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# Business Model Innovation Leadership

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## Abstract

Leading business model (BM) strategizing through “the field of innovation” has not yet been covered in business model and innovation leadership literature. This is a bit peculiar considering that there has been an increased focus on BM innovation (BMI) by academics and industry since 2011. The importance of BM and BMI is regarded as key to future business development and to the growth of our society. BM is widely acknowledged in a range of organizations, societies and in global competitions as “the heart(s) of the business” and business model innovation is mentioned as “the tree of innovation”. This emphasizes the importance of questioning.

How is BM innovation leadership (BMIL) carried out in companies related to various BM(s) and BMI tasks and throughout their business model innovation process? And, how can innovation leadership be related to BMI?

A framework model for BMIL based on case research in European and American businesses are proposed.

**Keywords.** Business model innovation, Innovation Leadership, Business model innovation leadership, multi business model innovation

## 1. INTRODUCTION

In recent years, the “game of business model innovation” has changed focus from a product and service innovation perspective to a business model (BM) perspective. (IBM 2006, Fines report 2010).

These days, the life cycles of BMs in many businesses are diminishing—more rapidly in some lines of businesses (Figure 1). However, the trend is clear and equivalent to what was seen in the early 2000’s, when product life cycles continuously shrank (Lindgren 2003). The pressure on developing newer BMs and quickly innovating existing BMs, is increasing tremendously. There is, therefore, a growing belief that more strategic leadership is important in BM innovation (BMI) related to top management strategic business model activities (IBM 2006, Markides 2008, Johnson 2008, Fines 2010) and that they should not fall in the same trap as experienced by some high speed innovations (Lindgren 2003) back in the early 2000s. The significance of BM leadership is today acknowledged, but predominantly research has mostly been on the role of leadership in

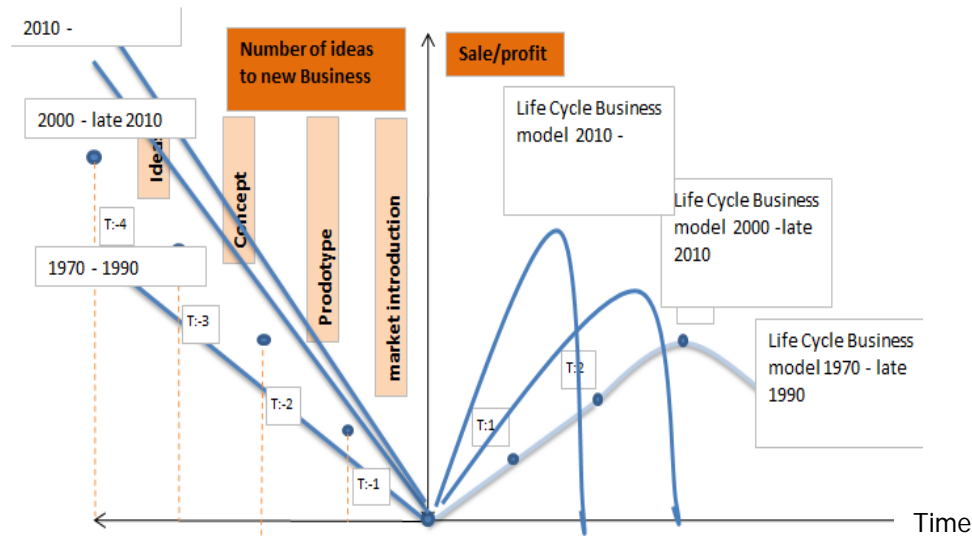


Figure 1 A model of the development of business model innovation since 1970.

strategic BM change and renewal, on BM disruption and crises, the BM construction and risk management of BMI (Osterwalder 2005, Chesbrough Markides 2006, Christensen 2010, Taran 2010).

The actual strategic process and ongoing BMIL process to sustain businesses in a strategically competitive and preferable position related to the BMI process—in the core of the BMI process—is not widely researched. Existing literature highlights difficulties for businesses in maintaining the ability to continuously innovate, improve and renew their BMs, and thereby continuously learn newer ways to perform BMI in their enterprises and to lead them to success (Chesbrough 2008, Markides 2008). However, until now only a few have touched upon how an enterprise could become leader of the BMI process. Kotler (Kotler 2010) and Porter (Porter 1985) spoke, in the 1980s, about different kinds of leadership—e.g. Market leadership and Cost leadership—but all kinds of strategy leadership strategies were related to the market and the competitive environment. None of these were related to leading via a BMIL.

### 1.1. *Business model innovation (BMI) and change*

BMI is about changing the building blocks in the BM (Taran 2010) and thereby changing the existing BM and/or finding new BM(s)—either incremental or radically new BM(s) (Taran 2009). BMI is strongly related to learning—strategically learning how to perform BMIL. Changing the BM, finding new BMs, leading them to and in the market turns out to be different from previously proposed market and competitive leadership strategies. Why? Because BMIL is related to finding new ways of changing the existing BM(s) and realizing new BM(s) does not have to be narrowly focused on market and competition issues. BMIL also touches upon areas that are not related to market and competition—e.g. internally-focused business model innovation (BMI), externally-focused network partnership BMI and object-based BMI.

### 1.2. *Business Model Innovation leadership (BMIL)*

Innovation leadership and management have been discussed among academics for many years (Brymann 2004, Rooke 2005) but not particularly in the context of a BM and a BMI.

BMIL focuses on how to strategically and proactively lead the BMI into the core of its process with the aim of gaining access to the BMI process and thus secure an advantage of this position.

BMIL is related to continuously thinking out-of-the-BMI-box with the aim of reaching a competitive advantage on behalf of BMI. BMIL's overall aim is to bring the enterprise into a strategic position—the core of the BMI process—where innovation is taking place. At the core of BMI, enterprises are able to influence and participate in the innovation as opposed to being outside the core.

BMIL aims at optimizing the BMI investment via creating, excluding, upgrading and diminishing networks e.g. **value proposition** offered, **users and customers** served, **functions in the value chain** used, **competences** and **networks** used, **relations** used, **value formula(s)** used (Lindgren 2012 – the BM's 7 Building blocks) to improve existing BM's position in the market and finding new business setups of the BM.

## 2. EMPIRICAL BASIS FOR THE BUSINESS MODEL INNOVATION LEADERSHIP (BMIL) CASES

24 case businesses involving small- and medium-sized businesses in EU and US provide the empirical basis for this article. The study was conducted from 2003 to 2011 as part of the EPUIN, Newgibm, ICI, WIB and Neffics projects. All the projects were funded by the Ministry of Science, European Commission on the string EU – SocialFund, EU FP 7 Framework program Internet of Things and KASK. In this paper, some representatives out of the total case materials were selected to document our findings. Business overview can be seen in Appendix 2.

### 2.1. *The Katalabs case*

In the Katalabs case, a variety of six BMIL projects were studied (Figure 2). The study included BM(s) that existed before market introduction (left side of the figure) and BM(s) that were already introduced to the market (right side of the figure). A distinction between users and customers was drawn as users did not pay for the business's value proposition—products, service and processes. In the Katalabs case, the product, service or process were not yet introduced to market; Katalabs was just at a prototype level and tried to play “the freemium BM model” (Anderson 2010). Opposite to this, in the BM(s) of ICI-, Cancer- and Bornholms Museum, customers were paying for value proposition delivered by Katalabs (Kotler 2008).

As can be seen by the cost and profit curve in Figure 2, user and new BMs generate cost and “suck” resources out of Katalabs business. Many startup businesses like Katalabs worked for what they called “sweat money”. Opposed to this, in the customer innovation process, the customer pays and generates profit to the business (Kaplan 2004). However, Katalabs claims to observing a linkage between user- and customer-based BMs, where they expected users to drive other BM(s) to generate customers—the examples of [www.google.com](http://www.google.com), [www.facebook.com](http://www.facebook.com), [www.twitter.com](http://www.twitter.com) and [www.zynga.com](http://www.zynga.com) show that they followed this principle and thus demonstrated a valuable BMIL strategy. Katalabs

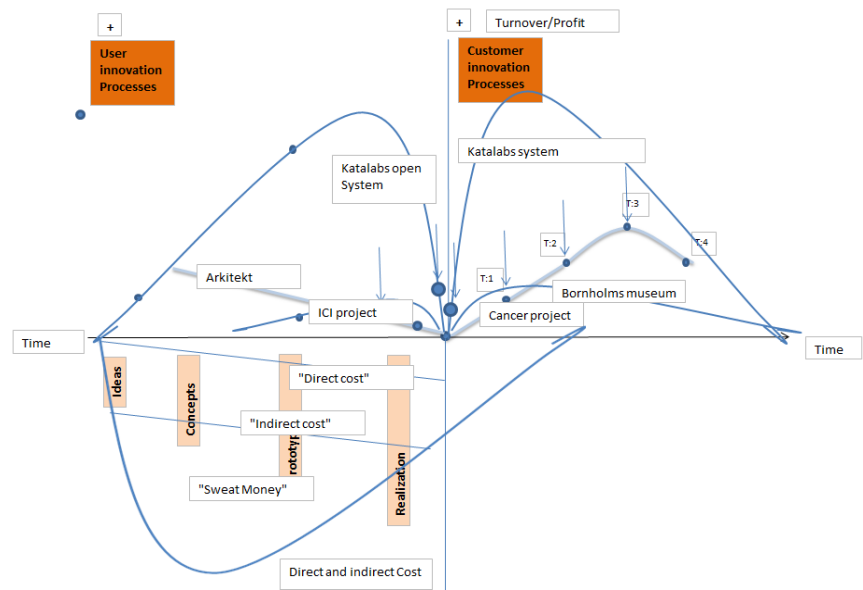


Figure 2 Katalabs Case – Business model Innovation Leadership.

tried to play the Customer Innovation leadership and Value Innovation Leadership line (Table 1.). The different BMs in the Katalabs case showed that Katalabs used different BMIL lines for different BMs, as the BMI tasks varied from one BM to another. This was also found in some other case businesses where the focus was more on value innovation leadership (Kellpo), customer innovation leadership (Katalabs, Younoodle), value chain leadership (Vlastin, Smart Cat) and network innovation leadership (Infolink, Aikon, Provital). Therefore, going through all 24 cases, we found that these BMI tasks called for what we have grouped as seven different BMIL lines. Each of these could be related to one or more building blocks in the BMs as shown in Figure 3

Katalabs case	BMIL Canvas						
Innovation Leadership	1. Value Innovation Leadership	2. Customer Innovation Leadership	3. Value Chain Innovation Leadership	4. Competence Innovation Leadership	5. Network Innovation Leadership	6. Relationship Innovation Leadership	7. Process Innovation Leadership
Business model Building Blocks							
1. Value proposition	■	▲	■	●			
2. Target customer/s	■	■	■	■			
3. Value Chain			■	■			
4. Competences							
5. Network Partners							
6. Relations							
7. Profit Formular							

Figure 3 Katalabs Case – Business models related to Innovation Leadership task.







Kellopo	BMIL - canvas						
Business model Building Blocks	1. Value Innovation Leadership	2. Customer Innovation Leadership	3. Value Chain Innovation Leadership	4. Competence Innovation Leadership	5. Network Innovation Leadership	6. Relationship Innovation Leadership	7. Process Innovation Leadership
1. Value proposition							
2. Target customer/s			 				
3. Value Chain							
4. Competences							
5. Network Partners							
6. Relations							
7. Profit Formulas							

Figure 4 Kellopo Case – Business models related to Innovation Leadership task.

where each object in the BMIL canvas represent one Business Model.

In the Katalabs case, the BMIL canvas was characterized with the BMIL tasks placed at the upper left corner of the BMIL canvas very much focused on value innovation, customer innovation and value chain innovation leadership. In other cases, the spread of the BMIL tasks were very different.

## 2.2. The Kellopo case

In the Kellopo case, a Danish machine and machine tool producer, the BMI tasks were spread more “thin” over the BMIL canvas.

In each of the seven innovation leadership lines, the business used different innovation leadership efforts and tried to influence the innovation processes in different ways. This is summarized in Figure 4.

The research showed that the seven building blocks in any BM can be related to different viewpoints in the BMIL lines. Businesses work with the building blocks and innovation leadership lines at certain points on a specific BMI process—“the point of time in the BM lifecycle”. This is not to say that this is optimal always, but it covers their general mindset at that point of time.

Initially, Katalabs was not focusing much on customer and customer innovation leadership but instead focused in seeking users to their BM. We found that this trend started to change as Katalabs began to focus more in getting users to become customers and especially customers to develop the Katalab platform. Some of Katalabs BMs had users but no customers, which initially was not a strategic BMI issue to Katalabs, because they strongly believed that the users would lead them finally to the customers and venture

Table 1 Innovation Leadership lines – focus and characteristics

<b>Innovation Leadership lines</b>	<b>Focus</b>	<b>Characteristics</b>
<b>Value Innovation Leadership</b>	Focus on Value innovation related to each of the specific BM building block	Create, excludes, change, diminish value propositions offered
<b>Customer Innovation Leadership</b>	Focus on User and customer innovation related to the specific BM building blocks. Focus on innovating with the user and customer to the next step on the users or customers innovation process in their BM(s)	Create, excludes, change, diminish user and customers
<b>Value Chain Innovation Leadership</b>	Focused on innovating the value chain related to each BM block.	Create, excludes, change, diminish the value chain
<b>Competence Innovation Leadership</b>	Focused on innovating the competences - technology-, HR-, organisational system and culture related to each BM building block	Create, excludes, change, diminish competences
<b>Network Innovation Leadership</b>	Focused on innovating networks related to each BM building block	Create, excludes, change, diminish Network
<b>Relationship Innovation Leadership</b>	Focus on innovating relations and relationship to each BM building block	Create, excludes, change, diminish relationships
<b>Process innovation Leadership</b>	Focus on process innovation – looking at different processes both before, under and after the specific BM. Focus on the time perspective and innovation process of the BM	Create, excludes, change, diminish BM processes

capital. This focus changed over time as Katalabs began to run out of free resources and “sweat money”. They then had to change their BMIL focus and innovation leadership lines.

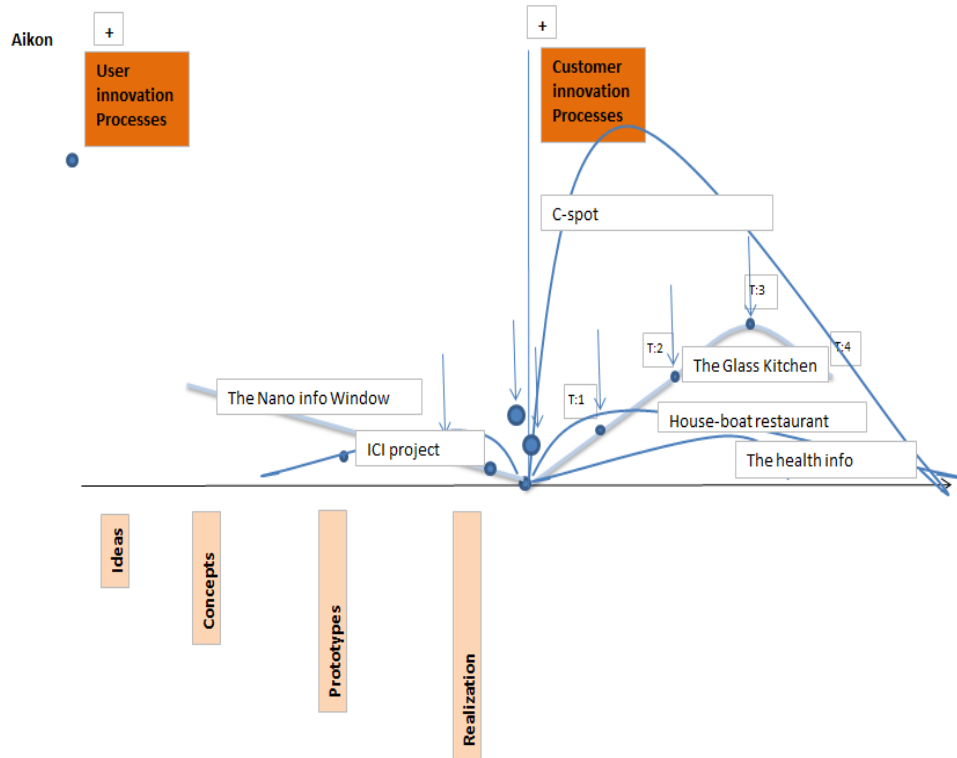


Figure 5 Aikon Case – Business models related to Innovation Leadership task.

### 2.3. The Aikon case.

The Aikon case (Figures 5 and 6) showed us another BMIL canvas focused on customer innovation leadership especially on network innovation leadership target at innovation of the customer building block in each of their individual BMs. This was due to the fact that Aikon had already developed their products, services and processes together with their value chain innovation leadership but they were in lack of customers and critical mass of customers.

By orchestrating customer innovation leadership with the network innovation leadership line and combining this with a focus on the network partner building block in two of their other BMs, they were able to gain access to more and better customers to their BM. Further, they decided to eliminate two BMs because Aikon was not generating profit on them. Then, Aikon decided to focus their overall business model innovation on fewer BMs. The glass kitchen and the health info system were therefore faced out of Aikon's BM portfolio marked with red in the BMIL canvas figure (Figure 5). They also decided to change BMIL focus on two other BMs (Figure 6) marked with the 2 green arrows in the BMIL canvas.

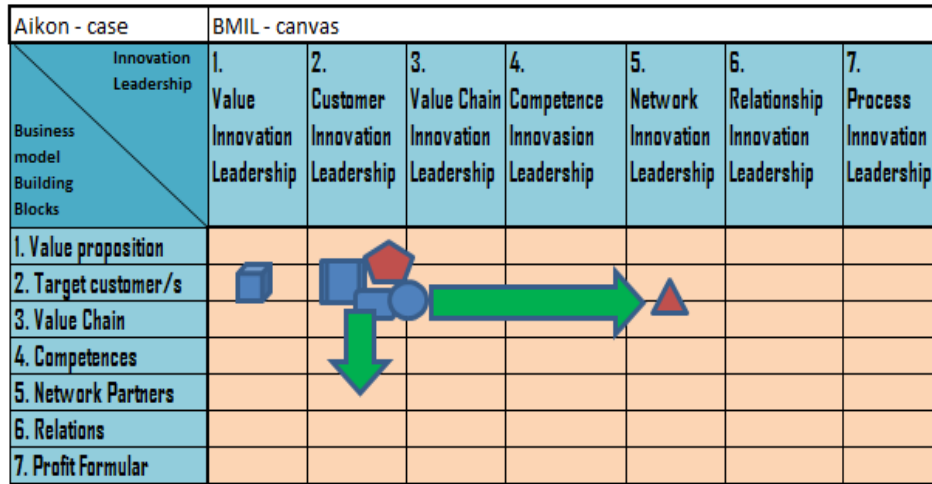


Figure 6 Aikon Case – BMIL Canvas.

#### 2.4. The Infolink Case

The Infolink business was different in their BMIL strategy vis-à-vis Katalabs and Aikon as Infolink solved its BMI challenges by focusing mainly on network-, relationship and process innovation leadership. Infolink intensified their network to get new suppliers and customers (Figure 7). Infolink focused on creating relations—relationship innovation leadership—to continuously improve and increase their BMs relations with relevant network partners and customers. Infolink was also extremely beware of their customer's place on their innovation life cycle which enabled Infolink to continuously develop new value proposition to their customers before the customers even thought about them. This is what we call in the BMIL canvas a process innovation leadership focus.

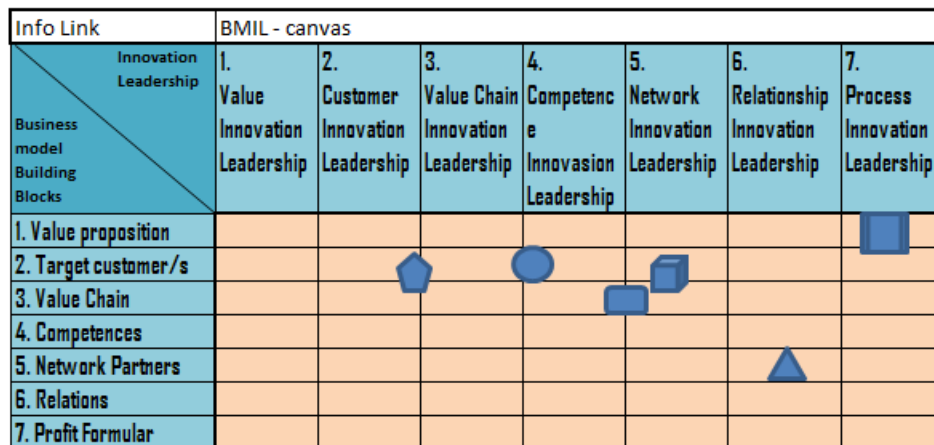


Figure 7 Info link – Business models related to Innovation Leadership task.



### **2.5. The Vlastuin Case**

In the Vlastuin case, the business began to perform BMI by looking forwards and backwards at the BM process—focusing on the process innovation leadership dimension of BMIL. This helped them to open Vlastuin business mind to new user and customer groups and explore value proposition possibilities before and after their existing BM came into operation in the process. Vlastuin BMIL focus was much more on process innovation leadership.

## **3. USING THE WRONG BMIL LINES OR WRONG COMBINATION/MIX OF BMIL LINES.**

The challenge to every business is to carefully analyze the BMI tasks related to each BM, then choose between the multitude and variable lines of innovation leadership and finally set up the right “mixture” of the seven BMIL lines. We found that this BMIL task was sometimes difficult for the businesses to carry out and they often jumped too fast to BMIL conclusions. Some BMIL lines which were not really adding value to both the BMI process and the BM were chosen, hardly with any effect. We also found that some businesses used a kind of try and error BMIL style or even stopped to develop the BM because they simply could not “look out-of-the-BMI-box” and find the right BMIL line or mixture to address the specific BMI task. Some case businesses also jump to solve their general BM situation by bringing even more BMs (Glyø-, Hellberg, Aikon cases) into the company. This often failed to solve the BMI task in the business, drained resources from the business and disturbed the overall focus of BMIL in the business.

## **4. BRINGING THE BUSINESS MODEL INTO THE CORE OF BM INNOVATION (BMI)**

Our case research shows that some BMs placed outside the core of BMI process suffer and often play a secondary and not very attractive role in the BMI process (Katalabs and Provital cases). Some businesses we studied were even marginalized in the innovation process (intelligent utility) and their products or even BMs were copied when the customers had gained and “sucked” out the core values and competences of the business models (as in Kellpo). A very bad BMI strategic position related to the core of the BMI process. The position that Facebook, Google and Apple have achieved today, of course, gives them some advantages because they are placed in the very core of the BMI process—with an opportunity to lead the BMI process—but even they have to struggle with their BM and continuously perform BMIL to keep them continuously inside the core of the BMI process.

BMIL proved to be a challenge and sometimes very complex for leaders responsible for BMI. Especially, startup businesses types as Katalabs and Aikon but also bigger businesses as Kellpo, Linco, Demex, You Noodle and Vlastuin were occupied in daily survival activities and needed better information and analytical tools to find and improve their BMI processes. They faced continuous challenges to sustain themselves in the core of the BMI process. They were challenged by lack of BMIL time and resources to perform value-adding BMIL. They tried to seek different ways to achieve a better position but their choices were not always coordinated and orchestrated with the result they could not strategically position themselves into the core of the BMI and thereby missed the opportunity for a long-term strategic competitive advantage. The challenge to many




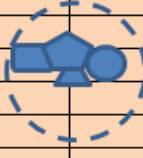
Provital Case		BMIL - Canvas						
Business model Building Blocks	Innovation Leadership	1. Value Innovation Leadership	2. Customer Innovation Leadership	3. Value Chain Innovation Leadership	4. Competence Innovation Leadership	5. Network Innovation Leadership	6. Realtionshi pInnovation Leadership	7. Process Innovation Leadership
	1. Value proposition							
	2. Target customer/s							
	3. Value Chain							
	4. Competences							
	5. Network Partners							
	6. Relations							
	7. Profit Formular							

Figure 8 Provital Case – BMIL Canvas.

businesses today is that they need to survive and operate simultaneously and perform the BMIL. This is highly challenging especially when the service tools and hereunder the ICT tools available are so poor and not very intelligent.

## 5. A FRAMEWORK OF BM INNOVATION LEADERSHIP (BMIL)

Researchers have attempted for many years to give guidance on which aspects should be considered when dealing with innovation and the related tasks (Roseneau, 1983) (Leifers, 2002) (Lindgren 2003) (Sanchez, 1996) (Child and Faulkner, 1998) (Goldmann and Price, 1998) (Bohn and Lindgren, 2003) (Price, 2005) (Balachandra, 1983) (Boer, 2002) (Bohn and Lindgren, 2004) (Cooper, 1986), (Ulrich and Eppinger 2000), (Corso, 2002) (Cooper, 2004) (Bessant, 1999) (Christensen, 2003) (Bohn and Lindgren 2004) Cooper (2005) (Chesbrough 2005) (Davenport 2008). This inspired us to rethink the whole concept of innovation leadership and try to relate it to the BMI. Therefore, we came up—via studying the 24 cases—with a more holistic and strategic framework model of BMIL. Our hypothesis was that there were more to BMI and innovation leadership than just “headless” value innovation and customer innovation. The cases showed very clearly that seven innovation leadership viewpoints open the opportunities to BMIL. They also show that BMIL can be led very differently—both individually and collectively, but with preference for collectiveness—orchestrating the innovation leadership lines. This lead us to the conclusion that different BMs are preferred to be led by very different BMIL lines, BMIL line combinations or mixture, which are shown in the case of Provital.

Provital (Figure 8) tried to develop their business competences to fulfill potential customer demands for specific BM solutions. Provital also developed a BM portfolio platform they tried to build upon with a technology that was highly potential but not fully used yet in the market. Provital focused their BMIL mainly on building up their competence—competence innovation leadership—in four of their BMs together with a focus on improving their value chain—value chain innovation leadership. One BM—the swimming

pool market—was focused on network innovation leadership related to target customer building block in the business model, to gain access to the market. It was a success.

We recommend, on behalf of the study of the used cases, that all BMIL initiatives should begin by identifying the task of the BMI to every specific BM. From there, we recommend to start thinking strategically out-of-the-box and figure out how to lead the specific BM by orchestrating the different innovation leadership lines to the seven different building blocks in each BM. Through this exercise, the BMIL can lead the BM towards both short and long term success criteria of the BM.

As earlier mentioned, BMIL focused on both sides of market introduction to a BM as shown in the model of Katalabs. In the Katalabs case, there were many potential BMs, however, only few BM were introduced to the market. This stressed the sustainability and survival of Katalabs. BMIL seeks to increase, on the one hand, the number of new BMs, but in the Katalabs case, creating a new BM was not really the key BMI task. Katalabs had to focus, on the other hand, on their already elected BM to have them fast “driven” down the funnel towards market introduction. Further, it was necessary to establish, support and maximize the lifecycle of an already established BM.

BMIL therefore considers and address five main strategic BMI areas:

- Leading both the creativity and the implementation processes of BMI.
- A continuous BMIL process using and orchestrating seven levels of innovations leadership lines (Appendix 1) and relate them to the seven building blocks of each BM (Appendix 2)
- A continuous innovation leadership process focusing on optimizing the BMI process via using the synergy of the seven lines of innovation leadership to each BM.
- A portfolio-optimizing BMIL task across different BMs—the multi-business model approach.
- Optimizing on both a vertical BMIL level (one business model) and horizontal BMIL level (multi business models).

## **6. CONCLUSION**

BMIL related to the various BMI tasks is carried out in businesses in many different ways. On behalf of 24 European and US enterprise cases, a conceptual frame work model of BMIL was developed consisting of seven lines of innovation leadership related to the seven building blocks of the BM. Our paper tries to extend the views and issues on the strategy of the BMIs covered in the existing literature. Specifically, this is done by relating BMI to innovation leadership in a new way as BM and innovation leadership literature have until now mainly considered BMI as development of the value proposition in the BM. In the BMIL terminology, this is called value innovation leadership. Value innovation leadership focuses on the upper corner part of value innovation leadership, which in the BMIL framework is just a small part of real BMIL potential, as shown in the BMIL canvas.

BMIL focuses instead on all strategic objectives of BMIL related to strategic BMI—optimizing the business total investment in BMI and focusing on both short- and long-term success criteria of the business—with the aim of moving each BM of the business into the core of the innovation process with competitive advantage as a result.

BMIL means innovating the BM in two ways: One is external to the business as in value innovation leadership, customer innovation leadership and network innovation leadership, and another way is internally within the enterprise as in value chain innovation leadership and competence innovation leadership. BMIL leadership touch upon the whole BM spectra—"the tree of innovation" (Taran *et al.* 2009) —considering all building blocks in the business model related to the seven lines of innovation leadership. BMIL further considers in a time perspective the entire BMI process before, under and after each BMI has taken place. Therefore, BMIL also covers the whole BMI process and focuses on relations and process innovation leadership related to each individual BM's building block in the business. Finally, BMIL also focuses on an aspect not yet deeply covered in this paper: innovation leadership across different BM portfolios—BMs who are on their way to the market as in "TO BE BMs", and those who already are living their life in the market as in "AS IS BM", thus presenting the horizontal dimension of BMIL.

The framework model proposes managers responsible for BMI to carry out BMIL in especially three main focus areas:

1. ***The ability to generate and recognize new BM idea and BM concepts: continuous BMI at the "front end" of the BMI process.***
2. ***Leading strategically BMI by orchestrating different strategic lines of innovation leadership, combining and catching these BMIL lines' synergy effects and focusing on isolating the significantly most valuable new BMI ideas and bringing them right into the market and beyond.***
3. ***Bring BMIL up to a point of leading a multitude of BM within the business: via the multi business model approach, both before, under and after the BMI process has taken place, continuous BMIL.***

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## APPENDIX 1.

### METHODOLOGY

Our research took its point of departure in a framework characterizing some main areas of consideration in BMIL:

- (1) The task of BMIL related to each BM.
- (2) The field of BMIL related to each BM.
- (3) The success criteria of BMIL related to each BM.
- (4) The innovation leadership lines given and chosen for driving the BM through to commercialization or further on the BMI curve.

### RESEARCH DESIGN

#### SAMPLE AND METHODOLOGY

24 case companies involving small- and medium-sized companies in EU and US provide the empirical basis for this article. The study was conducted from 2005 to 2011 as part of the Blue Ocean, Newgibm, ICI and project funded by the European Commission on the string EU – SocialFund and EU FP 7 Framework program Internet of Things together with the Danish Ministry of Science and Innovation.

Our research methodology was action research, with a strong explorative component as very little research in this field was available at the start of the study. We were involved in the networks and took active part in their formation of BM by screening a potential BM and by analyzing their “AS IS” and “TO BE” BMs (Taran *et al.* 2009). Furthermore, we participated as group members in the networks, and took part in the discussion, development and screening of BM, BM ideas and concepts. This was done at individual meetings with business management, business network partners and at group meetings in general. This was done both at physical and virtual meetings (physical meetings, skype meetings, telco meetings).

We identified similarities and differences between the cases, with regard to:

- Each of the categories—in order to understand the key building blocks, characteristics of each BM, the development and innovation leadership processes taking place, and the BMIL was carried out.
- The interaction between the BMIL categories—in order to understand the challenge in attracting and developing the dynamics of the business model innovation process and the BMIL pursued at that level.

#### DATA ANALYSIS

We filed the data collected for each of the networks, using the following broad categories (see Appendix 3 for details):

- Individual partner data
- Network-level data
- Information about the individual- and network-level business models

- Key aspects of the BMI process
- Key aspects of the BMIL process

## **APPENDIX 2. BUSINESS OVERVIEW**

<b>1</b>	<b>KATALABS</b>
<b>2</b>	<b>HELL BERG</b>
<b>3</b>	<b>GLYØ</b>
<b>4</b>	<b>ISOPAINT</b>
<b>5</b>	<b>COLD HAWAII</b>
<b>6</b>	<b>GØTTRUP KØRESKOLE</b>
<b>7</b>	<b>AIKON</b>
<b>8</b>	<b>OPEN LIBRARY</b>
<b>9</b>	<b>YOU NOODLE</b>
<b>10</b>	<b>FAC</b>
<b>11</b>	<b>FARSØ SPAREKASSE</b>
<b>12</b>	<b>INTELLIGENT UTILITY</b>
<b>13</b>	<b>HEALTHY LIVING</b>
<b>14</b>	<b>COLORMAIL</b>
<b>15</b>	<b>LOGISTICS</b>
<b>16</b>	<b>COMENXA</b>
<b>17</b>	<b>SMART CAT</b>
<b>18</b>	<b>PROVITAL</b>
<b>19</b>	<b>VLASTIN</b>
<b>20</b>	<b>TRICON</b>
<b>21</b>	<b>KELLPO</b>
<b>22</b>	<b>JLT</b>
<b>23</b>	<b>INFOLINK</b>
<b>24</b>	<b>SKAGEN FISK</b>



**APPENDIX 3. DATA COLLECTED FOR EACH OF THE NETWORKS**

- Individual partner data – available at Institute for Mechanical Engineering and Manufacture - confidential
- Network-level data
  - available at Institute for Mechanical Engineering and Manufacture - confidential
- Information about the individual- and network-level business models
  - available at Institute for Mechanical Engineering and Manufacture - confidential