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# Business Models in Networks

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**ICI Project Report**

Peder Veng Søberg (PhD) and Casper Høgh (MSc)

## Foreword

This report sums up the International Center for Innovation (ICI) project, which has focused on the use of business models.

Efforts from all the people involved in the project, researchers as well as firm managers and personnel, have benefited this report. In particular, ICI Center Director Professor John Johansen has helped to structure and refine the presentations and argumentations in this report.

Further inquiries concerning the ICI project should be directed to him.<sup>1</sup>

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# Introduction to the ICI project

The International Center for Innovation (ICI) project started in 2008, as an ambitious undertaking, with a unique structure. The purpose was to use a format, in which research and practice would be seen as an integrated whole, thus providing the organizations much closer ties to the most recent research and the assistance needed to implement it. The project had two goals: pertaining to driving growth and harvesting new insights.

The ICI project was supported by the North Denmark Region (<http://www.rn.dk/Regionen/English/>) and granted a total budget of DKK 63 million of which 50% was provided by the European Structural Funds and the remainder was co-financed from the companies involved and Aalborg University.

This report emphasizes key aspects of more than five years' work, spanning 10 networks consisting of nearly 100 individual organizations in total<sup>2</sup>. Aside from the personnel involved through the participating firms, a host of researchers, master students, consultants, and knowledge partners were involved in executing the project.

Originally, the ICI project was meant to include 15 networks, and thus have a larger scope. However, the financial crisis in 2008 and onwards had serious ramifications for the general willingness to invest and participate in the ICI project. Accordingly, the ICI project was scaled

down to the final 10 networks.

The primary aim of the project was to promote innovation and growth with business models. Concisely, this was viewed as a method of supplanting the customary product-focused innovation traditionally employed in projects aimed at promoting growth. Thus, the business model perspective stands at the heart of the ICI undertaking as the central frame through which firms, novel concepts, and ideas are understood. Accordingly, the success criteria for ICI are to implement tools and methods for better understanding business models, while using the concept to drive business development and growth in Northern Jutland.

The ICI project also contains a distinct sub-theme related to network creation, as a way of enriching the business model development process and enabling new ways of creating and delivering products or services. The network ambition is

thus viewed as part of the business model goal. This project takes steps to merge a network and a business model perspective in promoting trade. Thus, although the network aspect is distinct on its own, it is used here in relation to business models. The business model concept is therefore the focal point of the project.

Initially, the central concepts of the project are presented to provide the reader with the prerequisite understanding of the key terms involved. First, the business model concept, as used in the ICI project, is presented and defined. Second, the network aspect is presented and defined. These concepts combine to form the frame and the premise for the ICI project. Consequently, the frame provides the foundation for the report, including the prerequisite understanding of the central concepts. Central to the overall ICI project is the pragmatic goal to provide practical and usable results and insights for businesses.

<sup>2</sup> Nine of a total of 10 network cases have been included in this report and in the case book. It has not been possible within the available time frame to obtain authorization to print the last network case.

The 10 network cases are then presented in alphabetical order, using this framework. The cases provide insights into the network and business model-related developments each network experienced. The presentation of the cases emphasizes the actions performed by the ICI, viewed through the lens of the defined framework. The cases form the empirical foundation for the results of the project.

**Subsequently, the results of the project are presented, related to the following points:**

- Promotion of trade
- Insights and learning points related to
- Business models
- The intersection between business models and networks

The promotion of trade presents the economic results, as a means of gauging the success of the project, based on the economic development spurred by the ICI endeavor.

This is followed by results related to the combined use of business model and network perspectives. This will emphasize the learning points related to these two aspects and the interplay between them. Finally, the results are summarized in the conclusions section, which concisely presents the two lines of results. Following the conclusions, relevant limitations of the report are present-

ed. These lead to further considerations, which may influence the results. The limitations have been included as they provide further interesting insights for academics and business model practitioners alike, albeit on the periphery of this project. Last, the findings of the report are presented as practical insights targeted at managers and business model practitioners.

<b>Introduction</b>
<b>Central concepts</b>
- Business models
- Networks
<b>Case presentations</b>
<b>Results</b>
- Promotion of trade
- Learning points
<b>Conclusions</b>
<b>Limitations</b>
<b>Advice to managers</b>

Figure 1: Report structure

*The ICI project was structured in 10 networks, each consisting of at least five independent partners. Of the 10 ICI networks, three have resulted in profit-generating businesses, one has scaled down its operations significantly, one is bankrupt, and five are still exploring the potential of their business models.*



In 2012, the combined revenue of the 10 networks was DKK 24.945 M for the activities in relation to the ICI project. The related profits are DKK 2.490 M. In terms of employment, by the end of 2012, the project generated 21.5 full-time equivalents (FTEs). The networks anticipate that these numbers will increase during the coming years to combined revenues of DKK 293 M, combined profits of DKK 56.850 M, and a total of 43 FTEs in 2015. These numbers are of course uncertain. The results have been created due to the investment of approximately DKK 63 M in the ICI project. A somewhat surprising positive side effect, is that the ICI project has helped accelerate the involved firms' individual business models, and sharpen their skills in terms of being part of networks when implementing business models.

This report presents the development of 10 ICI networks, according to a pragmatic framework based on the concepts business models and networks. The premise of the project was network-based business

models. A network-based business model is a business model shared among the actors in a network. However, rather than focusing on this business model, aiming for compatible business models in networks makes more sense. Based on the data from the cases, orchestrating the compatibility of business models across many partners in a network is difficult. As the number of partners increases, the need for a core firm to drive and organize the process increases as well. The core challenge of business models in networks can be summed up as maximizing relevant complementarity among the network partners without jeopardizing business model compatibility.

The conclusions outlined in this report are moderated by the fact that many of the networks worked with new products or services, which had not been defined. This made implementing and testing the business models difficult, and made the premise of network-based business models more difficult to implement.

# Central concepts

This section presents the key concepts related to the ICI project (business models and networks), as well as the connection and interaction between them. The central premise was to build network-based business models.

This notion emphasizes building a shared business model at the network level. This premise is depicted in Figure 2.

*The business model concept serves as a lens through which the cases are presented. Understanding this concept is therefore a cornerstone for understanding the cases and their development. The notion of networks is also presented, as it is central to the goal of ICI.*

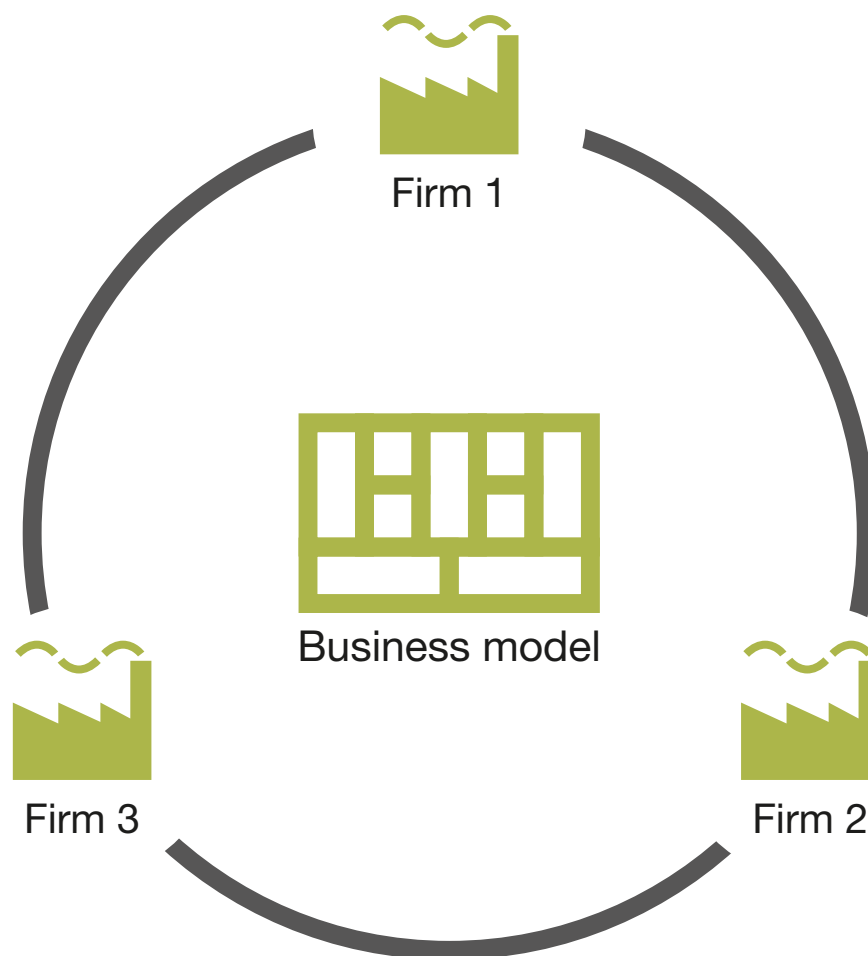


Figure 2: The network-business model premise of the ICI project



# Business models

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## Chesbrough (2007) defines a business model as a framework

for linking ideas and technologies to economic outcomes that has value in understanding how companies of all sizes can convert technological potential into economic value. He also states that every company has a business model even if it is not articulated.

Chesbrough (2007) defines a business model as a framework for linking ideas and technologies to economic outcomes that has value in understanding how companies of all sizes can convert technological potential into economic value. He also states that every company has a business model even if it is not articulated. Magretta (2002) describes business models as stories that explain how the enterprises work, and as something that describes, as a system, how the pieces of a business fit together disregarding competition. She outlines two conditions for good business models: First, the model must have good logic in terms of customers, their value, and how the company can make money by providing them that value. Second, the business model must generate profit. Although the business model concept has undergone significant academic development in recent years, this development has mainly broadened the concept (Günzel and Wilker, 2009; Morris et al., 2005). In other words, the conceptual base of business models is still thin (Zott

et al., 2011). Operationalizing and working practically with broad and vaguely defined concepts is difficult. Business models have also been defined as “the rationale of how an organization creates, delivers and captures value” (Osterwalder and Pigneur, 2010; 14). This definition of business models is broad to the extent that it is difficult to distinguish the field of business models from innovation management, operations management, marketing, and strategy, since many overlaps with these fields seem to exist. It is therefore relevant to carve out more clearly what constitutes the core of business models, to make the concept usable for companies. Accordingly, the ICI project adopted a working definition of business models that focuses on capturing value in the sense that the focus is on the type of revenue streams in relation to business models. A key reason for this choice is that revenue streams are something the companies can more easily relate to as the revenue streams seem to constitute a key part of the success of the following well-known examples:

- Xerox and Tetra Pak, with their emphasis on cheap initial equipment investments, followed by usage fees, commonly referred to as the “Xerox model.”
- Similarly, Gillette and various consumer printer manufacturers (HP, Canon, Lexmark, Epson) sell part of their value proposition cheaply in terms of an asset sale, and in subsequent asset sales, other parts of the value proposition are sold in terms of asset sales at a higher price. This is sometimes referred to as a “bait and hook” model.
- Google is an example of advertisement revenue streams in which the company provides a free search engine and free content, such as YouTube. The revenue is then generated through advertising to the users who freely use the services. This is sometimes referred to as a “free” model.



Figure 4: The canvas (Osterwalder and Pigneur, 2010)

- Various e-businesses such as Skype or Dropbox provide a basic product free, while premium or extra features cost extra, thus ensuring the revenue streams. These showcase what is sometimes referred to as a “freemium” model.

In summary, by making revenue streams the focal point of business models, the concept becomes more tangible and thus can be investigated. This model is better suited for delivering a practical contribution. Although revenue streams are at the

core of a business model, equating revenue streams and business models is an oversimplification. The type of revenue streams must be understood in relation to the business configuration of the firm, as illustrated in Figure 3.

Osterwalder and Pigneur (2010) describes business models making use of a canvas, consisting of different building blocks, which are illustrated in Figure 4. When the term “business configuration” is used in this report, the term refers to all the building blocks of the

canvas except “revenue streams.” This building block is treated on its own due to its particular importance in business model work. Therefore, in the following, revenue streams are outlined first. Subsequently, the other building blocks of the canvas are described.

Osterwalder and Pigneur’s (2010) canvas was chosen since it is easy to understand and easy to use. Thus, it is well aligned with the goal of this report.



Figure 3: Business model as the logic between revenue streams and business configuration

# Revenue Streams

At the core of a business model is a **revenue stream**. The type of revenue stream refers to how a firm's income can be characterized, in other words, "how customers pay." There are seven basic types of revenue streams:

**Asset sale** refers to a simple transaction between the customers and a firm.

**Usage fee** is concerned with charging a fee each time the product or service is used.

**Subscription** gives continuous access to a service through a subscription payment.

**Lending/Renting/Leasing** is payment for granting the customer the right to use an asset for a limited amount of time.

**Licensing** gives the customer the right to use a piece of intellectual property in exchange for a fee.

**Brokerage** fees refer to charging a fee for providing intermediate service in a transaction between two other parties.

**Advertisement** is characterized by relying on advertisers for revenue.

These types of revenue streams can also be combined. This assertion is perhaps best illuminated by directing attention toward various trend-setting business models described earlier in the form of Xerox, Tetra Pak, Gillette, various printer manufacturers, Google, Skype, and Dropbox. The common theme among these examples is their strong focus on creating alternative methods of generating and sustaining revenue streams. Below, additional types of revenue streams are outlined.

# Business configuration and descriptors

Excluding the building block “revenue streams,” a business configuration can be described in terms of the eight remaining building blocks of the canvas (Figure 4):

- **Customer Segments**
- **Value Proposition**
- **Channels**
- **Customer Relationships**
- **Key Resources**
- **Key Activities**
- **Key Partners**
- **Cost Structure**

Although the canvas represents a common structure or template through which business models can be represented, the canvas does not facilitate comparisons. The number of possible descriptions of each building block is nearly endless. The consequence of using such descriptions would be a total of  $N^9$  different configurations, where  $N$  represents the range of possible descriptions each building block could abide by.

Therefore, to facilitate comparisons between business models, the expression of the configuration must

be simplified, by limiting the number of possible descriptions under each building block. Osterwalder and Pigneur (2010) provide broad descriptors, which will be used. Henceforth, the term descriptors, in this report, refers to descriptive categories applied to each individual building block. Later, these building blocks are used in the presentation of the cases.

# Customer Segments

Customer segments concern the customers the business configuration aims to serve. The aim is therefore to characterize the customers. Osterwalder and Pigneur (2010) present the following classifications:

**Mass market** relates to a very large number of customers who have very similar needs. The customers are therefore considered one homogeneous group.

**Niche market** focuses on very specific customer needs, directed toward very specific customers with unique needs compared to the mass market.

**Segmented** is concerned with serving several unique customer or market segments with different needs but relate to the same core product or service.

**Diversified** relates to serving completely different products or services, potentially to completely different customers.

**Multi-sided platforms** work by serving two or more distinctly different and independent customer segments, but the business model depends on both segments.



# Value Proposition

In terms of the value proposition, Osterwalder and Pigneur (2010) have outlined many descriptors. In particular, the descriptor concerning performance (improvement of product or service as a way of creating value) seems redundant as all other value proposition descriptors might also somehow describe performance in one aspect or another. The descriptor performance has therefore been left out.

**Newness** concerns satisfying a new need.

**Customization** relates to the ability to tailor the product to customers' specific needs and wants.

**“Getting the job done”** concerns when customers source certain activities or areas to focus on something else.

**Design** is related to products that stand out because of superior design and appearance.

**Brand/Status** creates value for customers simply by using and displaying certain brands.

**Price** relates to selling customers a product that is similar but cheaper than competing products.

**Cost reduction** focuses on enabling cost savings that are not directly accredited to the product, but to other parts of the customers' organization.

**Risk reduction** considers reducing the risk for the customers, for instance,

through guarantees.

**Accessibility** concerns making existing but previously unavailable products and services available for customers.

**Convenience/Usability** concerns making existing service or product offerings more convenient and/or easy to use.

**Speed** is concerned with whether the products and services give customers a speed advantage.

Speed is not a descriptor that Osterwalder and Pigneur (2010) outline in relation to value propositions. Operations management considers speed one of the five commonly mentioned performance objectives (quality, speed, dependability, flexibility, and cost).

Therefore, evaluating whether speed is accounted for by other descriptors of value proposition is relevant. One can of course argue that performance objectives and value propositions are not necessarily the same. However, overlaps between these two concepts exist, which makes it relevant to relate these two concepts to each other as shown in Table 1.

Performance objectives by Slack et al. (2004)	Value proposition descriptors by Osterwalder and Pigneur (2010)
- Quality	- Newness - Performance - “Getting the job done” - Design - Brand/Status - Accessibility - Convenience/Usability
- Speed	
- Dependability	- Risk reduction
- Flexibility	- Customization
- Cost	- Price - Cost reduction

Table 1: Relations between performance objectives outlined by Slack et al. (2004) and value proposition descriptors outlined by Osterwalder and Pigneur (2010)

In Table 1, the 11 descriptors outlined by Osterwalder and Pigneur (2010) in relation to the building block “value proposition” are related to the five performance objectives commonly used in operations management, which has been described by Slack et al. (2004). Table 1 shows that the numerous descriptors outlined by Osterwalder and Pigneur (2010) in relation to the building block “value proposition” disregard the performance

objective “speed.” Speed is therefore included as an additional descriptor in relation to value propositions. When investigating Table 1, only the descriptor “risk reduction” relates somewhat to the performance objective “dependability.” However, dependability is not included here as an additional descriptor, as this descriptor does not seem to be relevant for describing the cases used in this report.



# Channels

Channels refer to the means of sales and distribution through which the product or service reaches the target customers. The descriptors are as follows:

**Sales force** is having sales personnel directly in charge of selling the product to customers.

**Web sales** refers to customers visiting the firm's website to place their order.

**Own stores** is having a dedicated store where customers can choose the product.

**Partner stores** refers to using partner stores to promote and sell products or services.

**Wholesaler** relates to selling from the shelves of already established sales outlets.

# Customer Relationships

Customer Relationships refers to the characteristic of the relationship the firm has with its customers, namely, at the point of sale. The relationship can be described as follows:

**Personal assistance** is based on face-to-face interaction with customers and a high degree of customized guidance for the individual customer.

**Dedicated personal assistance** describes when a customer representative is specifically dedicated to an individual client.

**Self-service** gives the customers the means to help themselves to the product or service they need without interaction.

**Automated service** refers to automatically offering specific customers specific services or products based on their characteristics, typically through IT systems.

**Communities** are built on the idea of connecting customers more directly to each other, to gain more insight into their needs and wants and allow customers to help each other.

**Co-creation** is based on getting users involved in creating and moderating products, services, or products.

# Key Resources

Key resources refer to the resources necessary for implementing and sustaining the business configuration. This relates to which resources are needed to generate (manufacture, procure, etc.) the value proposition and deliver it to customers (sales, relations, networks). Accordingly, the following descriptors are provided:

**Physical** refers to physical assets such as machinery, buildings, etc.

**Intellectual** relates to resources such as brands, proprietary knowledge, patents and copyright partnerships, and customer databases.

**Human** concerns the need for human capital to generate knowledge and drive creativity, with an emphasis on knowledge and competences.

**Financial** relates to business configurations built on specific financial resources at disposal.

# Key Activities

Key activities are the activities performed internally by the firm that are essential for the business configuration; for instance, accounting is not a key activity. The key activities are therefore described using the following terms:

**Production** is related to manufacturing and delivering products.

**Problem** solving refers to solving specific problems and coming up with solutions.

**Platform/Network** is characteristic of firms that rely on their network to support their business model. Thus, the category refers to building and maintaining a platform that connects multiple outside actors to the firm's business model.

Additional descriptors of key activities might be relevant. For instance, sourcing as a key activity might be relevant in relation to certain companies. However, to describe the cases in this report, the three key activities are sufficient.

# Key Partners

Key partners are partners that are necessary to maintain the business configuration. The following descriptors provide descriptions of the reasoning for involving specific partners:

**Optimization and economy of scale** is the exercise of choosing which activities should be outsourced to external suppliers, which can achieve significantly lower costs and/or higher quality.

**Reduction of risk and uncertainty** through alliances: partners can reduce some of the risk factors related to new products by ensuring backing and support.

**Acquisition of particular resources and activities** refers to engaging partner companies that possess key components or pieces of knowledge needed to realize the value proposition.

For certain companies, it would be relevant to partner up with others to obtain optimization in terms of economy of scope, and not only in terms of economy of scale. Sometimes, including an additional descriptor of key partners may be relevant: “optimization and economy of scope.” However, such an adaptation of the framework seems redundant in terms of describing the cases in this report. Therefore, no further descriptors of key partners are included.

# Cost Structure

Osterwalder and Pigneur (2010) outline six dimensions of cost structure:

**Cost-driven** businesses focus on minimizing costs wherever possible.

**Value-driven** businesses focus on maximizing value creation, for instance, through personalized service.

**Fixed costs** imply that the business configuration is largely based on a fixed cost structure, under which the amount of goods or services delivered has little effect on the overall costs.

**Variable costs** relate to a configuration under which the cost is mostly directly related to the amount of goods or services produced.

**Economies of scale** refers to a structure under which the variable costs are seen as inversely related to the amount of goods or services produced, which implies that the marginal costs will decrease as the volume increases.

**Economies of scope** relates to exploiting the same operations to support multiple products, thus decreasing the costs associated with each product line.



Figure 5: Canvas with descriptors according to Osterwalder and Pigneur 2010 where “speed” has been included, and performance has been excluded, as descriptors in relation to value proposition

Table 2 and Figure 5 provide an overview of the descriptors included in relation to each building block, including revenue streams. The only

adaptation made to Osterwalder and Pigneur’s (2010) list is that speed has been included in relation to value propositions.

Revenue Streams	Asset sale	Usage fee	Subscription fees	Lending/renting/leasing	Licensing	Brokerage fees	Advertising
Customer segments	Mass market	Niche market	Segmented	Diversified	Multi-sided platforms		
Value Proposition	Newness	Customization	"Getting the job done"	Design	Brand/Status	Price	Cost reduction
	Risk reduction	Accessibility	Convenience/Usability	Speed			
Channels	Sales force	Web sales	Own stores	Partner stores	Whole-sale		
Customer Relationships	Personal assistance	Dedicated personal assistance	Self-service	Automated service	Communities	Co-creation	
Revenue Streams	Asset Sale	Usage fee	Subscription	Lending/Renting/Leasing	Licensing	Brokerage fees	Advertising
Key Resources	Physical	Intellectual	Human	Financial			
Key Activities	Production	Problem solving	Platform/network				
Key Partners	Optimization and economy of scale	Reduction of risk and uncertainty	Acquisition of particular resources and activities				
Cost Structure	Value driven	Cost driven	Fixed costs	Variable costs	Economies of scale	Economies of scope	

Table 2: Overview of the descriptors for each building block



# Networks

---

The cases of the ICI project are organized in networks, pertaining to the development of a particular business model of a network; see Figure 2. Thus, network is a key concept in the ICI project. The pervading understanding used in relation to networks and their characteristics are presented, to further explain the premise for the network focus in the ICI project.

The cases of the ICI project are organized in networks, pertaining to the development of a particular business model of a network; see Figure 2. Thus, network is a key concept in the ICI project. The pervading understanding used in relation to networks and their characteristics are presented, to further explain the premise for the network focus in the ICI project.

In keeping with the practical goal of the report, networks are defined as collaboration between actors, namely, individual firms. In keeping with the building blocks of the business configuration, an organization can be described in terms of activities and resources. A network is therefore a format for bringing

together resources and activities across different actors. Consequently, a network is comprised of actors, activities, and resources (Håkansson, 1987), as illustrated in Figure 6. Most networks are bound together by common non-conflicting interests, and in the ICI project, “business model thinking” was used as a driver and tool to identify common non-conflicting interests.

Thus, the actors are companies collaborating to some extent. In this text, the term partner is used specifically to describe actors participating in a given network.

Networks can be a means for realizing synergies among the partners in the network. For instance, new and

improved value creation and delivery processes can be created by combining the knowledge and competences of the actors in a network. This definition does not make any presumptions regarding the level of engagement exhibited by the partners or the methods by which the partners interact. Networks can differ in terms of how integrated the partners are, ranging from simple

transactional relationships to more advanced forms of networks in which risks are shared, etc. The premise of the ICI project was to work with network-based business models, as initially depicted in Figure 2. A network-based business model is a business model shared among the actors in a network.

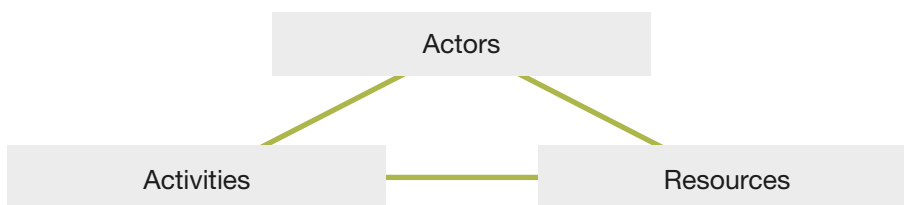


Figure 6: The basic elements of a network

# Case presentations

The following case presentations describe the actions undertaken by ICI in each network. For a more detailed view of the cases, the book of cases is available. Each case starts with a short introduction presenting a brief snapshot of when the specific network was initiated.

Network timeframe	2012 totals	2013-2015 expectations
Revenue*	Revenue*	Projected revenue*
Result*	Result*	Projected results*
FTE**	Employees**	Projected employees**
Investments**		

Figure 7: Illustration of trade promotion

(\*) These numbers are reported only for the focal firm. For revenue, this is done to avoid the same revenue being summed multiple times, through goods moving through different partners. For results, the figures for the partners are quite difficult to assess and are confidential to some extent.

(\*\*) These figures are reported at the network level to gauge the economic effect derived from the single network.

Although the ICI project focused on network-based business models, the results illustrate that these business models are difficult in practice. A reinterpretation is needed. Consequently, each case description presents the core firm's business model.

Subsequently, the case presentations provide a short description of specific issues to provide a frame of understanding for the associated ICI actions undertaken with the network. Whenever possible, these are presented in chronological order. This is followed by a short description of the tools or insights the individual network gained from the actions. Each case description ends with an illustration of the canvas and the changes that occurred throughout the ICI project within the different building blocks, including revenue streams. These illustrations are only snapshots illustrating the end states in particular, and to some extent the initial state of the business model.

Last, the effect on trade promotion is presented for the network (except for EBB, and Space Creator), to gauge the economic effect of the specific network endeavor. This effect is presented in terms of revenue, profit, number of employees, and investments. As an indication of the financial results of the participating companies thus far, numbers for the following periods are presented:

1. The time the network was active during the ICI project
  - a. Revenue generated (core business)
  - b. Profit generated (core business)
  - c. Full-time equivalents (FTEs) on the project (including partners)
  - d. Investments (also partners if they have invested)
2. Results for 2012 and outlook for 2013, 2014, and 2015
  - a. Revenue (core business)
  - b. Profit (core business)
  - c. Number of employees (including partners where applicable)

The figures for 2012 are presented as a measure of the latest available data for the networks. For some networks, the latest developments have been without ICI involvement, while others were involved with ICI until the end of the project, 2012.

Two years is often not sufficient for building, testing, and implementing a new business model and viewing the subsequent results, which is why more speculative data on expectations are inserted. As recognition of this, the expected growth figures are presented to provide some insight into the potential future growth resulting from the groundwork done in collaboration with ICI.

# Cspot

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Whereas competitors such as **AFA JCDecaux and Clear Channel** have to plan, produce, distribute, and put up posters, the Cspot network was created to create a completely new medium, consisting of advertising monitors placed in shop windows, using a different cost structure.

**Through an Internet connection, the content presented on the monitors could quickly be changed thus providing instant advertising. The central idea was to enable cheap dynamic outdoor advertising, targeted at small- and medium-sized businesses.**

When the Cspot network was launched, one of the first activities was to map out Cspot's business model, using the business model canvas. This provided the firm with the tools needed to explain the business model and spawned a range of ideas for how the concept could create other revenue streams. The business model also highlighted weaknesses in the business that would have to be addressed.

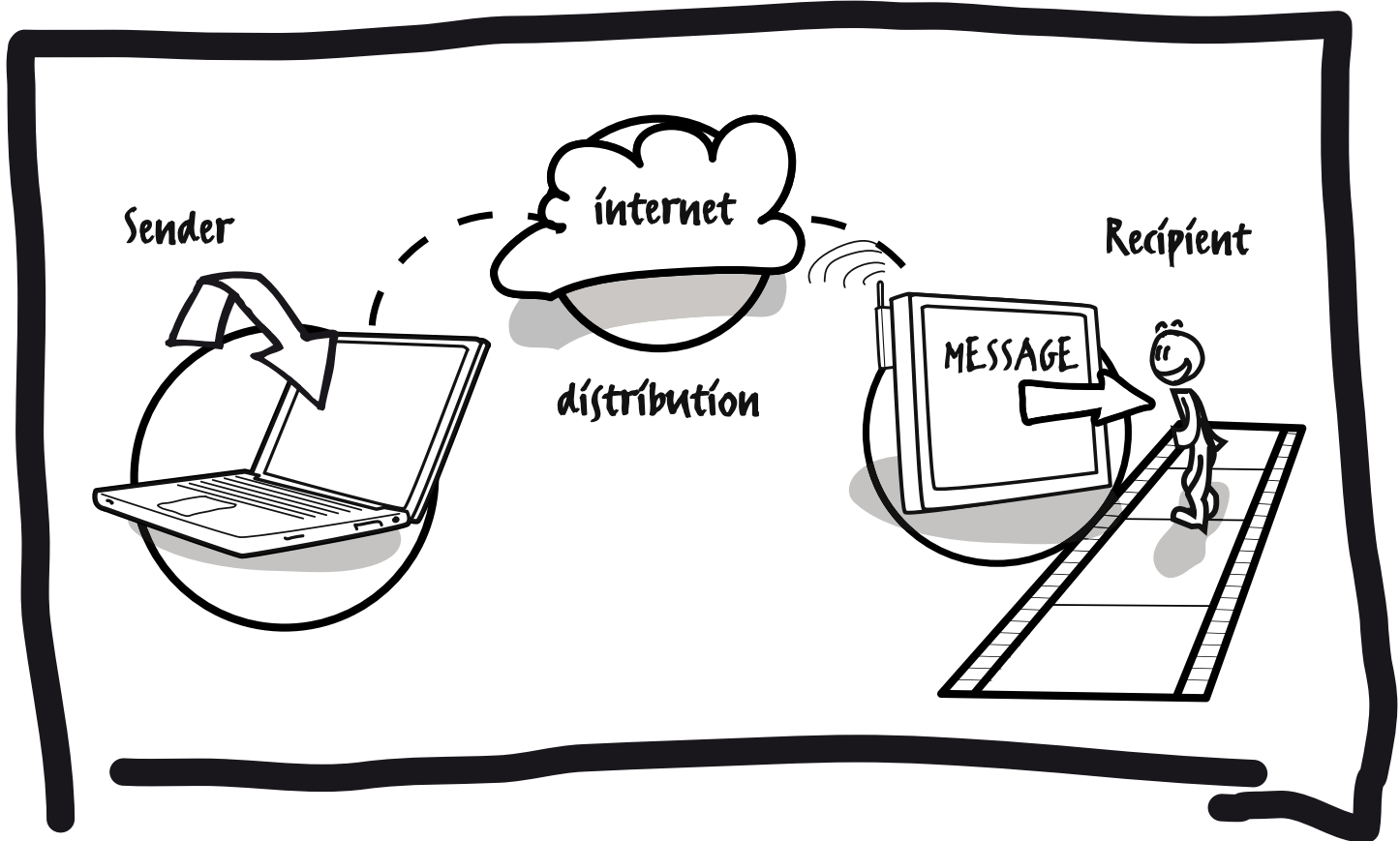
In terms of revenue streams, Cspot relied on usage fees, in which the customers pay for minutes of screen-time. The price depended on the time of the day.

Cspot initially emphasized its hands-off approach, under which the company would interact little with customers. The aim was to create a wholly automated system, in which the firm would perform a minimum of activities with each sale. The goal was for the firm only to approve the content presented on the monitors.

With the Cspot system, advertisers simply go to the Cspot website.

Here, advertisers choose where and when to show their campaign. The advertiser either uploads existing material or uses the free online spot builder. This enables customers to advertise instantly and relevantly. For example, a local restaurant could put out an offer instantly, if it is a slow night, or if the weather turns to rain. A local department store can attract customers with an advantageous offer. The cost structure is also different. In addition to the obvious savings of the production and distribution cost of a static medium, Cspot came up with a clever model that drastically reduced infrastructure costs. Competitors AFA JCDecaux and Clear Channel have high costs placing billboards on the sides of houses or paying for public exteriors.

Cspot attracted more than 100 sites based on the model: "your window space and power in exchange for a quantity of free advertising on the system in your local area." In fact, the only cost for Cspot was the screen setup, maintenance, and Global System for Mobile Commu-



nications (GSM) Internet connection. Cspot had difficulty attracting large advertisers, which often are managed by advertising agencies. The large advertisers did not want to talk with Cspot before they could offer something countrywide. Hence, Cspot invested heavily in order to become able to deliver commercials countrywide. The large advertisers also wanted documentation of the effect and the number of people who view the screens. A solution was discussed to install surveillance at every Cspot, providing automatic counting. But the investment was simply too high. ICI also facilitated contact with BLIP (described later in relation to the Mobile Tracking network). BLIP was willing to use its technology to provide Cspot with the effect validation needed. However, Cspot did not trust BLIP to do it.

Later, Cspot moved from a self-service customer relationship to personal assistance. The company also changed from web sales to a sales force, as illustrated in Figure 8.

Early in the process, ICI pointed

out the need to initiate a search for system validation methods, to prove effectiveness. The idea was to quantify the value proposition to attract customers. Accordingly, an introduction to effect measurement was held in the spring of 2010. The dialogue continued throughout the network timeframe, and Cspot had meetings with Lindberg International and Gallup, both effect analysis suppliers. However, Cspot rejected the initiative, as the firm emphasized

*The mapping of the business model made it evident that a partnership approach would be highly beneficial for the concept.*

the need to use a highly reputable analysis company. This made the investment in such data too expensive.

The mapping of the business model made it evident that a partnership approach would be highly beneficial

for the concept. The right partners would be able to strengthen and extend the concept in new ways, which could help drive up the value of the concept, and thus further its adoption. This realization spurred collaboration with TV2 news, which agreed to provide news content for the platform. Cspot thus sought to increase the attractiveness of the monitors, as they could then also provide public service.

When the first monitors were installed, problems with reflections were revealed during high direct sunlight, which caused the monitors to appear completely dark. Due to this, ICI facilitated contact with the Institute of Nano-technology at Aalborg University, to create a solution to overcome or reduce the reflection issues. However, significant research was already being conducted within the field, and was of a high technical complexity. Furthermore, the potential for such a solution would be many orders of magnitude greater than what Cspot could use it for. Cspot decided to wait for a suitable technology to emerge.

## Case presentations

*Additionally, an ambitious project to categorize all the monitors according to their attractiveness was started together with ICI, where ICI provided input on how the classification should be constructed, to remove bad locations and search more diligently for good locations.*

At the same time, Cspot struggled to maintain its operations, due to a lack of sales. This made Cspot partner up with an external sales firm, based on the assumption that once the concept became well-known, the sales process would become self-sustaining. This represented a break from the previous model, and would prove to have dire consequences, as the firm did not realign its revenue streams and business configuration accordingly. Cspot still believed that a critical mass of customers would make a sales organization obsolete at a later stage. Thus, inquiries from ICI to reconsider the entire business were rejected. In late 2011, the Cspot project was assigned a new academic manager. This led to a more operations-focused approach to the project from ICI. The aim was to streamline the entire operations and sales organization, and to make it more efficient. Thus, best practices were documented, and it became possible to convey a consistent marketing message. The process included an analysis of the entire sales process from initial customer contact to final invoice, to reduce handling costs.

Furthermore, ICI worked with Cspot to create a program for ensuring that the best sales personnel were retained. In particular, the focus was to keep the experienced personnel who knew the concept well. In a similar vein, marketing material for the concept was created, aimed at providing the sales organization with the prerequisite tools for actually selling the product to customers. Integral to these efforts were considerations about which types of marketing messages could be conveyed through the Cspot media.

Additionally, an ambitious project to categorize all the monitors according to their attractiveness was started together with ICI, where ICI provided input on how the classification should be constructed, to remove bad locations and search more diligently for good locations. This also led to considerations on whether good locations should provide higher payment to the location owners, as a method of increasing the value of the concept.

Last, together with ICI, Cspot began working on providing customers

with a more appropriate segmentation of the monitors and methods of presenting the segmentation in a simple yet understandable manner. This was to ensure that the location monitors used were the most relevant for the spot in question, based on different parameters, thus maximizing the effect of the marketing investment.

As mentioned earlier, Cspot did not change its type of revenue stream, although the company made some presumed temporary changes to parts of its business model configuration. However, these intermediate changes did not have the anticipated effect. The customers were interested in the concept, but unable to deliver their own needed content. The large advertisers were also interested in the concept, however the price was too low, and since they get paid in terms of a percentage of their customers advertising engagements, they had little interest in making Cspot a success. Consequently, Cspot went bankrupt. (Cspot also serves as empirical background in the following ICI publication: Lund (2012).)

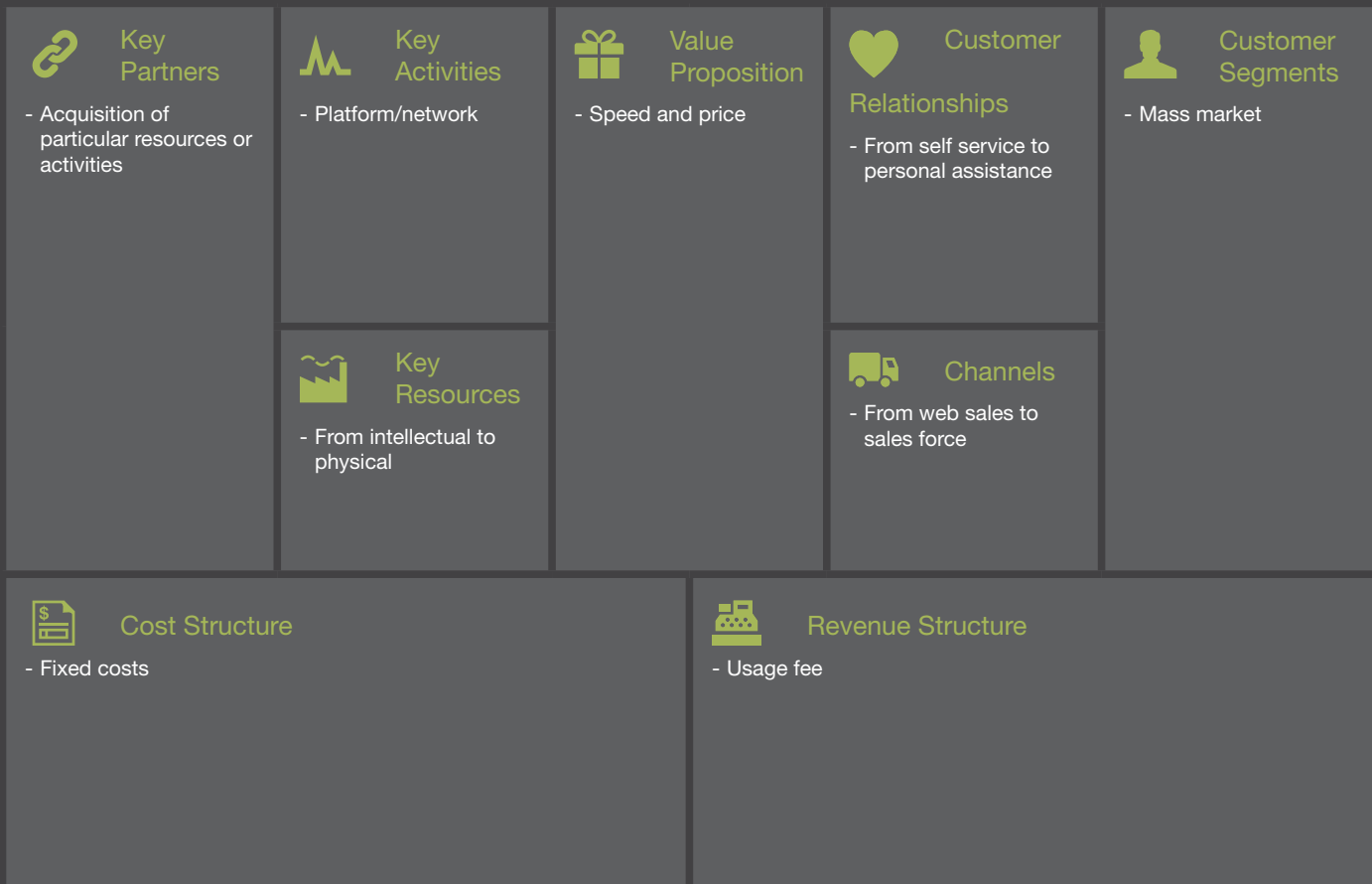


Figure 8: The Cspot business model

Network timeframe	2012 totals	2013-2015 expectations
Revenue: -	Revenue: -	Projected revenue: <b>0</b>
Result: <b>-5,483 tDKK</b>	Result: -	Projected results: <b>0</b>
FTE: -	Employees: <b>0</b>	Projected employees: <b>0</b>
Investments: -		

Figure 9: Illustration of trade promotion



# EBB

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The network **Energirigtigt og Bæredygtigt Byggeri** (EBB) was created to develop a business model in relation to an ongoing innovation effort. This effort focused on development of energy-efficient and sustainable insulation encapsulated in concrete for use in building construction. EBB is a Danish abbreviation for environmentally friendly and sustainable construction.

**The companies involved turned to ICI for help on how to develop the related business model. Hence, ICI was not involved in the product development, but focused on the development of the business model. The idea was to develop the business model in parallel with the final steps of the product development. Hence, this case description includes aspects of the ongoing product development process, even though the role of ICI was to focus on the development of the business model, whereas the companies involved carried out the product development.**

It was part of the value proposition that extra insulation could be added to buildings without adding extra wall thickness. Initially, the concept centered on using recycled textiles for the insulation. This concept served as the starting point for the network.

Centering on the upholstery and furnishing fabrics company Gabriel, EBB's business model initially emphasized the value proposition, along with a range of customer segments. Thus, the overall initial challenge was to uncover and describe the different customer segments and how to model the business configuration to target them. This also caused uncertainty concerning the position within the supply chain.

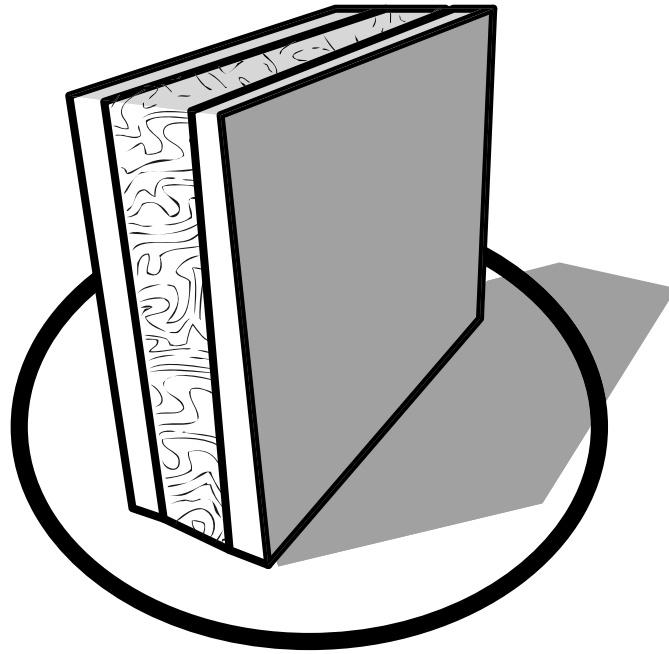
The initial type of revenue stream was, implicitly, a traditional asset sale.

Initially, the presumption was that the insulation concept would have competitive characteristics. Therefore, the network began working with ICI on configuring a suitable

business model configuration among the partners and toward customers. The emphasis was on the role distribution within the network and how the value proposition should be presented.

ICI facilitated a series of meetings aimed at uncovering and describing each partner's goals and potential engagement in the project. The meetings also conveyed the network's vision, to ensure a high degree of coherence among the partners, by delineating each partner's contribution. This process revealed that C.F. Møller no longer wished to participate in the network.

Following several workshops focused on the vision and goal of the collaboration, ICI facilitated workshops related to business models, aiming at providing the network with the tools and language needed to discuss business model configurations. This also encompassed creative approaches to construct and implement novel business model configurations.



With the core understanding in place, ICI began working with the network on defining the customer segments. Most of the necessary knowledge already resided in the network, but was organized and formalized in a manner that ena-

ICI facilitated a series of meetings aimed at uncovering and describing each partner's goals and potential engagement in the project.

bled the network to identify four distinct customer segments; two were chosen as the primary. These were energy renovation and new construction. Subsequently, business models were constructed for the two segments, which led to an emphasis on energy renovation as the primary customer segment. This exercise also led to the identification of the total market potential, which proved to be very substantial. As a supporting step towards benefit-

ting from this potential, ICI gave the companies in the network a rewarding insight into how modern product development processes between different companies each with their own area of expertise can be organized and coordinated.

ICI then facilitated contact with the Department of Civil Engineering at Aalborg University to start a dialogue concerning insulation characteristics. A meeting took place, but it did not turn into real collaboration.

An already existing insulation solution on the market did not have the expected insulating effect. The hypothesis was that the properties could be improved. Instead, Gabriel developed an idea that in practice proved not to lead to the desired result. The study, which was conducted by Gabriel, gave a valuable and much deeper insight into the challenges involved in developing an insulating material, which is significantly thinner than the market knows of today. The insight led to the development of a new and far more ambitious product idea, which

was qualified in collaboration with AAU Department of Physics and Nanotechnology. A three-year development project was established and supported by the The Danish National Advanced Technology Foundation. Besides Gabriel and AAU, Hi-con A / S also participates in the project.

Based on the market research, the potential was significant. This prompted Gabriel to start an intensive search for other potential technologies, also in relation to renovation of insulation in ways which would create initially attracted results. This spurred ICI to facilitate contact with the firm Adapa, in order to secure a sufficient number of participants in the network, and in order to explore whether they could contribute to the process. Adapa specializes in creating double-curved concrete construction, and thus is suited for creating unique solutions. However, the involvement of Adapa in the network did not lead to changes in the concept as such.

## Case presentations

*In the EBB network, initially the goal was to create a network-based business model. However, the network got wiser over time, and in the end, Hi-Con was chosen as the core company with the core business model.*

Although the commercial potential of the technology was readily apparent, a business model that would make the project attractive to the partners was needed. Accordingly, ICI mapped each partner's existing business models, to ensure that the project either was within their existing scope or make them aware of the requirements for change that the project would bring to the partners. This also created the background for discussing the roles that each partner was to play in the future configuration and accordingly which partner should carry out which parts of the development process.

The development process presented important challenges for the network, as they needed to construct and coordinate the interfaces between the partners and especially the different technical fields under which they operated. For this, ICI presented an architecture approach,

which enabled the network to separate the developments while providing a language for communicating the necessary characteristics of each component, to assemble the different technologies in a finished product at a later stage of the development process.

In the EBB network, initially the goal was to create a network-based business model. However, the network got wiser over time, and in the end, Hi-Con was chosen as the core company with the core business model.

By the end of 2012, Gabriel was still working on developing the insulation concept, using inputs from Hi-Con and Densit. The industrial potential of the underlying concept seems strong. For instance, support has been secured from the Advanced Technology Foundation (Højteknologifonden).



Figure 10: The EBB business model

# Eye in the Sky

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The **Eye in the Sky network** was constructed to create an unmanned aerial vehicle (UAV) for use in clearing landmines. A UAV-mounted camera would be used to create aerial images of the terrain, which could point toward potential landmine areas.

**The initial scope of the Eye in the Sky (EIS) initiative was to create an entirely network-based business to develop, sell, and distribute the UAV in the form of a small portable helicopter.**

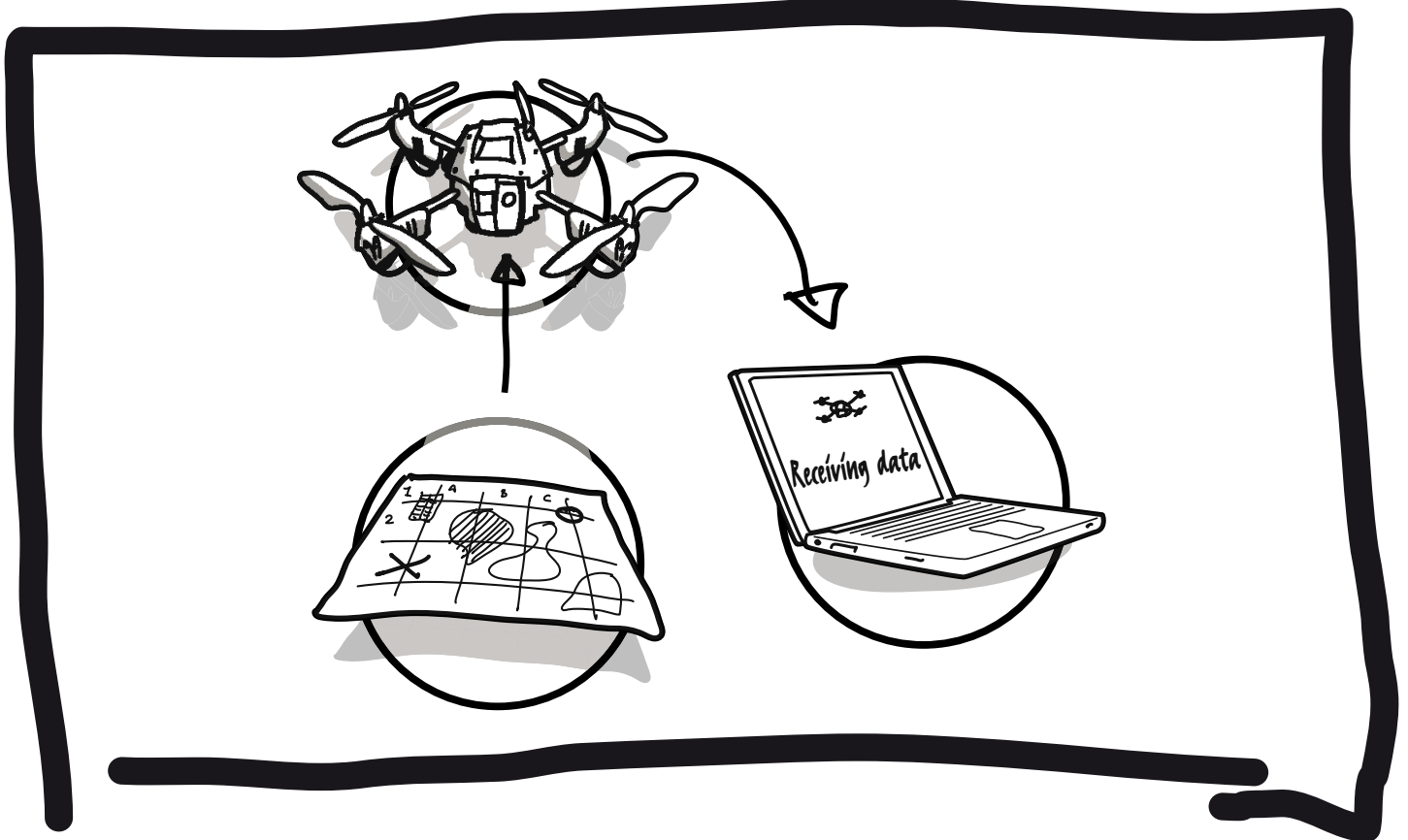
Five companies were initially gathered that all had a natural interest in the project because their individual contributions were similar to what they were doing in their existing businesses, and at the same time did not compete with their existing market. Another motivation was that the financial crises had started kicking in, and all of the companies were experiencing tougher times due to a downturn in the business cycle. It therefore added to the interest in the project, that the companies expected to get development activities fully funded by ICI. This led to the start of the development of a prototype of the drone. During this work, it became clear that to lift the project each partner would have to commit to investing capital. The project was left in a critical state because the partners started losing interest in it.

After an extended standstill, an employee from one of the participating companies started raising money for the project on his own. As the project was in the seed phase, only a few funding opportunities were available. However, he persuaded

his father to invest and involved a local business incubator as a source of syndicated funding. This led to the registration of a separate company, Sky-Watch A/S. The partners were still relevant to the project of developing a drone helicopter, but only one was willing to invest. Therefore, the network making up the business model changed from the pure network model to a situation in which Sky-Watch would be the driving force.

Under this construction, Sky-Watch would act as the mediator and distributor, containing no production or development facilities. ICI helped the network, and in particular the newly formed company Sky-Watch, to construct the business model, starting with a workshop and a series of regular meetings.

Through this ICI process, it became apparent that the proposed construction had many deficiencies, which made the initial configuration unfeasible, particularly related to the control over the supply chain. This led the firm to rethink its position



and role in the supply chain, and reconfigure to become responsible for developing the software solution completely in-house. Following the reconfiguration of the firm, Sky-Watch entered into a new process with ICI, under which the firm's new focus was aligned with the business model and the associated business

Concurrent to the change in supply/production, a process of identifying key customers was initiated in collaboration with ICI.

plan. ICI facilitated contact with the Institute of Electronic Systems at Aalborg University, to provide Sky-Watch with a sparring partner on designing and implementing antenna technologies.

Concurrent to the change in supply/production, a process of identifying key customers was initiated in collaboration with ICI. Though the

initial product idea had focused on the Nongovernmental Organizations (NGO) segment, it was readily apparent that the product would have potential uses in other segments. During the process, these were mapped out and the value proposition described. This in turn required the firm to consider which models should be used for targeting different segments.

Following the vast changes to the original configuration, ICI revisited the business model analysis. Therefore, Sky-Watch and ICI collaborated on mapping out the business model and performing a Strength, Weaknesses, Opportunities, and Threats (SWOT) analysis. This provided Sky-Watch with a very concise presentation of their business, which they used thereafter. Furthermore, the SWOT analysis pointed out the threats and weaknesses faced by the firm. This led ICI and Sky-Watch to lay out a plan for alleviating these issues, as a part of the ongoing business development. Additionally, ICI and Sky-Watch went through a process of comparing the original

business model with the new revised model. This plan was presented to Innovation Center Denmark in Munich and Shanghai, to assess the global potential of the business model in different segments.

Over the course of the network, it became evident that the core product essentially had a wide range of possibilities, but each application often required specialized equipment. Therefore, ICI presented the network with a platform-based model, in which the UAV would become an integrated hardware and software platform on which different add-ons could be attached, thus drastically increasing the number of potential application areas for the product. This in turn also meant, as pointed out by ICI, that the firm would have to focus on finding partners able to add value to the concept, by providing their own unique attachments.

As the platform approach matured, ICI made its Senior Advisory Board available to Sky-Watch, to provide experienced feedback on the business model used by the firm,

## Case presentations

*As the platform approach matured, ICI made its Senior Advisory Board available to Sky-Watch, to provide experienced feedback on the business model used by the firm, and how to best execute the model. This led the firm to further sharpen its business model.*

and how to best execute the model. This led the firm to further sharpen its business model. Although some parts, such as propeller and batteries, are still sourced from sub suppliers the company carries out most of its production and assembly of products in-house, in order to

ensure stable delivery. For example, the controller software is developed in-house. At the same time Sky-Watch continues to expand the distribution network by engaging key partners within different market segments and geographies.

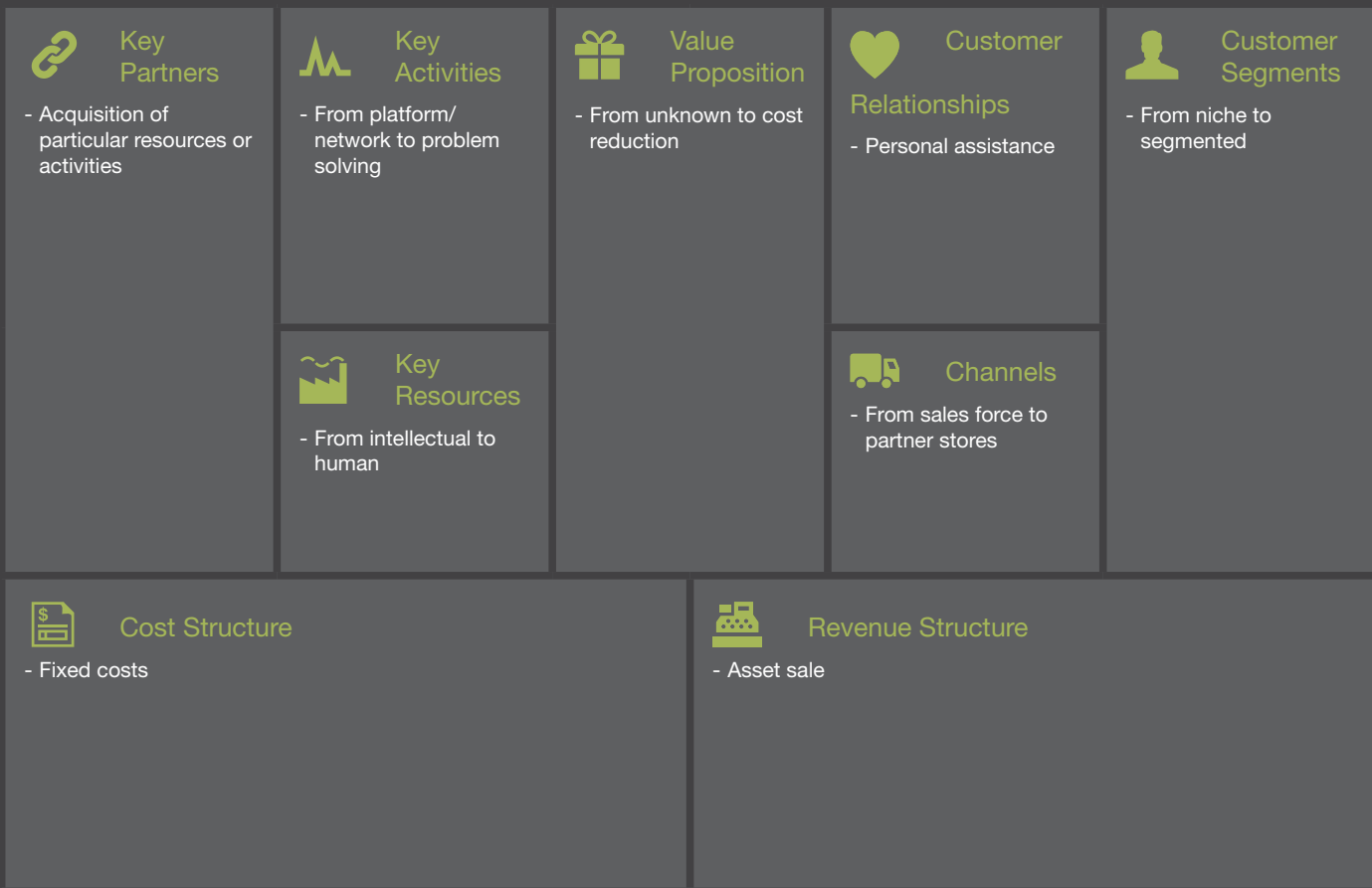


Figure 11: The Eye in the sky business model

Network timeframe	2012 totals	2013-2015 expectations
Revenue: <b>0</b>	Revenue: <b>0</b>	Projected revenue: <b>15 -&gt; 30</b>
Result: <b>-1,306 tDKK</b>	Result: -	Projected results: -
FTE: -	Number of employees: <b>**</b>	Projected employees: -
Investments: -		

Figure 12: Illustration of trade promotion



*“Your window space and power  
for a quantity of free advertising  
in your local area.”*

*er in exchange  
ing on the system*

Cspot attracted more than  
**100 sites** based on this model.

# Mobile Tracking

**COWI** initiated the project. The company wanted to acquire data on pedestrian and vehicle traffic. This data was to be generated by tracking cellphone movements, which could be done anonymously. The data was to be incorporated into COWI's existing business, to generate higher demand for engineering consultancy in relation to traffic and urban planning.

**In this perspective, COWI sought only to buy the data, to process it and create a profit. Accordingly, the aim was to build business models for the presumed data suppliers, while extending COWI's existing business model. The main idea was to sell the data as part of the company's engineering services through asset sales.**

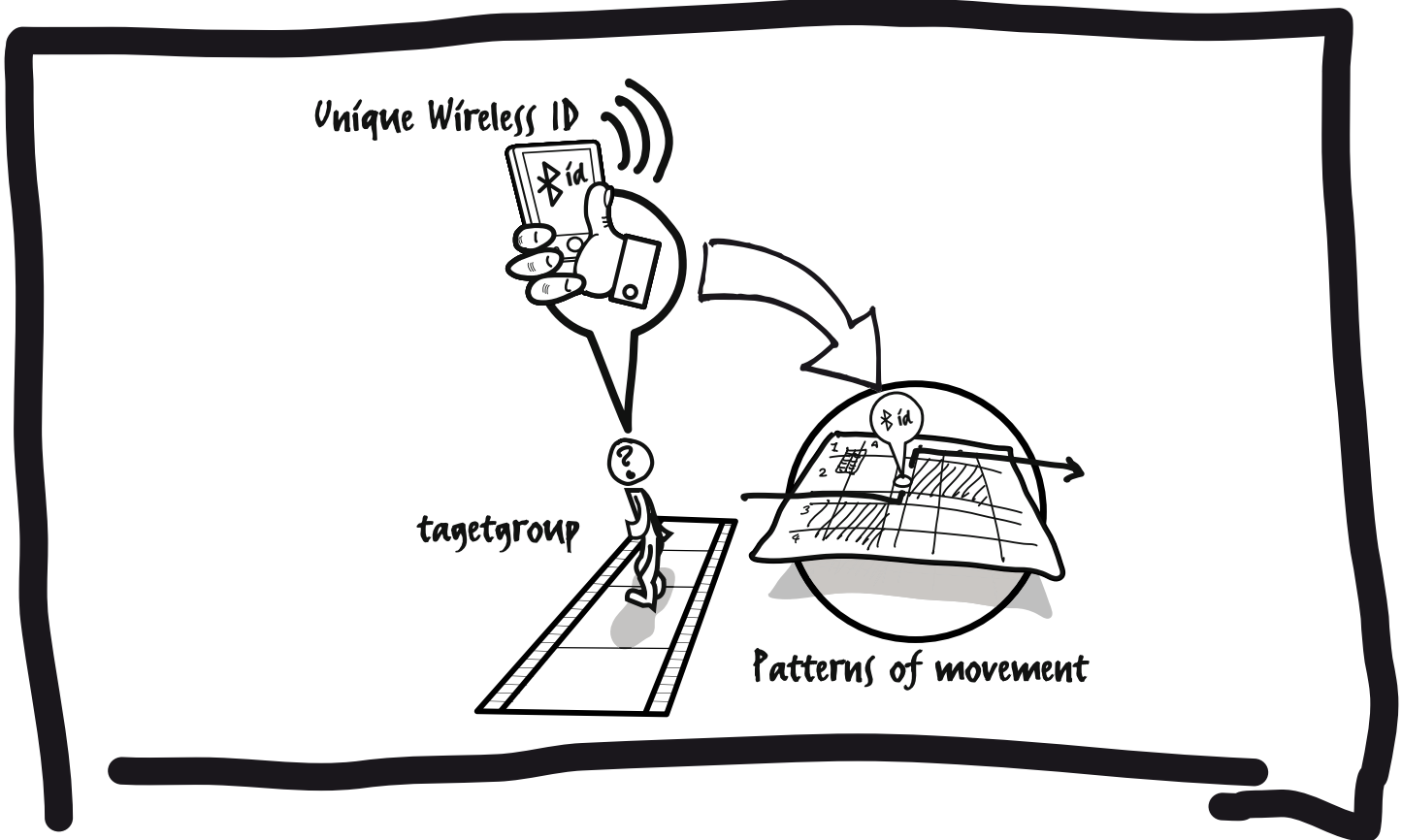
From COWI's perspective, the project contained two distinct challenges that became the ICI focus. On the one hand, it was necessary to procure the data. However, COWI had to build an understanding of how the data could be used by potential customers and in what form. This related to how customers could use the data directly and how the data collected could be used by COWI to provide improved engineering services.

Initially, COWI had expected to be able to use data directly from telephone service providers. The providers, however, proved reluctant to enter into such a project. This was primarily due to legislation issues and huge data quantities. Telephone data can be tracked back to a person, which requires written permission from the user and increases data security requirements. Accordingly, ICI and COWI turned their attention to BLIP Systems (BLIP), to uncover whether BLIP's technology could be applied. ICI facilitated meetings and workshops where it became apparent to BLIP

that it could open up a new business area by adapting the existing indoor technology for outdoor usage, which provided a means of obtaining the necessary data. Accordingly, BLIP and COWI agreed to set up testing systems in collaboration, to gauge the system's effectiveness and precision. These tests were sufficiently successful to continue the collaboration.

*Despite a functioning business model, ICI reckoned this only scraped the surface of the concept's capabilities and actual value.*

ICI also facilitated contact with the IT department at Aalborg University, to provide the network with technical feedback on the system and its effectiveness. This provided the network with the knowledge that the share of cellphones with Bluetooth activated was actually declining. This raised some concerns, but



BLIP pointed out that the system could also track Wi-Fi if necessary, which would further increase system efficiency.

On the customer side, COWI and ICI contacted a host of potential actors that might be interested in the procured data. Through several meetings with the network, it became apparent that there was indeed potential in harnessing the data, which helped further motivate COWI. Thus, the value creation capability of the concept was clarified.

The system's tracking capabilities raised some concerns about its legality. To ensure the legal aspects were covered, ICI had the legal department at Aalborg University draw up a juridical note that explained why the tracking was completely anonymous and therefore legal.

From the outset, COWI had entered the project with the aim of buying data from a supplier and using the data according to customer needs. However, BLIP was not used to delivering data, since the firm was

a hardware and services company. Additionally, no single party on the customer side had the necessary means or goal to buy and deploy such a system. This lack of investment capability, or will, became highly apparent through a series of ICI-facilitated business model workshops, which showed that neither BLIP nor COWI was prepared to make the necessary investments. This created significant conflicts between the two parties, which almost terminated the collaboration. For instance, BLIP was initially unwilling to sign an exclusive contract in the Nordic countries with COWI. In another context, such a setup had cost the firm millions of DKK. However, BLIP changed its position concerning this point later in the project.

A partial solution was negotiated when the concept was introduced to the traffic department at COWI. The customers the company worked with had the funds and could see a large enough return rate to invest in the system. This meant that BLIP had to adopt COWI's type of revenue stream, from receiving payment

at installation to a more leasing-inspired type of revenue stream, under which the equipment cost was covered over a longer period. This was done to accommodate COWI's aversion to investments. Despite a functioning business model, ICI reckoned this only scraped the surface of the concept's capabilities and actual value.

Primarily, ICI argued that the value is mainly derived from the data, yet in reality, the COWI/BLIP alliance sells hardware that then delivers the data. For COWI especially, this meant that the service was being sold at cost plus, rather than focusing on the value creation potential. Furthermore, selling the hardware had proved infeasible for tracking pedestrians, and selling the system for tracking traffic was an ongoing challenge. Selling the data would create a much tighter coupling with the value received by customers, by making the value proposition more readily apparent to customers.

Focusing on COWI, the challenge was to elucidate the value creation

## Case presentations

*The expected key figures for Mobile Tracking are quite difficult to assess. Specifically, the results cannot be related only to the COWI City Sense project, but depend also on the amount of derived revenue generated through sales of engineering services.*

potential of the data. This was done through a series of meetings and workshops, and ICI even facilitated a workshop exclusively for potential data customers, to gauge the value potential to present to COWI. This also spawned a host of student projects, dealing with uncovering the value potential for different customers. The ICI Senior Advisory Board also supported the process, in trying to explain the potential inherent in the data, and trying to persuade COWI to change its business model. The purpose was to persuade COWI to adapt a more investment-based approach, with presumably higher revenues in the longer run. COWI also attended a range of ICI-arranged seminars in Silicon Valley, which also sought to provide the

company with a better understanding of the inherent potential in an international perspective.

However, COWI was reluctant to work with types of revenue streams that do not guarantee investment up front. As a result, the firm chose to continue focusing on tracking traffic. The product remains available for pedestrian tracking, if a suitable investor emerges, but is not being actively pursued.

BLIP has successfully copied the business model outside the Nordic countries (for example, in New Zealand).

For COWI, it seems that the huge international potential is not being

reaped, perhaps due to the lack of ability to support intrapreneurship, i.e., developing new business areas within the organization.

The expected key figures for Mobile Tracking are quite difficult to assess. Specifically, the results cannot be related only to the COWI City Sense project, but depend also on the amount of derived revenue generated through sales of engineering services. This also makes it difficult to assess the number of employees, as the concept will arguably also generate a substantial amount of derived activities, in the form of engineering services. Therefore, the expected results and employees are conservative guesses, which may indeed be significantly larger.

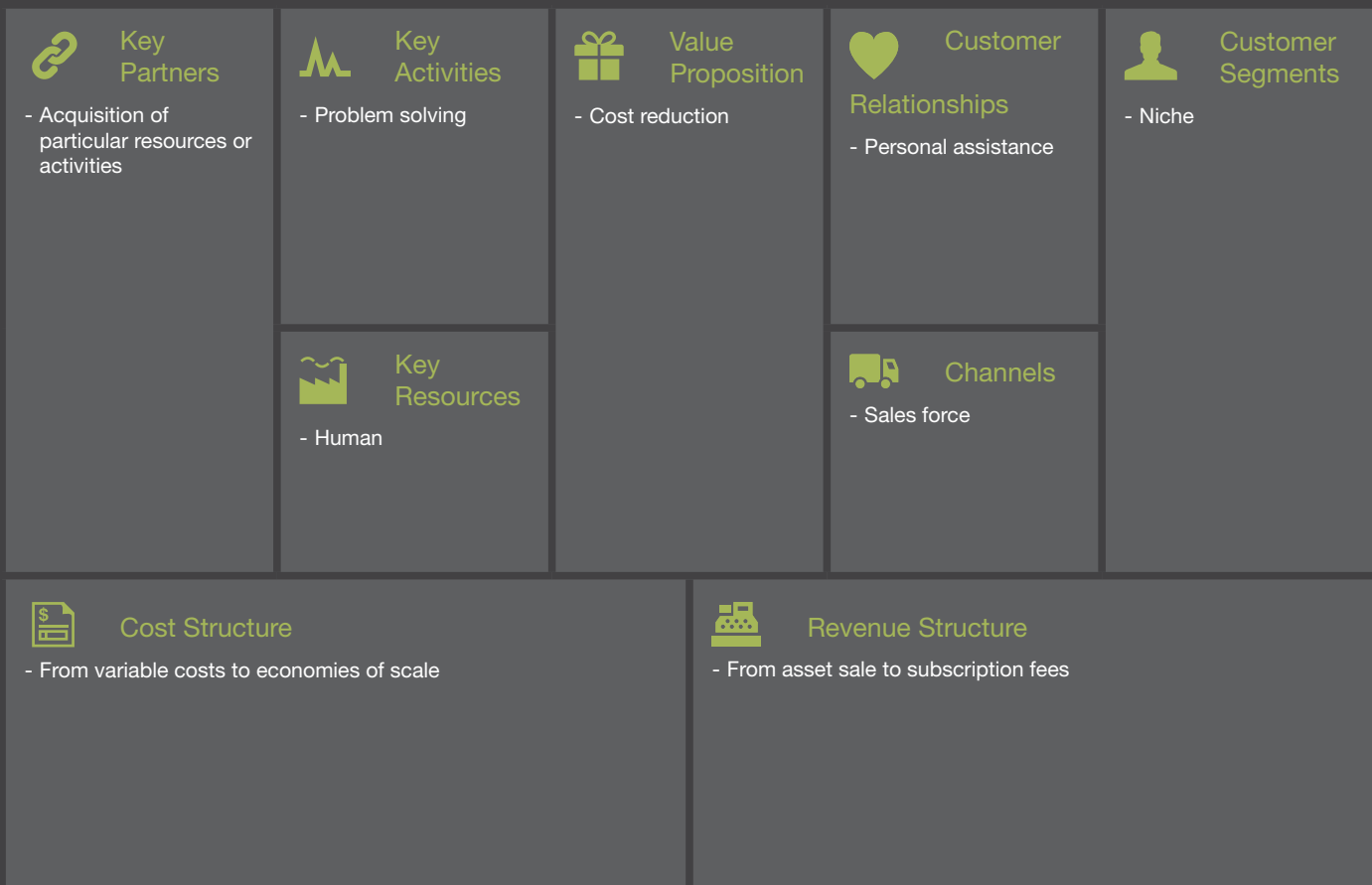


Figure 13: The mobile tracking business model

Network timeframe	2012 totals	2013-2015 expectations
Revenue: <b>1,500 tDKK</b>	Revenue: <b>1,400 tDKK</b>	Projected revenue: <b>5,000 -&gt; 25,000 tDKK</b>
Result: <b>100 tDKK</b>	Result: <b>100 tDKK</b>	Projected results: <b>500 -&gt; 2,500 tDKK</b>
FTE: <b>3</b>	Employees: <b>3</b>	Projected employees: <b>4 &gt; 8</b>
Investments: <b>500 tDKK</b>		

Figure 14: Illustration of trade promotion

# Provital Solution

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When the **Provital ICI network** was first set up, Provital Solution (Provital) was essentially a company trying to create novel applications for the LiqTech (formerly known as CoMeTas) membrane technology, using in-house knowledge and expertise on plumbing and water treatment at the investor firm Kaj Larsen VVS. At that point, the firm had a whole range of potential applications, which were all being pursued to some degree. Common was an emphasis on traditional asset sale types of revenue streams.

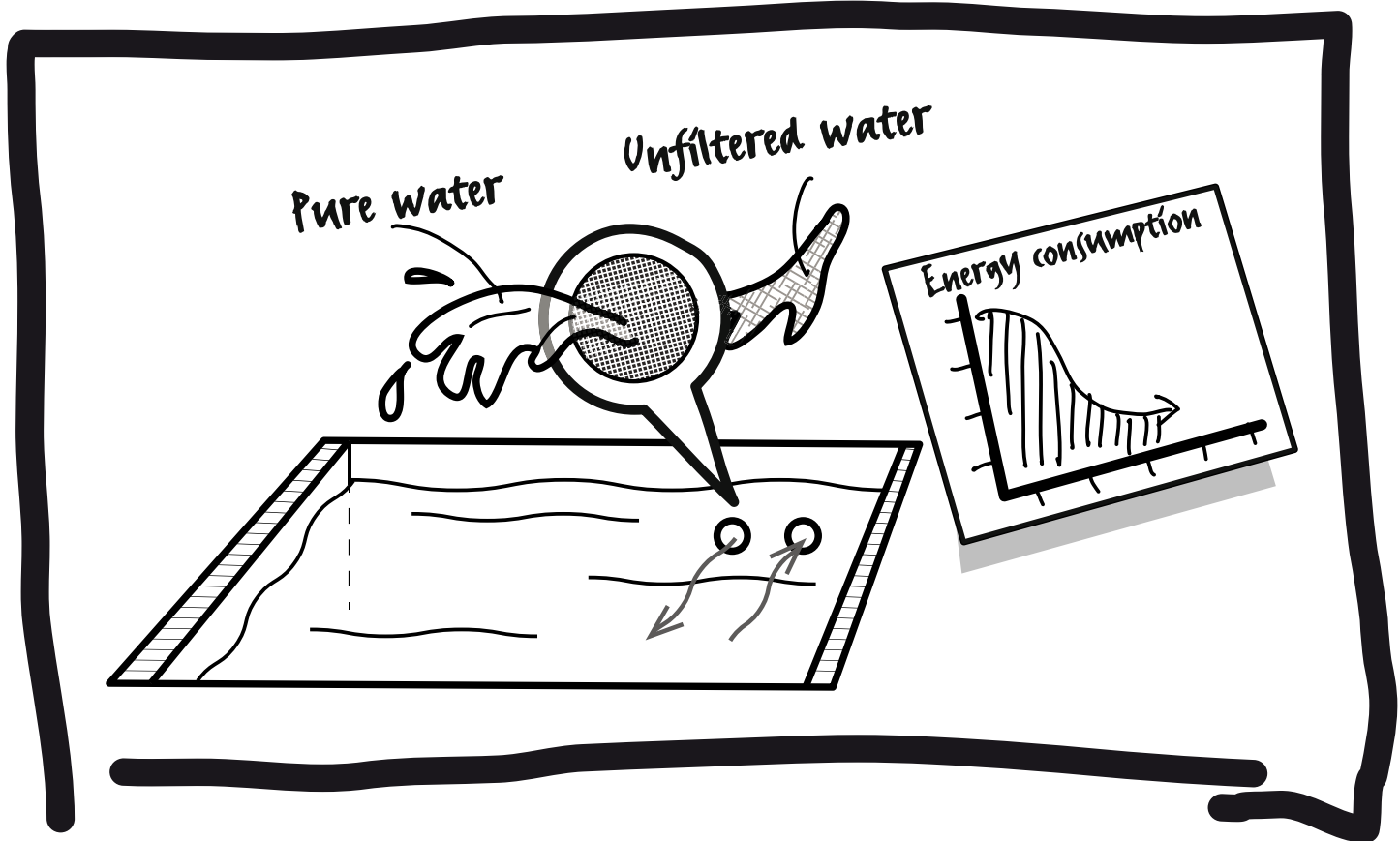
**The initial ICI efforts focused on describing Provital's current business model. However, it became readily apparent that the firm had no focused model, as Provital was pursuing many different application possibilities. The only common denominator was the LiqTech membrane technology. Therefore, ICI helped Provital in their choice to select the Spa and Pool market, based on the company's existing capabilities, market access, and knowledge. Provital focused its business, as needed.**

Subsequently, ICI conducted a risk analysis of the chosen segment, clarifying the risks and uncertainties that had to be addressed as part of the business development (the risk management aspects of business modeling is further elaborated in the ICI publication Taran et al. (2010), which also use Provital as empirical background). This elucidated the challenges Provital faced and provided the company with a road map for dealing with these challenges in a structured manner.

However, Provital did not follow the recommendations very well. One reason was financial problems faced by the firm and its investors. This led the firm to pursue several smaller projects, which essentially acted as a drain on the firm's resources, as they provided no steady revenue streams. Therefore, an investment from NOVI Invest was secured. Novi Invest is situated in relation to Aalborg University. Provital was provided some financial stability needed to develop the firm and its business model. However, as shown in the following, the investment was

not significant enough for Provital to purposefully implement a new business model. In this respect, the company still had to focus much of its attention on generating short-term revenue, which should be seen as the backdrop for much of the following development descriptions. This lack of investment was also pointed out as a problem by ICI, and actions were taken to secure better investors.

At this stage, it was evident that Provital faced significant difficulties selling its product. Consequently, ICI collaborated with Provital on analyzing the market and the sales channels traditionally used. Although Provital had previously focused on selling directly to waterparks, ICI prompted the firm to turn its focus to targeting equipment installers, as these were deemed the most influential actors. Subsequently, ICI helped create various types of marketing material and a Customer Relationship Management (CRM) system. However, Provital still struggled with sales, despite a more aggressive approach to the sales



process. Therefore, ICI made a thorough case analysis: Sell to the the Gigantium indoor swimming pool. This provided the firm with valuable insights into the dynamics of decision processes in the market, and proved that the sales situation was highly complex with multiple actors influencing the choice of filtration system. These included engineers, installers, contractors, the project board, and the municipality funding the construction. ICI also supported tests conducted in Gladsaxe.

These initiatives helped Provital acquire key insights concerning the dynamics of the Danish procurement processes of state-owned institutions. These were the main customers in Denmark for the filtration system category in which Provital operates. The key takeaway was that even though the Provital solution would achieve cost parity over a relatively short period, the procurement legislation was not designed to consider this. The industry did not understand that Provital's solution would actually save the swimming pools money in the end. Conse-

quently, Provital's solution was often rejected due to the higher initial investment. In conclusion, the sales challenges consisted of a higher initial investment, combined with having to persuade a wide range of decision makers to purchase the then relatively unknown Provital solution.

These initiatives helped Provital acquire key insights concerning the dynamics of the Danish procurement processes of state-owned institutions.

To elucidate these challenges, ICI also worked with Provital to better describe their value proposition relative to competing solutions. This armed Provital with compelling arguments for its system's superiority, but also provided insights into the areas where the Provital solution could be considered inferior to those of competitors. This also provided Provital with a road map of

the factors the company needed to improve to become more competitive. With the initial investment price being a major hindrance to adoption, a leasing model was suggested, but it was later abandoned, due to the legislation in the area.

In parallel with these developments, ICI also urged Provital to consider a more international strategy, to access markets of larger scope and potential with different structures. The notion was that other markets could have more feasible characteristics, which made the markets easier to penetrate. Therefore, Provital attempted to open the German and Swedish markets, though with little success. Additionally, ICI facilitated contact with a Silicon Valley company working with clean-tech, but collaboration never emerged.

ICI pushed for a more partnership oriented approach. The breakthrough for Provital came in the form of a partnership with one of Norway's largest pool installers, which began selling and installing the Provital filtration solution. Provital



## Case presentations

*These significant developments were largely enabled by the arrival of a new investor, who bought the majority of the firm and assumed the role of CEO. This provided the necessary financial backing to develop the firm and make long-term investments in building relations with international partners.*

came to rely on this configuration. Thus, instead of directly seeking out customers, the company relied on building partnerships with installers, thus minimizing the sales effort required on Provital's part. The Norwegian market and partner provided significant growth. Additional contacts were established in Australia, which, by the end of 2012, seemed to be heading toward partnerships. Furthermore, Provital began working on entering the US market. Anticipating this expansion, Provital was also planning to in-source their production, by relocating to new premises in Hobro.

These significant developments were largely enabled by the arrival of a new investor, who bought the majority of the firm and assumed the role of CEO. This provided the necessary financial backing to develop the firm and make long-term investments in building relations with international partners.

Last, throughout the development, the original investor had supplied manufacturing services in assembling the filtration units. Decoupled from the investor financially, Provital negotiated significantly better prices for manufacturing. Additionally, the

increased volume also provided Provital with significant leverage over other suppliers, which enabled the company to cut costs significantly.

By the end of 2012, Provital had become a profitable business, with a very positive outlook on the future, expecting high growth, mainly from growing existing, and new, international markets.

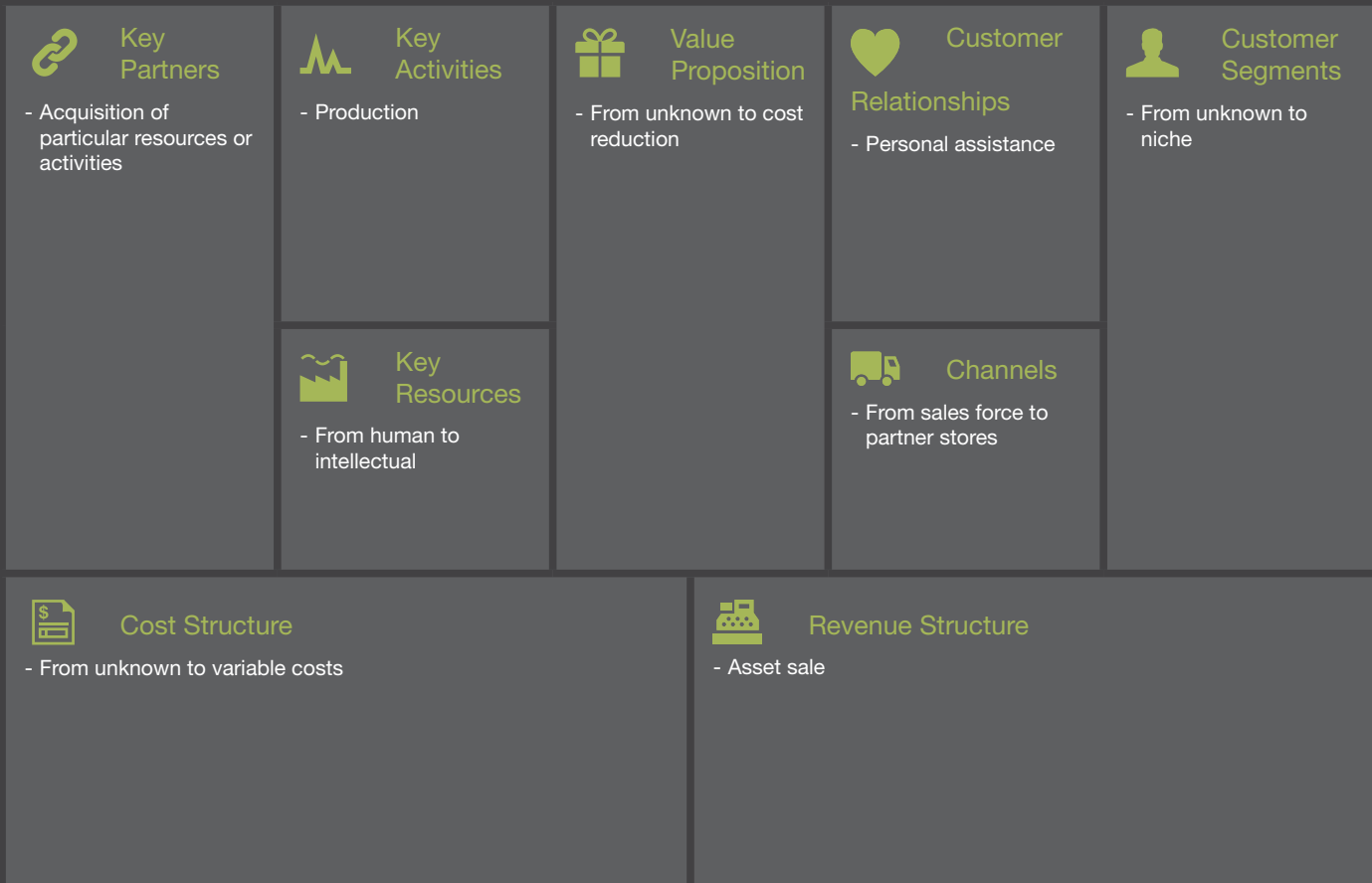


Figure 15: The Provital Solution business model

Network timeframe	2012 totals	2013-2015 expectations
Revenue: <b>2,400 tDKK</b>	Revenue: <b>12,000 tDKK</b>	Projected revenue: <b>60,000 -&gt; 130,000 tDKK</b>
Result: <b>-3,000 tDKK</b>	Result: <b>3,000 tDKK</b>	Projected results: <b>15,000 -&gt; 35.000 tDKK</b>
FTE: <b>4.7</b>	Employees: <b>2.5</b>	Projected employees: <b>6 -&gt; 14</b>
Investments: <b>3,000 tDKK</b>		

Figure 16: Illustration of trade promotion

# SAFE

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The central idea of the **SAFE network** was to increase the use of trains for transporting goods nationally by inventing a novel “Container Transfer System” (CTS). This would enable a quick transfer of containers from train carts onto trucks and vice versa. The invention was to be coupled with a complete reconfiguration of the goods transportation processes.

**When the SAFE project began working with ICI, many of the central concepts and system processes had already been developed by the system’s inventor namely the owner of SAFE Green Logistics (SAFE) - the core firm in the network. At that time, the development of the CTS, as well as an IT system to handle the reconfigured processes, was already under way.**

The initial partnership process focused on engaging component suppliers as partners, rather than finding partners relevant for operations. However, the presumption was that operations-focused partners would become available once the concept matured. Consequently, at the outset of the network, SAFE Green Logistics mainly emphasized the network-level business model and the value proposition toward end customers from the finished operational concept. In that respect, the firm had not decided how its own business model was to be structured, or the relations with operations partners. Accordingly, the following representation (Figure 18) is the best estimate of how the core firm’s business was presumed. This presumption was built on a common type of revenue stream of receiving usage fees for each item handled through the system.

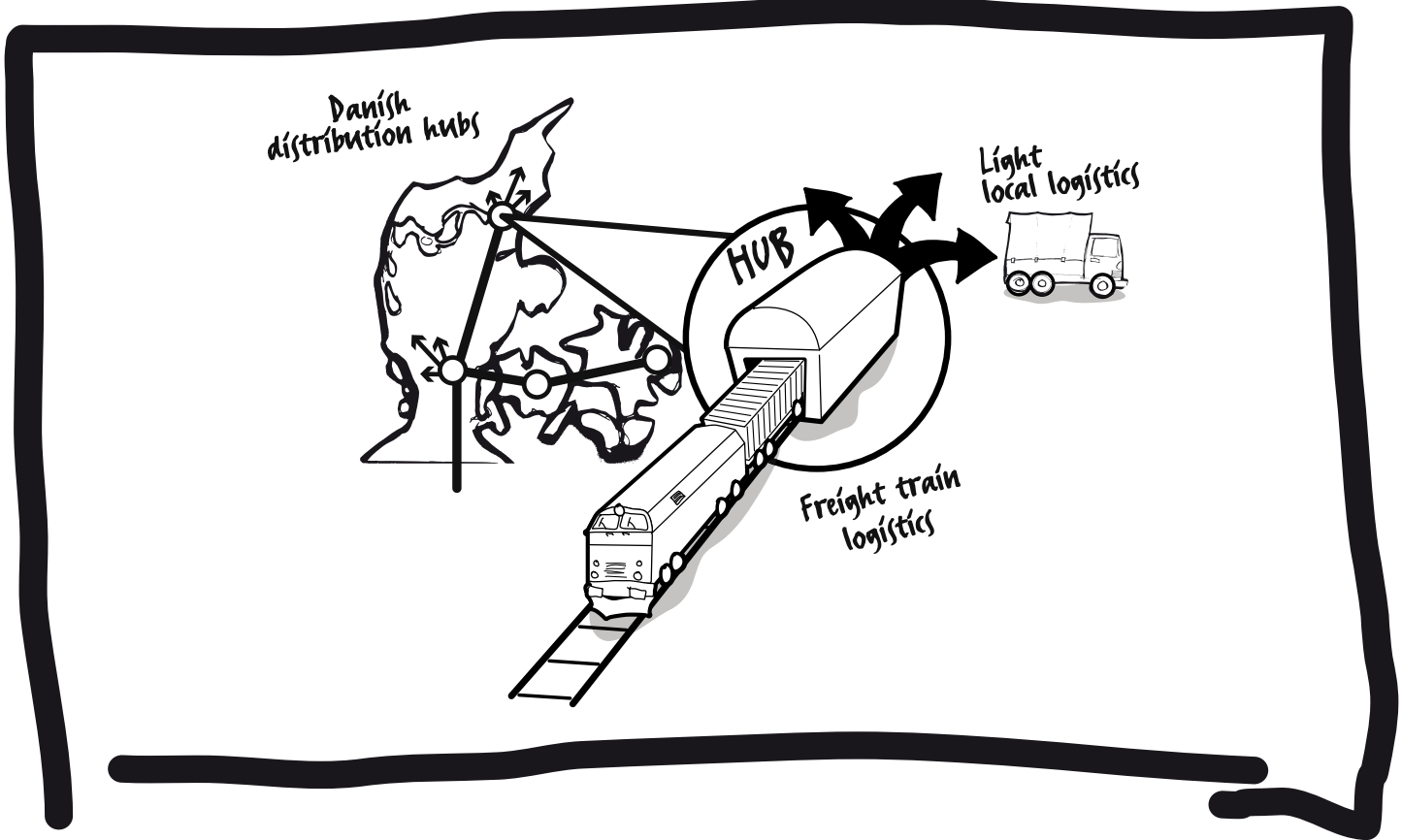
The initial challenge was to ensure that the network construction contained all the necessary competences and knowledge areas needed to specify and implement the system

as envisioned. ICI facilitated contact with Lyngsoe Systems, which could provide the necessary knowledge on large-scale logistic and package handling systems and significantly increase the legitimacy of the concept.

Initially, the SAFE inventor had global ambitions, seeking to roll out the system in Europe within a relatively short time span. ICI was quick to point out that the scope and scale of such a system would make such an aggressive rollout unfeasible. Thus, ICI ensured that the network limited its initial scope to Denmark, to provide a proof-of-concept.

As the nature of the project was one of development, initially clarifying which parts of the development should be handled by which partners was important, a process ICI facilitated in collaboration with the network partners.

Early in the process, the core firm emphasized the potential CO<sub>2</sub> emission savings made possible by the system. However, as these savings



were unconfirmed, ICI ensured collaboration with the Department of Development and Planning at Aalborg University. This collaboration provided the network with educated estimates and well-founded arguments for the system's green profile.

Due to the way the network was constructed, SAFE essentially funded the majority of the development, which put a large strain on the

... the firm was quite confident in the system's physical possibility and practicality, the business model layer of the concept had to be addressed, a process ICI initiated and facilitated.

company's finances. Thus, ICI aided SAFE in applying for extra development funds, though no funding was approved. This was due to the sheer scale of the concept, which

demanding massive financial backing as well as dedicated partners, in particular for operations purposes. In that respect, although the firm was quite confident in the system's physical possibility and practicality, the business model layer of the concept had to be addressed, a process ICI initiated and facilitated. This process also encompassed gauging the potential engagement of the different partners, and ensuring that SAFE knew how it was going to construct its own business once the system was operational. This process also sought to create the foundation for a business plan for how the system should be rolled out.

At this point, most of the network partners had little involvement, as they all received direct payment from SAFE for their contributions. Furthermore, constructing the business model and building relationships with operations partners turned out to be difficult. Central to these difficulties was that SAFE's presumed network construction hinged on engaging existing truck-driving operators to carry most

of the risk associated with the concept. Although ICI tried to influence SAFE in building other approaches, the questions made by ICI remained largely unanswered throughout most of the project.

SAFE considered several types of revenue streams for the business along with ICI. However, the company was never able to anchor a specific type of revenue stream, due to the lack of clarity on how the network or supply chain, or more precisely the "service chain," should be configured. This meant that SAFE lacked clarity on where in the system the business would fit in, and how the company could secure and maintain that position. Rather than attempting to collaborate with potential competitors, SAFE should have included the customer more in the development process, rather than continuing to develop the CTS, software, etc., that may have needed to be changed later anyway.

Following an extended standstill, a new project manager was employed, who provided the network

## Case presentations

*Following an extended standstill, a new project manager was employed, who provided the network with renewed energy. Subsequently, ICI facilitated a learning trip to Silicon Valley in California, to provide a more international perspective and uncover the challenges potentially faced in different markets, emphasizing the US.*

with renewed energy. Subsequently, ICI facilitated a learning trip to Silicon Valley in California, to provide a more international perspective and uncover the challenges potentially faced in different markets, emphasizing the US.

At the end of the ICI project, the new project manager had drawn up a new plan for the rollout of the concept. The first order of business

is to finish the CTS prototype, to prove that the central technology was operational. Then, to prove that the technology can function in a system, a small-scale test project will be initiated. The test project will focus on transporting containers and pallets between Aalborg and Copenhagen exclusively. All pallet sorting will be done in Aalborg. The purpose of the test project is to prove the savings made possible

and thus attract freight operators and public attention. At the outset, SAFE will interact directly with customers, and purchase truck services from local operators. SAFE expects to establish the test project at the end of 2014. The current estimates for the test project alone project possible savings of up toward 20% per transported item.

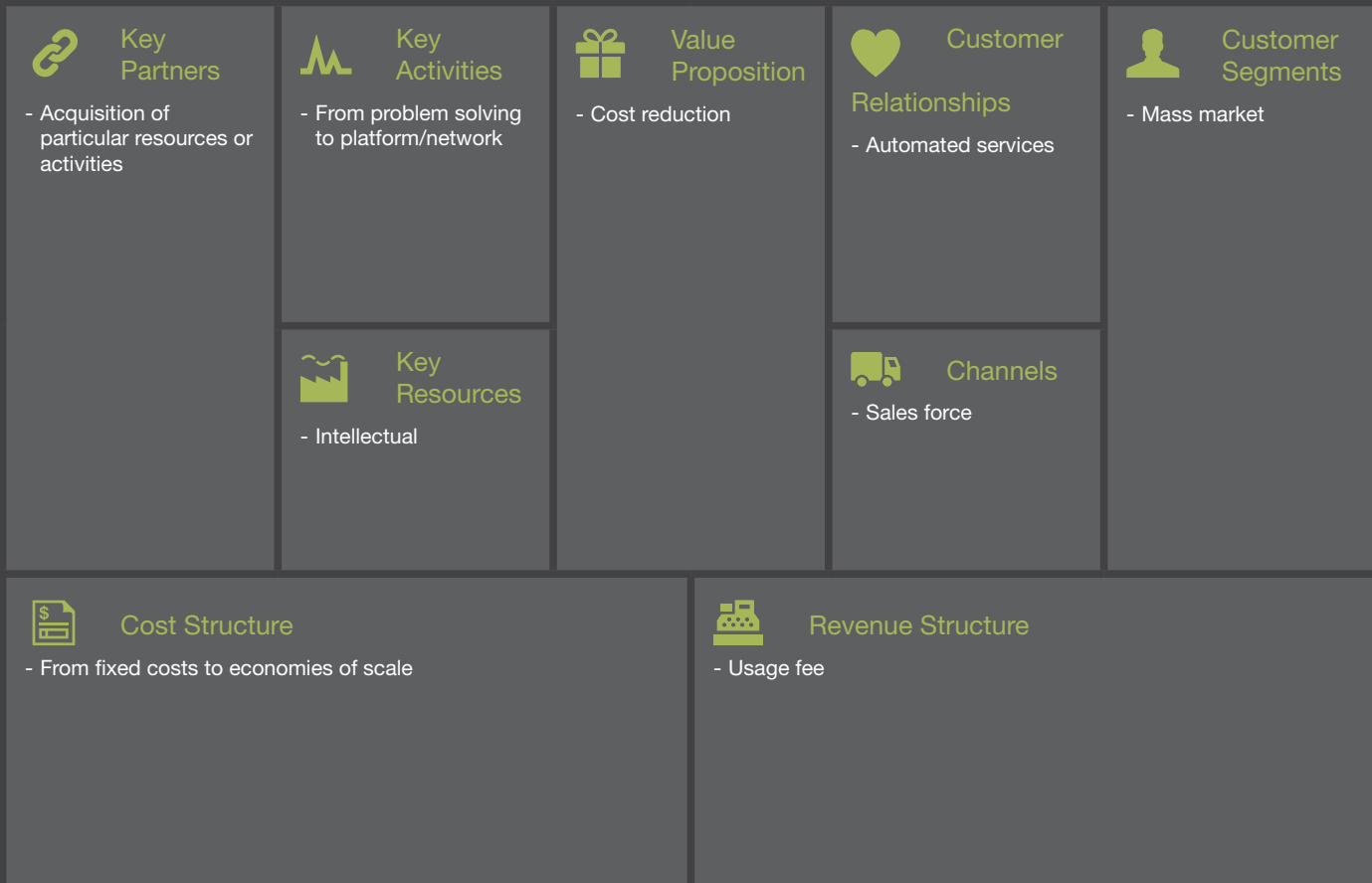


Figure 17: The SAFE business model

SAFE has not yet had any profit revenue, and since the investments are still expected by the network to provide return, they have not been written off.

Network timeframe	2012 totals	2013-2015 expectations
Revenue: <b>0</b>	Revenue: <b>0</b>	Projected revenue: <b>0 -&gt; 80,000 tDKK</b>
Result: <b>0</b>	Result: <b>0</b>	Projected results: <b>0 -&gt; 15,000 tDKK</b>
FTE: <b>8</b>	Employees: <b>5</b>	Projected employees: <b>5 -&gt; 10 (+20) *</b>
Investments: <b>24,000 tDKK</b>		

Figure 18: Illustration of trade promotion

\*) The parentheses indicate the projected number of independent truck drivers to handle the first and last parts of the transportation.

# Seafood

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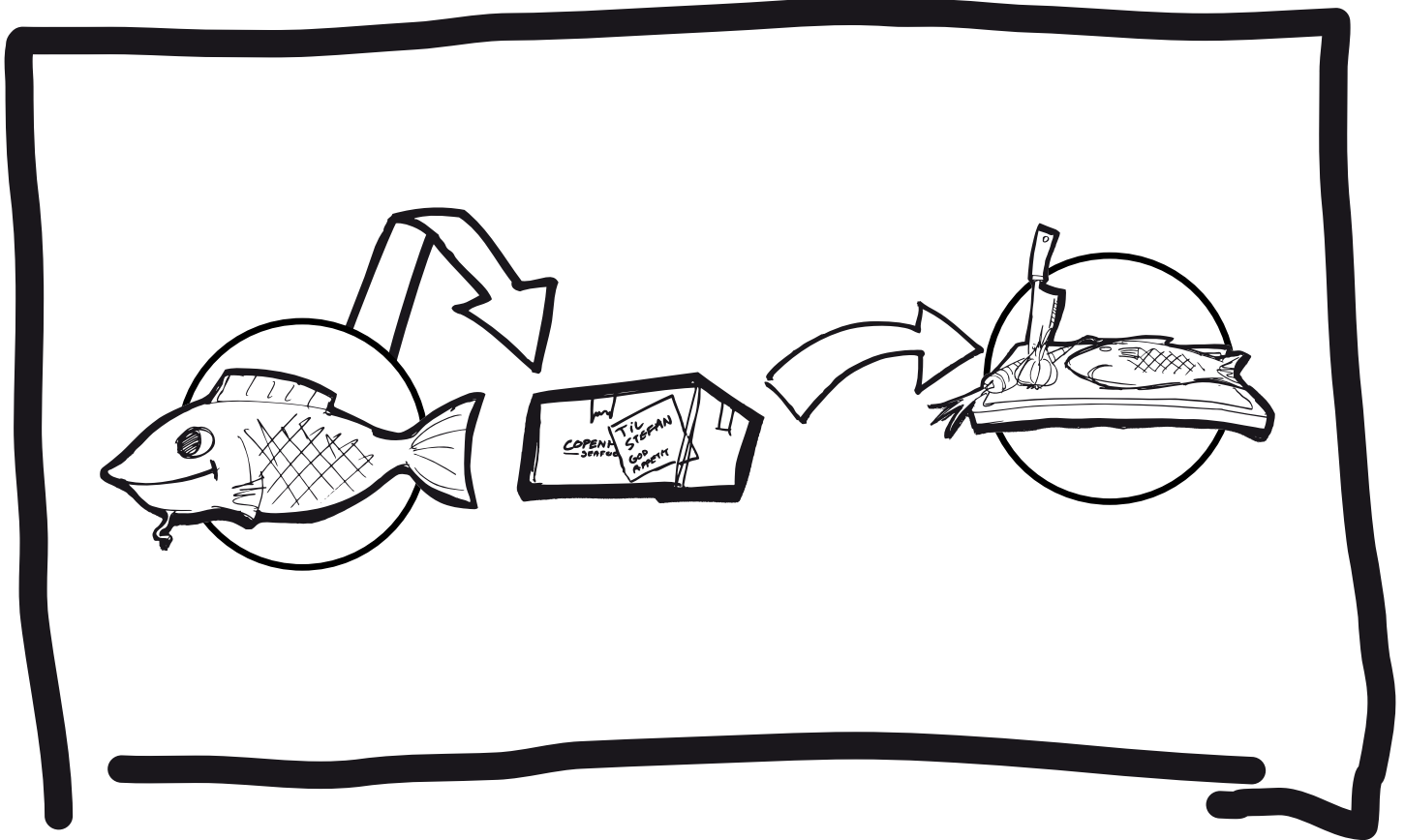
The purpose of the **Seafood network** was to build new business models, based on the existing business, while also strengthening the latter. The existing business bought fish at the local auction in Hanstholm and resold them to various outlets, such as restaurants, catering companies, and canteens. The model was built on conventional asset sales.

**Accordingly, ICI started out by mapping and analyzing the firm's existing business model, to identify the business's weaknesses.**

These weaknesses mainly related to the sales part of the organization, as customers were mainly loyal to specific sales individuals. Thus, the existing business model depended on retaining these sales individuals. The mapping emphasized the need for a better, more robust business model, and provided the firm with the tools and language necessary to express their business model ideas.

From the start, the firm's goal was to build new business models for selling and distributing fish, to private customers. This defined the scope of the project and provided it with some direction. As a starting point, ICI procured a market analysis of the Danish fish market made, to provide an idea of the opportunities in the market. This led to an increased understanding of the market in which Copenhagen Seafood, the core firm in the network, wanted to operate, and provided validation for targeting the private market. This also provided the project with the theme, the sale and distribution of perishable foods.

One of the early ideas was to focus on the firm's existing strength, minced fish, which led to the idea of setting up minced fish vending machines in stores. This idea prompted Copenhagen Seafood to purchase a minced fish machine without much further consideration. However, the entire concept was scrapped due to food safety regulations, which prompted Copenhagen Seafood to sell the machine at a significant loss. Two student workers were attached to the project on behalf of ICI, as part of the development process. One focused on the potential globalization aspects of the firm's business model, emphasizing SWOT analysis of the firm, which led to a series of recommendations, namely, to pursue the consumer market, as it contained the biggest potential. The other student worker focused on building the firm's branding and communication, to strengthen the firm's customer relations with existing customers.



The communication parts was part of the broader initiative related to strengthening the firm's existing business model. This focused on establishing lasting relations with customers through their own brand, by emphasizing Copenhagen Seafood's focus on quality products. This also entailed entering into closer collaborations with buyers, to ensure that they would buy the seasonal fish and adapt their own assortment accordingly. Although not a new business model, understanding and strengthening the existing model was also a key part of the network, which led to large growth for the firm.

Subsequently, ICI analyzed Copenhagen Seafood's existing business processes and routines. This led to the realization that the sales process in particular was highly inefficient, as it was all handled over the telephone. This spawned the idea of creating a web-based solution where customers could place their orders. Accordingly, through a series of workshops, ICI aided the firm in understanding how digital tools

and platforms could be used and operated, and the possibilities they provided.

Consecutive ICI meetings and workshops further defined the concept, to emphasize that building new business models should provide the firm with synergy effects within the existing business areas.

Consecutive ICI meetings and workshops further defined the concept, to emphasize that building new business models should provide the firm with synergy effects within the existing business areas. This was to be done by leveraging parts of the existing business while ensuring that any new business models would not dilute the existing business.

To aid the firm in its endeavors, ICI invited the network to a workshop

trip to San Francisco, to provide new inputs in how a business model could be constructed. This trip focused on typical business models within the food industry. Furthermore, the workshops emphasized the challenges faced by growth companies.

The digital platform was meant to be a universal tool for driving the business further, which spawned a range of potential ideas that could use the system. Together with ICI, the firm analyzed the ideas, their potential for implementation, and their impact on the firm, particularly in terms of the amount of resources needed. Eventually, this led the firm to focus on a model under which the sale would go through personnel associations at larger firms. For implementing the concept, ICI also advised on potential subsidy arrangements for employees, and assisted Copenhagen Seafood in finding a suitable candidate for the job.



## Case presentations

*Together with ICI, the firm analyzed the ideas, their potential for implementation, and their impact on the firm, particularly in terms of the amount of resources needed.*

Seeing international potential, ICI facilitated contact with Potsdam University, to have groups of students provide some of the international perspectives on the viability of the business model in foreign markets. This not only helped verify the business model but also provided the firm with insights into the German consumer market for fresh fish.

In the summer of 2012, Copenhagen Seafood launched its new business model for live testing in Copenhagen, Denmark. Copenhagen was chosen as it was the largest domestic market. Additionally, Copenhagen Seafood is already established in the city, serving restaurants and catering companies. The test was a success, which hinted at the poten-

tial, exceeding what was originally anticipated.

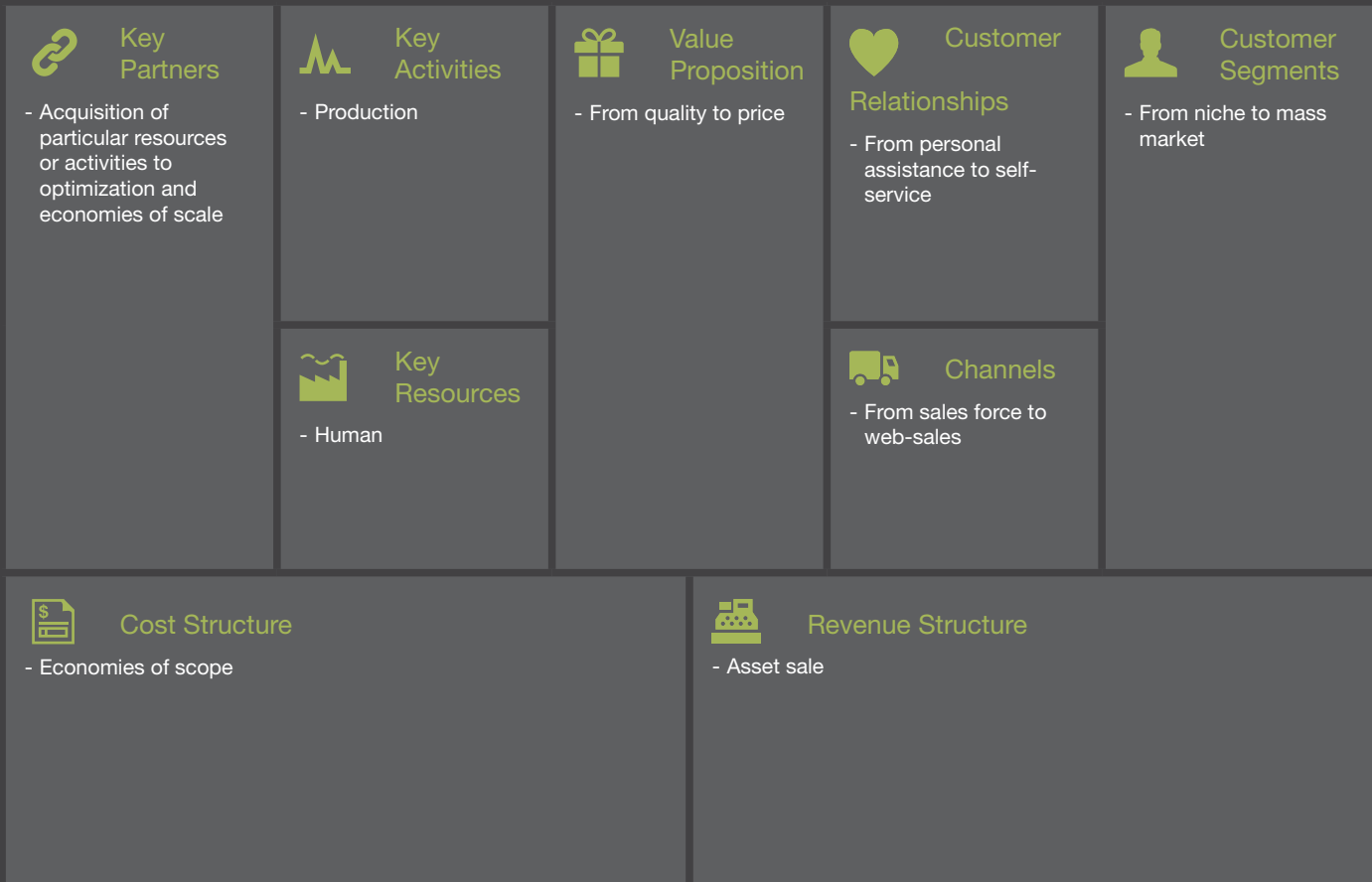


Figure 19: The seafood business model

Network timeframe	2012 totals	2013-2015 expectations
Revenue: <b>24,000 tDKK</b>	Revenue: <b>10,000 tDKK</b>	Projected revenue: <b>13,000 -&gt; 19,000 tDKK</b>
Result: <b>140 tDKK</b>	Result: <b>310 tDKK</b>	Projected results: <b>700 -&gt; 1,350 tDKK</b>
FTE: <b>6</b>	Employees: <b>6</b>	Projected employees: <b>8 -&gt; 9</b>
Investments: <b>1,500 DKK</b>		

Figure 20: Illustration of trade promotion

# Space Creator

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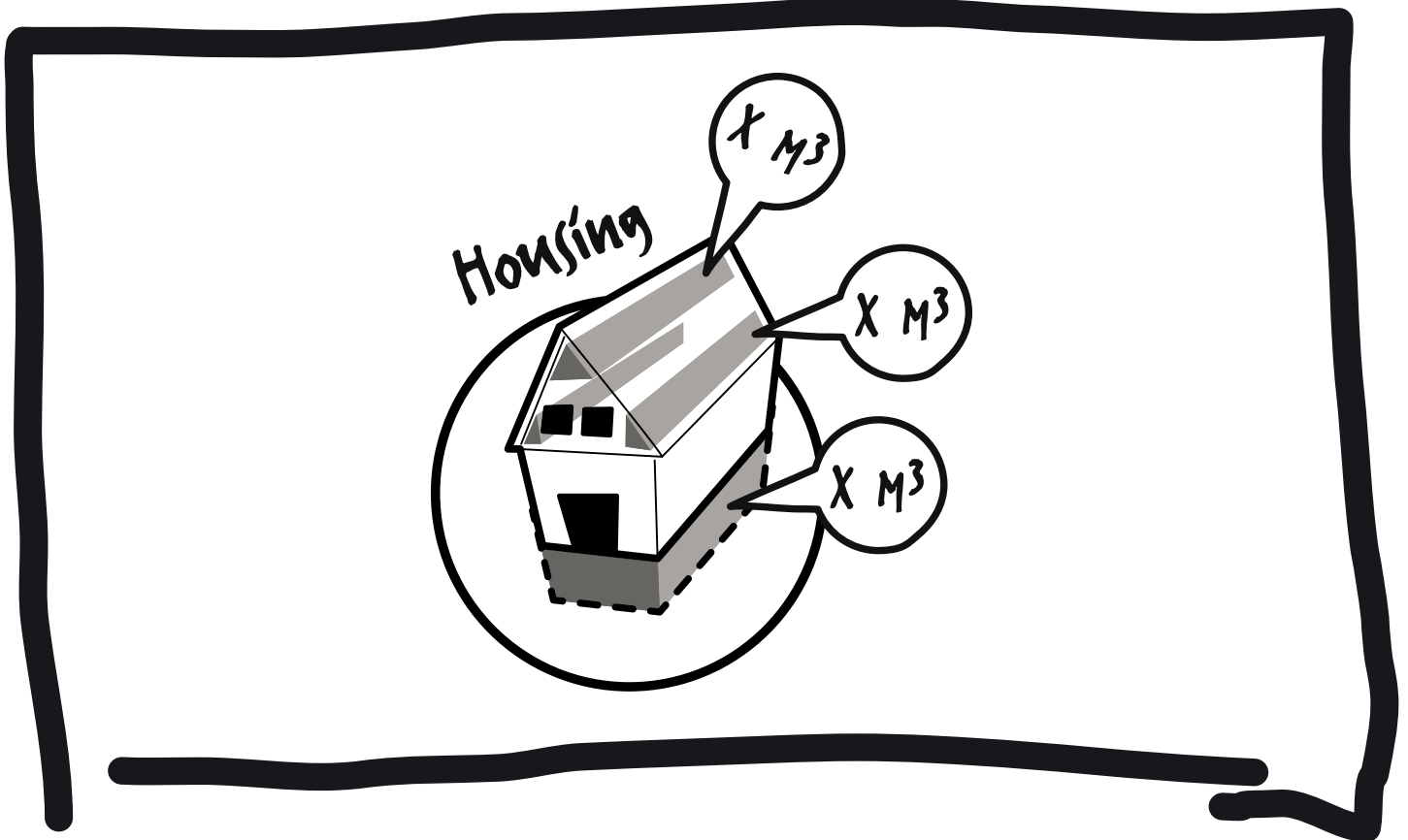
The **Space Creator network** was based on the idea of creating a platform for product ideation, development, and prototyping, heavily using inputs from lead users, through a platform connecting lead users and inventors with potential manufacturers.

**The concept focused on highly integrated space-saving solutions. Subsequently, this should enable other partners to build their own business models on top of the platform approach. The goal from the start was for Space Creator to be a collaboration platform, driven by network partners. Thus, the concept did not have its own business model.**

Initially, uncovering and describing the relevance of the overall Space Creator concept, to provide justification for the project, was important. This was done through a student project on behalf of ICI, in which the Danish furniture market was scanned for similar products and concepts. The result was an overview of potential domestic competitors with similar characteristics as Space Creator, in the form of integrated space-saving solutions. This proved that very few established players emphasized space saving in an integrated manner, and even fewer worked with actual solutions, but rather emphasized single pieces of furniture. The student project also described the current megatrend within the field of space-saving accommodation. This aided the network in understanding and communicating the relevancy of the Space Creator concept, and helped them further refine the basic ideas and concepts.

One of the central issues for the network was deciding what kind of sales and distribution method to

use. Therefore, ICI facilitated a range of workshops that outlined different possible scenarios and models for the sales and distribution process. Consequently, the network decided on a low-cost model, emphasizing web sales initially and making the web sale construction as light as possible, by having other partners handle the logistics, thus avoiding inventory costs. This development should be seen in relation to the central concept of involving lead users and inventors. The web shop approach was meant as a method for engaging and creating interest, by providing lead users and inventors with relevant products. The website would thus serve two functions, in acting as the sales channel for the products and the platform for involving users to generate ideas. Therefore, the network would maintain an open approach to the sales and distribution method as the concept matured and gained more products with a wider scope. ICI's role in the process was to provide analytical insight into the consequences of choosing different methods of sales and distribution.



ICI also hosted workshops focused on the value proposition and the customer segments targeted by the concept. Although the space-saving concept had market potential, the network had to be able to demonstrate this potential in actual products or prototypes. This also fostered important consideration within the network of the characteristics of the products regarding whether they should be considered furniture or integrated component solutions of the residence, similar to kitchens.

This issue emphasizes another key issue faced by the network, which relates to the dilemma faced by the network. On the one hand, the network needed products to create customer/user interest, and on the other hand, the network needed lead users to create product ideas that would in turn become the products. ICI attempted to overcome this dilemma in two ways. The first was to initiate a student project that described potential new products. The second was to facilitate a whole range of business model workshops. The point with these in-

itiatives was to make an investment in creating new products that could attract customers and users, who could generate the prerequisite ideas. Thus, the presumption was that the system could be made self-sustaining once enough products were on the platform.

ICI's role in the process was to provide analytical insight into the consequences of choosing different methods of sales and distribution.

Although the workshops spawned a range of ideas, very few were actually prototyped, let alone manufactured. To understand this better ICI interviewed the network partners individually. The biggest challenge was to reach a prototype level which is more or less ready for mass production.

Although the workshops spawned a range of ideas, very few were actually prototyped. ICI later figured out why, after all the network partners were interviewed individually. Most of the partners were essentially fabricators, building products to order, through rigidly defined systems. Therefore, the partners would receive specific orders from their customers, rather than create and maintain their own line of products. Consequently, the partners' business models were not compatible with the focus on product development dictated by the Space Creator concept.

Most of the partners were essentially fabricators, building products to order, through rigidly defined systems. Therefore, the partners would receive specific orders from their customers, rather than create and maintain their own line of products. Consequently, the partners' business models were not compatible with the focus on product development dictated by the Space Creator concept. Eventually, ICI pointed out to Space Creator that the company needed to be more specific about

## Case presentations

*Although the workshops spawned a range of ideas, very few were actually prototyped. ICI later figured out why, after all the network partners were interviewed individually.*

the Space Creator value proposition to its partners. Therefore, ICI recommended the company forego the purely network-driven approach and instead focus on making Space Creator an independent business, which could engage partners on its own terms, instead of having central decisions made by its partners.

Eventually, this led to the forming of Space Creator as an independent business, with staff exclusively hired

to promote and expand the Space Creator concept. Accordingly, Space Creator was primarily established as a web shop solution, which would find products and solutions from suppliers that have existing products that fit the Space Creator theme.

Subsequently, Dolle, the main sponsor of the project, forged ahead and is working on finishing its ceil-

ing-drawer and bringing it to market. Additionally, the company has established contact with a French partner, with which Space Creator began creating pre-manufactured porches. This concept is related, as it also deals with pre-manufacturing adaptable solutions, yet focuses on the outdoors, where there are fewer constrictions to consider.

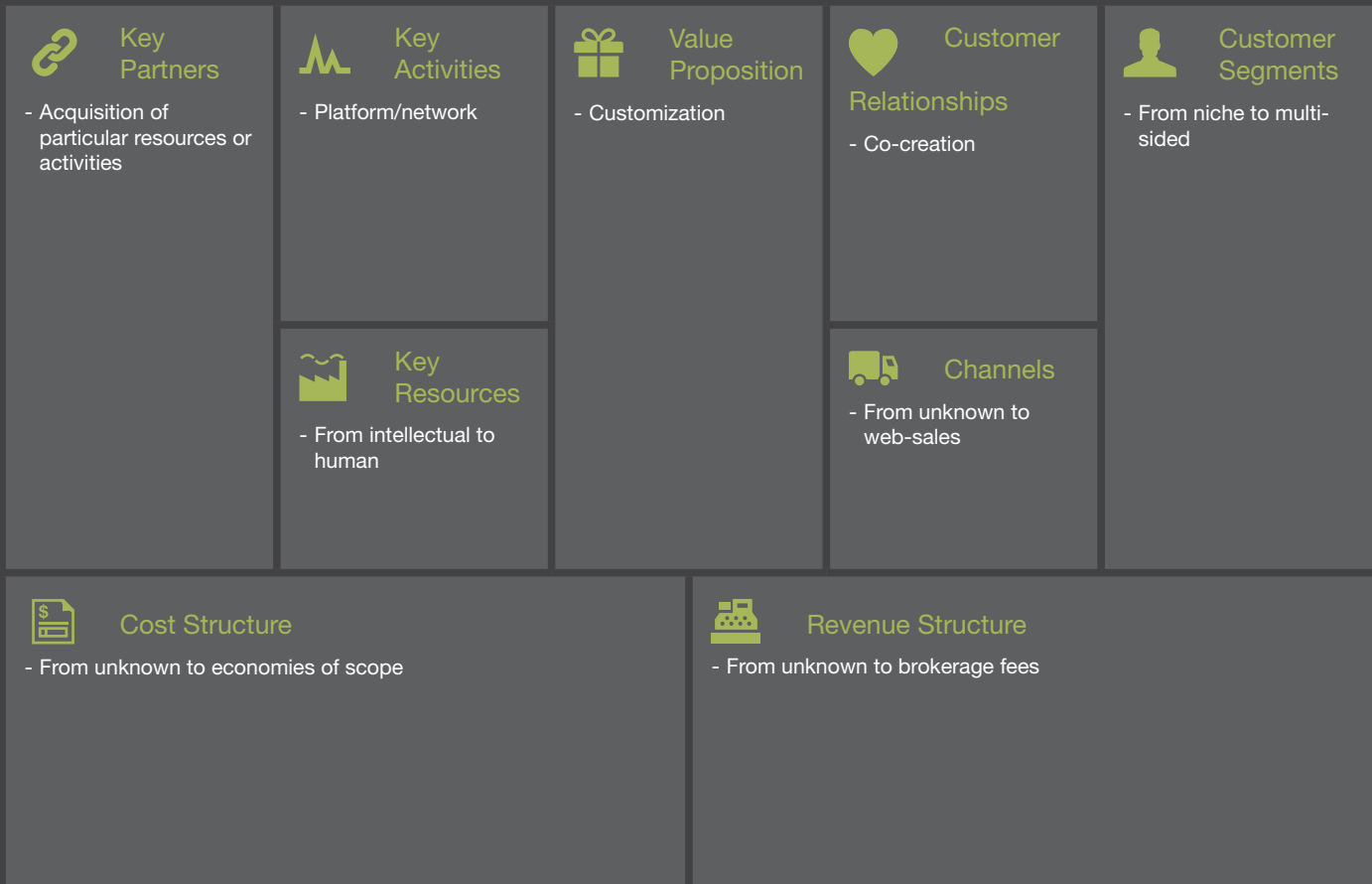


Figure 21: The space creator business model

# ViewWorld

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The ViewWorld network set out to develop a flexible multipurpose reporting tool, aimed primarily at NGOs. This tool could be in the form of questionnaires, picture documentation, or interviews, thus reducing the amount of double-work by doing the reporting digitally from the start.

**Initially, the firm focused on keeping the organization as small as possible by using software partners for the actual software development. In turn, ViewWorld would interpret customer feedback, needs, and wants, and translate them into software specifications. The basic idea of the business was to develop a turnkey solution for NGOs.**

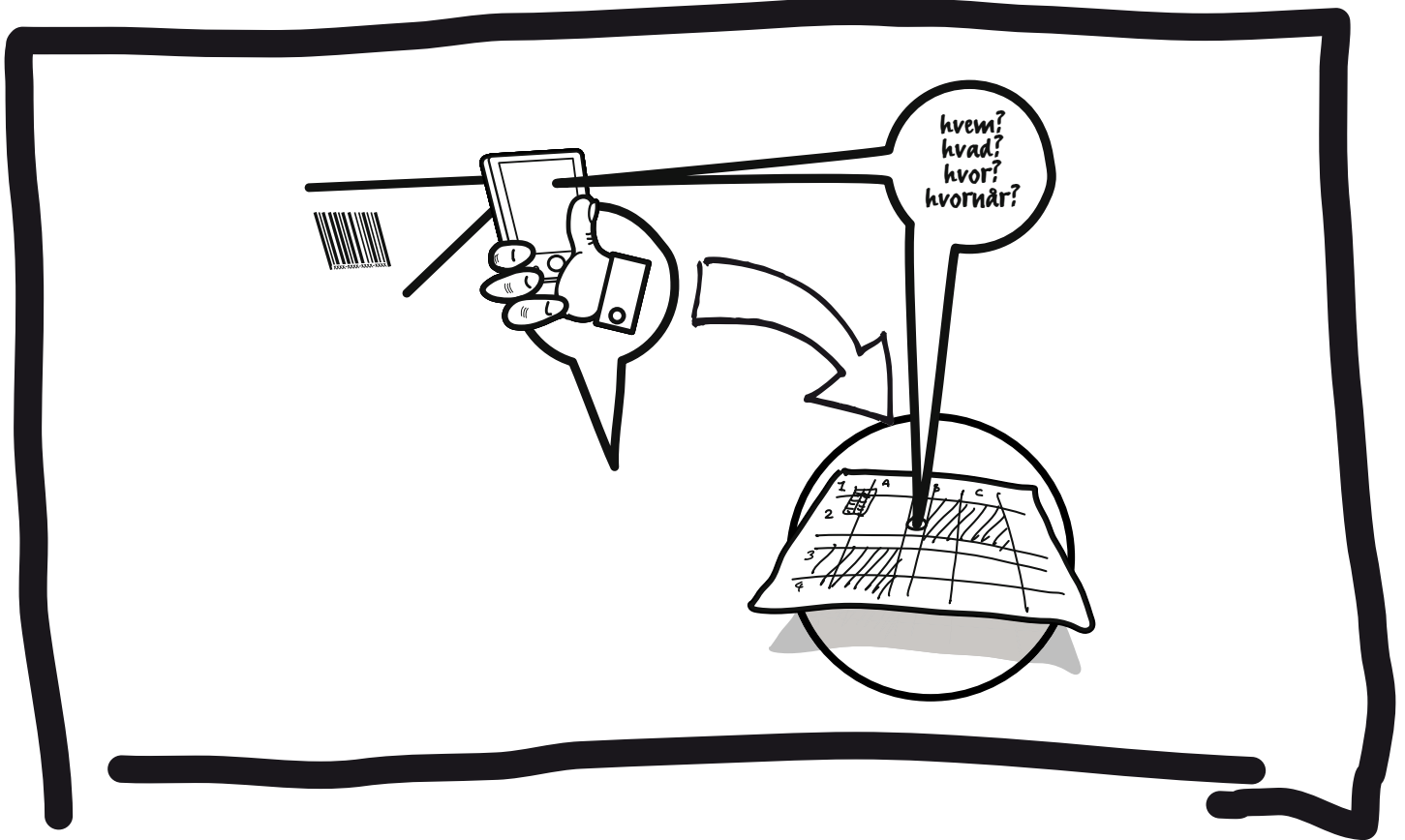
Some of the funding was to be secured by initially selling specialized solutions to NGOs below the incurred development cost. The idea was that the code from the specialized solutions could be used in the turnkey solution. Additionally, the specialized solutions would also provide knowledge on the types of data gathering needed.

As depicted in Figure 23, ViewWorld based its business model on an asset sale type of revenue stream, under which the company would receive one-time payments for the right to use the software.

Initially, ICI set out to challenge the proposed business model, directing attention to key considerations that needed to be addressed. For instance, why focus on NGOs when other customer segments would be more interested, as NGOs are traditionally highly constricted in their procurement policies. ICI also pointed out that the NGO segment was quickly becoming crowded by non-profit organizations, while ViewWorld strived to make a profit.

ICI helped ViewWorld broaden its perspective, which eventually turned the firm's focus to the potential inherent in other customer segments. ICI also helped the firm identify new potential customers and methods for approaching them. However, more time spent on selecting customer segments would have been a good idea.

ICI also clarified the need to develop a better defined sales and marketing organization, in contrast to the mainly personal/network-driven approach applied by the ViewWorld owners. This task proved arduous, as ViewWorld was highly focused on just building the software, because of the company's commitment to existing customers. ICI also questioned whether the software-developer approach was indeed feasible, in financial terms and in terms of development speed and flexibility, which had proven troublesome. Therefore, ViewWorld later chose to internalize the software development, to achieve a more flexible development process fully focused on the one project.



Even with the software development in-sourced, ViewWorld still struggled to deliver a market-ready solution, as an increasing number of features were added to the specification requirements, indicative of the lack of focus in the organization. However, by February 2012, a new CEO was hired, which coincided with a more operations-driven approach from ICI, emphasizing what needed to be done in development, administration, and sales and marketing. This radically changed the firm's pace and orientation, leading to better planning and segmentation of the customer segments. The software development was outsourced to a Polish subcontractor, which was much cheaper. The new CEO also prompted a new pricing structure, which would focus on subscription fees, with a highly limited "free-to-use" offering to draw in customers.

With the software development outsourced, the firm had a bit of time to specify the software to optimize ease of use for customers. In addition, the firm, along with ICI, began describing the cost structure of the

firm more precisely, to gain a better understanding of the pricing structure needed to sustain the business. This process was performed in parallel with identifying new potential market segments. This proved that the market outside NGOs was much larger, which caused the firm to change its direction to target these segments.

ICI helped ViewWorld broaden its perspective, which eventually turned the firm's focus to the potential inherent in other customer segments.

However, targeting several different segments, even with the same product, brought key challenges. The approach for each segment could be different, as use of the software depended on the specific needs in that segment. Thus, proving the value of the software required insight into the specific segment. This issue was presented to the ICI



## Case presentations

*Initially, ICI set out to challenge the proposed business model, directing attention to key considerations that needed to be addressed. For instance, why focus on NGOs when other customer segments would be more interested, as NGOs are traditionally highly constricted in their procurement policies.*

Senior Advisory Board (SAB), which presented two possible approaches: either create solution demonstrations for each segment or rely on partners to drive the demonstration projects and sales effort. Recognizing the need for rapid development, the SAB also recommended the firm to find a financially strong investor, to speed up the development even more, and get the software ready for market launch.

As the software matured, the company further modified its business model, reconfiguring the approach to the sales channel, by seeking partnerships with relevant actors, while maintaining existing web-based sales of the product.

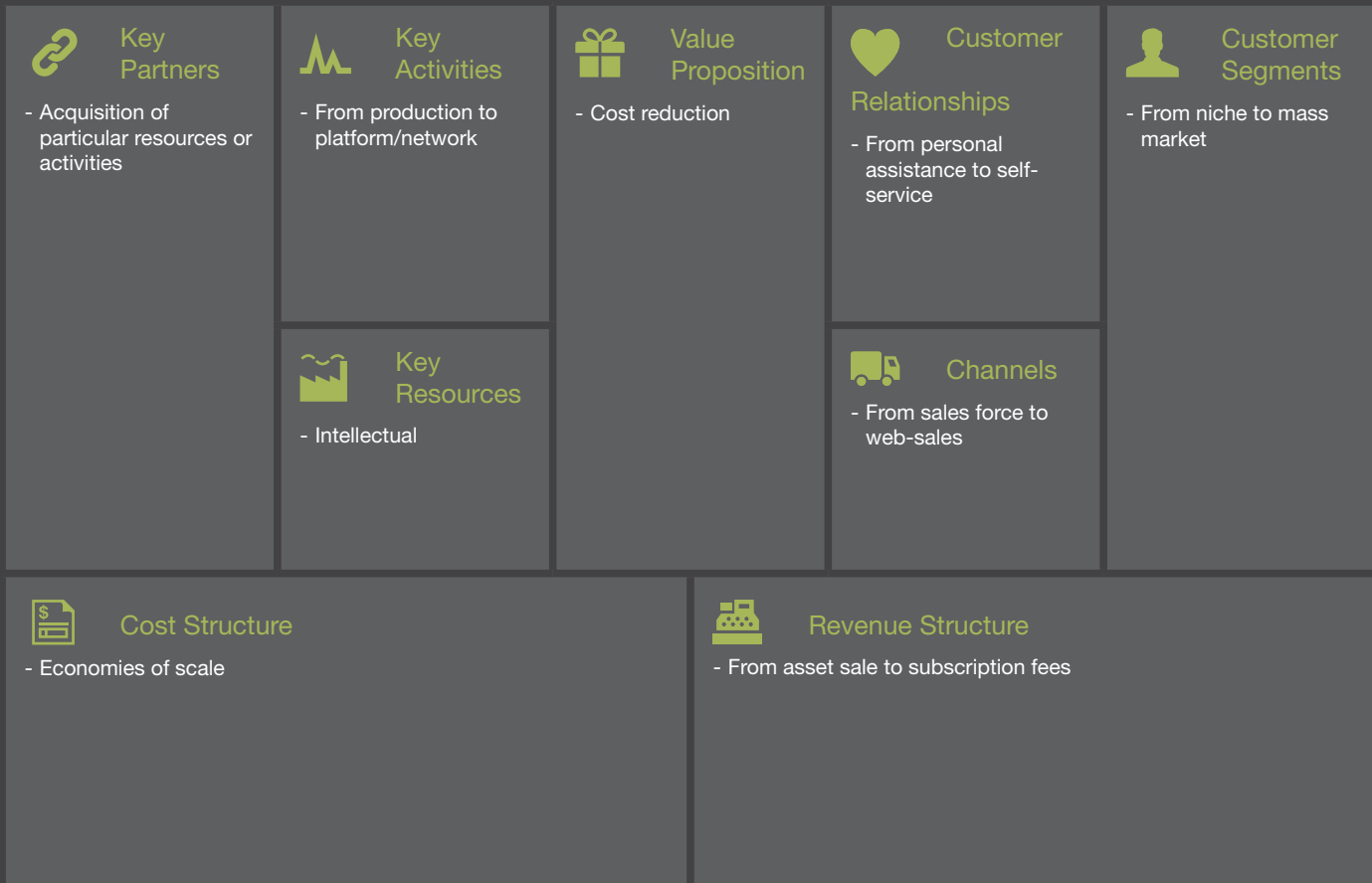


Figure 22: The viewworld business model

Network timeframe	2012 totals	2013-2015 expectations
Revenue: <b>2,920 tDKK</b>	Revenue: <b>1,545 tDKK</b>	Projected revenue: <b>2,000 -&gt; 9,000 tDKK</b>
Result: <b>-1,932 tDKK</b>	Result: <b>-920 tDKK</b>	Projected results: <b>-1,000 -&gt; 3,000 tDKK</b>
FTE: <b>8</b>	Employees: <b>4</b>	Projected employees: <b>6 -&gt; 26</b>
Investments: <b>-</b>		

Figure 23: Illustration of trade promotion

# Results

The following presents the results derived from the ICI project. The results are divided into two sections in accordance with ICI's goals.



*Therefore, the first section deals with presenting the results for promoting trade in terms of the project's economic impact. Thus, the success rate of the individual networks is also presented.*

This serves as the basis for the second section, which deals with the learning points derived from the networks. To some extent, this is based on the ability of the ICI project to create profitable and sustainable businesses and business models. This section also

delves further into the factors constituting a successful business model and with the development thereof. The learning points section also presents considerations and learning points related to using networks in a business model perspective.

# Promotion of trade

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**Promoting business, particularly in Northern Jutland, is part of the ICI project aim.** Although the key economic and employee-related figures have been presented with each case, the following serves to aggregate these figures, to provide an aggregated picture of the effect of the ICI project, and the development of the companies.

When reading the results, keep in mind that these results were created in the hostile economic environment brought about by the financial crisis in 2008 and onwards. Table 3 outlines the percentage of firms in Denmark started between 2004 and 2009 that were still in business in 2006-2010.

Cspot went bankrupt. Compared to the companies shown in Table 3, the ICI networks have a lower number of collapsed businesses. This is positive, but of course, the numbers in Table 3 are not easily comparable with the situation in the ICI project. One reason is that only 10 networks were involved in the ICI project, but also, not all of the companies in the ICI project were newly established businesses. Thus, one would assume a lower rate of business discontinuation among ICI project participants compared with newly established businesses in Denmark in general.

The following presents the economic results of the ICI project. These are divided into revenue, profit, investments, and jobs created. The revenue and profit figures presented are solely derived in relation to the network project and only from the core firms. This is done to avoid revenue being counted twice, as it moves through suppliers. In addition, profits are counted only for the core firm, as these numbers are often difficult to extract from partners. The investments and jobs created are examined at the network level, to provide a more complete picture of the overall impact on job creation.

*The results are structured similarly to those of the individual networks but are aggregated across the networks. Similarly to the results for the single networks, these figures are only for developments related to ICI.*

Business Demography by unit, start year and time

	2006	2007	2008	2009	2010
Survival percentage					
Year 2004	63	56	50	45	-
Year 2005	73	63	56	47	42
Year 2006	100	77	64	53	48
Year 2007	-	100	73	59	52
Year 2008	-	-	100	71	60
Year 2009	-	-	-	100	74

Table 3: Business demographics showing survival percentage in Denmark according to unit, start year, and time (www.dst.dk)

1. The timeframe the network was active during the ICI project. This presents the results achieved during the networks' participation.
  - a. Combined revenue generated (core businesses)
  - b. Combined profit generated (core businesses)
  - c. Combined full-time equivalents (FTEs) on the project (including partners)
  - d. Combined investments (also partners if they have invested)
2. Results for 2012 and outlook for 2013, 2014, and 2015
  - a. Combined revenues (core businesses)
  - b. Combined profit (core businesses)
  - c. Combined number of employees (including partners where applicable)

As illustrated in Figure 25, **the ICI networks have generally higher expectations for the coming years**. If the networks can execute the expectations for the coming years, then the ICI project can be considered successful. If, however, the networks are unable to generate the growth in revenue and profits they expect, and instead stay on the same level as the 2012 results, the business promotion aspect of the ICI project is less impressive.

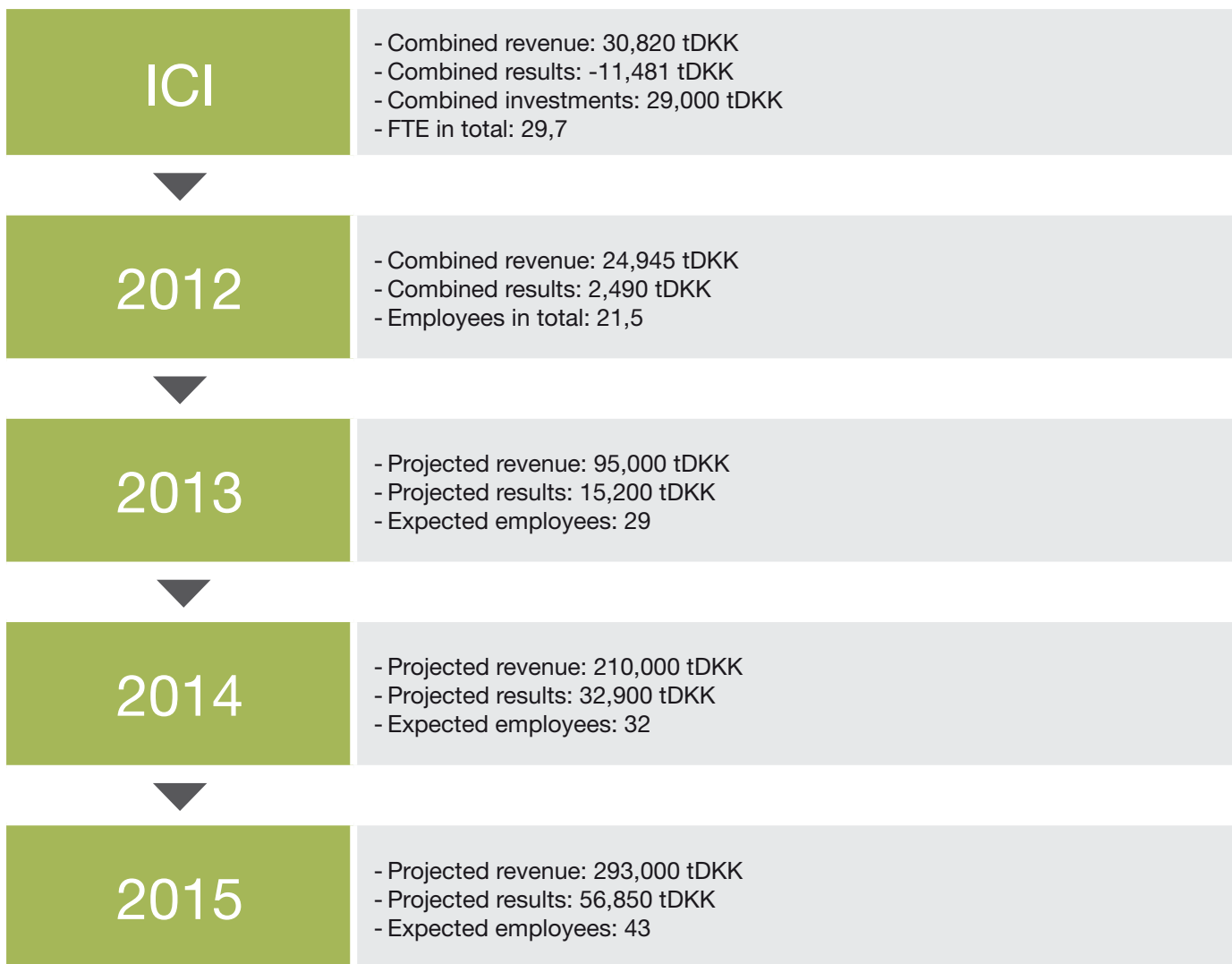


Figure 24: Results summary and expected results

# The international potential of the networks

Below Table 4 briefly outlines how far the networks are in terms of internationalizing their business models.

Network	International activities
Cspot	ICI explored the German market and made many workshops to test the global scalability of the business model. As an effect of the workshops they prototyped partnerships with global businesses confirming that they had a globally scalable business model.
EBB	The product is not on the market yet, however, a huge international potential is present.
Eye in the Sky	Sky-Watch continuously participates in international tenders they are invited to. Their biggest income presently is due to international partnerships.
Mobile Tracking	During the process different aspects of the business model were explored internationally and the global viability has been confirmed. For instance, a product based on the same business model has been exported to New Zealand.
Provital	The international breakthrough in Norway showed which parameters in the business model that should be in focus in order to create a viable global business model. The product is also sold in Sweden and is expected to be introduced in more countries (Germany, Australia etc.) in the near future.
SAFE	Initially, SAFE would like to roll out their concept internationally, but are now planning to start in Denmark. The project is still in the test phase.
Seafood	From the start the intention was to create a simple globally scalable business model. During the project ICI facilitated contact with Potsdam University in order to investigate the German market and analyze what would impact the business model when globalizing it. It was discovered that D-School at Stanford was struggling with some of the same problems overcoming small processes complicating the business model. This led to the "live market" test period the company is currently in, which so far proves that the business model is globally scalable. The first international market of attention is as a result of the ICI project Germany.
Space Creator	Since the property prices in New York, London, and Hong Kong etc. are among the highest in the world, the project was born with a global focus. That the key project partner Dolle already operates internationally points to a potential success.
ViewWorld	The name of the project disclosed the global intentions from the start. After the launch of the product the business model immediately proved to be globally viable as part of projects in for instance Asia and Africa.

Table 4: The international potential of the business models

In other words, at least four of the networks are so far selling internationally and others are on their way to do so, as outlined in Table 4.



# Avoiding dead ends

Although the above represents the activities undertaken by the ICI with a positive outcome, a large proportion of the ICI project has similarly dealt with describing, analyzing, and assessing concepts that eventually were discarded before further investments were committed.

This was done through extensive work in the ICI Lab, in which business models were prototyped and tested in close collaboration with the networks, in addition to the ongoing dialogue with the networks concerning their development possibilities. In that respect, a business model focus, rather than a product focus, has proven well suited for assessing ideas and concepts on a more holistic level.

The effect of these efforts is inherently difficult to quantify, due to the fussy nature of early business model development. However, these efforts should be viewed as part of the development process, which does

not create an obvious return on investment. In that manner, discarding ideas and concepts is essential to the growth and profitability actually experienced by some of the networks. For instance, Provital initially experimented with several application possibilities, which ICI helped narrow. In addition, the Seafood network considered multiple ideas for delivering fish to end consumers but, with the aid of ICI, eventually settled on sales through personnel associations.

An additional way in which ICI has helped the networks is in terms of simply defining undefined elements of the networks' business models.

As illustrated in the case descriptions and business model figures, the ICI process helped define such elements. In other words, ICI helped explicate what the business model is. Instead of having the descriptor "unknown" in a different building block of the canvas, the ICI process helped build awareness about the firms' business models.



# Network end state

Table 5 presents **all the networks in the ICI project and the involvement of each partner** throughout the individual project's development. Therefore, a typology is constructed that classifies each partner according to their engagement in the network.

**Ideation partners are partners mainly involved early in the process, and which have provided different inputs for the idea development phase. Therefore, these partners are distinct in that they did not derive business from participating in the network.**

**The core firm is the focal firm of the network. The core firm often represents the author of the original idea and the main driver of the development. Accordingly, these are also considered the focal firm.**

**Peripheral partners are partners that have been involved, but typically in a non-integrated manner. Typically, these consist of suppliers, which received full payment for their products or services, or potential customers that provided some inputs to the process.**

**Core partners are partners that were heavily involved in the project.**

As Table 5 illustrates, many partners displayed a relatively low level of involvement in their respective networks. Some partners simply became irrelevant to the network, as the concepts and ideas matured. This partly relates to the general aversion experienced among partners to invest in areas that fall outside their traditional business.

Additionally, as the number of partners grew, coordination became exceedingly difficult and complex to manage. Consequently, development was hindered by slow and complex decision processes, particularly when concepts have to mature. Other partners were envisioned as suppliers but proved inadequate by not providing cost-competitive

solutions or by simply lacking the knowledge and skills needed. It seems that it is necessary to be more selective than the ambitious notions outlined in the beginning of the ICI project, stipulating networks of no fewer than five participants.

Network	Core firm	Core partners	Peripheral partners	Ideation partners
Cspot	- Cspot	- JCD	- Smeden v. Allan Ravn - Fiels og Ko - Blissart - ShowOffMedia	
EBB	- Hi-Con	- Gabriel - Densit	- Adapa	- Formfiber - Arkitektfirmaet C.F. Møller
Eye in the Sky	- Sky-Watch	- Enviclean (investor)	- Mekan - Dan Church	- InnovationHub - SpaceCom - NetImage
Mobile Tracking	- COWI	- Blip Systems	- Aalborg Cityforening - Aalborg Kommune - Visit Nordjylland	- TDC - TK Development* - Nybolig Erhverv* - Nordjyllands Kystmuseum*
Provital	- Provital	- Kaj Larsen VVS (investor)	- CoMeTas/Liqtech - GPA Flowsystems	- Kemic Vandrens
SAFE	- SAFE Green Logistic	- Blach Holding (investor)	- Fasttrack software - Alu-Part - LIVA Consult - Andreas Hove Holding	- Lyngsoe Systems
Seafood	- Copenhagen Seafood		- Boatech - Vilsund muslingefabrik - Maskinfabrikken Hillerslev - Centralrøgeriet	- Clips* - Poul Kjærgaard - Santrans - Revisor Erik Harbo Larsen - Deloitte Financial Services
Space Creator	- Dolle		- Jeld-Wen - Karup Partners - Inwido - Tømmerbytømren - Boligstil	- NJA Møbler - Seluxit - Movetec
ViewWorld	- ViewWorld		- Dan Church Aid - CARE Danmark - Dansk Røde Kors - Hugelawn - NetImage	- CommunicateIT - ProInfo - InnovationHub

Table 5: Overview of networks involved in the ICI project (\* denotes partners that were largely inactive)

# Learning points

The following presents further learning points and insights from the ICI project, built around the core concept of network-based business models.

## A network typology

To further describe the development of the ICI networks, Figure 26 is briefly introduced here. The dimensions of Figure 26 relate to whether the networks are able to implement and profit from the potential they entail, as well as whether they are ready to run the related risks. The implicit assumption is that it is necessary to be able, as well as to

dare in order to implement business models successfully. In other words, it is good to be in the upper right corner, and bad to be in the other parts of the matrix

Figure 27 illustrates how the networks changed during the ICI project in terms of their ability to succeed with the business model and willingness to take related risks.

**Cspot** did dare to invest a lot in screens, but was unable to cater to customer needs, for instance, in terms of providing impact data and thus scored low on the ability dimension. Later, Cspot was not willing to invest in the research needed to provide the needed impact data. Cspot has therefore been plotted in the matrix as increasingly risk-averse.

Able		
Unable		
	Does not dare	Dares

Figure 25: Types of networks illustrated in terms of Disney characters

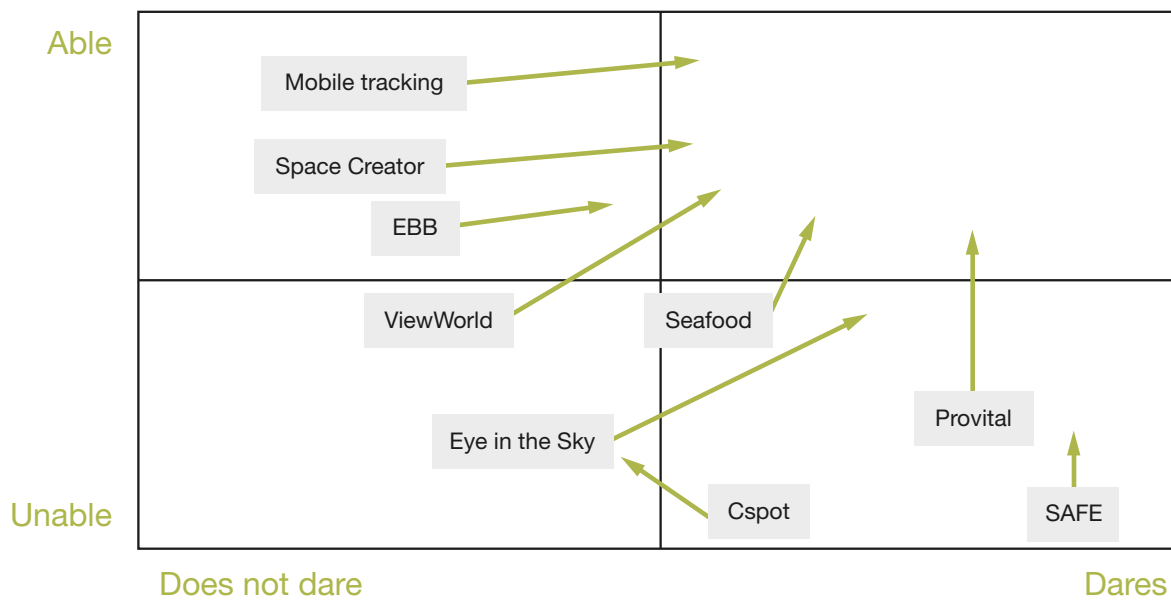


Figure 26: Plot of the ICI networks according to ability and risk willingness

**EBB** is a network consisting of larger companies that are highly capable within their fields. However, whether the network will be able to profit from the huge potential, which seems to be in place, is uncertain. The network has therefore been plotted as being able and increasingly daring.

**Eye in the Sky** seems, particularly since Sky-Watch was created, increasingly able and daring.

**Mobile Tracking** spent a lot of time arguing over who should take the risks. As the disputes were resolved it made it possible to exploit the strong abilities to some extent. However, the huge market potential still seems largely unexploited. Provital was initially almost too daring in its attempts to apply its membrane technology across many different areas and in the company's sales efforts, which later proved unrealistic. As the company focused, and teamed up with a company that could take care of the sales process, Provital's ability to implement the

business model successfully became clear.

**SAFE** was the perhaps the most daring ICI network. Although the viability of the concept remains unclear, SAFE has realized the need to test the concept on a smaller scale, before rolling it out on a large scale.

**Seafood** started out being very daring, for instance, in relation to the wending machine concept based on a fast decision but, with the help of ICI, refocused the business model and seems to be succeeding.

**Space Creator** was not willing to take risks in the early network stage. When Dolle took charge, this changed.

**ViewWorld** experienced a slow start, similarly to Space Creator, but as the company refocused, it has become increasingly able and daring. Keep in mind that the companies involved in the ICI project differ in many ways. One such way concerns size. For big companies, whether

they succeed with the activities evolving around the ICI project does not make or break the business. This is not the same situation for smaller companies. In other words, different types of support are needed in relation to the different types of companies. Small startup companies may have a lot of guts, but few resources, and perhaps few abilities to carry out what they intend to do. This is usually not a concern for bigger companies. At the same time, bigger companies may also have more limitations in terms of pursuing a new venture such as activities in relation to the ICI project. Such companies may sometimes have to create a new company to provide the necessary focus for a new venture. For instance, in relation to COWI and the Mobile Tracking technology, this could be relevant.

# Use of business models

Business models and related tools have proven useful on multiple levels. For instance, business models have proven valuable in assessing products and technologies in terms of factors not exclusively related to the product itself.

Business models and related tools have proven useful on multiple levels. For instance, business models have proven valuable in assessing products and technologies in terms of factors not exclusively related to the product itself. In this sense, business models may give high-tech businesses in particular a better chance of surviving, as it forces them to think beyond the product or technology itself, and consider the full business. For instance, Provital seems to have benefited in this way. In other words, the ICI project has helped along new mind sets and new more business-oriented ways of thinking. On the most basic level, the feedback from the participating companies on using the concept as a tool for understanding the current business model and as a method of conveying the strengths and weaknesses inherent to the existing business has been very good. Additionally, the concept has also been used to define the value creation process of a single firm, which has been of great value for some firms when explaining the tasks assigned to employees, giving them perspec-

tive on their role in the overall value creation, delivery, and capture.

For the firms focusing on developing new products, the concept has proved valuable as a method of visualizing how the entire business should be structured, as opposed to the traditional emphasis on product development. Additionally, the concept has also helped generate novel business models, for instance, in the Seafood network. The concept also helped companies discard a host of ideas, due to their infeasibility as previously explained in the section “Avoiding dead ends.”

Last, the ICI project has provided insights into the challenges faced by incumbent firms when it comes to changing their existing business model, even if potential financial gains are within reach. Specifically, this was evident in the Mobile Tracking network, in which COWI was highly opposed to moving away from their existing up-front type of revenue stream to a more investment-based approach with greater potential gains. This is an example

of the high degree of inertia often related to changing existing business models.

As outlined initially in this report, the business model concept is often presented as a fuzzy concept, encompassing a range of areas and

For the firms focusing on developing new products, the concept has proved valuable as a method of visualizing how the entire business should be structured

definitions, which, more often than not, overlaps with existing theoretical fields. However, business models are essentially practical tools, not philosophical monsters. Business model discussions must be elevated to a practical level. The ultimate test of a business model is in the market. Hence, it is important to realize that the work around business models often entails much trial and error.

Initial assumptions may not survive the test of the market. This makes it relevant to think about how to scale (down) the business model to make it possible to test it. For instance, the Cspot case provides an example, in particular when the company approached Gigantium and realized that many assumptions did not hold true. Sometimes it may be difficult to test the business model. For instance, in the SAFE case, it was not possible initially to perform a small-scale test of the business model. However, such efforts are often worthwhile, since they make it possible to realign, and reconfigure the business model in accordance with what the firm learns when test-

ing. The latest news from the SAFE network also points in this direction.

The pervading theme of the work with business models through the ICI project has been ensuring coherence or alignment among the type of revenue stream and the business configuration building blocks. This entails matching the descriptors of each building block with the remainder of the system comprised by the revenue stream and overall business configuration. For instance, if you realize that your potential customers are reluctant to buy your product, because they fear your untested technology does not work, it may be beneficial to change the revenue

stream from an asset sale type to a more subscription-oriented type of revenue stream. This means that the subscription type of revenue stream can make customers feel safer when buying products and services that rely on new and, for customers, somewhat untested technology. Asset sales, however, can seem risky for customers. This is a simple example of realignment, or reconfiguration of a business model.



# Business models at the network level

The following presents the insights gained on working with business models at the network level. Accordingly, it is relevant to reiterate the premise of the ICI project, namely, the notion of network-based business models.

## The need for a core firm

In retrospect, the notion of network-based business models does not seem to have created a lot of value in the networks. However, the network activities were very beneficial for the companies involved in surprising ways, rather than in relation to the anticipated effect of network-based business models. In the

Similarly, the Space Creator network had difficulties finding its feet until Dolle, after a while, took charge and pursued its concept

networks, there are many examples of companies starting on a common journey, but it was difficult to maintain similar journeys. This should be seen in light of the starting point of the network, where no concepts were perhaps in place or only very immature goals were on the table. At the outset, the aim of the ICI project was to create network-based business models. The emphasis is thus on creating a business model for the

network, an approach perhaps most visible in the three networks, Eye in the Sky, ViewWorld, and Space Creator. Interestingly, these networks ended up leading to the creation of a central firm to manage and structure the network; see Table 2 and Table 5. There are many reasons to the abovementioned, and they are presented in the following.

- The network-based business model approach seems to add many layers of complexity, as the entire network of individual partners has to agree on the configuration.
- Disagreements concerning ownership structures in relation to key resources and activities.
  - Including the particular issue concerning the fear of premature lock-in with partners
- The network approach introduces significant overhead costs for partners to align their individual business models.

- Issues arise regarding the decision of which partners should invest in necessary, but new to the network, resources, and activities, coupled with a general aversion to new investments.

Thus, throughout the project, it became obvious that a core firm that acts as the driver of the project, by specifying the other partners' incentives and engagement, is needed. This party has the motivation and will to follow through with the project and take the necessary risks to see the concept realized. Partners are used only when applicable. Thus, the core firm configures a network around itself. ICI has played, and universities in general, can certainly play, a key role in such network configuration and reconfiguration, since universities are most often well positioned to do so.

Eye in the Sky had problems in terms of getting started. The company has been relatively faithful to its network and maintained the idea that it is in the network value is created. This being said, not much

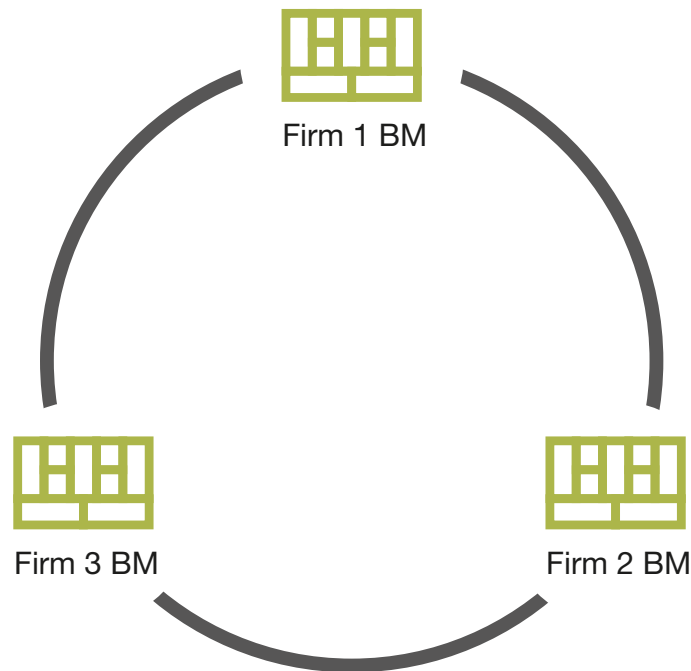


Figure 27: The revised network-business model connection

happened in the network before Sky-Watch took on the role of core firm.

Similarly, the Space Creator network had difficulties finding its feet until Dolle, after a while, took charge and pursued its concept, which meant that most of the other network participants became redundant. Thus, the network must often be reconfigured when a clear concept and goal mature. Until this happens, it is difficult to know which network participants are ultimately going to be part of the network and which network participants are not, when real business is generated.

### A new interpretation

As shown through some of the ICI networks, the network-based business model approach had quite a few issues that made the concept difficult to execute.

Therefore, it became clear that the network-focused business model approach was not viable, as a coordinating partner with the will and de-

termination to drive the central ideas forward was needed. In other words, it is more realistic to talk about business models in relation to focal firms that enter into different relations with a range of partners, to create, deliver, and capture value, than it is to talk about network-based business models as such.

To further illustrate, Figure 28 depicts the apparent need to orchestrate the different business models of different actors in a network.

The Mobile Tracking network provides an example of how two companies (BLIP and COWI) can align their different types of revenue streams around the same value proposition. Before the Mobile Tracking network, BLIP had focused exclusively on selling its equipment to airports. This segment was served, by selling the equipment using asset sales. BLIP also signed “subscription service and operations agreements” with the same customers. This was associated with considerable risk, as the company

depended on a few large customers every year.

Therefore, BLIP had begun to seek out alternative markets, to diversify their business. The collaboration with COWI was an excellent opportunity. However, the collaboration was associated with significant trouble, namely, due to the initial focus of the network on tracking pedestrians. It was not until COWI’s traffic department became aware of the technology that a coherent collaboration took shape. The traffic department served a different customer segment, which they had great experience with. This meant that they could easily quantify the value proposition, thus making it clearer. Unlike the pedestrian segment, the traffic customer segment had the necessary funds. Combined with the clear value proposition, this meant that they were prepared to pay for the data. However, two issues remained between BLIP and COWI:

*Although the participating companies have profited financially from being part of the ICI project to different extents, the firms have all learned a lot in terms of how to participate in networks. This skill is valuable when implementing business models, although the business model may not be network-based as such.*

- Neither was interested in making investments in the equipment needed up front.
- Neither was interested in changing the existing type of revenue stream.

However, from BLIP's perspective, COWI could provide access to a market segment, which BLIP had not previously been able to reach. For COWI, the Mobile Tracking technology would be a nice additional thing to "have in the suitcase" and show off to customers. Thus, the network was kept together by the presumed market potential. The conflicts in the network were resolved in terms of a solution that left the parties' existing revenue streams untouched. In that respect, they would present a purely subscription-based type of revenue stream for COWI and, subsequently, enable COWI to do the same for their customers. Internally, this in reality was dealt with as a payment in installments over a given period. BLIP ensured that they would receive the full payment for the equipment over the duration of the agreement. This en-

abled the collaboration with COWI, as this solution avoided presenting COWI with direct investment, which the company did not want to do. Instead, COWI could bill the expense directly to customers.

*The case shows that rather than using only the business model concept for describing the firm's relation to customers, business models can also be used as a tool for understanding and defining supplier relationships.*

Therefore, neither BLIP nor COWI changed their business significantly. BLIP simply added COWI as a sales channel. COWI provided significantly lower sales costs per customer, by using the existing sales organization.

The network created a coherent alignment of slightly different types of revenue streams, which could

serve a specific customer segment. Another key part of the collaboration was that the firms clearly defined which activities and resources should be associated with which partner. Thus, the case provides pointers for how network-based business models could be considered, in that they should seek to ensure the compatibility of the business models alongside coordinating resources and activities among the network, to ensure that all parties are creating value for the concept.

The case shows that rather than using only the business model concept for describing the firm's relation to customers, business models can also be used as a tool for understanding and defining supplier relationships. This is relevant to ensure that the business models of the network partners are compatible with that of the core firm.

### **Business model alignment**

In accordance with the above, creating networks becomes a task for a core firm as illustrated in Figure 29. This means ensuring that business

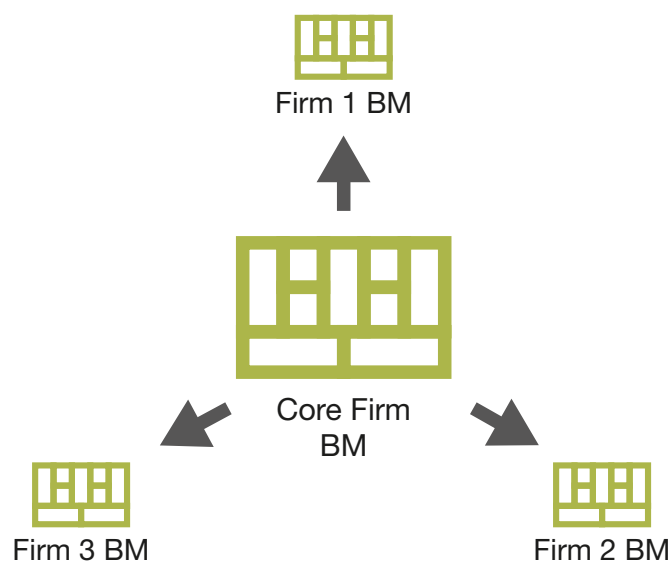


Figure 28: Building networks around a core firm

models are compatible among the partners involved in terms of which resources and activities are provided by each partner and the revenue stream provided in return. Once the concept, or the activity on which the network is centered, is clear, it is much easier to see which partners are relevant in the network. Thus, it is problematic that the ICI networks were forced to select partners early on, before the concepts had been developed, due to the project funding requirements. One way to alleviate such problems is to separate the networking activities into different phases. For instance, such activities could be divided between creativity networks and process networks (Harryson, 2006; Søberg, 2010). The purpose of creativity networks is to exchange knowledge and ideas to develop new viable concepts. The purpose of a process network is to implement such concepts. The conditions for participating in these two types of activities are not the same. Similarly, the expected outcomes should not be the same. In a creativity network, it is necessary to be willing to share ideas and

knowledge, to get something in return, but the framework is informal. However, to be part of a process network, a firm must be willing to take risks, and the collaboration with other companies needs to be more formalized. From the university side, a key role to play in relation to such activities is to invite relevant companies to take part in a creativity network, and to be instrumental in terms of supporting the necessary reconfiguration of the network as it changes from a creativity network to a process network.

#### Surprising secondary effects

Although the initial premise of the ICI project proved difficult, the ICI efforts and network activities accelerated progression in the companies. Sometimes, this progress occurred in terms of realizing early that something was a dead-end as described above, but in particular, ICI exposed the companies to new potential partners the firms would otherwise not be exposed to, thus greatly nurturing the firms' creativity and development. In addition, the ICI processes made it clear to

the participating companies that identifying a common position and interest from the get-go in a network is difficult. It is often only identified as you go. So what we need to learn is how to get there faster. This is actually what most of the networks used the ICI process for. The project has helped accelerate firms' individual business models, surprisingly well. To the best of our knowledge, this insight is new, which is relevant to keep in mind in similar future projects.

Although the participating companies have profited financially from being part of the ICI project to different extents, the firms have all learned a lot in terms of how to participate in networks. This skill is valuable when implementing business models, although the business model may not be network-based as such.

# Conclusions

As stated in the beginning of this report, business models have been defined as “the rationale of how an organization creates, delivers and captures value” (Osterwalder and Pigneur, 2010; 14).

This definition is difficult to operationalize, and therefore, another definition was created.

*This definition focuses on value capture, in the sense that the definition emphasizes the type of revenue stream and its interaction with the business configuration. This definition has a pragmatic appeal, and thus represents a valuable outcome of the ICI project.*

When using business models in relation to business partners, it makes more sense to strive for synergy between compatible business models rather than a shared business model. The initial premise in the ICI project of network-based business models did not find much empirical support during the course of the project. How-

ever, the ICI project helped accelerate the development of the individual businesses taking part in the different networks. For many of the companies involved, being involved in the project has resulted in surprising, initially unintended, but positive secondary effects.

### **Promotion of trade**

In 2012, the combined revenue of the 10 networks was DKK 24.945 M in relation to the activities focused on in relation to the ICI project. The related profits were DKK 2.490 M. In terms of employment, the project, by the end of 2012, generated 21.5 FTEs. The networks anticipate that this will grow during the coming years to combined revenues of DKK 293 M, combined profits of DKK 56.850 M, and 43 FTEs in 2015.

# Limitations

The scope of this report has mainly been presenting the results derived from working with business models in networks, with a specific emphasis on the business model concept as the guiding premise. Therefore, the above has presented the results through this specific lens, to provide a concise and focused report.

*However, through the ICI project, other themes have emerged. Some of these, while not specifically related to business models, appear to play a part in business model work. Accordingly, as these themes do not fit under the scope of the report as a whole, they are included here.*

Certain problems experienced within the networks may also be attributable to the way the networks were formed. The companies involved chose who to collaborate with. Many of the partners in the networks can be characterized as suppliers. This represented a significant hurdle throughout the project, as the suppliers were not inclined to enter into more complex collaborations involving investments in the network. Conversely, some networks attempted to engage potential customers in the process. However, this also often proved difficult, as the potential customers expected some sort of clear incentive to participate. It was difficult to define how the partners' business potential for participating would unfold. The issue of making partners contribute can, in that respect, be attributed to a lack of trust regarding whether the other parties will reward the contribution in the longer term.

On a similar note, not all networks were equally well acquainted before they started collaborating. The

notion of network-based business models is more feasible in relation to networks characterized by higher degrees of trust, while dealing with lower degrees of risk than found in many ICI networks. The networks involved in the ICI project to a large extent consisted of inexperienced actors often heavily involved in new, inherently risky, product or process development. It may be particularly difficult to make ends meet and create network-based business models for new products and services that are not yet ready to go to market. This may be even more true when collaborating with new partners. Thus, the inherent conclusion in this report discouraging the notion of network-based business models should be seen in light of the particular challenges facing these networks. In relation to more mature companies with well-established products and processes, and networks, creating truly network-based business models may be easier. Whether this is the case requires further research.

The ICI networks are different from other business networks in the sense that their inception to some extent has been funded by the compensation provided through ICI. This instigates an "artificial" element in this report and the related results. Therefore, the ICI project offered some monetary compensation for the partners' participation. Thus, the early "soft" part of the process was often easy to initiate, as most firms were willing to spend some time exploring potential new ideas in a somewhat philanthropic manner. At the end of the day, it is easier to be philanthropic when the compensation is apparent.

Although the findings suggest the relevance of ensuring compatible business models among the partners in networks, the issues of how diverse business models are made compatible requires further research and other projects.



# Advice to managers

The purpose of this final section is to extract practical advice for managers about business models in networks.

*The business model concept provides a useful method of thinking more in terms of business compared to thinking in products. A good starting point is to create the story of the business, starting with where and how customers purchase the product, describing all the previous steps in procuring, manufacturing, and delivering the actual product. The goal here is to understand the link between the revenue stream and the business configuration.*

Thinking in terms of revenue streams provides a good outset for thinking in new business models. This thinking can foster a more radical rethinking of a firm's traditional business model. However, the revenue stream should be coupled with the rest of the business configuration to provide a coherent configuration. In that respect, a single firm should continuously assess whether the chosen business model is sufficiently aligned with the market conditions, while ensuring that the type of revenue stream is tightly coupled with actual value creation for customers.

Taking the viewpoint of a single firm, the challenge of building a business model in a network is ensuring that different business models in the network are compatible to facilitate collaboration between the partners. A core firm of the network is likely needed to drive this process. In addition, during the process the limitations that the preexisting business models create must be considered.

Whenever possible, whether assumptions implicit in new business models or reconfigurations are correct should be tested. For instance, people with relevant industry experience can be engaged to help out in this way, but ultimately, business models are tested in the market. Preferably, a business model is scalable and thus can be tested on a small scale before further investments are made.

On a pragmatic level, building business models in networks is concerned with making ends meet, in terms of engaging the right resources and activities across actors to create the value proposition envisioned. The product or service therefore guides the complementarity. This means that the value proposition, which the network wishes to deliver, acts as the guiding principle for which mix of partners is relevant. In other words, who is in and who is out of the network? For a network to not only create value but also be able to capture

and distribute it among the partners, compatible business models need to be in place. The core challenge of business models in networks can be summed up as one of maximizing relevant complementarity among the network partners without jeopardizing business model compatibility. This means it is necessary to put great effort into analyzing and describing the existing business models of the different companies/partners. Their motivation for participating in a shared network or project should also be assessed.

# Acknowledgments

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