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Does BMI help business to succeed?

MARIKKA HEIKKILÄ, JUKKA HEIKKILÄ, HARRY BOUWMAN & OLLI HEIMO

Abstract This study investigates if BMI helps business innovation to succeed. We analyzed 27 SME cases having differing combinations of Business Model Innovation (BMI), New Product Development (NPD) and effectuation methods. We also analyzed the drivers and market strategy of the SMEs. We found out that typical SME innovation success cases combine at least two methods of implementation, such as BMI and NPD, and focus on low-end market. Effectuation in combination with the aforementioned seems to play significant role as well.

Keywords: • Business Model Innovation • New Product Development • Effectuation • SME • Success • Markets •

CORRESPONDENCE ADDRESS: Marikka Heikkilä, PhD, Research manager, University of Turku, CCR, School of Economics, Turku, Finland, e-mail: marikka.heikkila@utu.fi. Jukka Heikkilä, PhD, Professor, University of Turku, School of Economics, Turku, Finland, e-mail: jups@utu.fi. Harry Bouwman, PhD, Associate Professor, TU Delft, Faculty of Technology, Policy and Management, Delft, The Netherlands, e-mail: w.a.g.a.bouwman@tudelft.nl. Olli Heimo, PhD, Project researcher, University of Turku, School of Economics, Turku, Finland, e-mail: olli.heimo@utu.fi.

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1 Introduction

In economics, innovation is an important catalyst for growth. Without innovation business is eventually deemed to fade away, as competitors bring new solutions to market. Previously, it was commonly accepted that companies should follow New Product Development (NPD), a typical research and development (R&D) process leading to market entry (Samli & Weber, 2000; Bishop & Magleby, 2004). Today, by far most organisations have heard about Business Modelling; Business Model Innovation (BMI) has been found to have a positive impact on overall business performance (Pucihar et al., 2019) and has been promoted as a must when creating new products and services regardless of maturity of the markets, also for micro, small and medium sized organizations (SMEs) (Heikkilä et al., 2018). At the same time, the entrepreneurship literature has proposed a new theory, effectuation, which describes entrepreneurial action when innovating new market artefacts (Sarasvathy, 2001a,2001b).

NPD is suggested to improve the capability of the organisations to bring new innovations into market. Similarly, effectuation is suggested by the literature as the force that provides the entrepreneurs stamina to adapt and carry out their business. BMI, in turn, is suggested to lead to viable business. Despite the wide interest in the abovementioned innovation approaches, there are not yet studies combining these three topics. To fill this gap, *this paper analyses whether BMI, or effectuation and NPD have an effect on the success of SME innovation.* We construct an analysis framework, which we utilize in evaluation of 27 cases of SMEs. We categorize case SMEs in three groups according to the performance (success, survival, failure), and then analyze their innovation process' drivers (technology push, market pull), approaches (NPD, BMI, effectuation) and market strategy (low end, high end, new market). This allow us to draw conclusions on the interplay between BMI, NPD and effectuation, and especially on the importance of the BMI for SMEs.

The paper is structured as follows: In chapter 2, we describe our analysis framework which consists of the drivers, innovation approaches, market strategies and performance of SMEs. We explain data collection in chapter 3 and analysis in chapter 4. Results are described in chapter 5. The paper end with conclusions.

2 How SMEs innovate and perform: the framework

Our analysis framework consists of three innovation drivers, three innovation approaches, three market strategies and, finally, three levels of performance. Next, we will explain each in turn.

2.1 Innovation drivers

Technology pull is often the starting point in R&D projects within the organisations. These projects follow a process were the new innovation is developed into a product that can be manufactured effectively and economically and then sold on the market. Radical breakthroughs are more likely to be achieved through technology push.

Alternative innovation driver is *Market pull*, which refers to market demand for a new product or a solution to a problem. These needs might be perceived by an entrepreneur, for instance through market research, which assesses what needs exist, how far they are met by existing products and how the needs might be met more effectively by means of a new or improved innovation. Market pull more often leads to incremental innovations.

Recent research suggests that technology push and market pull are complementary and necessary for NPD (Scaringella et al., 2017; Sarja, 2016).

Sometimes, the driver for innovation is very *personal*. The entrepreneur has a strong need to do something, for instance improve some product, provide a service or solve a problem which the entrepreneur would value high personally. Or the entrepreneur enjoys the production itself, such as artists creating art pieces.

2.2 Innovation approaches

In *NPD* approach every new product innovation passes through a series of stages starting from idea generation and idea screening, then continuing with concept testing, feasibility study and product development, and ending with test marketing and market entry. It requires ample resources and competent staff not

easily found in SMEs (Samli & Weber, 2000). This implies that the innovation would happen more in large organisations rather than in SMEs.

BMI thinking changes how an organization approaches innovation. Instead of focusing on development of new products, the company analyses the value proposition it can provide to selected customer segment(s), and describes the processes, resources, and partners needed to produce it, as well as the financial arrangements (Foss & Saebi, 2017). Evidence suggests that new business models have often been the source, and not the outcome, of industry change (Markides, 2008; Christensen et al., 2016). Companies in 'traditional' industries have been able to generate supernormal profits by designing new business models in the presence of major technological progress, or in the absence of regulatory limitations. These new business models have boosted large-scale disruptive industry change reaching far beyond reacting to changes in business environment, or developing new products. It is about being active in innovating and implementing radically new ways of doing business by the management.

Whereas BMI and NPD literature are mostly focused on causal approaches on developing business towards a given goal, the emerging entrepreneurial literature emphasizes the *effectual* side of businesses, which is considered as the inverse of causal. Whereas causal rationality starts with a pre-determined goal and a given set of means, and seeks to identify the optimal, such as fastest, cheapest, or most efficient alternative to achieve the given goal, the effectuation process is highly subjective, starting from the passion, capabilities and resources of the entrepreneur, and then selecting between possible effects that can be created with that set of means (Sarasvathy, 2001a). Studies on SMEs survival provide evidence that entrepreneurial originality and passion may compensate SMEs' limited resources (Stenholm & Renko, 2016). An effectuating entrepreneur focuses on the controllable aspects of an unpredictable future and is thus in better position to exploiting contingencies that arise unexpectedly over time (Sarasvathy, 2001b). The entrepreneur would define the market as a community of people willing and able to commit enough resources and talent to sustain the business, and creates the market by bringing together enough stakeholders, who buy into the business idea.

2.3 Market Strategies

For the analysis we categorize the market strategy using Christensen & Raynor (2003) division into three differing market strategy:

Many innovations are improvements of current products. These *High-end market* innovations seek to provide better and more sophisticated solutions to present market. The products have improved, rich, and expensive set of features.

Alternatively, the new innovation may also focus on *Low-end market* products, where the products compete by lower prices and quality. This means that some customers are served better by providing simple choice for unbundled service at more affordable price (e.g., Ryan Air vs. British Airways).

A third alternative *New market* takes place when it becomes possible to serve customers, who were not previously served by existing companies. Break-through on an uncovered market is a dream of every innovator, getting onto the 'blue ocean' instead of severe competition on the 'red ocean' (Kim and Mauborgne, 2005). New markets are claimed to be boosted by open networked innovative activities (Christensen et al., 2009), where the incumbents seem to be at their weakest. In essence, the New market creation is about design, thinking out of the box, relating it to the external environment, and managing the implementation fast.

2.4 Performance

We divided the SMEs into three groups according to their performance after the innovation:

Failure: The business/innovation fails. For instance, the product is redrawn from the markets, or business is in solvency, or bankrupt. *Survive*: The business/entrepreneur is hanging on, or at high burn rate. It is avoiding failure, but is not generating profit either. *Success*: Business building on the innovation is clearly profitable.

2.5 The framework

Figure 1. summarizes framework in this paper. It links three potential drivers (technology push, market pull, personal), three methods for innovating (NPD, BMI, effectuation) and three market strategies (low-end, high-end and new market) with performance, with three categories (failure, survival, success).

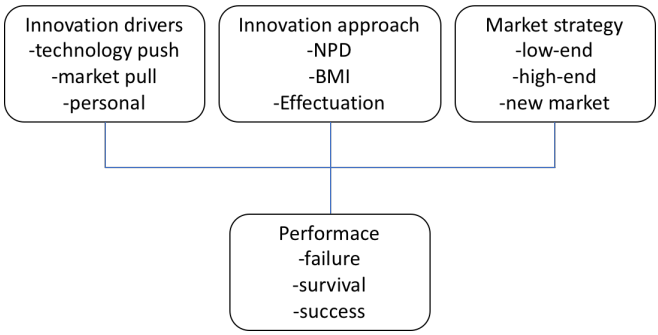

Figure 1. The framework

3 Data collection

The case studies of SMEs (as defined by EU, 2003/361/EC) were collected as a part of a European wide research project. The SME cases were selected on the basis of purposive sampling resting on the researchers' judgments aligned with research goal. We defined the following case selection: SMEs, which explained their innovation activities, market strategy and have clearly evaluated the successfulness of their innovation, or it is evident (such as bankruptcy). After using these criteria, we had a set of 27 cases.

Case data were collected between 2015 and 2017 by partners in the research project. A case study protocol, together with a fixed case report format, contained instructions for interviews and guidelines for the use of triangulation techniques, both in data collection and data analyses.

Studying SMEs is challenging because the key informants, as well as primary and secondary data sources, are scarce. The number of people that qualify for interviews is limited. Written documents with clear descriptions of strategic

objectives and long-term plans are not often available. The interviewees were primarily with owners, core managers or people responsible for BM Innovation or business development. Interviews lasted from half an hour to two hours, but on average lasted about an hour. Following standard procedures in case study research, we further triangulated our primary data source with secondary documents and website information to cross validate factual information about the cases.

The case data includes background information, such as age, size, industry, ownership, and management team formation. We collected information on the firm's culture and innovativeness, backed up with factual information on R&D. We also collected information on the value proposition and BM, and the focus of innovation. All data (interview recordings, transcripts, the case reports etc.) are stored in a structured and secure database.

4 Analysis

We take a backwards approach and start the analysis from the performance: 10 of the cases ended up in failure, 7 were surviving, and 10 were successful.

Failed SMEs

Let's take the first example of a failure: **Atelier** (Table 1) started as self-employed artist 12 years ago. The driver for innovation was not technology, but mainly the entrepreneur wanted to create new and improved products following artistic visions. The entrepreneur was devoted to creating handicraft products (NPD) by combining raw materials in novel ways. Despite the innovative products, the production did not scale up, customers were hard to reach, and timing depended on fashion rather than on Atelier's action. The Atelier had a store where it sold products to tourists (mainly in summer), or locals looking for a birthday gift etc. It also imitated the competitors by being present in Facebook and in online store. In 2015 the entrepreneur hired a person to run the store and administrative matters. Unfortunately, the sales could not to cover increasing costs. The business was closed one year later. But, already the same year the entrepreneur started experimenting with a new business idea related to life style coaching. The case is typical case driven by effectuated entrepreneur.

Table 1: Atelier

DRIVER	INNOVATION APPROACH	MARKET STRATEGY	PERFORMANCE
Personal: *The entrepreneur wanted to create new and improved products following artistic visions of which customers appreciated.*	**NPD:** *The entrepreneur was putting majority of effort to development of new products.* **Effectuation:** *The entrepreneur combined raw materials in new ways.*	**High-end market:** *Unique, high style design products.*	**Failure.** *The business was closed. Soon the entrepreneur was experimenting with a new business idea.*

Another failure case is **EcoContainer** (Table 2). The aim of the start-up was to provide a new product/service to the market. For this purpose, the start-up was at the same time getting started with the technical design and designing the business model. The idea for the product initiated from a project in which the entrepreneur was employed a few years ago. The SME wanted to create a high-tech solution for cultivating salad and herbs. The solution comprises a renovated container, where ecological local food can be cultivated efficiently. "*Our solution is ideal for example for restaurants and institutional kitchens wanting to produce their own ingredients. The modules also serve as an excellent option for farmers to replace their traditional greenhouses with*", explained the entrepreneur. He hired two persons to his newly established company and started to do concept design. At the same time, the SME contacted many potential partners they needed in producing the product. It also contacted several research organisations, among others the local university which helped in business modelling. Already in the initial project they had sketched first BM, but now they had to rethink their customer segments; the SME listed many B-to-B segments they hoped to get interested in this new technology. However, the segments needed to be served with differing BM. Similarly, the partner analysis and matrix tools revealed big challenges in managing large partner network, especially because the start-up was not able to provide value (or money) back to them. Moreover, the funding institution, from which the SME applied funding for piloting, set as a prerequisite that the pilot is to be made with a potential customer. The SME did not manage to find a pilot

customer or get a deal with partners, and run out of money. One year after establishment, the SME went into bankruptcy.

Table 2: EcoContainer

DRIVER	INNOVATION APPROACH	MARKET STRATEGY	PERFORMANCE
Technology: *The entrepreneur wanted to create a product making use of advanced technology.*	**NPD:** *The concept design and detail engineering design was carried out, pilot product was to be created.* **BMI:** *The SME designed BM Canvas and analyzed the partner network.* **Effectuation:** *As the start-up did not have own funds and no turnover, the entrepreneur took advantage of pay subsidies etc. to hire personnel. It also tried to convince partners to do work for free.*	**New market creation:** *A high-tech product or service for B-to-B customers. This would build a new market.*	**Failure.** *The business was closed after one year. No pilot product was made. Fail fast.*

Looking at the list of all **failure cases** below, there seem to be one recurring pattern - Technology driven product aiming at New market disruption. In all cases, except the Atelier case, the driver for innovation is technology. Furthermore, the new high-tech product typically aims at creation of new markets. Regardless of the implementation method these endeavors tend to fail. In five out of nine failures cases also BMI was used.

Table 3: Failure cases

CASE	DRIVER	INNOVATION APPROACH	MARKET STRATEGY	PERFORMANCE
Atelier	Personal	Effectuation, NPD	High-end	Failure
Share your storage	Technology	NPD	Low-end	Failure
EcoContainer	Technology	NPD, BMI, Effectuation	New market	Failure
FitCity	Technology	NPD, BMI	New market	Failure
In-store analytics	Technology	NPD	New market	Failure
MobiFish	Technology	NPD	New market	Failure
Poolhere	Technology	BMI	New market	Failure
Rate the club!	Technology	BMI	New market	Failure
Sports prescription	Technology	BMI	New market	Failure
Big Data analytics for SMEs	Technology	NPD, BMI, Effectuation	New market	Failure

Success SMEs

In total there were ten success cases. Next, we describe two of them.

Electronic Medicine Dispenser (Table 4), established in 2003, is a high-tech company with technology-push approach. Its innovative new dispenser service was expected to have pull from the market: in addition to its main value proposition of providing improved dispensation safety and quality of medication to the patients, it could promise cost savings to the hospitals and nursing homes. The company is experienced in NPD, but in this case, they used also BMI (BM canvas and ecosystem analysis) to support the process. Business modelling revealed that the envisioned product was not lucrative enough for one of the key partners in terms of business. Therefore, SME decided to discontinue the development, and instead, focus its NPD & BMI efforts onto more potentially profitable and feasible products. Even though the dispenser service failed first, company's partners eventually implemented a derivative design and brought it to market with SME's major incumbent partner, which is a visible actor with a

credible reputation on the market. SME is employing around 120 persons and runs profit. Their present implementation of the service scales up well, and was synchronized on time with the incumbents' product launch to gain momentum. The case was relying on NPD combined with BMI.

Table 4: Electronic medicine dispenser

INNOVATION DRIVERS	INNOVATION APPROACH	MARKET STRATEGY	PERFORMANCE
Technology push: *Electronic dispensing device and remote monitoring of medicine use.* **Market pull:** *Cost saving through reduced need of patient visits, improved safety and quality.*	***NPD:*** *The company was accustomed to creating high-tech products.* ***BMI:*** *BM and ecosystem analysis revealed that the BM is not viable for one of the main partners.*	**Low-end:** *The aim was to use high-tech to provide cost saving and affordable service for current market.*	**Failing first, then success.** *The business development was discontinued, the SME put its effort in other business ideas, but ramping up at opportunity. The SME is profitable.*

Also**, My Apple tree** (Table 5) is an interesting case, because it is a rare example of business that has succeeded in New-market creation. A farmer in 6th generation, owns fields in the Southern Finland. The main business is grain production and snow removal. In 2013 Rikard decided to get serious with apple farming and planted 1100 apple trees. The risk in growing apples is quite high as the trees are easily damaged by the winter frosts and the crops are smaller compared to southern countries. Before launching the business, he studied consumer trends and alternative business models. Learning from two growing trends - sense of community and local food movement - and copying ideas from Community Supported Agriculture he launched his apple business. Instead of selling the apples in local markets or through supermarkets, he sells via his own web shop annual shares of apple trees. That is, instead of buying apples the customers are purchasing shares of the apple orchard. The value proposition is not really about apples that you can eat, but it is more the idea of owning a piece of beautiful orchard, and supporting cooperative local farming.

The SME keeps in touch with his clients by writing emails and posting pictures and stories on Facebook about growth of apples and other happenings and operations in the orchard. As the orchard is situated near its customers, they can also have picnics under the apple trees. This business model builds on yearly contracts of appleshares with fixed price paid in advance the autumn before for the actual harvest. The SME and the clients share both the upside and the downside risk in apple growing. If the crop of the particular summer is low, the clients will get less apples. On the other hand, if the crop is plentiful each customer gets more apples than expected. When harvesting the SME has no transportation costs; customers are fetching the apples from the farm. Of course, if a customer wishes to do so, she can also harvest the apples by herself - with no extra payment. Unfortunately, this new business model does not scale up easily. There is only limited number of trees that can be planted and demand is limited.

Table 5: MyAppletree

INNOVATION DRIVERS	INNOVATION APPROACH	MARKET STRATEGY	PERFORMANCE
Market pull: *The SME studied the consumer trends in food business and took advantage of growing trends - sense of community and local food movement.* ***Personal:*** *The SME is passionate in seeking ways to improve business in agriculture and food sector.*	***BMI:*** *The whole business is built on the innovative BM.* ***Effectuation:*** *The SME is passionate in seeking ways to improve business in agriculture and food sector.*	**New market:** *The value proposition of owning a piece of beautiful orchard, and supporting cooperative local farming is focused on new market.*	**Success but only with limited turnover.** *The business model does not scale up easily. The entrepreneur needs to have other businesses as well to earn his living.*

Typical for success cases that are listed below is that they tend to 1) focus on low-end market. The products are offering cost efficient solution to customers (such as easy scanning and sending of receipts to bookkeepers). They also typically 2) combine at least two methods of implementation, such as NPD and

BMI. Compared to failure cases 3) effectuation appears as a driver mostly in combination with some other driver. 8 out of 10 success cases had used BMI. High effectuation in low-market may also sometimes lead to success.

Table 6: Success cases

CASE	DRIVER	INNOVATION APPROACH	MARKET STRATEGY	PERFORMANCE
Electronic medicine dispenser	Technology	NPD, BMI	Low-end	First failure, then success
Electronic receipts for bookkeeping	Technology, Market	NPD, BMI	Low-end	Success
Green Bull	Market, personal	BMI, Effectuation	Low-end	Success
Portable Medical Device	Technology, personal	NPD, BMI, Effectuation	Low-end	Success
Sewing services	Market	NPD, Effectuation	Low-end	Success
SportEquipment eStore	Technology, personal	NPD, Effectuation	Low-end	Success
Hardware store	Technology, personal	NPD, BMI, Effectuation	Low-end	Success
Wind Energy Technology	Technology	NPD, BMI	Low-end	Success
Portable Solar Cells	Technology, Market, personal	NPD, BMI, Effectuation	High-end	Success
MyAppletree	Market, Personal	BMI, Effectuation	New market	Success (with small turnover)

Survival SMEs

We categorized seven cases as survivals. Let's have a closer look at three of them.

Bus tours (Table 7) is a micro-sized travel agency. It is owned by a married couple and arranges low-price tours to the neighboring country from where the wife originates from. In 1991 when the company was founded, the husband drove a mini-bus and the wife was a guide for small groups of tourists. Now they have three additional workers. The husband is sometimes pondering whether growth is a plausible option for their firm. However, the wife is reluctant to make the extra effort and therefore they have decided to keep it as it is. Therefore, the

SME cannot be reached through Internet, but the customers can phone, send email or visit their office. But, the company relies on a good reputation they have on the market. The decision of the SME not to make any changes in their business shows: during last three years their turnover has declined by 40%. The company is still in operation but is making loss.

Table 7: Bus Tours

DRIVER	INNOVATION APPROACH	MARKET STRATEGY	PERFORMANCE
-	***No.*** *Does not want to change*	***Low-end***	***Survive.*** *Radical decline in turnover. Making loss.*

Green wall (Table 8) started from the idea of the founder, who suffered from poor in-door air quality. He wanted to improve the air quality by bringing part of nature inside, i.e. living plants. He started to build a green wall with a fellow university student, who had both practical and theoretical knowledge on purifying water with ecological means. The first prototypes were put together of plastic and duct tape. Simultaneously, they were designing business models using BM canvas. The challenge was to make the product look good and the plants flourish. So, they developed a remote sensing system with embedded sensors to measure the status of the green wall and its environment. This data is analyzed automatically in a cloud software. The adjustments to the plants' growth parameters are fed back to the green wall at customer's premises. Yet, the system needs regular manual maintenance (watering etc.). Imitating benchmark companies from other industry sectors, the SME decided to bundle all – green wall, remote control and maintenance – into one service, which it leases to b-to-b customers. Right timing is hard, despite the good visibility, because the maintenance does not scale up well. Initially the target was new market entry, but later they redesigned the BM and refocused on clean tech markets, and have alliances with large incumbent firms, which could help in securing maintenance services in selected cities. The personnel of the company increased from 3 to 60 in five years of operation. It is making loss, but has doubled its turnover for the last two years. Thanks to its iterative BMI and NPD, (it's been awarded too), the SME is seen attractive by the investors and even crowd funders.

Table 8: Green wall

INNOVATION DRIVERS	INNOVATION APPROACH	MARKET STRATEGY	PERFORMANCE
Technology push: *Sensors, biodynamics, embedded SW (patented).* **Market pull:** *Clean-tech forerunner related with high growth potential.* **Personal:** T*he product idea came from the CEO who suffered from poor indoor air quality.*	***NPD:*** *The entrepreneurs created prototypes and minimum viable products to test the product with users.* ***BMI:*** *Simultaneous development of product and BM with canvas.* **Effectuation***: The first prototypes were created of duct tape and some plastic boxes.*	**High-end:** *High-quality service, requiring both remote and on-site maintenance, cooperation with major, local incumbent firms.*	**Survive.** *The company is making loss, but has doubled its turnover for the last two years. The size of the company has increased from 3 (2012) to 60 (2017). Product story is lucrative to investors.*

Everyone deserves a garden (Table 9) is an SME initially established by a designer, who had the vision to create a beautiful consumer product for cultivation of herbs in-house. With partner network – such as researchers specialized in greenhouse cultivation - the micro-sized start-up company developed, and recently patented world-wide its unique IT-controlled led light and growth system. In parallel with NPD, they started using BMI tools to design and revise their business model and value proposition (they imitate the BM of Nespresso with alterations), analyze the potential markets, and to create user profiles (i.e., 'personas'). This way they dared to abandon a fancy and fashionable mobile app for the users, as their analyses proved that there were no markets for remote control feature. The product is competing with other high-end consumer products, because there have not been direct competing products. To increase its sales, the company refocused its sales channel strategy from design shops to high-end malls and warehouses. In four years of operation the size of the company has been growing from four to 13 people. Thanks to its awarded and

patented product the SME is attractive to the investors to raise capital, but it has not been able to reach the planned turnover targets and is making loss. Scaling up the production is possible, but the market is still emerging – it seems the visibility of the product and timing of market entry are not optimal.

Table 9: Everyone deserves a garden

INNOVATION DRIVERS	INNOVATION APPROACH	MARKET STRATEGY	PERFORMANCE
Technology push: *IT controlled led lightning & growth system (patented).* **Market pull:** *There was not (yet) markets for product that consumer could control via mobile phone.*	***NPD:*** The product was designed by the founder. ***BMI:*** BM canvas and later Value proposition canvas was used. **Effectuation*:*** For expanding to international markets, they select the target cities/ countries by hunch, but want its viability affirmed by BM analysis before entry.	**New market:** *Novel, automated design product that was initially to be distributed via design shops, later switched to brand warehouses.*	**Survive**. *The company has not been able to reach the planned turnover targets and is making loss. The size of the company has increased from 4 (2013) to 13 (2015). SME is attractive to the investors.*

Survival cases can be found in all three market types (Table 10). In high-end market segment common to these survivals, is that they seem to have all the drivers, and all the implementation methods in use. Time may show whether these companies will fail or succeed.

Table 10: Survival cases

CASE	DRIVER	INNOVATION APPROACH	MARKET STRATEGY	PERFOR MANCE
MyFood	Technology, Market, Personal	NPD, BMI, Effectuation	High-end	Survival
Green wall	Technology, Market, Personal	NPD, BMI, Effectuation	High-end	Survival
Everyone deserves garden	Technology	NPD, BMI, Effectuation	New market	Survival
Plant in a bottle	Technology	NPD, Effectuation	High-end	Survival
Real estate management	Technology	NPD	Low-end	Survival
Smarp	Technology	NPD	Low-end	Survival
Bus tours	-	-	Low-end	Survival

5 Results

In this paper we utilized our framework to analyze 27 case SMEs. Ten failed, ten were successful, and seven were surviving cases.

Table 11: Success rate with and without BMI

CASES	BMI		NO-BMI		TOTAL
SUCCESS	8	47 %	2	20 %	**10**
SURVIVAL	3	18 %	4	40 %	**7**
FAILURE	6	35 %	4	40 %	**10**
	17	**100 %**	**10**	**100 %**	**27**

It seems that the utilization of BMI as an innovation approach improves the possibilities for success: 47% of cases using BMI succeed, compared to 20% when no BMI was used (see Table 11.). However, this result is not statistically significant and can not to be generalized to represent the whole industry. It indicates better changes for success where BMI is used, but BMI does not explain success of the innovation alone.

Technology seems to be the biggest driver in the whole set of cases (22 out of 27) which may be explained by the new business possibilities offered by technology as well as technology entrepreneurs being more active in participating these kinds of studies.

Yet, a typical failure case is where technology driven company is aiming at innovating something totally new (80% of failures). This assumingly happens because the product is something that perhaps customers do not (yet) know that they would need – or the company does not know who would be their customers. Even though the company utilized BMI in their implementation process, the end result is often a failure. An uncovered market, 'blue ocean' (Kim & Mauborgne, 2005), in reality is seldom reached.

On the other hand, majority of success cases in this study focused on low-end market and they combined at least two of the innovation approaches. Many of the success cases combined BMI and NPD approaches, but often also effectuation. Whereas the failure cases were heavily technology driven, the success cases had more drivers, 70% having two or three drivers. In six out of 10 success cases, the idea for the business came from the life or work experiences of the founder(s). The initial mind-set is product-centric and often with clearly altruistic mind-set of improving with technology the lives of the people, or their environment. Thus, it seems that successful innovations are driven by several drivers -not only technology, the SMEs typically combine BMI with NPD, but often also effectuation, and the aim is at low-end market.

The 7 survival cases seem to divide into two differing groups: three are aiming at low-end market. Of these, one is a company that did not want to innovate at all, but tried to keep the business on-going as it has been the last decades. The other two are technology driven innovations developed with NPD approach only. Based on our previous analysis of failure and success cases, our prediction is that these companies will eventually fail, unless they take into use also BMI approach.

The rest four survivals are attempting at high-end markets, and are driven not solely by technology, but also personal drivers. Three cases use all the three innovation approaches, but one relies only on NPD. Again, our prediction is that the last one will fail, unless NPD is enriched with other innovation approaches.

Last, looking at the all the 27 cases we can see a pattern that the more challenging the market (high-end or new market) the more drivers and innovation approaches are utilized. The idea of combining NPD, BMI and effectuation in complex markets seems to reflect the reality in the case companies mostly well.

6 Conclusions

This study investigated if BMI helps SME innovation to succeed. We analyzed 27 cases with differing combinations of Business Model Innovation (BMI), New Product Development (NPD) and effectuation methods. We categorized the cases in three groups according to the performance (success, survival, failure), and then analyzed their innovation process' drivers (technology push, market pull, personal), approaches (NPD, BMI, effectuation) and market strategies (low end, high end, new market).

We found that BMI does not explain success of the innovation alone, but the majority of success cases combined at least two of the innovation approaches, typically BMI and NPD approaches, but often also effectuation. Moreover, typically, successful innovations had a mixture of drivers – technology push, market pull and personal driver, and they focused on low-end market.

On the other hand, a typical situation leading to failure is when a technology driven company is aiming at innovating something to new markets. Our findings suggest that technology-driven innovations which are developed solely with NPD approach will probably lead to failure.

Our results indicate that by combining BMI and NPD – and preferably also effectuation - the innovation has better probability to succeed. It supports the recent literature that innovation projects should combine technology development with business modelling approach (Heikkilä et al., 2015). Interestingly, effectuation has resemblance with recent lean start-up ideologies (Ries, 2011), where the main argument is that it is rational to test and iterate, because it eventually leads - through an unpredictable groping process - to rational goal.

Based on the results we can make three recommendations for small firms. First, we believe that SMEs should systematically develop their competences in both BMI and NPD. Second, companies should always incorporate BMI approach also into traditional technology innovation projects. This ensures that they are better aware of the business possibilities and, when needed, are able to refocus their development efforts. Third, it is important for SMEs to notice that BMI can also help in redefining the target market strategy. Considering the limited resources available in SMEs, it is understandable why SMEs are more successful in *Low-end market* innovations, where the products are less complex and require fewer specific resources.

Further research is needed to analyze the differing combinations of innovation approaches and study how firms could achieve better performance. In addition, we should study what kind of innovation process and tools support both NPD and BMI, and whether there is a way to explicitly embed effectuation in the innovation processes at SMEs.

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