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## Towards a Multi Business Model Innovation Model

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### Abstract

This paper studies the evolution of business model (BM) innovations related to a multi business model framework. The paper tries to answer the research questions:

- What are the requirements for a multi business model innovation model (BMIM)?
- How should a multi business model innovation model look like?

Different generations of BMIMs are initially studied in the context of laying the baseline for how next generation multi BM Innovation model (BMIM) should look like.

All generations of models are analyzed with the purpose of comparing the characteristics and challenges of previous generations of BMIMs.

On behalf of these results and case analyses, the paper concludes by proposing a framework for a multi BMIM.

**Keywords.** Multi business model Innovation Model, Business Model, Business Model Innovation

### INTRODUCTION

The transition from the booming markets and economic growth of 1950s, to the highly competitive, internet-based and global marketplace of 2011(Wall Street Journal 2011) has completely changed the game of BMI and how BMIMs are constructed, managed and operated.

The demands to BMIMs have through the years increased in the context of effectiveness, efficiency, agility, flexibility, multi participation, handling of mega data and knowledge exchange. These demands are known to be independent of time, place and things (Lindgren 2010). Several businesses have marked the transition during these generations of BMIMs. The transitions started in the 1950s up to 1970s with the generation of industrial research labs such as Bell Labs and Xerox PARC, moving to the mid-1970s to end-1990s where they were replaced by more market focused BMIMs exemplified with companies such as 3M, Toto and IDEO to Toyota's rapid BMIMs and processes, thereby introducing a whole new range of values to customers within "high speed time". During 1980–1990, customers were included directly in the BMI process. Von Hippel (1986) took this process even further by introducing the 'lead user' method in

the BMI process in its very early stages. 3M and Hilti AG are good examples of this new BMIM trend and various companies are nowadays applying these new BMI methods.

In the past 60 years, models of business model innovation (Wind 1973), (Cooper1993), (Eppinger 2000), (Tidd 2006),(Chesbrough 2008) have become ever more sophisticated especially with the development of information and communication technology (ICT). By end of the 1990s, initial empirical data was collected by Chesbrough's research group paying attention towards the need for more open innovations and exploring the potential of opening up the BM boundaries letting knowledge and competences flow in and out from BMs. Later, in early 2000, Chesbrough coined the term 'open innovation' and in 2008, he extended the scope to also include "the open business model innovation concept" (Chesbrough 2005, 2008), which received significant interest.

Through the 2000s, BMI collaborations became more and more a standard for BMIMs, bringing different network partners together and not the least "bringing back" the customer and users into the very core of BMI and as collaborators in BMIM (Bessant 2008). Companies like Zara Inditex, Zappo, Google, Amazon.com, QQ.COM, APPLE, CBS, Facebook, GITHUB and Tata, all showed different approaches to BMIMs with the aim of increasing a higher degree of network collaboration into the BMIM and BMI process.

In our study of literature, we found the following characteristics of generations of BMIMs as shown in Table 1, which is inspired by Rootweels work Rothwell (1994).

## **TOWARDS A MULTI BUSINESS MODEL INNOVATION MODEL**

A business's ability to innovate and renew its BM through creative processes (Markides 2008) and quickly being able to execute commercialization (Roos 2008, Ballon 2009, Solaimani 2012) became the mantra in the late 2000s. Predictions for 2011 from Silicon Valley USA, Shanghai, Mumbai, Beijing and Sao Paulo (Gabriel 2010, YouNoodle 2011, Wall Street 2011) pointed to BMI and bringing new BMs to the market within just a week even shorter. According to Rebecca Wang, CEO of Younoodle.com, which represents a platform hosting more than 20000 start-up businesses' BMs worldwide, the demands to speed up the time of BMI are pretty much into the same characteristics as was seen back in late 1990 and early 2000 to products and services (Verganti 2000, Lindgren 2002). Life cycles of BM models become more and more diminished as illustrated in Figure 1.

Because of the diminishing life cycle of BMs, the number of proposed ideas to new BMs has naturally gone up. The market of business model innovation has never before been exposed to so many new BMs and the professional BM developers, the so-called "serial BM developers", have increased tremendously (Forbes 2010).

Multi BMI has therefore turned into a kind of new industry with a number of different supporting service providers (Stanford Workshop 2011, Princeton workshop 2012). In a new BM industry, the BMI task is to quickly develop new BMs and prepare them to a level of where they can be sold to others, even though they are only ideas, concepts or just prototypes.

This trend stresses the importance of having the best, smartest, most effective and most efficient multi BMIM. It became very clear in our research that the old BMIMs were suffering to match these new extreme high speed BMI demands. It is, however, not only a challenge of being faster in evolving new BMIs, but is also a matter of controlling speed, preventing risk, being precise, related to the situational context of different BMIs. Do real

Table 1 BM Framework vs. Generations of BMIM

Description of the generations	Advantages and strength	Disadvantages and weakness	Structure of the innovation process							
<p><b>Technology push.</b> (1950s–mid 1960s)</p> <p>The industrial innovation process was generally perceived as a linear progression from scientific discovery, through technological developments in the firms, to the market place, because science is seen as the starting point.</p> <div data-bbox="387 651 779 719" style="border: 1px solid black; padding: 2px; text-align: center;"> <p>BM building blocks</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: yellow;">VP</td> <td style="background-color: red;">TC</td> <td style="background-color: green;">VC</td> <td style="background-color: green;">C</td> <td style="background-color: red;">N</td> <td style="background-color: red;">R</td> <td style="background-color: yellow;">PF</td> </tr> </table> </div>	VP	TC	VC	C	N	R	PF	<p>Preferable when unlimited resources to innovation are given and when it is the aim to innovate and develop technological products at a fast pace. Scientists are given maximum freedom to innovate and develop radical new innovations. There is no restriction in the BMIM as such.</p> <p>Preferable when the innovation task and success criteria of the BMI projects are very clear and narrow; related primarily to solving technology challenges and radical technological innovations.</p>	<p>Little attention is paid to the transformation process, or the role of the market place.</p> <p>Scientific freedom is more important than the research and its relevance. No strategic goals in projects, maybe short-term goals at the project level. No direct relationship with general management.</p> <p>Commercial aspects are incorporated late.</p> <p>No project leader is appointed and therefore final responsibility is not clear. Professional project management practices are not applied.</p>	<p>Linear sequential process from department to department starting with scientific discovery.</p>
VP	TC	VC	C	N	R	PF				
<p><b>Market Pull.</b> (mid-1960s–early 1970s)</p> <p>The market role is the source of BMIs and the R&amp;D organization merely has a reactive role.</p> <div data-bbox="387 1015 779 1083" style="border: 1px solid black; padding: 2px; text-align: center;"> <p>BM building blocks</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: yellow;">VP</td> <td style="background-color: yellow;">TC</td> <td style="background-color: green;">VC</td> <td style="background-color: green;">C</td> <td style="background-color: red;">N</td> <td style="background-color: red;">R</td> <td style="background-color: yellow;">PF</td> </tr> </table> </div>	VP	TC	VC	C	N	R	PF	<p>Preferable when the innovation task is still very simple i.e. incremental BMI very clearly defined with a primary focus on market and consumer direct needs and demands, and not particularly on customers wants.</p> <p>Preferable when companies need to narrow the success criteria to focus on primarily the same purpose and short term success criteria as cost and to some extend performance.</p>	<p>Neglects long-term R&amp;D programs and therefore leads to “incrementalism”.</p> <p>Projects are individual units, strategically relationships between these projects and corporate goals were not yet established. It was impossible to serve company goals that superseded the interests of separate internal clients.</p>	<p>Linear sequential process in a project, starting with market need.</p>
VP	TC	VC	C	N	R	PF				

<p><b>Market pull and technology push combined</b> (early 1970s–mid 1980s)          BMI is a process that enables interaction between technological capabilities and market needs at each stage. Communication networks link R&amp;D to in-house functions and link the firm to scientific and technological communities as well as to the marketplace. The goal of the portfolio of projects are aligned with the corporate strategy</p> <table border="1" data-bbox="387 614 790 683"> <tr><td colspan="7">BM building blocks</td></tr> <tr><td>VP</td><td>TC</td><td>VC</td><td>C</td><td>N</td><td>R</td><td>PF</td></tr> </table>	BM building blocks							VP	TC	VC	C	N	R	PF	<p>Preferable when the combination of technologies push and pull the market. With the introduction of feedback loops and communication networks, partners' focus with the aim of changing the value proposition. Thus, failures are reduced and the success levels of the innovations are heightened.          Preferable when innovation essentially functions in-house and when the value proposition is not considered most central. Value focus and value innovation are developing towards the customer's wants.</p>	<p>Focuses on product and value chain innovations rather than market and organizational BMIs.          Focuses on the creation of innovations rather than their exploitation.          Focuses on evolutionary improvement rather than breakthroughs.</p>	<p>Model of an essentially sequential process with feedback loops and interaction with market needs and state of the art technology at each stage.</p>
BM building blocks																	
VP	TC	VC	C	N	R	PF											
<p><b>R&amp;D in alliances.</b>          (mid 1980s–early 2000s)          Parallel and Integrated R&amp;D. R&amp;D departments are in a network of internal departments and external organizations. R&amp;D management refers to managing research links, networks and external research environments. Because of the number of actors involved, development processes are scheduled in parallel.</p> <table border="1" data-bbox="387 1098 763 1166"> <tr><td colspan="7">BM building blocks</td></tr> <tr><td>VP</td><td>TC</td><td>VC</td><td>C</td><td>N</td><td>R</td><td>PF</td></tr> </table>	BM building blocks							VP	TC	VC	C	N	R	PF	<p>Preferable when cyclical routines and networks of partners in the innovation process are incorporated. The model includes feedback paths so that adaptive steering and learning processes can be made more explicit making the innovation system more flexible.          Good when lead users are brought into the innovation process before commercialization in order to enhance efficiency and product quality.</p>	<p>Increased networking and integration with internal and external partners increase complexity.          The level of corporation and communication is too low and difficult to handle.          Inflexibility in the structure of BMI processes.</p>	<p>Coordinated process of BMI in a network of partners. The required coordination is often attained by system integration (with key suppliers and customers) and parallel development (of components or modules of the innovation).</p>
BM building blocks																	
VP	TC	VC	C	N	R	PF											

<p><b>Innovation networks.</b> (early 2000s–present) Relies increasingly on electronic tools. Operating real time enables increased speed, efficiency and automation across the network of BMI, thereby widening the BMI system. There is a need for controlling the BMI speed which separates the R from the D.</p> <table border="1" data-bbox="385 619 784 679"> <tr> <th colspan="7">BM building blocks</th> </tr> <tr> <td>VP</td> <td>TC</td> <td>VC</td> <td>C</td> <td>N</td> <td>R</td> <td>PF</td> </tr> </table>	BM building blocks							VP	TC	VC	C	N	R	PF	<p>Includes focus on various long-term benefits, especially the efficiency and real time handling of information across the BMIM system including internal functions, suppliers, customers, and network partners. Enables parallel information processing, one in which electronic information processing and the more traditional informal face-to-face human contact operates in a complementary manner. Electronic tools are employed in the BMIM in order to operate real time and the company network continues to expand. The internet plays an important role in the BMI system by opening up new windows for creativity.</p> <p>The BMIM adds two new dimensions to the BM – the vertical and the horizontal BM dimension. Focus is still on single BMI and not multi BMI.</p>	<p>Increasing need for knowledge management in order to handle and systematize tacit and explicit knowledge.</p> <p>Protection of IPR and knowledge comes into focus. A key question is: how can IPR, knowledge and core competences be protected in an open, dynamic, flexible and integrated physical, digital and virtual innovation environment?</p>	<p>Same basic structure as in fourth generation. The BMI process is electronificated and further emphasis is on vertical relationships (strategic alliances, joint ventures, etc.) and with collaborating competitors.</p>
BM building blocks																	
VP	TC	VC	C	N	R	PF											

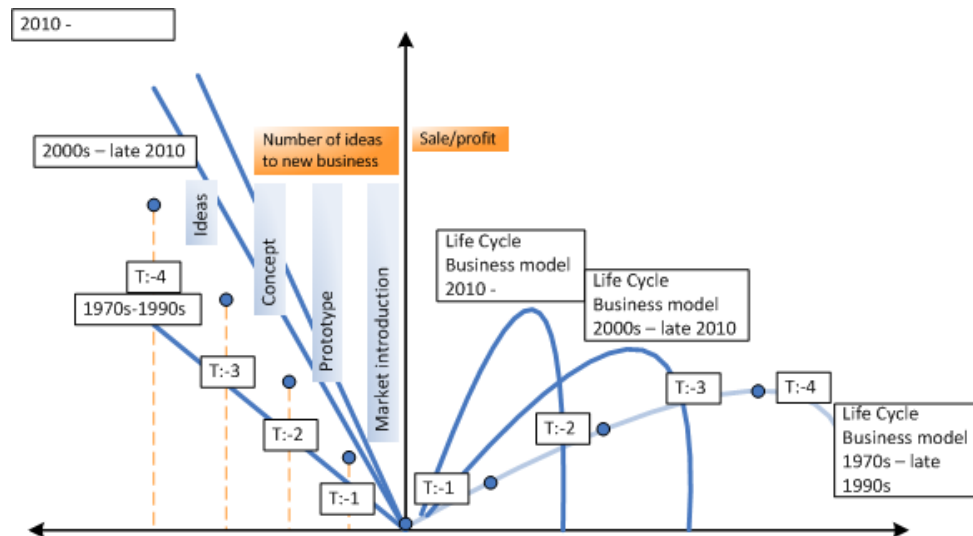


Figure 1 A sketch model of the diminishing Life Cycle and development of BMs (Lindgren, Jørgensen 2010).

time BMI and having different BM from different network partners share values? (Porter 2011).

BMI leaders have, through the different generation of BMIMs, come to realize that competitors relatively easily can and will copy BMs. Today, many examples of quick captures of BMs by global rivals located elsewhere are taking place (Markides 2010), (Wall Street May 2011), (Iphone 5 2012).

In 2010, continuously creating unique BMs through excellent BMIMs was considered to be one of the most important strategic task of businesses to compete with rivals who were quickly copying businesses' new BMs in a market where IPR rights were not respected. (Apple 2012).

In this context, our research on previous BMIMs indicates that there is a strong need for rethinking the BMIM. The BMIM that can support much more complex and knowledge-based BMI with a multi BM approach is preferable. A multi BMIM that can release and pay more attention to intangibles, be more dynamic, be more independent of time, things and place and not least be an integration of physical, digital, virtual and many BMs simultaneously, seems to be the goal. However, the question remains: How would such a model look like?

## DESIGN/METHODOLOGY/APPROACH

The paper is based on literature research on previous generations of BMIMs combined with qualitative case research in four EU and US based BMI cases—Katalabs, Younoodle.com, View World and Peaceinnovation—to assess the requirements and demands to such multi BMIMs. Further, our case findings were presented and discussed at a focus group workshop at Stanford University involving different researchers, consultants, EU representatives and enterprises from seven different countries (Stanford

University workshop 2011) and again in Princeton University 2012 (Princeton University workshop 2012).

This constructs the theoretical and empirical background to propose a framework for the next generation of multi BMIM. The data collection in the analysis has primarily been done through desk research, case research and focussed group sessions with experts and workshops with invited experts in the field of business model innovation. The desk research involved collecting of information through books, articles, and websites. The time frame set for this study goes back from the early 1950s up till 2012. The review mainly covers European and US research within the area.

In the context of literature research, an explorative research framework and design was developed.

A research framework was constructed on the basis of five focus areas:

- The concepts, framework and characteristics of the next generations of BMIMs related to BMI.
- The task of BMI—what will be the most dominated task to be carried out by next generation BMI?
- The field of BMI—What will be the main characteristics of the next generation BMI environment—technology, market, network, competences, relations, where the BM is going to be innovated into and with what?
- The success criteria of the next generation of BMI—What will be the dominated success?
- What is the criteria for BM and BMI tasks?
- The concept of a multi BMI—What will be the main concept/understanding of how to do BMI in the future?
- The Process of BMI is the “way” that the BM follows through the business innovation model from idea to market introduction and so on—How will this process of BMI come to look like?

As earlier mentioned, there has not been any research on the different generations of BMIMs related and compared to the BM framework and context (Osterwalder 2010, Hagmann 2008, Chesbrough 2008, Taran *et al.*, 2008, 2009 and 2010) yet. The aim was, therefore, firstly to establish a comprehensive overview of state of the art knowledge on BMIMs analyzed in connection with BMs and its building blocks. In this context, we first established an overall analytical framework, which can be seen in Table 1.

The structure of the research findings relates the different generation of BMIMs to the BMs and particularly the different building blocks of different generations of BMI models. The analysis is organized so that each generation of BMIM is summarized into a measurement representing:

Green – when the building blocks were very much in focus/represented in this generation of BMIM. The color green symbolizes dominant building block(s),

Yellow – when the building blocks were to some extent in focus/represented in this generation of BMIM. Yellow symbolizes medium represented building block(s),

Red – when the building blocks were in general not in focus/represented in this generation of BMIM. Red symbolizes submissive building block(s).

It has to be stressed that this is not a black and white depiction. If, for example, the competence building block has been proposed to be colored red in a generation, it does not mean that it was not a part of that generation. A business will always have competencies,

customers, value chain and so on. Colors merely work as an indicator visualizing that during a particular generation of BMIMs, when seen in a BM context, that those particular building block(s) did not have a central position in that generation and that they were not a main resource to BMI. That is not to say that they did not exist.

The baseline analysis touches upon the BMIM's capabilities related to handling different BMI contexts and thereby lays the ground to our next work and the answer to the question:

What will scenarios of a multi BMIM look like?

In each generation of BMIMs, questions have been asked to better understand and explain the phenomenon and to improve our understanding of the generation of BMIMs related to BMI.

## **HISTORY AND DEFINITION OF BMIM**

Extensive knowledge exists about innovation models (Wind 1973, Ulrich and Eppinger 2000, Tidd et al. 2009, Chesbrough 2005) and, in particular, on how to innovate products and services (Wind 1973, Cooper 1993, Baker and Hart 2007). There is also a magnitude of theoretical definition of innovation models. In our research, we have adopted this definition: a BMIM is “a business operational manifestation of the way business model innovation works and is carried out” from ideation to market introduction. We have found it to be the most comprehensive one in providing concrete details of a BMIM existing within a business. Consequently, according to this definition, a BMIM serves as a model or a picture that represents the “roadmap” for any BMI carried out in the business. However, these pictures can be very different from one enterprise to another and even within the same enterprise on different innovation tasks.

Consequently, we found that BMIMs can take very different characters e.g. a linear stage gate (Wind 1973, Cooper 2005) or a more flexible, agile and open character (Corso 2002, Coldman and Price 2005, Chesbrough 2005, 2008). BMI models, even if they are certified, may not always be strictly followed (Lindgren 2002). Therefore, one could register a formal BMIM, which the enterprise wants to or says they follow and an informal BMIM which is more in line with what goes on or even supports the formal BMIM to move faster e.g. by “jumping” stage and gates. Further, the “picture” of the BMIM at a given time might—the start up of a given BMI—be totally different to the “picture” followed and seen in a retro perspective context. This may also be true in companies that are ruled strictly by ISO Standards.

There is, however, a lack of knowledge about how and if BMIMs fit into a specific BM context. As we regard BMI as “the tree of innovation” (Taran *et al.* 2010), it is possible for us to analyze the different generations of innovation models in the light of the BMIM context.

The study of the evolution of generations of BMIMs and analyzing them in the BMI context showed that it is not confined to a single discipline. Theories and concepts had to be modified as a result of doing our research and search for the next generation of BMIM. Hence, we adopted an analytical induction method for data analysis (Znaniecki, 1934) in order to improve existing BMIMs and, if necessary, develop new concepts, ideas or subcategories of these.

Berkhout (2006), Tidd (2006), Tidd and Bessant (2009), Hobday (2005), and Libecap, Berkhout, Duin, Hartmann, & Ortt (2007) all rely on Rothwell (1994) research on



the evolution on innovation models. Rothwell (1994) has provided a very useful historical perspective on innovation models. He argues that the nature of the innovation models has evolved from simple linear models (1950s-60s) to increasingly complex interactive models (1990s). Rothwell (1994) divides the evolution of innovation models into five generations.

The precepts aspired to in this paper agree with Rothwell (1994) to the extent that there exist generations of innovation models. Regarding the timeframe of each generation, we believe that it is a fluent transition that did not happen from one day to another, but extended for years and for that reason no specific year was the turning point. We have discussed the different precepts and supported them with our own experience and in retrospect analyzed several articles and events showing different changes in society, business and theory and came to the conclusion that the timeframe of the fourth generation stretches from mid 1980s to a period between late 1990s and early 2000s while the fifth generation starts somewhere in late 1990s and early 2000s and onward.

Before examining each individual generation of innovation models, it is useful to emphasize five caveats stressed by Rothwell (1994) in his introduction to the generations: (Hobday, 2005)

- (1) The evolution from one generation to another does not imply any automatic substitution of one model for another; many models exist side-by-side and, in some cases, elements of one model are mixed with elements of another at any particular time;
- (2) Each model is always a highly simplified representation of a complex process that will rarely exist in a pure form;
- (3) Often the progress from one generation to another reflects shifts in dominant perception of what constitutes best practice, rather than actual progress;
- (4) The most appropriate model will vary from sector to sector, and between different categories of innovation (e.g. radical or incremental);
- (5) The processes that occur within firms are to an extent contingent on exogenous factors such as the pace of technological change.

As we consider BMI as the tree of innovation, we relate different generations of innovation models to BMIM.

## **CASE STUDY – CONTOUR AND COMPONENTS OF A MULTI BMIM**

During 2008 to 2012, we studied several cases. Five of these cases, which we believe represent some of the contours, components and requirements of a next generation BMIM, are presented here.

### ***The Katalabs case***

Katalabs is a US based startup company formed out of the same computer science research environment as Google came from, together with the environment around Humanity Lab at Stanford University. In the line of creating a world of WebGL 3D information and communication technology, Katalabs was established. In the Katalabs case, a variety of six BMI projects were studied—BMs that existed before market introduction and BMs that were already introduced to the market. We found a distinction between users, customers and other stakeholders where the users did not pay for the company's products, service and processes, customers paid for the companies' value proposition and other stakeholders paid for the actual or potential value proposition. Because the product, service or process

was not yet introduced to the market, BMI was always carried out at a concept, prototype and digitalization level. This was done in a 2D and 3D browser-based BMI environment called Kataspace – [www.katalabs.com](http://www.katalabs.com). Practically all physical elements could be digitalized and brought into this open cloud-based world. Everything that had already been digitalized could be transformed to 2D or 3D objects in the Kataspace environment and all BMI could be carried out and registered 24/7.

#### ***The Younoodle.com case***

Younoodle.com also comes out of the research and student entrepreneur environment around Stanford University, US. Younoodle created a whole new BMI ecosystem where knowledge entrepreneurs and their BMs could live and where interested stakeholders such as venture capitalists, other companies looking for technologies, other entrepreneurs e.g. could come and join, buy and participate in innovations of businesses and BMs. The BMIM was hereby moved from a single BM perspective to a BMIM that could handle over 20.000 different entrepreneurs business and related BMs in a BM eco system. The continuously increasing numbers of the new BM were self registering information and communication in Younoodles platform, which thereby automatically formed the “DNA” of the businesses, BM, BMI processes and BMIMs. The BM ecosystem visualized, near to realtime, the individual performance of BM ideas and concepts to interested stakeholders.

#### ***The View World case***

View world is a Private, Public and NGO Partnership business formed around BMI focused at the bottom of the pyramid markets. The BMIM and process is network based and a big number of stakeholders are participating at different levels and times in the BMI process. Stakeholders have very different BMs and the motivation of participating challenges the BMI collaboration environment and model to enable and support this to be possible.

#### ***GitHub.com***

GitHub.com is a US business hosting open source and open software code, where companies from all over the world can share software development and share development projects. Any business can join, take and use software from the GitHub open platform. Further development of software is transparent so that anybody at anytime from anywhere can see and follow different lines of the software development (The fork theory 2010).

#### ***The Peace innovation case***

The peace Innovation case comes out of the research environment at Stanford University. The BMI project in this case was to create a new global BM ecosystem for different BMs related to peace. A BM ecosystem where knowledge-based BM and entrepreneurs based both on profit and highly commercialized BM would work together with semi and non profit BMs. The BMIMs were required to handle many types of BM characteristics, a multi BM approach (Lindgren 2010), with very different BM outputs. Peace innovation had involvements of banks, big global ICT companies, insurance companies, social network companies together with SMEs, volunteers, scientists, all with very different domain backgrounds and demographic placements. Stakeholders were representing interests of BMs with and without profit output as success criteria. The peace innovation

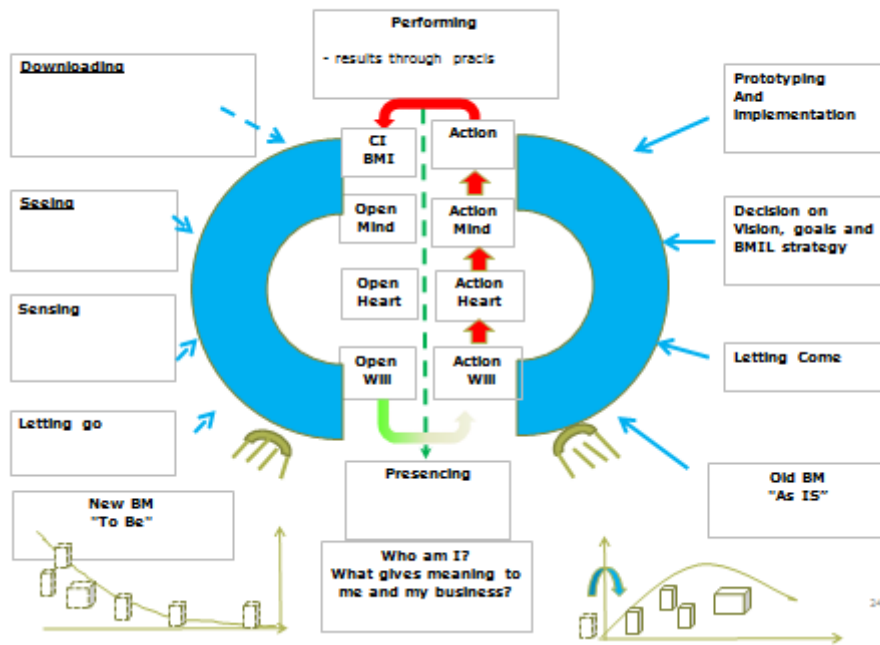


Figure 2 BMI and process related to BMI focus on Old and New BM's.

case was based on high level field informatics technology, real time BMI with very high and direct involvement of many takeholders. The peace innovation case BMIM was required to handle the whole chain of stakeholders and their value propositions—a kind of cradle to cradle BMI perspective.

The BMIM and technology developed in the peace innovation project was capable of handling more BMIMs, technology platforms, information and communication technology and interest.

## FINDINGS

The next generation innovation model is characterized by fundamentally disrupting previous BMIMs and requiring the ability to integrate and interconnect many different types of BMs, stakeholders' BMIMs and technologies in a distributed network-based BM innovation mode and process.

A full scale implementation of realtime-based BMI, supported by integrated and interconnected BMI technology is and will always be the standard. This enables fulfillment of different stakeholders' demands and requirements of value proposition related to the BMI. Further, it enables and supports handling and bridging of a multitude of BMI technology platform (Nasa 2011) with a strong emphasis on user friendliness and easiness to connect.

BMIM's are practically a full implementation of the vertical and horizontal knowledge relationship between business, BM and BMI projects and with the highest degree of collaboration between stakeholders involved in the BMI model and process.

The change to a new generation of BMIM will therefore be radical. (Katalabs, Younoodle, Github, View World and Peace innovation).

Synergy and spinoff of the above mentioned is the transition from focus on a single BM to a multi BM approach seen in a BMI ecosystem and a platform perspective of BMIM's. Beneath a sketch of one of these loops of a BMI process is proposed, which in some sense can be carried out in just few minutes, in real time with continuous iteration and different simultaneously process of BMI (GitHub, Peace Innovation).

**A BMI process inspired by the case studies and the U-theory Scharmers 2010.**

As can be seen in Figure 2 , the BMI process considers both new and old BMs simultaneously in the BMI perspective. The creativity phase (left side of the model) and the implementation phase (right hand side) is carried out extremely fast and done simultaneously (Github, Peaceinnovation, Younoodle)

The BMIMs will be operating in the physical, digital and virtual worlds based on a multitude of BMs which are simultaneously incremental and radically related to changes in the BMs as seen in figure 3.

**A Multi BMI process and context inspired by the case studies Lindgren 2012.**

These are continuously in a value adding innovation process, integrated, interconnected and delivered to different stakeholders in a continuous process, wherever and whenever stakeholders demands. The BMIM will be a part of different BM ecosystem and the BMI ecosystems will be part of the multi BMIM, different to previous generation of BMIMs that was primarily part of one or very few BM ecosystems.

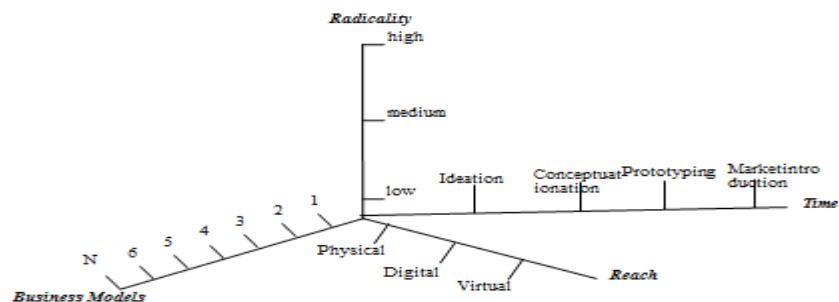


Figure 3 The Business Model Innovation space and process

Not only does the individual BM changes and is brought into a process perspective continuously, we also find that the business is challenged and questioning the identity of the business as such, as BMI now touch on all building blocks of all BMs. This changes the BM in the BM innovation processes, both across building blocks, across BMs, businesses – creating, capturing, delivering and consuming new BM and business constructions continuously.

The multi BM concept (Lindgren 2010) seems to be the reality now and in next generation BMIM. It will automatically give BMIM strategic BMI challenges but also strategic potentials. The new advantages and trends in BMIMs with a full digitalization in 2D and 3D real time tremendously challenge the BMIM in relation to the demands for increasing speed, effectiveness, efficiency and automation. It also challenges management overview of what is really strategically going on related to BMI. The business innovation model with the best performance and service tools on these dimensions will, of course, be the winners of BMIMs and BMIM ecosystems. Hereby, we indicate that there will not only be one model.

Transparency in capacity, security, trust and ownership will be central elements in the next generation BMIM. When BMI is brought into the ‘clouds’—“Iclouds” (Apple 2011), (Neffics 2012), it enables businesses to release their intangibles of BM building blocks and businesses. This challenges security, risk, IPR and protection of core competences (Lindgren 2010, Walstreet 2011). The strategic dilemma and choice of how to maximize freedom to BMI together with maximizing security when opening up all the BMs including competencies, core competencies and core business to the entire world, becomes of utmost importance and strategic concern to a BMIM. The BMIM that can secure stakeholders on these issues will be the market leader..

Businesses have begun to realize the importance of implementing and innovating their BMs to not just focus on securing competitive advantage and profit. A whole new variety of value outputs of BM is expected. This was documented and stressed upon at our focus group workshop at Stanford University on Emerging BMs and BMIMs in May 2011 (Stanford Workshop May 2011). Our existing BM and BMIM understanding seems to be too simple today (Github, Peace Innovation). BMI in the new generation of BMIM completely changes the game and understanding of the BMI, BMIM construction and business understanding. The discussion on the term ‘business’, which has gained increasing awareness both in literature as well as in organizations lately (Amidon 2010, Amit et.al 2010, Zott 2011, Fines 2011, WSIE 2012) is real and the question if the business is the right identity to future generation BMIM is important to ask.

Cases and our focus group workshop confirmed that we are in a time of disruptive change, where businesses are actively implementing Open BM and Open BMI because they are free, quick, realtime-based and contribute to a leaner multi BMI process and reduce or even take away direct costs (Katalabs, Peace Innovation). The big question is: How do we handle this strategically in a multi BMI and multi BMIM context?

Start up businesses build their BMs on Open BMs and Open BMIs. Large businesses also follow this trend. This mega trend will change the whole context of BMIs and how BMIMs are created. Openness, visibility, transparency, sharing and speed of BMIMs will take BMI into a new dimension and new era.

Github.com and YouNoodle.com are businesses specializing in handling such open source and open BMI platform and share most of their “open source code” or “open BMs”. They are two examples of new businesses which came out of the sky just within 2 years,

**Table 2** Next Generations BMIM characteristics

<p><b>Characteristics of next generation BMIM</b></p>	<p>Realtime-based BMI</p> <p>Direct BMI, direct BMI interaction with all stakeholders often on Beta versions of BM</p> <p>High degree of BMI flexibility, agility</p> <p>Real time BMI and responsiveness</p> <p>Stakeholders involved at forefront of BMI project through the whole BMI process</p> <p>Vertical and horizontal BMI collaboration and BMI knowledge sharing</p> <p>Continuously digitalization of information and communication – use of wikitech technology</p> <p>Realtime digitalized documentation and processing of BMI and BMIM</p> <p>Digitalized BMI knowledge and learning embedded in all building blocks of every single BM</p> <p>Multi BMI</p> <p>Strategic BMI overview in 2D and 3D of the multi BMI process</p> <p>2D and 3D visualization of tangibles and intangible values, knowledge, stakeholders, value chain, competences, profit formula, processes</p> <p>BM and BMIM system are interconnected and integrated in BMI eco systems</p> <p>Vertical and horizontal BMI collaboration</p> <p style="padding-left: 20px;">Parallel and integrated BMI process</p> <p>Open BMIM with maximum flexibility and agility:</p> <p>Facilities and tools for strategic BMI leadership and management at all levels and possible view points</p> <p>Fully developed BM and BMI digitalization of everything, everybody, everywhere</p> <p>Open access to BMI data and BMI information</p> <p>BMI metrics, computer-based heuristics, BMI learning systems</p> <p>2D and 3D assisted BMI simulation</p>
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becoming important players in new markets of “social coding”, “social innovation” and network-based BMI.

Until now, Open BMs and Open BMIMs have not been considered stable enough for established enterprises to practice, but as more businesses are expected to turn to these models, the Open BMIM approach becomes closer to be realized in the next generation of BMIM.

The increasing openness and complexity in BMI encouraged BMIM to involve and attract more stakeholders. This marks a new and disruptive understanding of BMI. Outputs from BM can now be something else than just close customers and traditional stakeholder value fulfillment. Outputs can now also be other values and also seen in a society and sustainability perspective (Peace Innovation, View World and YouNoodle Case), (Princeton 2012), (E-challenges 2012) having an increasing focus on society and networks values of BMs and BMI projects, changing the innovation task to a higher complexity level but on the other side also more and more willingness to try BMs that are early beta types.

This leads to a new criteria and demand for success to multi BMIM, where the early criteria of short-term based focus on cost and long-term success based on improvement and performance are changed to focus on short-term time and long-term learning success criteria with the sustainable value proposition in focus.

These days, businesses such as Google, Facebook and Apple with their iTunes and iPhone apps are experiencing rapid BMI growth and have shown remarkable skills in controlling BMI speed and fitting their BMs to shorter and shorter BMI cycles. At the same time, they are facing increasing demands from individuals, groups and society to meet the values of the society (EU/Facebook 2012).

Table 2 sums up and presents some of the characteristics we found in our research of the next generation BMIM.

The digitalization of the BMIM results in radical change and radical openings of the business. **BM value proposition(s)** offer additional value propositions to more stakeholders in integrated and interconnected physical, digital and virtual world/market. Target stakeholder will play an active role in the BMI enabling innovation of new BM values. The “cloud” creates BM opportunities that before were unthinkable.

The network, relationship and competence building blocks in the BM become even more important players and play an even bigger role in the BMIM and the BMIM processes (Verna Alee, Amidon and Gonzales 2011 at Stanford workshop, Princeton workshop 2012, WSIE 2012, E-challenges 2012). This is because network, relationship and competencies of different kinds and with different connections related to various different BMs and practices are deeply involved, interconnected and of larger importance to realize and commercialize a BM value proposition. Yet, independent of each BMI projects, we found in our case that there is a tendency of a change in value proposition focus to a more process value proposition focus (Normann and Verganti 2012), value network and value relationship focus. This is a disruptive change from previous values and BM output focus regarded as standalone values to values as value relations, shared values (Porter 2011) and value relation networks. A first strong tendency to more focus on values related to society and not to single businesses is therefore our expectation on behalf of our findings (also confirmed by Fines roadmap 2011, 2012).

The complexity of defining business’s **target users and customers** hereby becomes significantly difficult and blurred to someone watching from outside a BM innovated from

the sixth generation BMIM. Enterprises will change their focus and consider chain of stakeholders and stakeholders' life cycles, vertical and horizontal stakeholders, communities, and stakeholders, even network of stakeholders with different demands for value proposition. The target stakeholders are broader and now include digital and virtual stakeholders which also include machines, hosts, value chains and even the cloud. A rethinking of the term customer, target customer and market segments is necessary.

A BM platform, "an ecosystem for multi BMs", where different BMs can be attached to transfer their value proposition to different stakeholders and other BMs will be standard feature in next generation BMIs. A "BM ecosystem" in a BM platform similar to the ones introduced by Apples Apps system, Git Hub, Katalabs, YouNoodle and Peace Innovation will be standard of BMI. All are nice examples of different BMI platforms, where the producers of apps, open software, digitalized objects, BMs, peace objects cater to "the BM platform", similar to the furniture industry in old days when big chains of furniture producers such as IKEA, Sears, Metro catered to the global demands. Innovating for an ecosystem for BMs is, however, far more complex than innovating for a single BM. It challenges existing BMIMs as it has to cover more BMs at a time, support BMI on a system level and has to match different stakeholder expectations of quality. Apple have tried to solve this by a strict quality assurance system.

Target stakeholders will be given central roles in the BMI ecosystem where the quality assurance process will be enhanced by the advancement of the "cloud". A unique possibility to narrow down who the essential target stakeholders are, a close to 360° view of stakeholders and a much more closer understanding of what values the individual stakeholder gives, processes and supplies before, under and after the buying process.

The digitalization of the BMIM system and the evolution of the cloud into the BM world provide new challenges for the internal **value chain** in enterprises. The internal value chain is an integrated part of the cloud and is open. This increases the complexity of defining the value chain as previously carried out (Porter 2005). The virtual value chain and BM will be standard and part of other virtual value chains and other BMs who only exist when there is a task for them (Coldmann and Price 2004, Vervest et al 2005).

Production of virtual goods, virtual services and virtual processes forces the value chain in businesses into new dimensions of BMI with the aim to serve physical market, digital markets and virtual market places simultaneously. The integrated physical, digital and virtual value chain will be the reality in the sixth generation model.

The view on competencies has to be rethought and changed from being focused on having **competencies** that are inhouse based, to a new understanding where the enterprise's competencies runs its business and related BMs as a part and together with other stakeholders competencies in a field of BMs which we call the network-based BM.

Outsourcing and sourcing were the big mantras in earlier generations of BMI models where new businesses evolved as born globally and born virtually, which set a new standard of competence in innovations in BMI and BMIMs. The necessity for being a fast BM innovator and have fast BMIMs eventually becomes somewhat equal to BMI success and survival in "BM ecosystems". Therefore, this trend will increase even more.

The extended use of virtual value chain leads to a continuous expansion of **networks** involving different stakeholders. Network partners include physical, digital and virtual and increase complexity and the need for focus on knowledge zones and innovation but also to knowledge relationship management—The Innovation Super Highway (Amidon 2008, 2010).



Finding and leveraging competencies from the right network partners is the critical task in the next generation BMIMs where knowledge in technology, market, network and competences is embedded in enterprise's BM.

**Relations** will play a key role in the next generation BMIMs as internal and external BM relationship complexity increases and the need for finding, relating and maintaining relationships in new ways with stakeholders are needed to fulfill competence gaps or other functions for the focal enterprise. Relations with many other building blocks in the BM are physical, digital and virtual, which makes communication across BMs possible and visible both in 2D and 3 D.

Relations plays a crucial role in the internationalization of a BM, where different entry barriers on new markets can be passed via relations

The integration with digital and virtual marketplace creates new possibilities for enterprise's **profit formula**. BMs will be accessible 24/7 serving stakeholders demand worldwide. Stakeholders will be attracted by increased numbers and new varieties of value formula continuously.

Multi BMI will include both users who do not pay for products, services and processes, but contribute to BMI with other values and help to develop critical mass so that other customers and other customer groups together with other BMs become possible, achievable and profitable.

It can be argued that the next generation of BMIM would be the first generation of a complete BMI framework, releasing the real potentials of BM's building blocks. It will still be a challenge to take all seven building blocks of the BM framework into consideration simultaneously and treat them with equally intense effort. Not just that, it will also have to take all the BMs in the enterprises' business portfolio into consideration to remain parallel, integrated and interconnected.

## CONCLUSION

The paper commences with an overview of earlier generations of BMIMs where it is possible to see the explanation of why the different generations of BMIMs have changed significantly from one generation to another.

Organizational structures behind the BMIMs changed over the generations from functional structures to matrix structures and further on to network structures. However, with each generation, various disadvantages followed a new generation, which tried to overcome these, but inevitably led to new challenges or disadvantages.

**The first generation** of BMIMs handled the BMI from department to department and was challenged and had to move into a multi-disciplinary BM project process. This became a standard for the **second generation** and later generations.

BMI projects organized in direct relationship with a business strategy were a characteristic of **the third generation**. The transition to **the fourth generation** involved increased focus on external and internal partners which in a network-organized BMI context created new challenges.

The combination of the first and second generations' technology with push and pull BMIM's led to the notion that market and technological aspects were considered to be most important throughout the whole innovation process.

In this context, feedback loops were introduced in the BMI processes to prevent faults and bad BMIs. The need for re-evaluation of previous steps during the BMI process was

raised concurrently with the increasing complex and multi-phase BMI processes. Furthermore, the focus on BMI activities were organized more in parallel to increase speed of development.

The challenges in managing BMIM processes, as can be read above, changed throughout the years from being focused on science, to market, then to customer and finally to a combination of integrated focus and in **the fifth generation** commencing with focus around networks.

It is possible to see that some issues have stood their ground and others have arisen such as the need for competent employees, extensive knowledge about technology and market trends. This view is more cumulative and evolution-oriented in contrast to the static description of the first generations of BMIM's.

As more dynamic, complex, realtime presentation of the BMI are adapted from the increasing digitalization and internet-based BMI, all five generations of BMIMs require reformulation, remodeling in response to the field of BMI and demand for strategic high speed BMI.

**The next generation** BMIMs introduce a first generation of a new area of BMIMs. When practicing BMI in 2012 and further on, it would be important to have a BMIM that is excellent and fits with the completely new context of multi global BMI. The agenda of BMI has changed dramatically in the last years, which stress the necessity of a new generation of BMIM. Flexibility, dynamics, speed, independence of time, things, BM, people and place are the characteristics of the next generation BMIMs. Another issue will be that the multi BMI will be performed simultaneously. Through the literature study and case research, we found the contour of the next generation BMIM. Our findings show that some but not all of the challenges and implications of previous BMIM is met by the next generation BMIM.

## **FURTHER RESEARCH**

The research calls for further work on the sixth generation BMIM. In our research, we are continuing to investigate the sixth generation BMIMs in several cases in the US, EU, India, Africa and China.

## **REFERENCES**

- [1] Abell, D.F. (1980), *Defining the Business: The Starting Point of Strategic Planning*, Prentice-Hall.
- [2] Amit, R. and C. Zott (2001), Value creation in e-business, *Strategic Management Journal*, Vol. 22, Nos. 6-7, pp. 493-520.
- [3] Apple 2012, <http://www.businessweek.com/news/2012-10-01/apple-s-iphone-5-infringes-patents-samsung-says-in-suit>
- [4] Baker M. and S. Hart (2007), *Product Strategy and Management*, Harlow: Prentice Hall, pp 157-196.
- [5] Ballon, P The platformisation of the European mobile industry, *Communications & Strategies, Dossier: Changeover in the mobile ecosystem*, no. 75, 3rd Quarter 2009, pp. 15-33.

- [6] Chesbrough, H. and R.S. Rosenbloom (2002), The role of the business model in capturing value from innovation: Evidence from XEROX Corporation's technology spinoff companies', *Industrial and Corporate Change*, Volume 11, Number 3, pp. 529-555.
- [7] Chesbrough, H. (2005) *Open Innovation*
- [8] Chesbrough, Henry (2006), *Open BMs: How to Thrive in the New Innovation Landscape*, Boston: Harvard Business School Press.
- [9] Chesbrough, H. (2008), *Open Business Models: How to Thrive in the New Innovation Landscape*, Boston: Harvard Business School Press.
- [10] Christensen, CM, 1997, 'The Innovators Dilemma', Harper Business ISBN 0-06-662069-4
- [11] Cooper, R, 1993 'Winning at New Products' Addison-Wesley Publishing Company ISBN 0-201-56381-9/1993..
- [12] Cooper. R., 2004 *Product leadership*
- [13] E-challenges 2012, Lisabon <http://www.echallenges.org/e2012/> - Workshop on Business Values and Business Model Innovation in the networked enterprises of People & things.
- [14] EU/Facebook 2012 <http://mashable.com/2011/11/28/facebook-european-commission-privacy-advertisers/>
- [15] Fines Future Internet Enterprise Systems (FIInES) Cluster Research Roadmap Version 2.0 15 February 2010
- [16] Forbes 2010
- [17] Goldman, Nagel & Price, 1998, 'Agile Competitors and Virtual Organisations', Van Nostrand Reinhold, New York.
- [18] Johnson M.W., Christensen, M.C. and Kagermann, H. (2008) Reinventing your business model, *Harvard Business Review*, vol. 86 No. 12, pp. 50-59
- [19] Iphone 5, 2012 <http://mashable.com/2012/09/12/iphone-5-compared/>
- [20] Linder, J. and Cantrell, S. (2000) *Changing business models: surveying the landscape*, Cambridge: Accenture Institute for Strategic Change.
- [21] Lindgren, P 2003, *Network Based High Speed Product Innovation Center of Industrial production - Buch's Grafiske* ISBN 87-91200-15-6
- [22] Lindgren, P, Bohn, K, & Sørensen, B 2004, 'Network Based Product development Leadership and Management – The Impact on Short and Longterm Continuous Innovation', CINet, Sydney
- [23] Lindgren, P and Clemmensen 2009 *Green Communication The enabler to multiple business models* 12th International Symposium on Wireless Personal Multimedia Communications (WPMC 2009)(VITAE) September 7–10, 2009 in Hotel Metropolitan Sendai, Sendai, Japan

- [24] Lindgren, P and Kristin Falck Saghaug and Suberia Clemmensen 2009 “The pitfalls of the blue ocean strategy canvas - the importance of value related to the strategy canvas”. CInet Brisbane 2009
- [25] Lindgren, P and Saughaug 2010 The pitfalls of the Blue Ocean strategy Implications of “The Six Paths framework” CInet Zürich 2010
- [26] Lindgren, Jørgensen and Taran 2010 Research on behalf of research on BM introduction and BM lifecycle since 1970 – working paper.
- [27] Lindgren and Taran 2010 “A futuristic outlook on emerging Business models” Springer Publisher
- [28] Lindgren and Taran 2011 “Business models and Business model innovation in a “Secure and Distributed Cloud Clustering” (DISC) Society”. Springer Publishing
- [29] Kotter J. 2010 Change Management Macraw Hill
- [30] Magretta, J. (2002) Why business models matter?, Harvard Business Review, Vol. 80, No. 5, pp. 86-92.
- [31] Markides, C.C. (2008) Game-changing strategies – How to create new market space in established industries by breaking the rules, San Francisco: Jossey-Bass Wiley.
- [32] Morris, M.M. Schmindehutte and J. Allen (2003), The entrepreneur’s business model: toward a unified perspective, Journal of Business Research, 58(6), pp. 726-735.
- [33] Nasa 2011 - Stanford University Workshop 2011 Presentation from Nasa May 2011
- [34] Normann & Verganti 2012, Incremental and Radical Innovation incremental and radical innovation: design research versus technology and meaning change Nielsen Norman Group and Politecnico di Milano and Mälardalen University
- [35] Osterwalder, A., Pigneur, Y. and Tucci, L.C. (2004) Clarifying business models: Origins, present, and future of the concept, Communications of AIS, No. 16, pp. 1-25.
- [36] Osterwalder, A. and Y. Pigneur (2004), An Ontology for E-Business Models, University of Lausanne, Switzerland.
- [37] Porter, M. (1980) Competitive strategy: Techniques for analyzing industries and competitors, New York: Free Press.
- [38] Porter, M.E. (2011), “The Big Idea: Creating Shared Value - Harvard Business Review - hbr.org › January–February 2011 Shared Value
- [39] Porter. M and Michael Kramer (2011) Creating Shared – How to reinvent capitalism – and unleash a wave of Innovation and Growth Harvard Business Review
- [40] Prahalad, CK and Hamel, G ‘The core competence of the coporation’, Harv. Bus. Rev., May-June: 79-91, 1990
- [41] Princeton Workshop on Emerging BMs and BMI in Healthcare, Manufacturing and Gaming industry 7 – 8 june 2012 [http://riverpublishers.com/river\\_publisher/series.php?msg=Multi Business Model Innovation and Technologies](http://riverpublishers.com/river_publisher/series.php?msg=Multi_Business_Model_Innovation_and_Technologies)

- [42] Rogers, E. M. (1983) Diffusion of innovations, New York: The Free Press.
- [43] Rooke, D Harvard Business review 2005.
- [44] Roos, Göran 2009 Key Note speak - IFKAD 2009 conference Glasgow
- [45] Rothwell (1994)
- [46] Solaimani, Sam 2012 Presentation at the E-challenges Conference 2012 on Business Models – Tooling and Research Agenda Lisabon 2012. <http://www.fines-cluster.eu/fines/jm/>
- [47] Scharmer, C.O. (2009) , Theory U: Leading from the future as it emerges. The social technology of presencing, Berret Koehler, San Francisco
- [48] Skarzynski P. and Gibson R. (2008) Innovation to the core, Boston, Harvard Business School Publishing.
- [49] Stanford University Workshop with MediaX and Minolta 2010
- [50] Stanford University Workshop on Emerging BMs and BMI 18 – 20 may 2011 [http://riverpublishers.com/river\\_publisher/series.php?msg=Multi Business Model Innovation and Technologies](http://riverpublishers.com/river_publisher/series.php?msg=Multi Business Model Innovation and Technologies)
- [51] Tidd, J., Bessant, J. and Pavitt, K. (2005) Managing innovation: Integrating technological, market and organizational change, Chichester: John Wiley & Sons.
- [52] Tidd, J. and Bessant, J. (2009) Managing innovation: Integrating technological, market and organizational change, Chichester: John Wiley & Sons.
- [53] Ulrich, KT & Eppinger, SD 2000, 'Product Design and Development', 2nd edition, Irwin McGraw-Hill.
- [54] Vervest, P et al., 2005, Smart Business Networks Springer ISBN 3-540-22840-3
- [55] Wallstreet Journal March 2011
- [56] Zook, C (2007) Finding Your next core Business Harvard Business review
- [57] Zott, Christoph & Amitt & Massa 2011, 'The Business Model: Recent Developments and Future Research' <http://ssrn/abstract.com/=1674384>
- [58] Wall Street Journal Marts 2011
- [59] Wall Street Journal April 2011
- [60] Wall Street Journal May 2011
- [61] WSIE 2012, Boston US - The World Summit on Innovation and Entrepreneurship
- [62] [www.theWSIE.org](http://www.theWSIE.org). September 26-28, 2012. Boston, US

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