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## Implementation Process of Business Model Innovation – Research Results

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**Abstract:**

**Purpose:** BMI refers to “changes in the way the organization and its value-network create, deliver value and capture value /.../ or change their value propositions” (Bocken et al., 2014). While different aspects and factors shaping BMI are increasingly exploited by researchers, there is still a lack of studies presenting application approaches that will ensure the effectiveness of a systematic implementation process for BMI. The aim of this article is to examine the determinants of the process of implementing innovative business models in Polish enterprises.

**Design/Methodology/Approach:** The study was based on a five-stage BMI implementation process, in which individual phases were assessed from the perspective of entities involved in the cooperation, the resources used in the process, the encountered barriers and key implementation effects. Each of the 39 individual items included in the studied variables was assessed using a five-point R. Likert scale. The research was carried out using the CAWI method and covered a total of 235 randomly selected Polish enterprises.

**Findings:** The results of the research on the determinants of BMI implementation have shown that the most important partner are the buyers, the resource - technology, the result obtained - work efficiency, and that the key barrier is the lack of knowledge. The use of primary data allows this study to indicate the specificity of the implementation of individual stages of BMI implementation, which are presented in detail in the text.

**Originality/Value:** These results can serve as a valuable input for further research directions and practical application and constitute an extension of the concepts described in the literature, including e.g., Cambridge Business Model Innovation Process.

**Keywords:** Business model innovation, process, resources, effects, barriers, relationships.

**JEL codes:** 014, 030, O33, M10.

**Paper Type:** Research study.

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## 1. Introduction

Innovations are one of the key factors that give a company competitive advantage (Bowonder, Dambal, Kumar, and Shirodkar, 2010). But in a disruptive and turbulent environment, innovation management becomes increasingly challenging. To secure a favourable market position and long-lasting performance, a significant and complex change of the business model that will leverage all of the company's key components is needed. To discover a fundamentally new business model within the existing one is what is referred to as business model innovation (BMI).

There are many definitions of business model innovation. One of the most common and recognizable has been developed by Bocken *et al.* (2014) who state that it refers to “changes in the way the organization and its value-network create, deliver value and capture value /.../ or change their value propositions”. Such a statement identifies value as the most important element, which, when modified, constitutes the innovativeness of a business model.

Today, the phenomenon of innovating a business model, due to the development and utilization of new technology is more interesting and complex than ever before. According to Christensen (1997) companies can achieve BMI by adopting a technology-push and incorporating a technological breakthrough, which in effect would make them first movers in the industry. According to Chesbrough (2006), new technologies play a central role and are the success factors of the development and implementation of BMI (2010).

However, the successful implementation of BMI needs much broader perspective, one that will be based on a cross-analysis referring to several fields of interest i.e., innovation (Teece, 2010; Sorescu *et al.*, 2011), strategic management (Heikkilä, Bouwman and Heikkilä 2018; Lindgren, 2012), entrepreneurship (Trimi and Berbegal-Mirabent, 2012) and information systems (Rodríguez *et al.*, 2020).

Surprisingly, in the current body of literature, little is known about the “practical application approaches that allow for repeatability of a systematic process for BMI that could enable further advancement in this topic” (Minatogawa *et al.*, 2020).

This in turn leads to a series of questions that can shed light on the following phenomenon: Which external or internal actors play key roles in BMI implementation? Which resources are the main factor in implementing BMI? What effects and barriers do companies face when introducing BMI? These questions cannot be fully answered in any of the existing literature.

With this research gap in mind, the aim of this paper is to examine the determinants for the process of implementing innovative business models in Polish enterprises.

## 2. Theoretical Background

### 2.1 BMI and Resources

By applying the resource-based view (RBV) into BMI analysis numerous research fields can be outlined. For instance, the dynamic capability perspective underlines the importance of agility in quickly sensing and reacting to changes in the behaviour and preferences of customers, as well as the actions of the competition (Teece, Peteraf, and Leih, 2016). This dynamic aspect of the business model can help to understand how provided information, products and / or services are transformed using value added components. Therefore, in order to achieve competitive advantage, it is crucial to consider and match value creation architecture with strategic elements related to customers and markets (Wirtz *et al.*, 2016; Lukovszki, Rideg and Sipos, 2020).

At the same time, apart from focusing simply on the selection and configuration of resources, the method of organizing these resources becomes equally important and can provide additional value for the business, its strategy execution and overall performance. By leaning towards open innovation, the organization can make improvements in order to timely recognize opportunities in its environment, establish relations with other firms or exchange resources with partners and customers (Cassiman and Valentini, 2016).

Thus, acquiring a certain set of resources is of itself not sufficient, but proper mobilization and development of these can give the organization the right leverage (Hadjimanolis, 2000). Furthermore, many firms hesitate to allocate resources to BMI and this organizational inertia can lead to a lock-in of business model development. It is therefore crucial to recognize which resources and authority must be assigned for exploration and innovation of new business models to reduce uncertainty and support decision-makers (Björkdahl and Holmén, 2013).

### 2.2 BMI - Relationships with Various Types of Entities

The nature of BMI requires from a company the use of not only internal resources, but also the ones in possession of external entities. According to Schneider and Spieth BMI process is about utilizing a company's internal assets to benefit from external opportunities (2013). An approach where companies take advantage of links with external entities in order to accomplish innovation refers to Chesbrough's (2006) concept of open innovation. According to this author, BMI is the essential element of open innovation (Chesbrough, 2007; Huang *et al.*, 2013).

Relationships developed by a BMI can be described by the scope of influence which refers to many types of entities. There are some specific types of entities which are believed to be of utmost importance for innovation purposes, namely, buyer, conferences, fairs, exhibitions, supplier and competitor (Mielcarek, 2016).

However, little research exists which touches on business relationships and BMI in general (Bouncken and Fredrich, 2016; Laudien and Daxböck, 2015; Velu, 2016). When it comes to the buyer its role is to provide information about the market. Taking into consideration information extracted from the buyer, a company can implement necessary changes into the business model which would meet the requirements of demand.

Therefore, the buyer can be perceived as an entity providing incentives for BMI (Velu, 2016). In the context of BMI, a supplier can be engaged into the innovation process and contribute to generating value. As far as competitors are considered, they can trigger the BMI process (Laudien and Daxböck, 2015). Additionally, companies need to take the actions if competitors into consideration in order to maintain a competitive advantage. By doing so, they can use benchmarking to identify competitors' actions and based on that implement their own solutions.

### **2.3 BMI Effects and Barriers of Implementation**

Some authors, (Smajlović, Umihanić, and Turulja, 2019; Dymitrowski and Mielcarek, 2021) believe that BMI, especially those based on new technologies, have a positive impact on competitive advantage, but there are also those who think otherwise. For example, according to Christensen, Bartman and van Bever (2018) “a high volume of initiatives related to BMI fail. In other words, even if these initiatives are in an ideal scenario (. . .) it would still be difficult to achieve success in the implementation of such new BMs”.

Also Tohänean *et al.* (2020) stated that “changing the business model by introducing technological and sustainable components puts companies at high risk”. Chesbrough (2006), explores cognitive barriers and highlights the conflict between the certainty and exploration of current BM and the uncertainty and risk of implementing BMI (2010).

However, more academics have claimed that if the BMI concept includes theories of corporate sustainability, covering stakeholder management and sustainable value creation, the expected "outputs for the benefit of the company and their stakeholders; including, for example, resource efficiency, resilience to external shocks, better relationship with employees and communities, and higher profitability" (Geissdoerfer, Savaget, and Evans 2017).

A survey carried out by the Boston Consulting Group and BusinessWeek stated that BMI had an average four times higher premium than product or process innovators (Lindgardt and Reeves, 2013). Furthermore, according to BMI surveys, companies with faster growing operating margins were also twice as likely to implement BMI in contrast to product or process innovation (Amit and Zott, 2012).

## 2.4 Implementation Process of BMI

This issue is certainly multi-threaded, and referring to the literature, it is possible to indicate at least a few approaches to this phenomenon.

In the first approach research focuses on the cognitive issues of implementing BMI, i.e., presenting proposals that address ideation (Martins, Rindova, and Greenbaum, 2015) or design (Zott and Amit, 2015). This stream of reasoning points out that trial and error is a common method when it comes to implementation of BMI (Rayna and Striukova, 2016). “The iterative nature of the trial-and-error process allows the organization to introduce variations that results that converge with goals, and also fosters collective/organizational learning about both exploration and exploitation streams, promoting organizational change or stability at different times” (Sosna *et al.*, 2010 p. 386).

In this respect Ehrenhard *et al.* (2017) emphasize that in order to create value by their business innovation company proper operation of learning processes is required. Christensen *et al.* (2016) expand this approach by highlighting the necessity of the establishment of a specific business solution and mechanism that will be capable of creating ongoing proposals for new business models.

These conclusions direct us to the second research approach - searching for a pattern and modelling in the field of the implementation of BMI. Despite many proposals, there still exists a need for analysis that supports “practical application approaches that allow for repeatability of a systematic process for BMI that could enable further advancement in this topic” (Minatogawa *et al.*, 2020).

One of interesting concepts relating to this topic is Cambridge Business Model Innovation Process (Geissdoerfer *et al.*, 2017). In this model there are eight steps of creating and introducing innovation into BM (Table 1). For each of those phases specific activities and barriers were proposed. In this model the main point of the analysis focuses on processes as a logical sequence of actions but is lacking broader context of the utilization and implementation, such as applied resources, relationships with other entities or achieved effects. This gap can lead to the proposal of new, more comprehensive concepts.

**Table 1.** *The Cambridge Business Model Innovation Process*

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Source: Geissdoerfer et al. 201

Phases	Concept design			Detail design			Implementation	
Process	Ideation	Concept design	Virtual prototyping	Experimenting	Detail design	Piloting	Launch	Adjustment & diversification
<b>Activities</b>	<ul style="list-style-type: none"> <li>• Vision/purpose formulation</li> <li>• Stakeholder definition</li> <li>• Value mapping /ideation</li> <li>• Sustainable value analysis</li> <li>• Evaluation and selection of ideas</li> </ul>	<ul style="list-style-type: none"> <li>• Integration of ideas</li> <li>• Discussion of technological and general trends</li> <li>• Definition of value, creation, delivery and capture system / BM elements / BM dimensions</li> </ul>	<ul style="list-style-type: none"> <li>• Benchmarking with industry</li> <li>• Benchmarking with generic BM concepts</li> <li>• Prototype building</li> <li>• Prototype evaluation and selection</li> </ul>	<ul style="list-style-type: none"> <li>• Identification of key variables</li> <li>• Experiment design</li> <li>• Running experiment</li> <li>• Analysis and lessons learned</li> </ul>	<ul style="list-style-type: none"> <li>• Detailed definition of all elements</li> <li>• Overview of each element</li> <li>• Business transformation tool</li> </ul>	<ul style="list-style-type: none"> <li>• Planning</li> <li>• Implementation</li> <li>• Analysis</li> <li>• Adjustments</li> <li>• Documentation and communication</li> <li>• Identification of failure modes</li> </ul>	<ul style="list-style-type: none"> <li>• Realisation planning</li> <li>• Implementation</li> <li>• Scale-up</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring</li> <li>• Reflection</li> <li>• Adjustment</li> <li>• Scale-up</li> <li>• Diversification</li> <li>• Iteration of the business model innovation process</li> </ul>
<b>Challenges</b>	<ul style="list-style-type: none"> <li>• Failed identification of opportunities</li> <li>• Important stakeholder missed</li> <li>• Failed to integrate top management</li> <li>• Lack of ambition / innovativeness</li> </ul>	<ul style="list-style-type: none"> <li>• Insufficient mutual understanding</li> <li>• Insufficient understanding of boundaries of the company's capabilities to innovate</li> <li>• Communication failures</li> </ul>	<ul style="list-style-type: none"> <li>• Failed integration of important stakeholders into the process</li> <li>• Too much effort / prototypes become too big</li> </ul>	<ul style="list-style-type: none"> <li>• No experiments</li> <li>• Methodological issues</li> <li>• Too much effort</li> </ul>	<ul style="list-style-type: none"> <li>• Unsuitable level of detail</li> <li>• Missing information from previous steps</li> <li>• Insufficient documentation</li> <li>• Poor understanding of technology, media and telecommunications risk</li> </ul>	<ul style="list-style-type: none"> <li>• No pilots</li> <li>• Unrealistic setting</li> <li>• Too much effort</li> </ul>	<ul style="list-style-type: none"> <li>• Insufficient information about failure modes</li> <li>• Insufficient funding</li> <li>• Insufficient timeframe / expectations</li> </ul>	<ul style="list-style-type: none"> <li>• Premature, too little or too late adjustment</li> <li>• Unsuitable diversification</li> <li>• (agent motivations, missing competencies, no ownership advantages, ...)</li> </ul>

Source: Own study.

### 3. Research Methodology

The quantitative research was based primarily on data obtained using the CAWI method. The survey questionnaire contains 22 questions and uses a five-point Likert scale. The time range of the research covers the years 2021 and 2022. Either specialists or middle-class managers dealing with the issue of innovation and strategic management were the respondents of this research. The data obtained was further encoded and subject to further analysis.

A total of 278 responses were obtained. 235 enterprises that were transforming towards BMI during the analyzed period were qualified for further research. The structure in terms of employment, scope and period of activity and ownership of entities is as follows (Table 2).

Another important issue is the presentation of the operationalization of the studied variables. The process of BMI implementation itself consists of five stages: search, analysis, operational readiness, implementation of a business model change and control. For each of the stages, the most important partners, the resources involved, the results obtained and the barriers encountered were indicated.

**Table 2.** Characteristics of the research sample,  $n = 235$ 

<b>Employment size</b>	1-9 employees – 12,8%	10-49 employees– 22,6%	50-249 employees– 23,4%	250 employees and more – 41,2%
<b>Dominant scope of activity</b>	Transport and warehouse management– 33,6%	Industrial processing– 15,7%	Other service activities - 11,4%	Wholesale and retail trade– 11,1%
<b>Period of operation</b>	1-3 years – 15,7%	4-9 years – 17,5%	10-19 years – 25,5%	20 years and more – 41,3%
<b>Ownership of the subject</b>	National – 42,1%	International under foreign control – 35,3%	International under Polish control – 22,6%	

*Source:* Own study materials.

Another important issue is the presentation of the operationalization of the studied variables. The process of BMI implementation itself consists of five stages: search, analysis, operational readiness, implementation of a business model change and control. For each of the stages, the most important partners, the resources involved, the results obtained and the barriers encountered were indicated.

The following were distinguished among the partners: 1) suppliers, 2) buyers, 3) competitors, 4) the internal departments of the company, 5) other entities belonging to the company, 6) universities / research units, 7) financing entities (e.g., government agencies, banks), 8) administration. Nine different resources were examined: 1) employees, 2) organizational culture, 3) technology, 4) infrastructure, 5) know-how, 6) knowledge, 7) data, 8) financial resources and 9) dynamic capabilities.

The effects of the changes achieved as a result of the implementation of BMI include: 1) diversification of activities, 2) speed / duration of functioning, 3) flexibility and ability to change, 4) work efficiency, 5) employee retention, 6) increase in specialization, 7) innovation, 8) the amount of investment activity costs incurred, 9) the amount of operating costs incurred, 10) economies of scale and 11) benefits of scope and synergy effect.

The barriers include: 1) lack of knowledge, 2) lack of technology, 3) lack of skills, 4) lack of know-how, 5) lack of financial resources, 6) lack of suitable business partners, 7) costs, 8) time, 9) legal regulations, 10) lack of demand, and 11) pressure from competitors.

#### **4. Research Results**

Table 3 presents the results of research on the implementation of innovative business models (BMI) in Polish enterprises in the years 2021-2022.

One of the first aspects discussed in the research was to determine at what stage of BMI implementation the enterprises currently are. The most numerous groups of enterprises (over a quarter of the surveyed entities - 74 companies) is at the stage of analysis, which means that these enterprises prepare scenarios, assess the current status situation and form their further action plan on innovative models. The remaining companies participating in the study assessed their BMI implementation phase as follows:

- about one-fifth of them (52 companies) are at the stage of operational readiness, i.e., at the time of collecting, configuring and adapting resources to change,
- another group of enterprises (over 20% of companies) is at the stage of implementing a change in the business model; this means that these companies design and adapt individual elements of the business model to changes, on the other hand, only about 7% of companies were in the control phase - at the stage of summaries and final recommendations - and just over 10% of companies were in the search phase, i.e., at the initial stage of identifying opportunities and internal conditions.

This distribution means that almost two thirds of the surveyed companies (185 entities) are in the middle or at the advanced phase of the implementation of the BMI process. The study also assessed the impact of individual entities on the applied changes in the business model. The results of the survey show that buyers, suppliers and competitors are the most important partners contributing to changes in BMI for more than half of the surveyed companies. 124 companies identified the impact of these entities as significant or very significant. In this way, they assessed the company's partners who are at the initial stage of BMI implementation, at the analysis stage and at the control stage.

On the other hand, the company's internal departments played an important role for companies at the stage of readiness and in the phase of implementing a change in the business model (i.e., for a group of 111 entities). The gathered results for all surveyed enterprises show that the key entities influencing the change in the business model are primarily buyers, suppliers and competitors.

Very diversified results were obtained in the field of the assessment of resources influencing the process of BMI implementation in Polish enterprises. The technology received the highest ratings, recognized by over four fifths of companies (215 entities) as a very important resource. Technology alone was not assessed as the most important resource contributing to BMI change except in the group of

companies at the final stage of the process.

Employees were equally highly rated as a particularly important entity in the process of BMI change. Employees were particularly appreciated by companies in the search phase (average rating 4.10), by companies at the operational readiness stage (average employee rating 4.25) and by companies at the control stage. The research results also prove that financial resources were particularly important for companies at the stage of operational readiness.

The results of the study indicate the power of influence that technology, employees, stable effective processes, data and financial resources can have on the process of BMI implementation. Interestingly enough, organizational culture has only been recognized as an important resource by companies that are at the last stage of the BMI implementation process. The research results also illustrate the key effects of companies that have decided to implement innovative business models. It is an important part of the study showing the actual changes in the functioning of enterprises. The overwhelming majority of the surveyed entities (182 enterprises in the first three phases and in the last phase of the BM implementation process) noticed a significant change in labor productivity.

These results correspond to Eurostat data, according to which labor productivity in Poland in the last decade, i.e., in 2010-2020, increased by as much as 25.8 percent (Eurostat, 2021). On the other hand, the effect in the form of increased innovation was observed especially by companies in the first, second and fourth phases of the business model change process.

The results of the study also indicate that a significant effect of implementing BMI was flexibility and the ability to change. This effect was indicated mainly by companies in the operational readiness phase, in the business model change implementation phase and in the control phase (over 120 enterprises in total). Yet the effect in the form of speed in functioning was noticed especially by companies that are at the stage of implementing a change in the business model, i.e., at the stage of actual implementation of planned changes. The focus on speed in the implementation and execution phase is fully understandable since the time of action is crucial here.

Another effect noticed by the surveyed companies was the reduction of operating costs. This positive change was observed mainly by companies that are in the early stages of the BMI process.

Summing up, the most important effects for the entire surveyed population of enterprises were, first of all, improvement in labor productivity (rating at the level of 4.18 as a very important factor), then an increase in flexibility and the ability to change (the obtained result at the level of 4.06) and the speed of functioning (rating at 4.04). The results of the study also show what the main barriers to introducing

changes in business models were. The most frequently mentioned obstacle was the lack of sufficient knowledge. More than 200 surveyed companies, i.e., the majority of surveyed entities, “complained” about this barrier. An equally frequently mentioned factor that hindered the implementation of BMI was the lack of financial resources.

**Table 3.** *The BMI implementation process in Polish enterprises in the years 2021-2022, n = 235*

Specification of the tested elements	The phase of implementing the Innovative Business Model					The aggregate result for the implementation of BMI in the surveyed companies
	Search phase	Analysis phase	Operational readiness phase	Business model change implementation phase	Control phase	
<b>The number of enterprises</b>	n=30	n=74	n=52	n=59	n=20	n=235
<b>Description of activities</b>	Detection of external and internal opportunities for the needs of changing the business model	Preparation and evaluation of development scenarios. Formulating a further action plan	Collecting, configuring and adapting resources to change	Designing and adjusting individual elements of the business model	Assessing business model changes and formulating further changes and recommendations	Not applicable
<b>Partners</b>	Customers 4.10 Suppliers 3.80 Competitors 3.73	Customers 4.36 Suppliers 4.12 Competitors 3.88	Customers 4.02 Suppliers 3.92 Internal departments of the company 3.67	Customers 3.95 Internal departments of the company 3.81 Suppliers 3.76	Customers 4.30 Competitors 3.80 Suppliers 3.65	Customers 4.14 Suppliers 3.92 Competitors 3.75
<b>Resources involved</b>	Employees 4.10 Technology 4.10 Data 4.07	Technology 4.36 Data 4.20 Stable, efficient processes 4.13	Employees 4.25 Financial resources 4.24 Technology 4.08	Technology 4.54 Stable, efficient processes 4.32 Employees 4.19	Stable, efficient processes 4.32 Employees 4.30 Organizational culture 4.20	Technology 4.24 Financial resources 4.20 Knowledge 4.16 Data 4.16
<b>Key Effects</b>	Labor productivity 4.17 Innovativeness 4.13 Reduction of operating costs 3.93	Labor productivity 4.21 Innovativeness 4.14 Reduction in operating costs 4.08	Labor productivity 4.12 The speed of functioning 3.98 Flexibility and the ability to change 3.94	Operation speed 4.25 Flexibility and the ability to change 4.22 Innovativeness 4.19	Labor productivity 4.20 Reduction in investment costs 4.05 Flexibility and the ability to change 4.00	Labor productivity 4.18 Flexibility and the ability to change 4.06 Function speed 4.04
<b>Barriers</b>	Lack of financial resources 4.20 Costs 4.14 Lack of technology 4.13	Costs 4.01 Lack of knowledge 3.89 Lack of funds financial 3.89	Lack of technology 4.04 Lack of knowledge 4.02 Lack of funds financial 4.02	Lack of knowledge 3.86 No skills 3.86 Lack of time 3.84	No skills 4.15 Lack of financial resources 4.10 Lack of knowledge 4.10	Lack of knowledge 3.95 Lack of funds 3.93 No technology 3.92

**Note:** *The answers were given on a scale of 1-5, where 1 means completely irrelevant, 2-insignificant, 3-I have no opinion, 4-significant, 5-very important.*

**Source:** *Own study based on research results.*

This shortage was a problem for companies at almost all stages when changing business models. This barrier was not assessed as a key factor except by companies in the stages of implementing a change in their business model. Another frequently mentioned problem in implementing BMI was the lack of appropriate technology. What is more, technological shortcomings were noticed mainly by companies in the initial stage of changing the business model. The key barriers identified by enterprises also included costs, lack of skills and shortage of time.

## 5. Conclusions

The aim of this paper was to examine the determinants of the process of implementing innovative business models in Polish enterprises. The study was based on a five-step process and allowed for the identification of the specificity of the implementation of individual stages. Based on the results, several conclusions can be formulated:

- 1) BMI transformation is market driven, as the main partners in this process are customers, suppliers and competitors. This observation keeps in line with key literature findings (Velu, 2016; Mielcarek 2016).
- 2) In terms of the utilization of different resources, technology plays a key role, which also confirms the existing body of literature (Christensen, 1997; Chesbrough, 2010). Success of a company's BMI based on new technologies results from controlling its resources and maintaining their continued relevance by adapting and innovating them along with changes, for its customers (to generate revenue), and for its suppliers (that generate costs) (Gambardella and McGahan, 2010). Then, next, in terms of importance of resources, are the financial resources (Anwar and Shah, 2020), the data and the knowledge (Minatogawa *et al.*, 2020).
- 3) What is especially interesting is that the limitation of those resources can be the main disabler of BMI implementation. Surveyed companies were especially vulnerable to the lack of knowledge and funds. This has helped to garner new insight in comparison to typically indicated barriers of BMI implementation such as risk (Tohãnean *et al.*, 2020).

Going beyond the presented framework, one of the common literature recommendations is that firms that apply a trial and error approach to business model changes allow to “introduce variations that produce results that converge with goals, and also fosters collective/organizational learning about both exploration and exploitation streams, promoting organizational change or stability at different times” (Sosna *et al.* 2010) and helps in mitigating risk (Rayna and Striukova, 2016).

However helpful this approach may be, the authors believe that managing BMI based on the comprehensive model with detailed and distinct phases of the implementation process may prove to be a more effective approach. Hence, it is postulated that to go through all the defined stages with due commitment and diligence will enable the applicability of the model in business practice.

The presented survey is not free from limitations. Foremost is the limited scope of the research. It would be interesting to add a more detailed list of resources, partners, effects and barriers or other important elements that can supplement the presented model. Secondly, there is concern extending to the research population with the need to cover foreign companies, and in result present a more valid proposal. A third hypothetical is about showing more detailed patterns of results depending upon the size of companies, industry, level of innovation or other key variables. And finally, the importance of using a statistical analysis that can leverage understanding of the gathered data and hidden dependencies within.

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