# The 'Vertical Innovation Process': Constructing sustainable business models in practice

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**Abstract:** Existing business model frameworks are too marketing/customer biased and this bias potentially removes a large potential for new business creation for existing organisations – especially in the public sector, in public-private partnerships and in specialized industries, where the end-user is not the necessarily the same entity as the paying customer. As consequence, we present an operational method for how to create and construct an outline for new business models, which goes beyond the biased marketing perspective. The study hereby presents the Vertical Innovation Process (VIP) framework which moves the innovation management literature further, since new areas of inquiry are introduced to business modelling. Finally, a case study is presented to demonstrate how the VIP framework is utilized in practice to inspire innovation management practices.

**Keywords:** Business model; radical innovation; case study; vertical innovation; management practice; Creative Idea Solution framework

## 1. Introduction

The business model literature is currently emerging as a scientific revolution (Kuhn, 1962) in the academic community, where Porter's (1985) value chain with a linear perspective on value creation is down-emphasized. This change is occurring because of increasing complexity and agility in the contemporary business world, and therefore new ways of sustainably creating and maintaining businesses are needed if the top management wants its organisation to survive on the long run (Huber, 2011; Sathe, 2003). Cf. Zott, Amit and Massa (2011) the business model literature is in its embryonic state, where only little coherence exists regarding definitions, scopes and areas of application. In addition, because business modelling is an emerging science, only few

concrete methods exist that describe 'how managers can create' a business model in practice (cf. Eppler, Hoffmann and Bresciani, 2011). Even though the literature is scattered across different branches (Zott, Amit and Massa, 2011), scholars in general do agree on two perspectives:

- Having a clear and stated business model can be the key to create and maintain a sustainable business, since the holistic approach to innovation is superior to focusing narrowly on a great product/service/etc. (also cf. Chesbrough, 2006; Johnson, Christensen and Kagermann, 2008).
- The most generic way to describe a business model is to state 'how a company creates and delivers value to its customers, and how (some of) this value can be put back in the company' (cf. Chesbrough, 2006; Zott, Amit and Massa, 2011).

### 1.1 Premise of the paper

The premise of this paper emerges from a general anomaly we experience when advising and/or collaborating with innovation managers mainly in Danish organisations, both private enterprises and public institutions. We found that the two generic perspectives on business modelling above have not found their way into the minds of the people responsible for working with innovation in practice, since most of the professionals we advise and collaborate with are narrowly focused on 'the brilliant idea/product' and/or the 'perfect technological production process'. In short, the innovation managers we collaborate with spend the majority of the allocated time on the product/process and they spend only limited resources on determining all the other aspects that could influence the potential success of the business proposition. Most managers do, nevertheless, understand the importance of the business model and they understand their business or services in a holistic context but mainly as a stabile situation. However, because they cannot find any operational method which is directly implementable to generate new business models, they keep focusing on the usual marketing channels and sales as a product/marked approach because these factors are known and (to some extent) still working in a satisfying manner for the organisation.

#### 1.2 Purpose of the study

To move the field of business model generation forward and to create a practitioneroriented perspective that is directly implementable in organisational practice, **the purpose of this study is to present a novel way for practitioners to reconstruct a newly developed idea (or an already existing product) into new business models**. The reconstruction is based on our *Vertical Innovation Process* (VIP) framework, a systematic process consisting of nine steps. Each of these steps needs to be created, developed and described before a complete business model can be outlined and thus generated (more details about the VIP are described in section 3). Finally, the study has two goals. The first goal is to inspire innovation professionals by presenting a state-ofthe-art case of how a Danish organisation went through the VIP and thus how their idea was reconstructed into a business model outline. The second goal is to relate the results to the innovation management literature e.g. Eppler, Hoffmann and Bresciani (2011), Zott, Amit and Massa (2011) and Huber (2011), to demonstrate exactly where the newly claimed knowledge widens current understanding of creating innovation via business modelling.

#### 2. Current state of the business model literature

As stated in the introduction, the literature on business models is scattered and has not developed in a uniform direction (Morris, Schindehutte and Allen, 2005; Eppler, Hoffmann and Bresciani, 2011). Since the beginning of the new millennium, the publications in the business and management field have exploded with business models being the core subject, both in terms of special subject articles (non-peer reviewed) and journal articles. In their 2005 review, Morris, Schindehutte and Allen (2005) found that three general categories of definitions had emerged and were utilized to describe business models. At the time, these categories represented an 'economic' [profit generation], 'operational' [architectural and design configuration], and 'strategic' [direction, competitive advantage and sustainability] perspective on business model generation.

A more recent review made by Zott, Amit and Massa (2011) found that 37 percent of the publications take the concept of business models for granted, where no definition is given and they found that less than half (only 44 percent) explicitly define or conceptualize what a business model is, when claiming new knowledge. According to Zott, Amit and Massa (2011), current state-of-the-art has centred itself around three different silos, each containing different conceptualizations. These silos are 1) e-business types, 2) value creation and value capture by firms and 3) how technology works (Ibid).

The issue of having un-defined contribution and having different silos of research creating different discourses in each of their branch is expected when embryonic research becomes more saturated cf. Kuhn's (1962) perspective on the development of normal science. According to Zott, Amit and Massa (2011) it is important to accept the further development of the individual silo of research. However, the scholars state that it could be an imperative to understand the intertwinedness of the silos to start developing a common umbrella-theme to understand and thus consolidate existing knowledge, so cumulative research in time can be initiated and thus move the field(s) in a uniform direction.

#### 2.1. Two important shortcomings found

Moving towards a more operational level, our review found two interesting shortcomings in the literature when comparing definitions of highly cited conceptual business model frameworks:

- 1) The literature is biased towards marketing and customers
- 2) Existing frameworks are not operational enough to implement in organisational practice

#### 2.1.1 Biased towards marketing and customers

E.g. Magretta (2002) definition is centred on the *customer* and value for the *customer*; the same goes for Johnson, Christensen and Kagermann's (2008) framework, where *customer value proposition* is one of four interlocking elements of a business model. In addition, Osterwalder and Pigneur's (2010) canvas is focused on *customer segments*, *value creation and customer relationships*, three elements out of nine in total. The problem, which emerges based on this biased orientation, is that organisations utilizing these frameworks miss out on a large potential, since they are customer-oriented and not

user- and situation-oriented. In short, in many industries the customer and the end-user are not the same entity – especially when referring to public organisations that pay for a product/service and subsequently makes it available to either an employee or citizen in the community. For example, in the contemporary world where selling and buying  $CO_2$ quotes, electricity, medicine on prescription, etc. is not controlled by the customers as end-user, but by the buyer and/or politicians/legislators, there is a significant potential, which can only be sought by going beyond the marketing-biased perspective on existing business model frameworks. Hence, we assert that existing models are too narrow when it comes to seeking the full potential of a new idea, the reconstruction of an existing business model or the development of business models based e.g. on public-private partnerships.

#### 2.1.2. Current models are not operational enough

The same frameworks (Magretta, 2002; Johnson, Christensen and Kagermann, 2008) claim to be operational in their set-up. However, we stress that they are not operational enough to implement in organisational practice. This bold statement is argued since the scholars do not present concrete examples of 'how to' start each process in the generation of the business model. E.g. Johnson, Christensen and Kagermann (2008) state exactly what a 'profit formula' is, but they do not clarify how to get different ideas/input to test alternative set-ups; they also state that 'key resources' can be people, technology, etc., but they do not demonstrate how to mix different set-ups in the process before selecting the final business model outline. This does not necessarily mean that the models are not good; rather, we claim that they could be much easier to implement in practice if the scholars presented 'how to begin' implementing their models/framework/canvas in practice. Only Osterwalder and Pigneur's (2010) canvas present precise processes and tools, which practitioners can apply in their organisations when they want to work with business model generation. It is operational frameworks like these that people in the industry ask for when striving to strengthen their business or when creating a new business. Still, even though Osterwalder and Pigneur's (2010) present an excellent operational method for implementing their canvas, it remains biased towards marketing and the customer perspective which reduces its applicability in many industries. In order to address the two established shortcomings in the existing literature, the (VIP) framework is introduced because it overcomes the existing barriers which current business model frameworks fail to address.

#### **3.** Presenting the VIP

Because the literature stresses how to describe a business model as well as the importance of having a business model similar to a business plan, the VIP framework goes a step further. The VIP describes a concrete process for the creation of the content in a business model as well as the importance of the aspect of developing several different models simultaneously to produce more potential and to avoid limiting the development process to only one model. The VIP framework is part of Brix and Jakobsen's (2013) Creative Idea Solution (CIS) framework, which is a continuous radical innovation method that can be implemented as the foundation for strategic innovation and/or corporate entrepreneurship (cf. Sathe, 2003) in existing organisations [see the CIS framework in appendix 1, section 8]. The foundation for the VIP is based on the perspective that a great business model with a mediocre product is superior to a great product with a mediocre

business model (Chesbrough, 2006). Moreover, the way in which a business model is defined in the context of the VIP is: *the way an organisation creates value to its customers and/or end-users, and how (some of this) value is brought back to the organisation.* Here, it is important to note that the customer and the end-users are not necessary the same entity. Table 1 below presents the VIP, which is divided into three key areas: 1) Area of inquiry, 2) Imperative perspectives, and the 3) Paradigm influence.

Table 1 The Vertical Innovation Process (VIP) framework

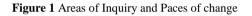
Area of inquiry	Imperative perspectives	Par	adigm influen	ce
		Preserving	Stretching	Breaking
Product	The technologies, techniques and design approach used in the construction and design of the product			
Process	The way to produce or to provide the product/service including buying or selling rights			
Business	The meeting/interaction with the customers and/or users and including branding and relation building			
System	The way the subject interacts with other products, services and systems both internally and externally			
Social	The acceptance of the subject by users and partners, and their motivations to use the product, services or system			
Financially	The way "value" such as money flows in the whole system between all the different actors			
Cultural	The habits in customers, communities, the branch and the society including written- and unwritten rules			
Political /	The way decisions are made including			
Legislative	barriers such as law, legislation and competitive tendering			
Others	What is not affected – what else could be affected			

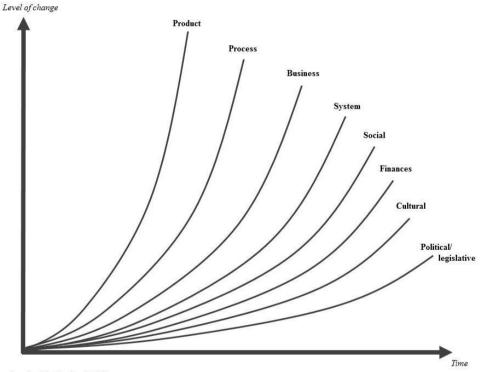
Source: Authors' elaboration

The VIP framework proposes nine areas of inquiry that must be thoroughly researched before the final business model(s) can be outlined and thus generated. In addition, the 'Imperative perspectives' describe examples of what must be considered when working with the Area of inquiry. Finally, the 'Paradigm influence' describes the generated idea(s) in relation to the idea in focus, if it is easy implementable (preserving), hard (stretching), or if it is considered almost impossible to realize (breaking) (cf. McFadzean, 1997). As the concept of paradigm only refers to a ratio of the existing situation, a paradigm preserving approach can be described as green ideas or incremental innovation, paradigm stretching approach as blue ideas or radical innovation, and paradigm breaking approach as red ideas or transformative innovation (cf. Jakobsen andRebsdorf, 2003). Paradigm-preserving inputs are easy to integrate into the business model; however this type of input often represents a 'red ocean' outcome (Chan, Kim and Mauborgne, 2005). The paradigm-stretching represent ideas, which are harder to integrate, e.g. because of the

social acceptance of the perspective, because of the difficulty of integrating the subject with other software systems, etc. Finally, the paradigm breaking inputs represent ideas which seem impossible to integrate successfully – here the blue oceans wait for the organisation that succeeds in creating change (Ibid.). An example of an idea in the paradigm breaking part of the framework could be to change a law, which could be excellent for the medico industry or by influencing politicians to create a law making existing offerings prohibited.

The selected Areas of inquiry are inspired by Drejer (2001) who states that changes occur constantly but at different paces of change according to different parts of reality. As figure 1 demonstrates below, there are different paces of change, which implies that some elements are easier to exert an influence on than others. Still, all areas of inquiry are of importance to meet reality, since they are intertwined and thus influence one another. E.g. the introduction of social media (regarded as technology) affected the social system and businesses, since most of the larger enterprises are online having accounts on various social media platforms. Moreover, political and legislative systems exert influence on all areas of inquiry – but it is not completely impossible to influence politicians and legislators in ones favour.





Inspired by Drejer (2001)

In short, figure 1 demonstrates that it is the lowest common denominator that influences the final outline of the business model. Often, legislation (political area of inquiry) has the lowest common denominator – this is especially clear in the context of developing

public-private partnerships where competitive tendering, procurement rules etc. more often than not decreases the potential for innovation to be successful. The political/legislative part is henceforth considered as the most difficult to change. However, if a strong potential is found amongst the lowest denominators, this potential often represents the highest effect of the innovative strivings.

#### 3.1 Operational method for utilizing the VIP framework

The VIP framework is introduced as an idea generation process to generate a large number of different ideas based on different points of view, different inspiration sources and different approaches to each of the specified areas in the VIP framework. The VIP framework reminiscent of the process to generate a new idea, and here this process is repeated for each of the defined areas – one at a time. The operational method utilised for processing and completing the VIP (see the five steps below) is based on one or multiple workshops, where an outsider to the organisation either facilitates the project team and invited experts relevant to the focus (leading them through the process) or where s/he consults them by actively questioning and challenging them and their assumptions cf. Brix, Jakobsen and Jordansen's (2012) methods to complete innovation workshops and Brix's (2014) IKC framework utilized to remove assumptions. Below the operational process is presented.

The VIP works by completing five processes, each containing sub-processes. The general processes are:

- 1) Select an idea with an experienced breakthrough (novel and high estimated potential. It does not matter which area the potential is found (technology, business, social etc.)). This idea is developed in isolation by adding knowledge to reach a breakthrough disregarding other aspects and consequences.
- 2) Generate new input in the context of each of the nine areas of inquiry
  - a. Start by generating inputs in one of the areas of inquiry at a time
  - b. Utilize methods from creativity literature to generate input do not use/limit idea creation to brainstorming, but use other more radical approaches e.g. Playstorming (Jakobsen andHansen, 2007) and by provoking the existing situation and challenges (see example: table 2).
- 3) Sort the inputs in each of the nine areas of inquiry according to the expected paradigm influence
- 4) Add knowledge to each of the inputs
  - a. Generate value in each idea as a horizontal process
  - b. Invite experts (often external to the organisation) to add knowledge based on facts and not assumptions
- 5) Select the path from the first area of inquiry to the last area of inquiry, which results in the outline of the final business model containing nine developed ideas that support the original idea.
  - a. Each selection results in a de-selection
  - b. For every choice in the process there is a compromise often related to others of the nine areas
  - c. It is always the lowest common denominator that influences the preliminary modelling the most
  - d. To each of the ideas several concepts can and must be created and treated both as a business model. Also to learn from the process.

These five steps will be completed on each of the ideas with a breakthrough. In the next section the case company is presented and afterwards the results are demonstrated.

#### 4. The case company

The case company is a Danish SME in the Central Region of Denmark, active in the outdoor industry both as a wholesaler and as a specialized producer of outdoor equipment. The SME has its own physical store and it also sells many of its products online.

#### 4.1. Applied method and empirical evidence

The evidence utilized in this paper is based on a single case study (Yin, 2009). The reason for delving into only one case study is to present in depth how the VIP was introduced into practice and how the VIP was processed into the final outline of different potential business models for the case company. The delimitation of the study is thus the focus on the process of implementing a business model generation tool [the VIP] in practice and therefore focus is not on the result of the process, e.g. the pecuniary perspective. The approach to develop the case was based on empirical evidence collected by applying Schein's (2008) 'Clinical inquiry action research', which is a scientific orientation of inquiry, where the researcher(s) participate(s) in real life organisational practices, both as a researcher and as a consultant. The empirical evidence is thus based on personal experiences, photos and video documentation, field notes/jottings, interviews with the team and the authors' own reflections of the participation. In short, the qualitative data is rich and relevant to inform the study (Eden and Huxham, 1996).

#### 5. Results

The team was introduced to the five phases in the VIP framework and the team had already chosen an idea with a breakthrough. The idea was [moderated due to confidentiality reasons] to create a new boat type based on both kayak and catamaran principles, including a solar-powered electrical asynchronous engine. Before initiating the VIP, the team had worked on the idea concept for five months, where they had made multiple SLA-models and tested them in practice to investigate how the different prototypes behaved in different environments (waves, current, etc.). Moreover, the team had consulted different specialists, e.g. person from the windmill industry with expertise in analogue signal treatment, a naval architect and an armour plastic specialist. The breakthrough was found eminent in one of the prototypes, and therefore the VIP was initiated, when the choice of materials, the technology and the constructions were chosen. 4 external experts were invited to the VIP workshop and they were remunerated for their contribution. A lawyer, an economist, a marketing professional and an anthropologist were invited to participate in the process and to assist in sharing their knowledge together with the company's innovation team. The challenges in the VIP framework which the team needed to address are summarized in table 2 below:

Table 2 Assumptions to be challenged in the VIP framework based on the case company

Area of inquiry	Imperative perspectives	Assumptions in case Kayaks especially sea kayaks are defined from classical understanding of length, form and stability		
Product	The technologies, techniques and design approach used in the construction and design of the product			
Process	The way to produce or to provide the product/service including buying or selling rights	Materials utilized for production can vary from plastic, glass fibre, carbon fibre or wood		
Business	The meeting/interaction with the customers and/or users and including branding and relation building	A kayak is primarily sold customized to each customer, and the area have own brands mainly known to mariners		
System	The way the subject interacts with other products, services and systems both internally and externally	Special complementing accessories and wearing apparel are sold with and after acquisition of a kayak		
Social	The acceptance of the subject by users and partners, and their motivations to use the product, services or system	Kayakers have a large and strong community of people, and they are often well organized in leisure associations		
Financially	The way "value" such as money flows in the in the whole system between all the different actors	Kayaks are expensive to buy - also the necessary equipment and desired accessories		
Cultural	The basis in customers, communities, the branch and the society including written- and unwritten rules	Instruction and experience is needed to manoeuvre a kayak safely, and training and special words is used		
Political / Legislative	The way decisions are made including barriers such as law, legislation and competitive tendering	Legislation demands a special tax on boats with an engine which kayaks and canoes are exempted from		
Others	What is not affected – what else could be affected	Seems like there is a gab betweensea kayaks for skilled people and cheap rubber/plastic kayaks to be used for fun		

Source: Authors' elaboration

#### 5.1 Introduction phase

At the beginning it was hard for the team members and the invited participants to focus only on one of the areas of inquiry at the time; but the facilitator kept the participants on track and facilitated the participants in generating multiple inputs regarding the boat type in the context of each of the nine areas of inquiry.

#### 5.2 Creating progress and finalizing idea generation

The progress in the first three areas of inquiry was slow and multiple inputs were created; however, when moving forward in the process the last areas of inquiry were rapidly finished. The reason for this change of speed was found because the participants had spent much of the time discussing fundamental issues in the context of the new boat type in the first areas of inquiry. Therefore, focus in the last part of the idea generation in the context of cultural, political and other issues was sharper and less time was used to discuss elements which had already been discussed earlier.

#### 5.3 Estimating the paradigm influence

General agreement was achieved when the participants should estimate the influence each of the input would have in relation to the boat type in each of the areas of inquiry. Most discussions and disagreements concerned if an input was either paradigm preserving or stretching; or paradigm stretching or breaking. No discussions emerged concerning paradigm preserving versus paradigm breaking. See a condensed copy of the completed VIP framework in table 3 below, where (some of) the inputs are categorized [not an exactly and complete copy due to confidentiality].

Each idea has to be studied, explored and added value (horizontal process) before the different ideas can be mapped. This is easy as the potential from the VIP contains many ideas even beyond normal behaviour for each object. As demonstrated in table 4 (next page), the mapping process resulted in multiple choices for the management team when constructing their business models on the original idea where the breakthrough was found.

Table 3 Samples of generated ideas (sorted according to the expected influence on the paradigm)

Area of inqu	uiry	y Paradigm influence						
	Preserving		ł	Stretching			Breaking	
Product	H Catamar		Carbon fibre		n te system p part	Bottom and	pantones Titanium reinforced	
Process	Plast rotation	52	bre Voltage based	accessories		top seperate	click	
Business	Sold in Stand alor	DIY Den	Angler no in superma cold on web sh		- 75775	rnet: Build • own kayak	Type/model rejected for the OL – to fast	
System	Series eng	Engi	te to add on	charged l		cells Ba	ttery based on global der in garden systems	
Social	to go Each part	with family Rent a kayo	for in Stabile – o		To use of prac		Based on semi-prof user without any skills	
Financially	costs Accessories l high cover	for a da have	y Lea	ise a kayak r a season	- Acce	e kayaks: ssories cost	Cheap basic model - extra cost more	
Cultural	Easy to transport	Focus o life in n		Look allmost like a kayak	but	name: same different	Similar to Carving skie for alpine use: change in style and user	
Political / Legislative	Approv stabil	aloj	Sold without 1gine = no tax	x "Backpac	k" to the	Create new standard	Create exception in legislation	
Others		f overestimat lities is elimir		angler, rec photograf	reationa	l Wellnes	s – in close contact nature but safe	

Source: Authors' elaboration

#### 5.4 Creating the business model outline(s)

When the inputs had been categorized according to the paradigm, the participants started to select one input in each of the areas of inquiry, and a line was drawn from the top of the framework to the bottom or vice versa, where the line changed between paradigm preserving, stretching and breaking inputs (see table 4 below). Because one input easily can make another input impossible later in the framework, the team made three different outlines for the business model, where more knowledge was to be added by consulting (external) experts, who has the necessary knowledge and competences to further develop the framework, before a final business model, or several business models, where possible,

is/are selected and prepared for project implementation, cf. the CIS framework in appendix 1, section 8.

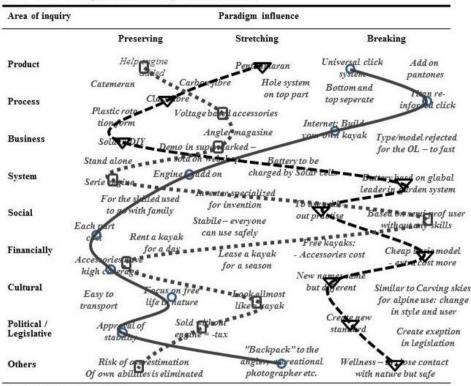


Table 4 Constructing outlines for multiple business models

Source: Authors' elaboration

By consulting table 4, the innovation team could see the value of the VIP after having completed the idea generating process, since they could pick and choose the constructions, and automatically see the effect on the rest of the model. The different models do not include the same originality and even in the most radical models it is not all aspects that are paradigm stretching and/or breaking. Hence, to begin with, the case company choose two distinct business model outlines and later changes were made which resulted in a third model, which was perceived as an easy task for the innovation team, since they had already learned to work with the VIP framework. The reason for this change emerged because some of chosen options faced prohibitive resistance. Luckily for the company, they had created several different options to work with which assisted them in making progress in the CIS framework (Brix and Jakobsen, 2013) to prepare the company for the new business creation via their new business model outlines.

#### 6. Implications

#### 6.1 Industrial implications

This study represents important findings which can be implemented directly into innovation management practices when an organisation desires to construct a new or reconstruct an existing business model. The VIP framework can be utilized by managers who wish to include more than a customer-driven marketing perspective to their business model, where elements such as legislation, politics and system-integration are considered. In short, we experience that the VIP can serve as the practitioner's blue-ocean-maker, because it addresses extra unbiased features compared to existing operational business model frameworks, such as Osterwalder and Pigneur's (2010) canvas. Finally, it is asserted that the VIP can be utilized in all types of organisations, both public and private, as well as non-profit organisations.

#### 6.2 Academic implications

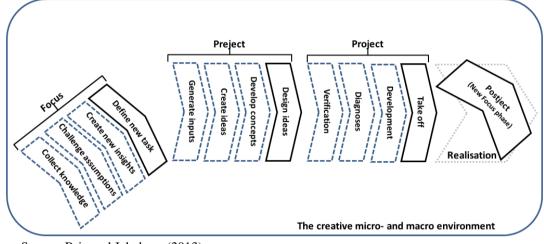
This study claims new knowledge to the current innovation management literature treating business model generation. Two shortcomings are established in our review. The first shortcoming is the marketing bias and the second shortcoming is the lack of operational suggestions for 'how to implement' business model (re)generation in practice. The delimitations make it evident that the most cited frameworks of today fail to address key players in the market, such as public institutions as well as organisations, e.g. in the medico industry where customers and end-users are not the same entity. As a complement to this, existing methods do not articulate the concrete operational process of creating a business model, only Osterwalder and Pigneur (2010) have made an effort to operationalize their research. Finally, further research is required to demonstrate the value of (re)creating business models via the VIP framework as a systematic process not only to approach radical ideas but also radical business models, and more research is needed to continuously improve our model.

#### 7. Conclusion

The contribution of this study seeks to shed light on the two shortcomings that was found in the business model literature review. The first contribution is the introduction of the Vertical Innovation Process (VIP) framework which is a bias-free method to create radical inputs as a basis for generating business models for all sectors, both public and private institutions in the context of public-private partnerships, as well as in non-profit organisations. The purpose of the VIP is to create, develop and structure different possibilities and options to obtain a solid base for the creation of several more or less radical business models to each developed idea; regardless if the basic idea is based on technology, process, business, social, financial, political etc. problems or/and opportunities. Hence, the task for the VIP framework is therefore not to finalize a finished business model similar to a business plan. The second contribution of the study is the demonstration of how the VIP framework can be implemented in practice. Here, a state-of-the-art case of the real world complexity including political, legislative and system integration (new areas of inquiry) were considered when constructing the outlines for new business models for the case company. Moreover, the authors call for further research to shed light on the effects of working with bias-free business model frameworks, e.g. the VIP framework. Finally, suggestions for improving the VIP framework are requested.

#### 8. Appendix 1 – The Creative Idea Solution (CIS) framework

The Vertical Innovation Process (VIP) framework represents the second last part of the Preject phase, where idea concepts are to be developed.



Source: Brix and Jakobsen (2013)

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