional design regarding the quantitative approach. This is mainly due to the factor of time which is necessary in order to observe the effects of such an innovation trajectory. The annual report from the year of the acquisition (t) is used and the annual reports from the following two years (t+1 and t+2), since the post-acquisition integration of the entire operations can take up to more than three years (Colman & Lunnan, 2010; Ellis et al., 2009; Zollo & Meier, 2008). In total 366 annual reports have been analysed. All annual reports originate from the company corporate site. All annual reports have been marked with deal number for future references and have been marked with label t, t1 or t2.

The software tool RapidMiner Studio, version 7.4, is used for computer-aided text analysis. Annual reports have been processed and specific words have been counted. Within RapidMiner a workflow have been setup in order to mine text. This workflow process follows the steps; (1) tokenize, (2) transform cases, (3) filter by length, (4) filter stopwords, (5) transpose, (6) Filter examples and (7) transpose. The operator tokenize splits the text of a document into a sequence of tokens. Transform cases, transforms all characters in a document to lower cases. Filter tokens by length, filters tokens based on their length (i.e. the number of characters they contain). Filter stopwords, filters English stopwords from a document by removing every token which equals a stopword from the built-in stopword list. The operator filter examples selects which examples (i.e. rows) of an example set should be kept and which examples should be removed. Examples satisfying the given condition are kept, remaining examples are removed.

According to McKenny et al (2016), several errors can occur with the use of CATA; (1) transient error, (2) specific factor error and (3) algorithm error. Transient errors arise from differences in the language used in text produced at different points in time. To check for transient errors, the correlation are measured from the different sets of scores to assess the degree of the extent to which transient error occurs. Specific factor error arises from choices made manually compiling word lists. To check for specific factor error, the correlation is measured from the scores generated. Algorithm error arises when two CATA software packages produce different scores using the same measures and texts. This research assumes the software developer of RapidMiner Studio has tested the tool.

Following Costello and Osborne (2009), business model innovation is assessed with an exploratory factor analysis using principal components extraction and Varimax rotation. For validation purposes it's confronted with a (1) principal components extraction and oblimen rotation, (2) maximum likelihood extraction using Varimax and (3) oblimen rotation (Appendix A). This yielded a 3-component/ factor solution explaining more than 52 percent of the variance; (1) *internally focussed* business model innovation (α = 0,707), (2) e*xternal market* focussed business model innovation (α = 0,813) and (3) *external partnering* focussed business model innovation (α = 0,748). Appendix B shows the results of the factor analyses on the business model framework and the relevant words from the CATA. The next section will elaborate the control variables.

### 3.2.3 Control variable

Beyond the (in)dependent variables mentioned above, the control variables relative size of acquisition, culture distance, industry relatedness and acquisition experience are measured. Relative size gauges the total asset of the acquirer to the value of the acquisition deal (Reus and Lamont, 2009). Based on prior research (Ronen and Shenkar, 2013) culture difference is measured as a degree of culture difference between countries. Industry relatedness is gauged using Haleblian and Finkelstein's (1999) operationalization and acquisition experience is measured by the number of cross border acquisitions over the last 10 years (Hayward, 2002; Reus and Lamont, 2009).

The next section will elaborate the results.

## 4 Results

Following Haans et al (2015), this section will specify and present results of the test of hypotheses 1; the U-shaped relationship. Testing for an U-shaped relationship includes specification of the linear and quadric terms, testing of the the slope and concavity of the curve and verification if the turning point is located within the dataset. Testing of Hypotheses 2 and 3 includes verification of the linear and quadric moderator, specification of the shift in the turning point and verification of the flattening of the expected curves. This section will also check for alternative explanations, so robustness checks are included.

*Table 1 Descriptive statistics and correlations* [a]

| | | Mean | S.D. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Industry relatedness | 5,900 | 3,204 | | | | | | | | | | |
| 2 | Acquisition experience | 2,600 | 4,188 | -,0340 | | | | | | | | | |
| 3 | Relative size | 5,442 | 188,318 | -,200* | -,042 | | | | | | | | |
| 4 | Culture distance | 0,699 | 0,461 | -,066 | -,210* | ,004 | | | | | | | |
| 5 | Task integration | 0,007 | 0,805 | ,090 | -,084 | ,145 | -,125 | | | | | | |
| 6 | Human integration | 0,064 | 0,997 | -,147 | ,083 | ,179 | -,183 | ,158 | | | | | |
| 7 | Autonomy | 0,013 | 0,901 | ,087 | -,038 | -,042 | ,055 | ,293** | ,338** | | | | |
| 8 | Autonomy$^2$ | 0,140 | 6,721 | ,100 | -,059 | -,014 | ,032 | ,311** | ,349** | ,988** | | | |
| 9 | $BMI_{Internal}$ | 0,017 | 1,024 | -,067 | ,223* | ,423** | ,023 | ,005 | ,041 | ,029 | ,010 | | |
| 10 | $BMI_{External\ market}$ | 0,022 | 1,079 | -,072 | ,238* | ,059 | -,190 | -,308** | ,045 | -,031 | -,044 | ,009 | |
| 11 | $BMI_{External\ partnering}$ | -0,094 | 0,641 | ,011 | ,238* | -,193 | -,046 | ,023 | ,115 | -,185 | -,175 | ,059 | ,033 |

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).
a. Listwise N=103

Table 1 presents the descriptive statistics and correlation matrix, indicating that the bivariate correlation between autonomy and the three individual factors; (1) $BMI_{Internal}$, (2) $BMI_{External\ market}$ and (3) $BMI_{External\ partnering}$ are not significant. To examine whether the relationship is curvilinear, the following regression equation is considered (Dawson, 2014):

$$y = b_0 + b_1 x + b_2 x^2 + \varepsilon \quad (1)$$

Hypothesis 1 suggest a curvilinear shaped relation between autonomy of the acquired firm and business model innovation. This curvilinear shape is a parabola. In formula 1 y is business model innovation and x is autonomy of the acquired firm. Different values of $b_0$, $b_1$ and $b_2$ can take this regression equation into different forms (hypothesized $b_2 > 0$, for u-shape parabola). Table 2 presents the regression results: M1 includes controls and linear variables; M2 adds

linear autonomy and M3 adds the terms from equation 1. The linear term of autonomy is positive for $BMI_{Internal}$ (M3: β=0,620), $BMI_{External\ market}$ (M3: β=0,157) and negative for $BMI_{External\ partnering}$ (M3: β=-0,054). The direction of the curvature is negative for $BMI_{Internal}$ (M3: β=-0,155) and $BMI_{External\ market}$ (M3: β=-0,061), rejecting Hypothesis 1. The direction of the curvature is positive for $BMI_{External\ partnering}$ (M3: β=0,060) with a significance of p = 0,313, rejecting Hypotheses 1. For $BMI_{Internal}$, the turning point of the parabola can be derived from the regression equation and is defined by formula 2.

$$x_{turning\ point} = \frac{-b_1}{2b_2} \quad (2)$$

The turning point of $Autonomy_{BMI,\ internal}$ = 2,000 is not significant (M3: β = 0,620, β = -0,155). Figure 1a depicts a concave downward curvilinear shaped relation between autonomy of the acquired firm and business model innovation in such a way that at low autonomy, low level of business model innovation is seen, compared to high levels of business model innovation at high autonomy of the acquired firm.

Following Haans et al (2015), to examine the hypothesized moderators of the curvilinear relationship, the interaction between the moderator and x and an interaction between the moderator and $x^2$ need to be included.

$$y = b_0 + b_1x + b_2x^2 + b_3H + b_4xH + b_5x^2H + b_6T + b_7xT + b_8x^2T + \varepsilon \quad (3)$$

In equation 3, the moderator level of task (T) and human integration (H) is added and influences the linear and quadratic terms; affecting the slope and concavity of the curve. Model 4 and 5 of table 2, each add a linear term of task and human integration. Model 6 and 7 add the quadric terms of equation 3. Model M7 of $BMI_{Internal}$ provides no support that the level of human and task integration affect both slope and concavity of the curve. The results show the interaction of the level of task integration with the linear and squared terms of $BMI_{External\ market}$ are both significant (M6: β = -2,172, β = 0,478; M7: β = -2,313, β = 0,511). Results are visually presented in figure 1(h) and doesn't support hypotheses 2. The results show the interaction of

the level of task and human integration with the squared terms of $BMI_{External\ partnering}$ are significant (M7: β = -1,124, β = 0,625, β = 0,273, β = -0,153). Results are depicted in figure 1(f, i) and rejecting hypotheses 2 and 3.

As M6 and M7 of $BMI_{External\ market}$ (M6: β = -2,172, M7: β = -2,313) and M7 of $BMI_{External\ partnering}$ (M7: β = -1,124) show, the interactions with the linear term of the level of task integration are negative. Results are shown in figure 1(h, i), low levels of task integration show a concave downward relation between the autonomy of the acquired firm and business model innovation and moderates in such a way that at low level of autonomy of the acquired firm it will weaken business model innovation and at high level of autonomy it will strengthen business model innovation. High levels of task integration show a concave upward relation between the autonomy of the acquired firm and business model innovation and moderates in such a way that at low level of autonomy of the acquired firm it will strengthen business model innovation and at high level of autonomy it will weaken business model innovation.

The turning point of $BMI_{External\ partnering}$ can be derived from formula 3, and is represented in formula 4.

$$x_{turning\ point} = \frac{-(b_1 + b_4 H + b_7 T)}{2(b_2 + b_5 H + b_8 T)} \quad (4)$$

The turning point of $BMI_{External\ partnering}$ = 0,742 (M7: $\beta_1$ = 0,364, $\beta_2$ = -0,029, $\beta_4$ = 0,625, $\beta_5$ = -0,153, $\beta_7$ = 1,124, $\beta_8$ = 0,273).

*Table 2: Ordinal regression results*

| | BMI Internal (1) | | | | | | | BMI External market (2) | | | | | | | BMI External partnering (3) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M1 | M2 | M3 | M4 | M5 | M6 | M7 | M1 | M2 | M3 | M4 | M5 | M6 | M7 | M1 | M2 | M3 | M4 | M5 | M6 | M7 |
| Industry relatedness | 0,011 | 0,008 | 0,013 | 0,014 | 0,018 | 0,016 | 0,013 | -0,008 | -0,12 | -0,009 | -0,009 | -0,010 | 0,003 | 0,005 | -0,002 | 0,005 | 0,003 | 0,002 | 0,003 | 0,008 | 0,012 |
| Acquisition experience | 0,063** | 0,063** | 0,057* | 0,058* | 0,066** | 0,066** | 0,074** | 0,044ŦŦ | 0,044ŦŦ | 0,042ŦŦ | 0,043ŦŦ | 0,040 | 0,039 | 0,036 | 0,035* | 0,034* | 0,037* | 0,036* | 0,038* | 0,037* | 0,027ŦŦ |
| Relative size | 0,002** | 0,003** | 0,003** | 0,003** | 0,003** | 0,003** | 0,003** | 0,001 | 0,001 | 0,001 | 0,001 | 0,001 | 0,000 | 0,000 | -0,001* | -0,001** | -0,001** | -0,001** | -0,001** | -0,001** | -0,001** |
| Cultural distance | 0,149 | 0,116 | 0,064 | 0,062 | 0,049 | 0,032 | -0,021 | -0,453* | -0,492* | -0,512* | -0,514* | -0,509* | -0,397ŦŦ | -0,375 | 0,047 | 0,118 | 0,138 | 0,139 | 0,137 | 0,176 | 0,247ŦŦ |
| Level of task integration | -0,034 | -0,065 | -0,048 | -0,029 | -0,005 | -0,021 | -0,039 | -0,449** | -0,486** | -0,479** | -0,464** | -0,473** | -0,365* | -0,358* | 0,046 | 0,112 | 0,106 | 0,095 | 0,099 | 0,137 | 0,161ŦŦ |
| Level of human integration | -0,041 | -0,075 | -0,064 | -0,059 | -0,121 | -0,115 | -0,136 | 0,028 | -0,014 | -0,009 | -0,005 | 0,018 | -0,018 | 0,002 | 0,084 | 0,159* | 0,154* | 0,151* | 0,140* | 0,127ŦŦ | 0,191* |
| Autonomy | | -0,105 | 0,620 | 0,653 | 0,786ŦŦ | 0,754ŦŦ | 0,501 | | -0,126 | 0,157 | 0,185 | 0,136 | 0,360 | 0,467 | | -0,227** | -0,054 | -0,073 | -0,050 | 0,030 | 0,364 |
| Autonomy$^2$ | | | -0,155ŦŦ | -0,161ŦŦ | -0,196* | -0,191* | -0,136 | | | -0,061 | -0,065 | -0,052 | -0,090 | -0,113 | | | 0,060 | 0,063 | 0,057 | 0,044 | -0,029 |
| Autonomy x task integration | | | | -0,071 | 0,016 | 0,318 | 0,651 | | | | -0,058 | -0,089 | -2,172* | -2,313* | | | | 0,041 | 0,056 | -0,683 | -1,124* |
| Autonomy x human integration | | | | | -0,242* | -0,222ŦŦ | -0,763ŦŦ | | | | | 0,089 | -0,051 | 0,179 | | | | | -0,043 | -0,092 | 0,625* |
| Autonomy$^2$ x task integration | | | | | | -0,069 | -0,147 | | | | | | 0,478* | 0,511* | | | | | | 0,170 | 0,273* |
| Autonomy$^2$ x human integration | | | | | | | 0,116 | | | | | | | -0,049 | | | | | | | -0,153* |
| R Square Change | 0,001 | 0,007 | 0,023 | 0,002 | 0,039 | 0,001 | 0,011 | 0,001 | 0,009 | 0,003 | 0,001 | 0,005 | 0,052 | 0,002 | 0,015 | 0,079 | 0,009 | 0,002 | 0,003 | 0,018 | 0,052 |
| F Change | 0,180 | 0,848 | 2,969ŦŦ | 0,246 | 5,270* | 0,161 | 1,542 | 0,071 | 1,023 | 0,372 | 0,133 | 0,548 | 6,362* | 0,227 | 1,655 | 9,248** | 1,028 | 0,191 | 0,357 | 2,161 | 6,379* |
| R Square | 0,246 | 0,252 | 0,275 | 0,277 | 0,316 | 0,317 | 0,329 | 0,190 | 0,198 | 0,202 | 0,203 | 0,207 | 0,259 | 0,261 | 0,111 | 0,190 | 0,199 | 0,200 | 0,203 | 0,222 | 0,273 |
| R Square adjusted | 0,197 | 0,213 | 0,207 | 0,167 | 0,242 | 0,235 | 0,239 | 0,139 | 0,134 | 0,125 | 0,126 | 0,121 | 0,170 | 0,163 | 0,055 | 0,130 | 0,130 | 0,123 | 0,117 | 0,128 | 0,176 |

Unstandardized Coefficients (B) reported

Ŧ p < 0,10; * p < 0,05; ** p < 0,01

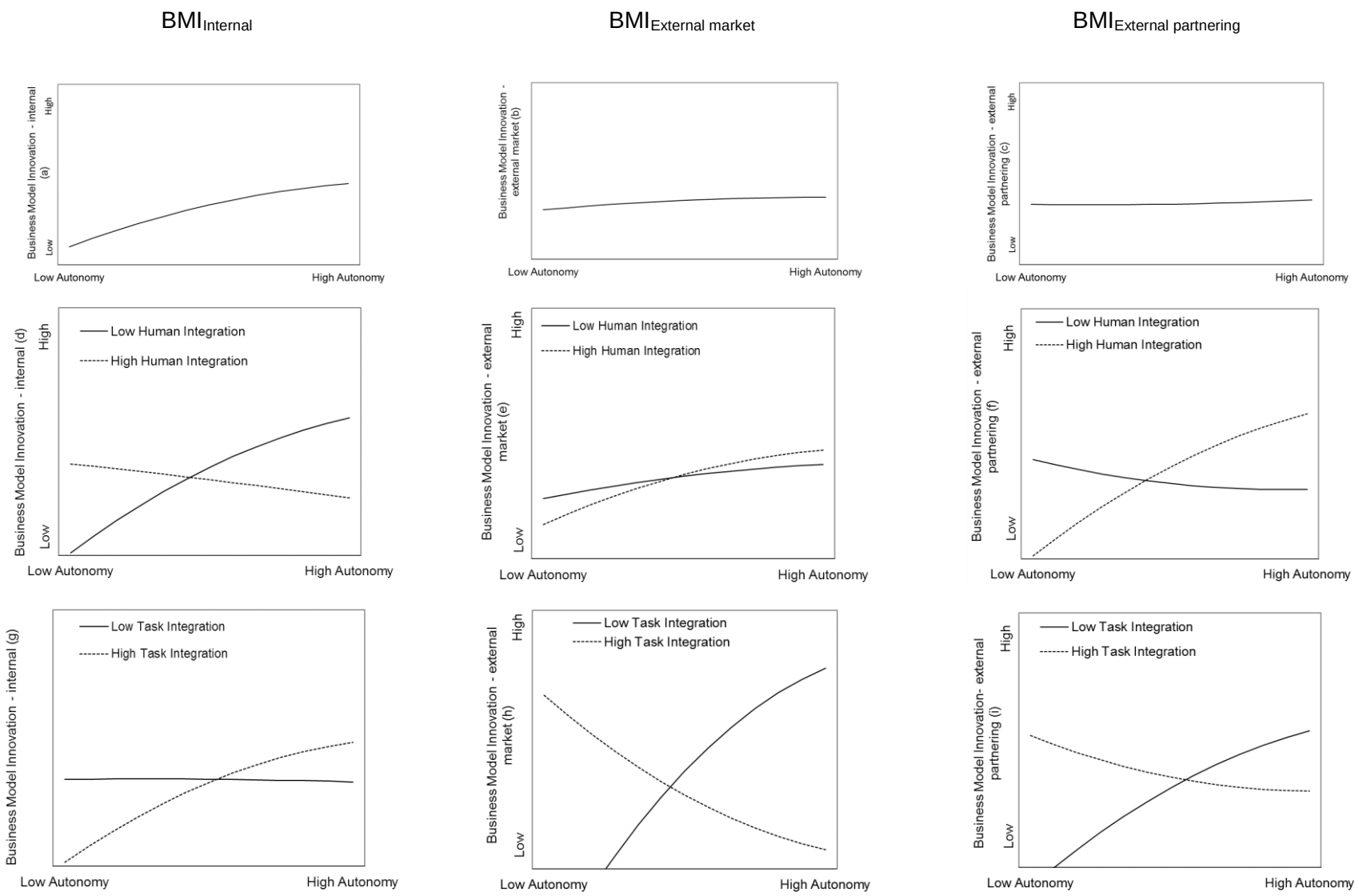


*Figure 1: Plots of two-way interaction effects between the curvilinear (quadratic) main effect and linear moderator*

As M7 of $BMI_{External\ partnering}$ (M7: β = 0,625) show, the interaction with the linear term of the level of human integration is positive. Results are shown in figure 1(f), high levels of human integration show a concave downward relation between the autonomy of the acquired firm and business model innovation and moderates in such a way that at low level of autonomy of the acquired firm it will weaken business model innovation and at high level of autonomy it will strengthen business model innovation. Low levels of human integration show a concave upward relation between the autonomy of the acquired firm and business model innovation and moderates in such a way that at low level of autonomy of the acquired firm it will strengthen business model innovation and at high level of autonomy it will weaken business model innovation.

### 4.1 Model summary

As table 2 shows, the F-change of the models M3 of $BMI_{Internal}$ ($p<0,10$), M5 of $BMI_{Internal}$ ($p<0,05$), M6 of $BMI_{External\ market}$ ($p<0,05$), M2 of $BMI_{External\ partnering}$ ($p<0,01$) and M7 of $BMI_{External\ partnering}$ ($p<0,05$) are significant. All coefficients of the models do not equal zero and the tests are good to draw conclusions. $R^2$ is generally low and consistent. However, considering the focus on a couple of variables explaining a part of a very broad topic as business model innovation, it is expected that these values are relatively low.

### 4.2 Robustness checks

Robustness checks include (1) indications of cubic term ($x^3$) in regression and (2) the impact of deletion of outliers. These robustness checks will be elaborated next.

The cubic term in regression of $BMI_{Internal}$ is applicable in relationship of level of task integration ($Autonomy^3$ x task integration; β = -0,505, p = 0,013) and in relationship of level of human integration ($Autonomy^3$ x human integration; β = 0,175, p = 0,110). In this model the relationships with the relevant quadric terms of the level of task integration is significant ($Autonomy^2$ x task integration; β =3,479, p = 0,018) and the linear relationship with task integration is significant (Autonomy x task integration; β =-7,177, p = 0,027). The linear and

quadric terms of the level of task integration of $BMI_{External\ market}$ remain significant when adding the cubic terms (Autonomy x task integration; β =-2,222, p = 0,012; $Autonomy^2$ x task integration; β =0,486, p = 0,013). Furthermore, the linear and quadric terms of the level of task and human integration of $BMI_{External\ partnering}$ remain significant when adding the cubic term of autonomy.

$BMI_{Internal}$ shows one outlier of 3 times interquartile range (IQR). Removal of outlier of $BMI_{Internal}$ results in a non-significant level of the quadric term (M3). $BMI_{External\ market}$ show one outlier of 3 times interquartile range. Removal of outlier of $BMI_{External\ market}$ results in a non-significant level of the moderators level of task and human integration (M7). $BMI_{External\ partnering}$ show two outliers of 3 times interquartile range. Removal of these outliers of $BMI_{External\ partnering}$ have no influence on the significance of the unstandardized coefficients of the quadric moderators (M7).

This section specifies the test of Hypotheses 1 and rejects a negative concave upward relationship between autonomy of the acquired firm and business model innovation. Furthermore, this section rejects Hypothesis 2. The level of human integration does not moderate the negative concave upward relationship in such a way that acquired firms with a low level of autonomy will have more business model innovation from the high level of human integration than acquired firms with a high level of autonomy. The level of task integration does not moderates the U-shaped relationship between the autonomy of the acquired firm and business model innovation in such a way that at low and high level of autonomy of the acquired firm it will weaken business model innovation, rejecting Hypotheses 3. All hypothesis are rejected. Results show that the variables level of human integration and the level of task integration act as a moderator and interact on the interdependence between the level of autonomy of the acquired firm and the construct business model innovation. Conclusions are elaborated in the next section.

# 5 Conclusion

This study challenges conventional wisdom that post-acquisition processes are negative for value creation through business model innovation after an acquisition. The opposite is actually true. Instead, at high level of autonomy, a high level of human integration has a more positive effect on business model innovation compared to low level of human integration where value creation through partnering or market segmentation is idealized.

The effect of the level of human integration and the level of task integration on the relation between the level of autonomy and business model innovation is identified in this thesis. All three hypotheses are rejected. Even when the individual moderating curves of the level of human and task integration are isolated, none of the curves resembles the suggested shape in the hypotheses. Individual conclusions from results will be elaborated below in the paragraph academic and managerial implications, followed by the limitations and suggestions for further research.

## 5.1 Academic implications

The findings of an internal and an external typed business model innovation is conceptually captured by scholars (Giesen et al, 2010). Teece (2010) states that the business model is conceptually placed between a firm's input resource and market outcomes. Amit and Zott (2011) elaborates that the core logic of a business model revolves around a firm's revenues and costs, its value proposition to the customer and the mechanisms to capture value. Hence, business model innovation differentiation internally and externally focussed on markets (customers) and partners (input resources) is conceptual feasible. Current research support these classifications. Lambert (2013) states that the business model classification is largely non-cumulative due to the differing conceptualizations of the business model and therefore the variables upon which classification are based. Generalizability is limited by the extent of the generalization of the mentioned internally and externally (market and partnering) classification scheme in this study.

The results of this study indicate that post-acquisition integration is multi-dimensional with a distressed outcome on business model innovation. High levels of task integration reflect high organizational impact within the integration and lowers business model innovation in a partnering approach. Low levels of task integration is contradictory and strengthen business model innovation where autonomy of the acquired firm is high. The propositions of Kale et al (2009) suggest partnering fosters the concept that the new parent serve as a beacon and create a fresh sense of purpose in their acquisition. This notion reflects the level of business model innovation with a high level of autonomy as seen in figure 1a; firms with an internally focussed business model innovation and high autonomy show more business model innovation than firms with low autonomy

Results show strengthened levels of business model innovation through the moderation of high levels of human integration with a market and partnering approach (figure 1e, f). This extends prior research of Dyer (2003), who argues that before entering into an acquisition (or alliance) to focus on the level of uncertainty that surrounds the collaboration. Uncertainty can be associated with resources and capabilities as technology, product, organizational units or culture of a particular unit. Regarding these resources, this research suggests that the level of task integration and the level of human integration relate contradictory towards business model innovation where the focus is external. In a partnering approach, at high level of autonomy, high levels of human integration strengthens business model innovation where as high levels of task integration weakens business model innovation.

This study outcomes contradict the outcomes of Bauer et al (2016), which suggest human integration is rather destructive and task integration is beneficial for innovation output. This differs from the outcomes of this research; the amplifying moderating role of high human integration and the decreasing impact of high task integration on business model innovation.

Similarity in the two studies is the contradictory effect of the constructs level of human and task integration on (business model) innovation.

### 5.2 Managerial implications

Post-acquisition managers need to be aware of the paradoxical aspects of the realization of operational synergies and the reduction of uncertainty among employees. Both constructs follow a unique interplay with the level of autonomy and forward business model innovation positively or negatively.

Within the post-acquisition strategy, managers need to analyse the level of task and human integration needed. After this, they need to determine the need to reinvent the business model in order to address an appropriate level of control of the acquired firm. This assessment is in line with Dyer (2006) who suggests to assess the level of resources, synergy and market factors in order to preserve competitive advantage (Khanna et al, 2005). Since high level of task and high human integration work contradictory on business model innovation it can be suggested to follow Birkinshaw's (2000) trajectory to a successful acquisition, following completion of human integration first and then complete the task integration.

### 5.3 Limitations and suggestions for further research

In this paper a count measure is used for business model innovation. This measure is based on the assumptions that factor analysis will reflect the holistic approach which is seen in business model innovation (Voelpel, 2005). However, business model innovation can vary in many dimensions and reflect many different sort of goals and objectives (Teece, 2010). The development of a schema to measure types of business model innovation is suggested. Calvalcante et al (2011) and Lambert (2013) identified several classification schemes of business model innovation. Following this discussion it would be convenient to address these classifications within this development.

The level of human integration is measured by the retention of personnel. This is merely one proxy of organizational change. Cording et al (2008) also included change in structure and

culture in reflection of human integration. It is suggested to follow this standard since these measurements will better gauge human integration.

The selection of the factor extraction in this research is based on orthogonal rotation. The main difference between common factor analysis and principle components extraction is their purpose, relatively to understand the latent (unobserved) variables that account for relationships among measured variables; the goal of principle components extraction is to reduce the numbers of variables. The analyses of the CATA scan have been reduced with orthogonal rotation, but confirmed by common factor analyses with almost identical results. Current literature supports these limitations (Conway and Huffcutt, 2003).

Regression shows that cultural distance is low. These results contradict the results of Ernst & Vitt. Ernst & Vitt (2000) argue that cultural differences within an international integration reflect on the level of retention of personnel and gauge cultural differences in a survey where the perception of the respondents is a factor. Ronen and Shenkar (2013) assume there are no differences between individual countries in culture and that over time the cultural distance between countries is stable. This could explain the different results.

Furthermore, regarding cultural distance and (business model) innovation, this research show low levels of cultural distance which reflect the notion firms expand to cultural, language and institutional understandable countries (Johanson & Vahlne, 2009). Though Khanna et al (2005) and Winter & Govindarajan (2015) state possibilities to innovate throughout a global strategy. From this point of view it would be interesting to see possibilities of business model innovation in a global M&A practice.

So far, results from this study describe higher or lower levels from particular constructs. Figure 1 depicts moderate levels of autonomy. At these moderate levels of autonomy, low and high moderations intersect with each other. These findings can relate to the suggestions of Angwin and Meadows (2015), which suggest a re-orientation strategy at the moderate level of autonomy and the moderate level of knowledge transfer.

Results show significant levels when adding the cubic term into the regression, especially at the internally focused business model innovation. The cubic equation resembles an S-shaped curve. Further research should examine these moderating curves to enable a more thorough knowledge of these constructs within the post-acquisition integration.

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# 7 Appendix

## 7.1 Appendix A: comparison of Extraction and rotation

| Comparison of Extraction and rotation | | | | | |
|---|---|---|---|---|---|
| **Factor Analyse (3 components/ factors)** | | | | | |
| | | Principal components | | Maximum Likelihood | |
| **Rotation method** | | Orthogonal (Varimax) | Oblique | Orthogonal (Varimax) | Oblique |
| **Matrix** | | Rotated | Structure | Rotated | Structure |
| **Cumulative variance accounted** | | 52,3 | 52,3 | 52,3 | 52,3 |
| ***Component/ factor*** | ***Item*** | | | | |
| 1 Internal | create_sum | ,812 | ,814 | ,592 | ,656 |
| | focus_sum | ,708 | ,760 | ,698 | ,746 |
| | enhancing_sum | ,696 | ,743 | ,767 | ,404 |
| | focused_sum | ,680 | ,720 | ,529 | ,613 |
| | developing_sum | ,669 | ,692 | ,692 | ,756 |
| | focusing_sum | ,662 | ,682 | ,639 | ,657 |
| | creating_sum | ,660 | ,681 | ,653 | ,660 |
| | enhance_sum | ,626 | ,664 | ,951 | ,964 |
| | focuses_sum | ,620 | ,633 | ,589 | ,599 |
| | model_sum | ,617 | ,629 | ,536 | ,598 |
| | creates_sum | ,578 | ,588 | ,497 | ,521 |
| 2 External market | adaptors_sum | ,954 | ,949 | ,993 | ,983 |
| | creatively_sum | ,908 | ,911 | ,898 | ,889 |
| | augment_sum | ,900 | ,904 | ,885 | ,899 |
| | innovating_sum | ,788 | ,796 | ,762 | ,767 |
| | augmenting_sum | ,723 | ,734 | ,694 | ,710 |
| | adaptive_sum | ,720 | ,718 | ,651 | ,657 |
| | differentiation_sum | ,342 | ,374 | <,3 | <,3 |
| | differentiator_sum | ,342 | ,371 | <,3 | <,3 |
| 3 External Partnering | identify_sum | ,766 | ,829 | ,705 | ,733 |
| | seek_sum | ,694 | ,709 | ,376 | ,414 |
| | partnering_sum | ,675 | ,678 | ,440 | ,437 |
| | enlarged_sum | ,666 | ,646 | <,3 | <,3 |
| | selection_sum | ,566 | ,624 | ,582 | ,606 |
| | explore_sum | ,550 | ,584 | ,535 | ,521 |
| | identifies_sum | ,474 | ,490 | ,353 | ,354 |

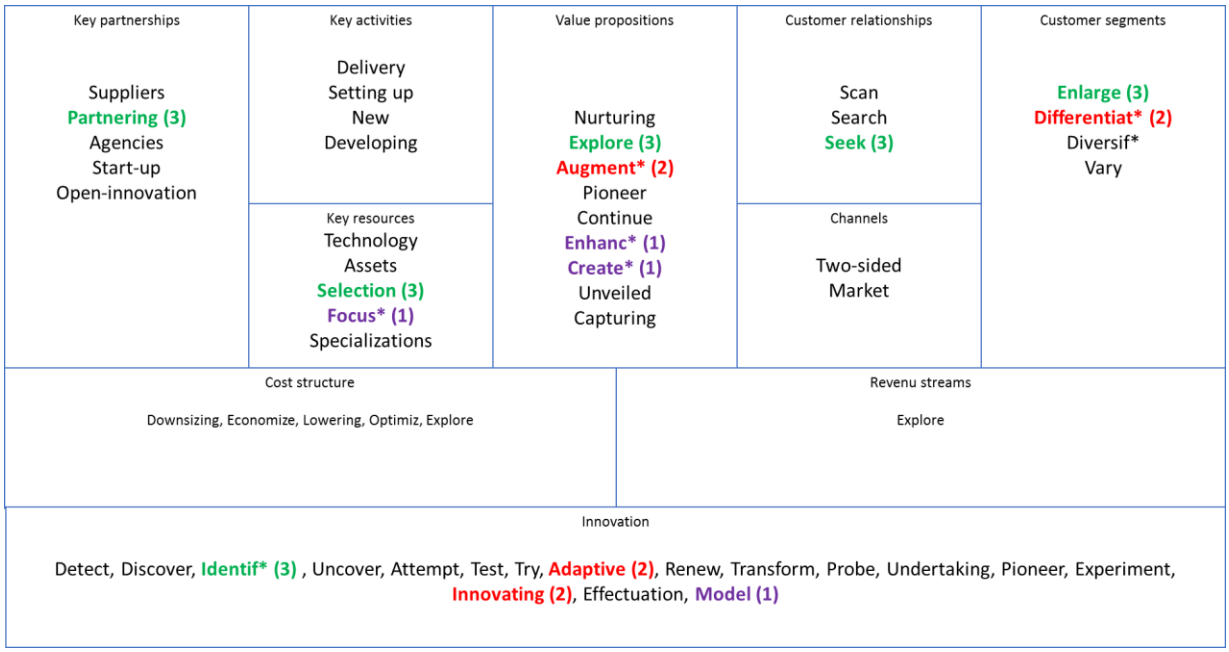
## 7.2 Appendix B: Factor words

Below an overview of the selection extracted in the factor analyses placed in the Business Model framework. Furthermore which word is found in which sample excerpt/ source file and interpreted to which factor.

1- Internally focussed Business Model innovation.

2- External market focussed Business Model innovation.

3- External partnering Business model innovation.




| Factor | Word | Sample excerpt | Source file (.pdf) | Coding/ framework |
|---|---|---|---|---|
| BMI Internal | Focus* | Whilst the broad macroeconomic environment will remain challenging, we are confident that our geographical ***focus*** on the stronger Central and Eastern European economies, our strategic approach to our portfolio and our detailed hands-on asset management will continue to set Atrium apart and yield strong results and value creation for all our shareholders. | 2323759040_t1_ atriumeuropeanrealestate2012 | Key resources |
| | Enhanc* | Through our research and development efforts, we leverage experienced analog and mixed-signal engineering talent and expertise to create new ICs that integrate functions typically performed inefficiently by multiple discrete components. This integration generally results in lower costs, smaller die sizes, lower power demands and ***enhanced*** price/performance characteristics. | 2528547040_t_Silicon Labs 2013 | Value proposition |
| | Create* | Looking ahead, Adecco is solidly positioned for the future. With our leading global position and diverse service offering, we will take advantage of growth | 2119498020_t2_adecco2012 | Value proposition |

| | | | | |
|---|---|---|---|---|
| | | opportunities. At the same time, we continue to focus fully on disciplined pricing and cost control to optimise profitability and value ***creation***. | | |
| | Model | The combination of Gemalto and Cinterion strengthens our position as leader in M2M modules, MIMs and device management. M2M technology connects devices across a wide range of industries to reduce cost through improved processes, and to generate revenues by enabling new business ***models***.<br><br>We have set up our business ***model*** to generate superior returns by ensuring it focuses on complementary and high return investments, is of a scale and breadth to endure short-term volatility and benefit from economies of scale and an entrepreneurial culture that permeates throughout it. | 2197022040_t_Gemalto NV 2010<br><br>2395705040_t2_Glencore International PLC 2014 | Innovation |
| BMI External market | Differentiat* | At Roche we believe that medically ***differentiated*** products benefit all healthcare stakeholders, from patients and physicians to regulators and payers. | 2330232040_t_Roche Holding 2011 | Customer segmentation |
| | Augment | Similar to our deals with PMU and ACF in France, the agreement, which covers poker and casino games, is designed to ***augment*** our B2C offering as well as generate additional revenue. | 2137453040_t_PartyGaming PLC 2011 | Value proposition |
| | Adapt* | Smaller companies new to our market have more flexibility to develop on more agile platforms and have greater ability to ***adapt*** their strategy and cost 16 structures which may give them a competitive advantage with our current or prospective customers. | 2356616040_t2_Citrix Systems 2013 | Innovation |
| | Innovating | Management finds delivered results largely impacted by instable and unfavourable macro profile that the company strived to deal with by: entering new distribution deals, launching new pharmacies/ specialised stores, optimizing retail prices (e.g. on Cedevita GO!) and ***innovating*** in product lines and design. | 2169418040_t_ATLANTIC GRUPA 2010 | Innovation |
| BMI External partnering | Partnering | TiGenix is starting the process for a technology transfer to a US Contract Manufacturing Organization (CMO) and the preparation for a Special Protocol Assessment (SPA) to file an Investigational New Drug (IND) application for a Phase III study in the US. In addition to the US, the Company is starting to contact companies that may be interested in ***partnering*** Cx601 in other regions, more notably South East Asia (China and Japan in particular). | 2284656040_t2_Tigenix 2013 | Key partnerships |
| | Selection | We have explored the technical parameters of smart meters by installing 2,000 of them in Dobruška, East Bohemia. In December, we announced the ***selection*** of the area around the city of Vrchlabí in North-East Bohemia as a Smart Region for use of smart meters with customer participation. | 1989359040_t_CEZ AS 2009 | Key resources |
| | Explore | We prefer to develop brownfield sites and ***explore*** close to our existing assets, which have a lower risk profile and enable us to utilise existing infrastructure, realise synergies and save costs. | 2395705040_t2_Glencore International PLC 2014 | Value proposition |
| | Seek | Although we are ***seeking*** to diversity our relationships in the area, our reliance on these third-party suppliers and contract manufacturers subjects us to risks that could harm our business, especially if these third-party suppliers and contract manufacturers remain concentrated in number. | 2356616040_t1_ Citrix Systems 2012 | Customer relationship |

| | | | | |
|---|---|---|---|---|
| | Enlarge | BNP Paribas CIB's ambition for North America is to increase distribution capabilities and ***enlarge*** its "real money" franchise for the Fixed Income and Equity Derivatives activities and build out a strong investment banking plat-form in the US, leveraging the estab-lished North American energy & com-modities franchise. | 2017599040_t_ BNP Paribas SA 2009 | Customer segmentation |
| | Identif* | Loomis' challenge remains to make sure it offers its customers efficient and secure cash handling services that allow them to focus on their own business. We can then gradually enhance our market p-sition and our brand further and ***identify*** new business opportunities going for-ward. | 2296150020_t2_Loomis AB 2013 | Innovation |