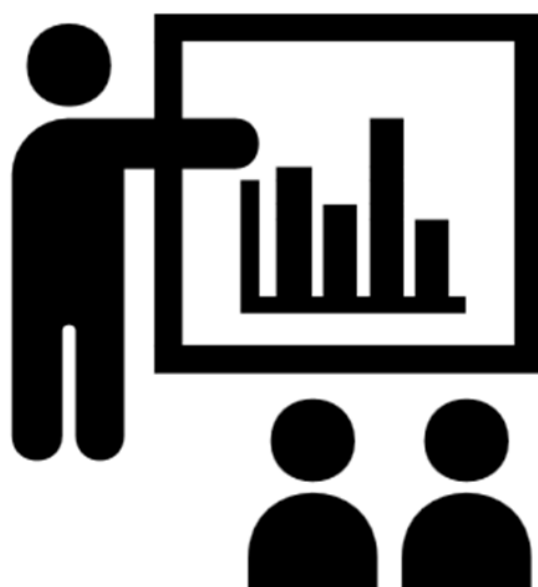


D5.3: Database of all found services and business models



COST REDUCTION AND MARKET ACCELERATION FOR VIABLE NEARLY ZERO-ENERGY BUILDINGS

Effective processes, robust solutions, new business models and reliable life-cycle costs, supporting user engagement and investors' confidence towards net zero balance.

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D5.3: Database of all found services and business models

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FOREWORD

This report summarizes the results of deliverable D5.3: Database of all fund services and business models within the work package ‘WP05 – New business models’, part of the Horizon 2020 - CRAVEzero project.

The screenshot displays the CRAVEzero Business Model web tool interface. At the top, the CRAVEzero logo is visible alongside navigation links for 'BM Canvas' and 'Create your own BM'. The header also includes logos for partner organizations: EURAC, SKANSKA, Fraunhofer, and MORETTI, along with the European Commission logo and a reference to the Horizon 2020 European Union for Research & Innovation.

Below the header, there are four input fields for user information: 'Name:', 'Stakeholder:', 'Life cycle phase:', and 'More information/Website:'. A 'Print' button is located to the left of these fields. The main content area is a business model canvas divided into several sections:

- Strengths and Key Factors:** A large text area with the placeholder 'Type in the text for your business model here.'
- Activities and Capabilities:** A large text area with the placeholder 'Type in the text for your business model here.'
- Value Propositions:** A large text area with the placeholder 'Type in the text for your business model here.'
- Customer Relationships:** A large text area with the placeholder 'Type in the text for your business model here.'
- Customer Segments:** A large text area with the placeholder 'Type in the text for your business model here.'
- Maturity:** A smaller text area with the placeholder 'Type in the text for your business model here.'
- Channels:** A smaller text area with the placeholder 'Type in the text for your business model here.'
- Costs:** A large text area with the placeholder 'Type in the text for your business model here.'
- Revenues:** A large text area with the placeholder 'Type in the text for your business model here.'

At the bottom of the interface, a small disclaimer states: 'This work is licensed under the Creative Commons Attribution-Share Alike 3.0 Unported License. To view a copy of this license, visit:'. The license link is truncated in the image.

Figure 1: Screenshot of the CRAVEzero Business Model web tool

The overall aim of this work package is to find systematically new ways to create new business models for nearly Zero-Energy Buildings (nZEBs).

The previous report “D5.2: Existing nZEB Business Models” analysed the European markets for interesting already existing business models (BM) for nZEBs and the general market-uptake

potential in the major markets. The report examined the collected BMs in terms of how they can be characterised and what makes them successful. This examination helped building up a reliable basis to generate new BMs. They have given reliable information and profitability for the stakeholders involved along the life-cycle of a building. They help making more secure investments by

reducing the uncertainties. In deliverable D5.2, 60 business models of European markets were examined. The entire life-cycle of a building needed to be analysed to get an overview of the different BMs that evolve around nZEBs. This includes the phases of political decision making, urban design, building planning, construction, operation, renovation, monitoring and recycling. In each of these phases various stakeholders take part in the buildings life-cycle while trying to capture value with their BM.

For the deliverable at hand, the partners and stakeholders have been asked to provide ideas to describe additional new BMs. Therefore, methods to find new business models were described to give an idea and a basis to start thinking about the finding process.

The Osterwalder BM canvas is a useful tool to describe the elements of a business model as well as the previous developed descriptive format. There are also other methods which will be mentioned later to find new BMs such as:

- Filling the gaps of already existing models
- Upgrading already existing ones by adding something new
- Looking at the web and at the competitors of a firm
- Choosing a specific stakeholders group and addressing only them with new BMs
- Adjusting BMs to nZEB sector from different sectors
- Combination of two different BMs.

The new found BMs are described in the descriptive format and are attached in the appendix.

To give a useful overview of the existing and newly found BMs, CRAVEzero created a web-based tool to configure new and own BMs using also elements of the BM repository: <http://www.cravezero.eu/development-of-new-business-models/>

This deliverable gives indications and informs about the use of the webtool.

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1.INTRODUCTION

Business model creation is a challenging duty for each company. Most BMs are in use without being created from a dedicated creation process. Often, companies start with “doing” something, they create value and generate a money stream.

To handle the business in a more structured way, the knowledge on BM creation, the components of a BM or the development of new aspects is crucial.

WP5 gives indications on how to start, define, describe, cluster and validate business models in the nZEB sector.

The analysis of existing BMs is one part of the process from which new ideas can be derived.

In the following report there are two main sections. The first part focuses on the short descriptions of the methods which helped creating the newly added BMs with an example. All the other new models are described in the appendix. The second part of the report presents the detailed step-by-step information about how to use the CRAVEzero Business Model Webtool (Figure 1).

2.OBJECTIVE

The previous report “D5.2: Existing nZEB Business Models” collected already existing BMs from the European nZEB market. The report examined 60 different business models and helped to point out strengths and weaknesses of these existing ones. It has been observed that the BMs in nZEB sector mostly focus on planning and/or construction phases while there is only one BM for the political decision as well as the monitoring phase. Furthermore, there are only a few models in the recycling/ dismantling/ reuse phase, which could be a major interest in the future if stakeholders in this phase are brought together.

For this deliverable, the project partners have been asked to provide ideas and describe additional new BMs. Therefore, different methods to find new BMs were described to give an idea and a basis to start thinking about the finding process.

The Osterwalder BM canvas as well as with the descriptive format developed in D5.2 are useful tools to describe the elements of a BM.

During this task, additional 17 new ideas for BMs have been identified. The new found models are described in the descriptive format and are attached in the appendix.

To give a useful overview of the existing and new found BMs, a web based tool to configure new and own BMs using also elements of the BM repository was created:
<http://www.cravezero.eu/development-of-new-business-models/>

This deliverable is also a handbook for efficiently using the webtool which could be another method to create new business models. (see chapter 5)

3.METHODS

The tasks conducted are a core process in the field of business model creation. In practice it is helpful to organize a small team within a company or institution to discuss all aspects in the group and to get valuable feedback. Project partners were asked to form small teams and fill respective formats to describe new BMs. There are several methods and streams to think about new BMs:

3.1. ADVANTAGE COMPARISON

This method is about analysing existing business models and working on their advantages and disadvantages, examining their gaps, and focusing on making these missing parts better.

3.2. LITERATURE REVIEW FOR METHOD

Reviewing the literature for methods of creating new business models could be used to develop a complete new idea to apply.

3.3. FILL THE GAPS

New business models can be developed by examining the existing ones, studying them and then improving their weak points.

3.4. NEW VALUE PROPOSITION

By creating new value propositions and/ or making existing value propositions better could be another method to create new business models.

3.5. BETTER/ NEW CUSTOMER RELATION

Customer relationship is a very important success factor. Making it better and/ or easier could be helpful to create new business models.

3.6. NEW CUSTOMER

This could be a good method for the stakeholders who want to launch a new company or for the existing companies which would like to extend their range of customer segments they refer to. Finding a new customer segment, identifying them and addressing their needs could be another method to find new business models in the nZEB sector.

3.7. NEW ACTIVITIES

Like the method mentioned above finding, identifying and addressing new activities and capabilities could bring new business model ideas to the nZEB market.

3.8. MAKE KEY FACTORS AND STRENGTHS BETTER

Focusing on making the key factors and the strengths of a company's business model better could lead to develop new business models.

3.9. NIGHTMARE COMPETITOR

“Define your nightmare competitor”- is a method to describe the worst new competitor of your own company – then learn from that business model and add/ replace the learnings to your own BM.

3.10. ADJUST FROM DIFFERENT SECTORS

Some business models from different sectors could give an idea for a new business model in the nZEB sector. Combine the existent BMs with models outside the building sector e.g. transportation, energy services, trading sector could be a different method to create new business models.

In the following, an example business model which is developed with this method will be explained.

'BM 67: Easy Communication Online' (check Appendix) was inspired by shipment companies which provide a tracking number for the customers to make the following process easy both for the customers and the company itself. By this way, the customer can track their package whenever they want easily and can plan their day accordingly. It is even possible for some shipment companies to set an alert via e-mail or text about the processes which the customer wants to be warned. When it's not possible to reach the customer, the company can leave them a notice with the available times for them for the customer to get back in touch. By this way, both money and time could be saved for the customer and the company.

Inspired by this business model, a new BM was developed for the nZEB sector where the customer can follow up the main processes of the building design, construction, operation, renova-

tion, monitoring phases and etc. The purpose of this BM is to automate the process of following an order from a company. Therefore, automated services (notification, email etc.) can be an option for customer relationships. Besides that, self-service of personal assistance would also serve the purpose.

The benefits of this new BM are:

- One hand solution for complex requirements
- Easy coordination and communication with the tracking app
- Decreasing the staff cost of a company which would be used for the communication purposes instead of tracking app

3.11. COMBINATION

It is also possible to develop new BMs with a combination of two or more different business models.

4. CRAVEZERO BM WEBTOOL

CRAVEzero Business Model Web Tool (http://www.cravezero.eu/pinboard/Canvas/BM_Canvas.htm) is a useful tool to present all the collected (already existing and newly found) BMs in one place. On the other hand, this web tool offers a service to create new business models by filling the template and printing them out. This method as well could be used to develop new BMs. The detailed information about how to use this web tool will be described in the next chapter. Within this tool one can use the different methods to create a new model.

The descriptions in Table 1 show an overview of the core parameters of the methods for business

model developments which are mentioned in this deliverable. However, this is an indicative table which still can be extended with different methods available out there.

4.1. BUSINESS MODEL CANVAS

Filling the Business Model Canvas of choice is another method to develop a business model. These canvases are actually not only to develop, but also to have a deep understanding of the existing BM of a firm. D5.1 gives more detailed information about the Osterwalder Business Model Canvas.

Advantage comparison	•Analysing existing BMs and working on their advantages and disadvantages, examining their gaps, and focusing on making these missing parts better.
Literature review for method	•Reviewing the literature for methods of creating new BMs and coming up with a complete new idea to apply.
Fill the gaps	•Filling the gaps where you rarely find BMs and enforce the existing stream.
New value proposition	•Creating new value propositions – it is not the service you deliver, it is the need behind the service. Making existing value propositions better.
Better/ New customer relation	•Success factor customer relation – making it better, easier. This is a core activity.
New customer	•Addressing and identifying new customers.
New activities	•Addressing new activities and capabilities.
Make key factors and strengths better	•The most important factors and strengths that make the BM work successfully.
Nightmare competitor	•Define “nightmare competitor” is describing the worst new competitor of your company, learn from that BM and add/replace learnings to your BM.
Adjust from different sectors	•Thinking out of the box and linking other BMs to your company.
Combination	•Combining two different BMs.
CRAVEzero BM Web Tool	•Checking already presented BMs on the web tool, and developing a new one by filling the sections and printing out the new template.
Business Model Canvas	•Filling a BM canvas helps criticizing the business model better.

Table 1: Important BM core parameters and short description

LIMITATIONS

All BMs either found in European markets, created or somewhat adjusted have been described by a third party (CRAVEzero project partners) and Fraunhofer ISE. Some of these descriptions are based on the information found on the different companies' websites, and also occasionally on interviews and workshops with subjects from those companies. This work therefore does not claim to provide all information about the BMs, nor can the reliability of the information given online be guaranteed apart from being subject to interpretation.

However, the descriptions aim to provide an overview of different BMs in various major markets (Germany, France, Italy, Sweden, Austria, Great Britain, Belgium, and Netherlands) and the variety of offers provided.

The same limitation can be given for the methodologies to find new BMs. This is a big separate market of consultants, books, and studies etc. which cover this topic. This report will give an overview of useful and easy manageable development of new BMs in the context of nZEBs.

5.BM REPOSITORY

In Deliverable 5.1 of CRAVEzero project, 17 BMs have been identified by the project partners. In addition, for the Deliverable 5.2, the partners searched for, collected and described more nZEB BMs in the European markets focusing on their home countries. More detailed information can be found in the mentioned deliverables 5.1 and 5.2 on the CRAVEzero website, the websites of the companies which described the BMs and in

the appendix of this report. The additional created models are summarized in Table 2 and the descriptive format of all the new business model could be found in the Appendix.

The new found BMs show manifold ideas for new BMs. All content of the BMs is structured according to the Osterwalder BM canvas and the descriptive approach is used from D5.2 for the explanation of the new BMs.

Table 2: Analyzed new BMs and their categorization

Stakeholder Perspective	BM No	Country	Website*
Energy Service Company	BM 63	IT	https://www.sunchain.fr/en
	BM 65	EU	Project partner
Facility Manager Planner	BM 61	NE	https://bgridsolutions.com/#device
	BM 62	IT	https://kerberos.energy/en/xmonitor
	BM 64	EU	Project partner
	BM 66	EU	Project partner
	BM 70	EU	Fraunhofer ISE
	BM 71	EU	Fraunhofer ISE
	BM 72	EU	Fraunhofer ISE
	BM 73	EU	Fraunhofer ISE
	BM 75	EU	Fraunhofer ISE
Trading Platform	BM 67	EU	Fraunhofer ISE
Certifier	BM 68	EU	Fraunhofer ISE
User/Owner	BM 69	EU	Fraunhofer ISE
Engineering and Construction Company	BM 74	EU	Project partner

*Some BMs are found on the internet and they are indicated with their website addresses. On the other hand, some BMs are described by the project partners.

With the methods explained in Chapter 3 and the new business models developed by these methods, the matrix below (Table 3) is created to show which BMs were developed by which strategies. As it can be seen from the matrix, ‘New value proposition’ was the most used method to create nine new BMs for this deliverable. Six BMs were developed by using ‘Make key factors and strengths better’, which makes it the second most used method to create BMs.

The least used methods are ‘Advantage comparison’ and ‘New activities’ which helped developing two new BMs, ‘Fill the gaps’ and ‘New customer’ with one new BM.

On the other hand, ‘Literature review’, ‘Nightmare competitor’ and ‘CRAVEzero BM web tool’ methods haven’t been used at all yet. ‘Literature review’ can be helpful to find new ways to develop new BMs, while using the ‘Nightmare competitor’ method can give companies new insights about what to focus on for their business models. ‘CRAVEzero BM web tool’ is also a very promising tool to check all the collected business models from the previous deliverables, analyse them, start developing new business models on the tool and print a version of it.

Table 3: The matrix of new BM development methods and the new BMs

	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Advantage comparison	✓		✓												
Literature review										✓		✓	✓	✓	✓
Fill the gaps				✓	✓	✓	✓				✓			✓	
New value proposition		✓			✓	✓	✓	✓		✓		✓	✓		✓
Better/New cust. rel.														✓	
New customer											✓				
New activities					✓	✓			✓	✓		✓	✓		✓
Key fact./Strengths better						✓			✓					✓	
Nightmare competitor															
Adjust from dif. Sectors			✓	✓			✓		✓						
Combination					✓	✓									
CRAVEzero BM web tool															
BM Canvas							✓			✓		✓	✓		✓

6.HANDBOOK TO USE CRAVEZERO BM-CREATOR

Within this chapter, the different possibilities to use the BM creator to describe BMs and also for the development of new models are described. The BM creator can be found on the CRAVEzero website (<http://www.cravezero.eu/development-of-new-business-models/>). With the following presentation of screenshots one can follow step by step the creation of a BM and can understand the functionalities of the tool. The appearance of the web interface is based on the Osterwalder BM canvas with some variations.

On the starting screen two main functionalities can be found in the top-left corner (check the highlighted area on

- Choose one of the found existing or new BM or
- Create an own BM

For existing BMs one can:

- filter each topic of the canvas
- filter according to the position in the life-cycle
- create/add own content
- save your choice

For own BMs one can:

- choose default content for each canvas field
- create/add own content
- save the BM
- print the template

The screenshot displays the CRAVEzero BM Creator web interface. At the top, there's a header with the CRAVEzero logo and a navigation bar with 'BM Canvas' and 'Create your own BM'. Below this, a dropdown menu shows '01: GENERAL CONTRACTOR' with a 'Print' button. The main canvas is divided into three columns: 'Strengths and Key Factors', 'Activities and Capabilities', and 'Value Propositions'. The 'Strengths and Key Factors' column lists: 'Reliable regional partner with a good reputation', 'Individual customer service', 'Flexible contract design', 'Individual, high quality and sustainable solutions for the customers needs', and 'Long-term relationship with suppliers, skilled'. The 'Activities and Capabilities' column contains: 'The portfolio includes a widely diversified spectrum of services around the topic of planning, construction and maintenance of buildings. The aim is to exceed current energy standards and find innovative, cost-effective solutions for owners that optimize'. Below this, a 'Maturity' section states: 'The company has a long planning and construction experience. In the last decades, many reference projects and buildings have been created. Through a'. The 'Value Propositions' column describes: 'As a traditional and regionally established company, it forms a broad portfolio as a real estate developer and general contractor. The customer receives a turnkey, energy efficient, ecological and individualized property. Both owners and investors benefit from the expertise of various specialist consultants and quality assurance measures during the whole planning, building and operational'.

Figure 2):

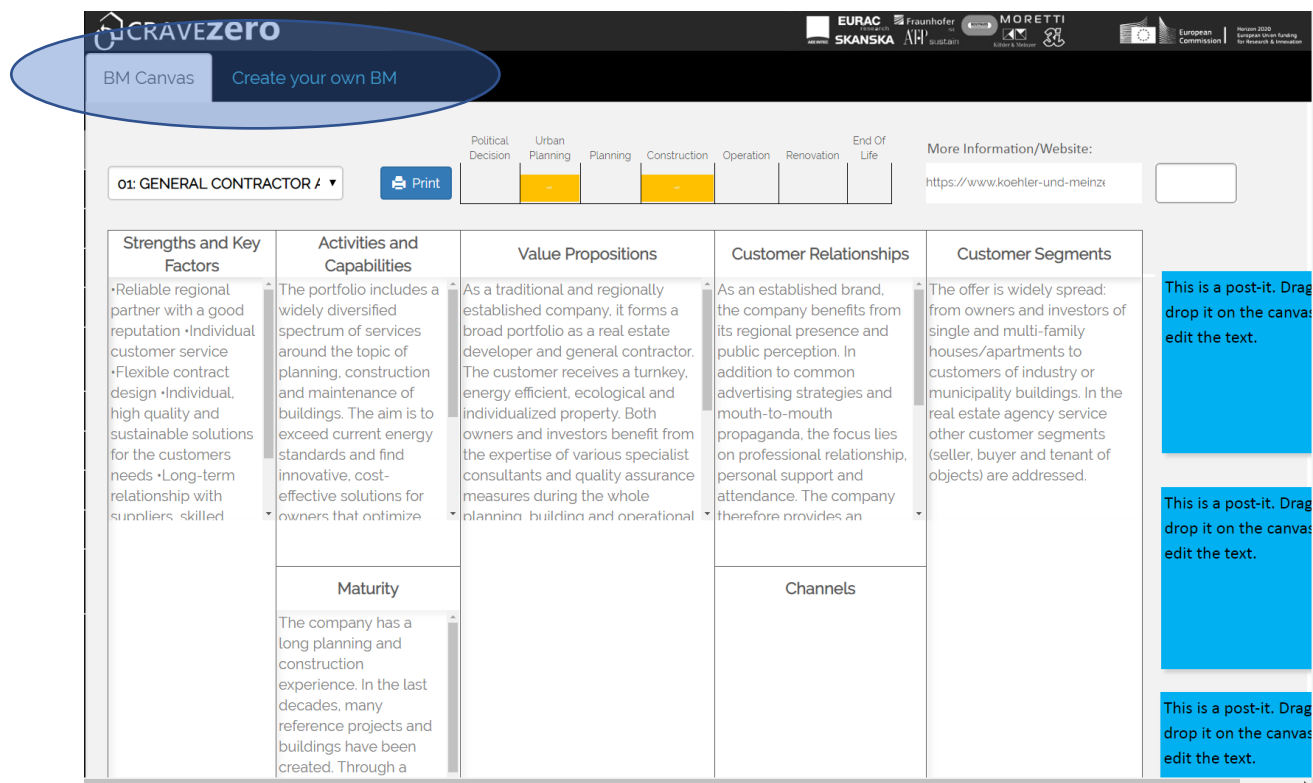


Figure 2: Screenshot BM Canvas and prefilled canvas. Highlighted area shows the two main functionalities of 'BM Canvas' and 'Create your own BM'. (http://www.cravezero.eu/pinboard/Canvas/BM_Canvas.htm)

In the following the separate canvas fields are described with the related content.

6.1. STRENGTHS AND KEY FACTORS

'Strengths and Key Factors' (Figure 3) gives information about the stakeholders' strengths, key partners and suppliers, which key resources are needed, what kinds of activities are carried out and what the key factors are of a mentioned company.

Nowadays, one of the key factors that companies need is partnerships for many reasons. Hence, partnerships are becoming an essential part of many BMs. Companies establish alliances to optimize the BMs, reduce risk and get resources. There are four main types of partnerships which are:

- Strategic alliances between non-competitor partners, cooperation
- Strategic alliances between competitors
- Joint initiatives to develop new businesses

- Buyer-supplier partnership to guarantee reliable supplies.

There are three main motivations to create alliances:

- Optimization and economy of scale: The simplest form of partnership (buyer-supplier relationship) is for optimization of the allocation of resources and activities. It is not logical for a business to have all resources and carry out every action by itself. Optimization and economy of scale partnerships are usually created to decrease costs, and often involve outsourcing or sharing infrastructure.
- Reduction of risk and uncertainty: Alliances can help reduce risk in a competitive environment. It is also normal for partners to form a strategic alliance in one area while competing in another.

- Acquisition of particular resources and activities: Only a few companies have all the resources or carry out all the activities described by their BMs. Instead, they rely on other firms to bring particular resources or perform certain activities. Such alliances can be motivated by needs to acquire knowledge, licenses, or reach to customers.

The questions, which need to be answered, and the motivations for partnerships for strengths and key factors of the BM canvas follow as:

- Who are our key partners?
- Who are our key suppliers?
- Which key resources are we acquiring from partners?
- Which key activities do partners perform?

- What do we do well?
- What qualities or aspects persuaded our customers to choose our product or service?
- What resources do we have at our disposal?
- What do others see as our strengths?
- What areas are we seen as being expert in?
- What advantages do we have over our competition?

Motivations for Partnerships:

- Optimization and economy
- Reduction of risk and uncertainty
- Acquisition of particular resources and activities

The screenshot shows the CRAVEzero BM Canvas tool. At the top, there's a header with the CRAVEzero logo and a navigation bar with 'BM Canvas' and 'Create your own BM'. Below the header, there are input fields for 'Name', 'Stakeholder', 'Life cycle phase', and 'More information/Website'. A 'Print' button is also present. The main canvas is a grid of sections for a business model. A large blue arrow points to the 'Strengths and Key Factors' section. The sections are: Strengths and Key Factors, Activities and Capabilities, Value Propositions, Customer Relationships, Customer Segments, Maturity, Channels, Costs, and Revenues. Each section has a placeholder text 'Type in the text for your business model here.'.

Figure 3: Strengths and Key Factors (http://www.cravezero.eu/pinboard/Canvas/BM_Canvas.htm)

6.2. ACTIVITIES AND CAPABILITIES

‘Activities and Capabilities’ (Figure 4) is the next module of the BM canvas. This component provides an overview of the activities and the capa-

bilities that are necessary to ensure that the BM becomes viable. The user should ask the following questions to himself to fill this section:

- What key activities do our value propositions require?
- What are our distribution channels?
- How are the customer relationships?
- What are revenue streams?
- Based on our value propositions, what kinds of capabilities are the key to our business?
- What kinds of capabilities are important to our distribution channels?
- What kinds of capabilities are important if we want to maintain our customer relationships?
- What kinds of capabilities are fundamental to our revenue streams?

‘Activities and Capabilities’ is calling for actions that the company must carry out successfully. They are required to create and offer a value (proposition), reach markets, maintain customer

relationships, and earn revenues. Like key resources, key activities can differ depending on the BM type. ‘Activities and Capabilities’ can be classified as follows:

- **Production:** This activity dominates to the BMs of manufacturing firms, and relate to designing, manufacturing, and delivering a product in substantial quantities and/or of superior quality.
- **Problem Solving:** This key activity aims for finding new solutions to customer problems. This type of key activity requires activities such as knowledge management and continuous training.
- **Platform/Network:** BMs designed with a platform as a key resource are dominated by platform or network related key activities. Networks, software and brand can function as a platform.

The screenshot displays the CRAVEzero BM Canvas tool. At the top, there's a header with the CRAVEzero logo and navigation links. Below the header, there's a form with several input fields for 'Name', 'Stakeholder', 'Life cycle phase', and 'More Information/Website'. The main body of the canvas is divided into several sections: 'Strengths and Key Factors', 'Activities and Capabilities', 'Value Propositions', 'Customer Relationships', 'Customer Segments', 'Costs', and 'Revenues'. A large blue arrow points to the 'Activities and Capabilities' section. The bottom of the canvas has a footer with a Creative Commons license notice.

Figure 4: Activities and Capabilities (http://www.cravezero.eu/pinboard/Canvas/BM_Canvas.htm)

6.3. MATURITY

'Maturity' is a stage in which a company is situated with regards to how elaborated and integrated

a business model is. Figure 5 shows the different maturity stages of business model innovation.

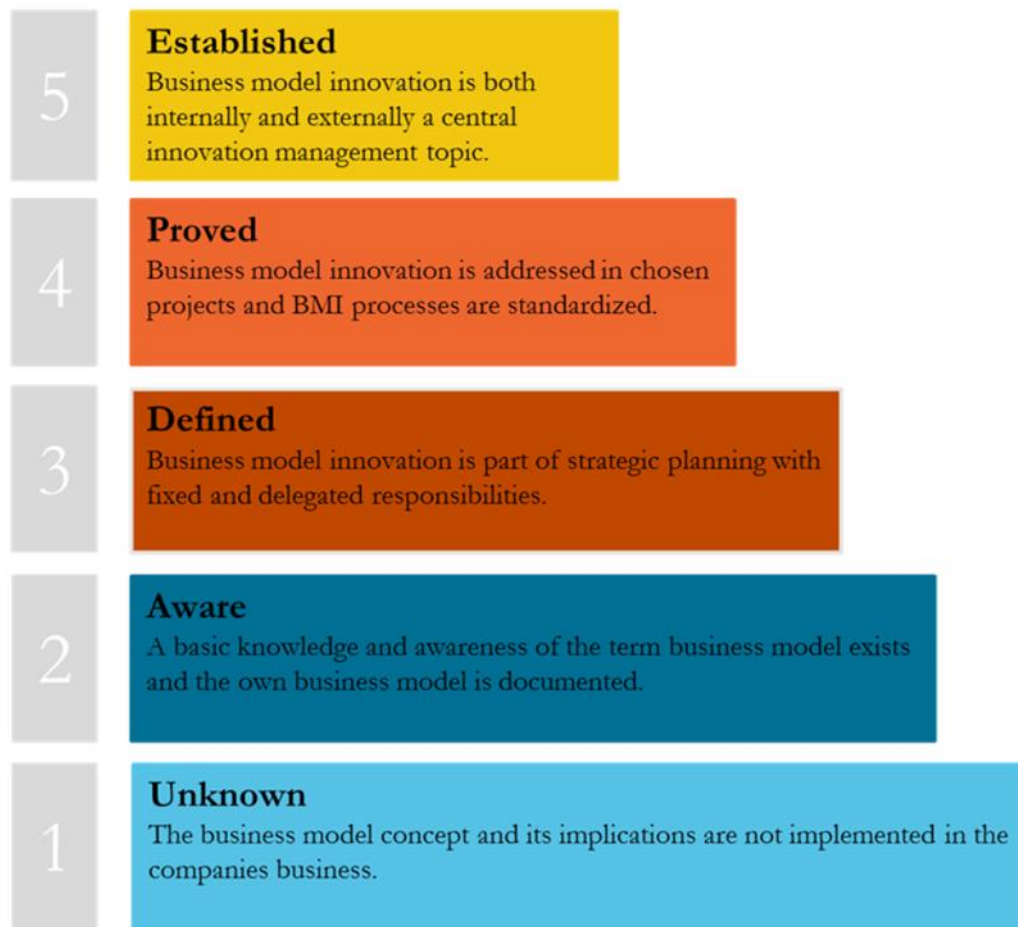


Figure 5: Maturity stages of the implementation of business model concept in companies (following (PROTEMA Unternehmensberatung GmbH))

The maturity of BM implementation in a company can vary from 'Unknown' to 'Established'.

The 'Unknown' stage indicates a firm which doesn't have a BM for their daily business. In the 'Aware' stage a company is aware of the BM concept and prepared and documented its own BM. The 'Defined' stage means that a company incorporate Business Model Innovation (BMI) into its

strategic planning process. All the relevant responsibilities in that regard are fixed and communicated internally. Already standardized BMI processes and specific projects to constantly enhance its business models characterize the 'Proved' stage. The 'Established' stage has BMI as a central topic within the general innovation management of the company.

The screenshot shows the CRAVEzero BM Canvas tool. At the top, there's a header with the CRAVEzero logo and several partner logos (EURAC, SKANSKA, Fraunhofer, AHP, MORETTI, European Commission). Below the header, there's a 'Create your own BM' button. The main area is a canvas for creating a business model. It includes input fields for 'Name', 'Stakeholder', 'Life cycle phase', and 'More information/Website'. The canvas is divided into several sections: 'Strengths and Key Factors', 'Activities and Capabilities', 'Value Propositions', 'Customer Relationships', 'Customer Segments', 'Channels', 'Costs', and 'Revenues'. A large blue arrow points to the 'Maturity' label within the 'Activities and Capabilities' section.

Figure 6: Maturity (http://www.cravezero.eu/pinboard/Canvas/BM_Canvas.htm)

6.4. VALUE PROPOSITIONS

‘Value Propositions’ (Figure 7) module describes the bundle of products and services that create value for a specific customer segment. The questions which should be asked while filling this section are:

- What value do we deliver to the customer?
- Which one of our customer’s problems are we helping to solve?
- Which job are we helping the customer get done?
- What bundles of products and services are we offering to each customer segment?
- Which customer needs are we satisfying?

The reason of why customers choose one company over another is the value proposition. It helps solving the problem or satisfying the need of a customer. Each value proposition includes a selected choice of products and services that supplies the requirements of a specific customer

segment. In this context, the value proposition of a firm is a bundle of advantages that the company offers to customers. Some of them may be innovative and represent a new or disruptive offer. Others may be similar to existing offers but with added features and attributes.

The value for a customer segment is supplied through a distinct mix of elements assuring that segment’s needs. Values may be both quantitative (such as price, speed of service) and qualitative (e.g. design, customer experience). The following elements can contribute to customer value creation:

- **Newness:** Some value propositions may bring a complete new set of needs that customers didn’t perceive because there was no similar offering.
- **Performance:** One of the traditionally common ways of creating value is improving product or service.

- Customization: Supplying products and services for the specific needs of individual customers or customers segments help creating value. Recently, the concept of mass customization and customer co-creation have gained importance. This approach allows for customers to get customized products and services, while the firm still taking advantage of economies of scale.
- “Getting the Job Done”: Helping a customer get a certain job done can create value.
- Design: Design can be a particularly important element for the value proposition. For example, a product may stand out because of its superior design. However, it is significant but difficult to measure.
- Brand/Status: Customers may find value in the simple act of using and displaying a specific brand.
- Price: Offering a lower price for a similar value is one of the common ways to satisfy the needs of price-sensitive customer segments.
- Cost Reduction: Another way of creating value is helping customers reduce their costs.
- Risk Reduction: Customers care about reducing the risks of the products or services they incur when purchasing.
- Accessibility: Another way of creating value is making products and services available to customers who previously lacked access to them. BM innovation, new technologies, or a combination of both can help build accessibility.
- Convenience/Usability: Making things more convenient or easier to use can create a significant value.

The screenshot shows the CRAVEzero BM Canvas tool. The header includes logos for EURAC, Fraunhofer, MORETTI, SKANSKA, AHP, and SUSTAIN. The navigation bar has 'BM Canvas' and 'Create your own BM'. Below the navigation bar are input fields for Name, Stakeholder, Life cycle phase, and More information/Website. The main canvas is divided into five columns: Strengths and Key Factors, Activities and Capabilities, Value Propositions, Customer Relationships, and Customer Segments. Each column has a text area for input. A large blue arrow points to the 'Value Propositions' column. At the bottom, there are sections for 'Costs' and 'Revenues'.

Figure 7: Value Propositions (http://www.cravezero.eu/pinboard/Canvas/BM_Canvas.htm)

6.5. CUSTOMER RELATIONSHIPS

‘Customer Relationships’ module (Figure 8) describes the relationship between the company and specific customer segment that the company established. The questions which should be answered for this section are:

- What type of relationship does each of our customer segments expect us to establish and maintain with them?
- Which ones have we established?
- How costly are they?
- How are they integrated with the rest of our BM?

The company should make it sure what kind of relationship it wants to establish with each customer segment. Relationships are established through different channels. Relationships can range from personal to automated, from transactional to long-term, and can aim for gaining or retaining customers, or boost sales. The overall customer experience is deeply influenced by the type of customer relationship a company put in place.

Examples of types of customer relationships are described below. These types may co-exist in a company’s relationship with a particular customer segment.

Types of customer relationships:

- Transactional: Transactional type of customer relationship means there is no real relationship between the company and the customer. The company interacts with the customer on a transactional basis.
- Long-term: When there is a long-term relationship, the firm interacts with the customer on an iterative basis for years or even decades.
- Personal Assistance: This is based on human interaction. The customer can communicate with a real customer representative to get help during the sales process or after the purchase is complete.

This may happen onsite at the point of sale, through call centers, by e-mail, or through other means.

- Dedicated Personal Assistance: This type of customer relationship involves a dedicated customer representative specifically to an individual client. It shows the deepest and most intimate type of relationship and improves over a long period of time.
- Self-Service: In this type of relationship, a company provides all the necessary means for its customers to help themselves, and they build no direct relationship with the customers.
- Automated Services: Automated services offer a sophisticated mix of customer self-service with automated processes. Automated services can recognize individual customers and their preferences, and offer information according to their orders or transactions.
- Communities: Companies started using this type of customer relationships to build a platform for their users to help each other, find solutions to other’s problems. The system of giving ranks to the users/customers encourages them to help others more, and users handling this between each other, saves time and money to the company.
- Co-creation: With the increased usage of internet, everyday more and more companies are going beyond the traditional customer-vendor relationship to co-create value with customers. Some companies engage customers to assist with the design of new and innovative products.
- Switching costs: Switching costs indicate how easy or how difficult it is for a customer to switch to a different alternative.

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Figure 8: Customer Relationships (http://www.cravezero.eu/pinboard/Canvas/BM_Canvas.htm)

6.6. CHANNELS

‘Channels’ module (Figure 9) describes how a firm communicates and reaches to its customer segment to deliver the value proposition. The questions which should be asked for this module are:

- Through which channels do our customer segments want to be reached?
- How are we reaching them now?
- How are our channels integrated?
- Which ones work best?
- Which ones are most cost-efficient?
- How are we integrating them with customer routines?

A company’s interface with customers consists of communication, distribution and sales channels. Channels, also known as customer touch points, play an important role in the customer experience. Some of the functions that a channel serves are indicated below.

Channel Phases:

- **Awareness:** How do we raise awareness about our company’s products and services?
- **Evaluation:** How do we help customers evaluate our organization’s value proposition?
- **Purchase:** How do we allow customers to purchase specific products and services?
- **Delivery:** How do we deliver a value proposition to customers?
- **After sales:** How do we provide post-purchase customer support?

Types of Channels: It is important to find the right mix of channels to satisfy how customers want to be reached and to bring value proposition to market. It is possible to reach customers through own channels, or partner channels, or through a mix of both.

- **Owned Direct:** Owned channels can be an in-house sales force or a website, or retail stores owned or operated by the organization. Owned channels have

higher margins, but can be costly to put in place and to operate.

- Partner Indirect: Partner channels are indirect options (e.g. wholesale distribu-

tion, retail, or partner-owned websites). Partners' channels decrease the margins, but they let an organization to expand its reach and benefit from partner strengths.

The screenshot shows the CRAVEzero BM Canvas tool. At the top, there's a header with the CRAVEzero logo and navigation links like 'BM Canvas' and 'Create your own BM'. Below the header, there are input fields for 'Name', 'Stakeholder', 'Life cycle phase', and 'More information/Website:'. The main canvas is divided into several sections: 'Strengths and Key Factors', 'Activities and Capabilities', 'Value Propositions', 'Customer Relationships', 'Customer Segments', 'Costs', and 'Revenues'. A blue arrow points to the 'Channels' section, which is located within the 'Customer Relationships' area. The 'Channels' section is labeled 'Channels' and has a placeholder text 'Type in the text for your business model here.'.

Figure 9: Channels (http://www.cravezero.eu/pinboard/Canvas/BM_Canvas.htm)

6.7. CUSTOMER SEGMENTS

Figure 10 shows the 'Customer Segments' module of the BM canvas. Customer segments are the different groups of people or organizations that the company targets to reach and serve.

The questions which should be asked for this part are:

- For whom are we creating value?
- Who are our most important customers?

Customers mean the core of a business. Without profitable customers, it is not possible for a firm to survive for long. Grouping the customers into different segments with similar needs, jobs-to-get-done, similar behaviours, or other attributes may help a company to serve their customers better. There can be one or several small or large customer segments. There has to be a strict deci-

sion to make for a company about which customer segment to serve and which customer segment to ignore. After this decision, it is easier to build a strong business plan with the understanding of the needs of a specific customer segment. Customer groups represent separate segments if:

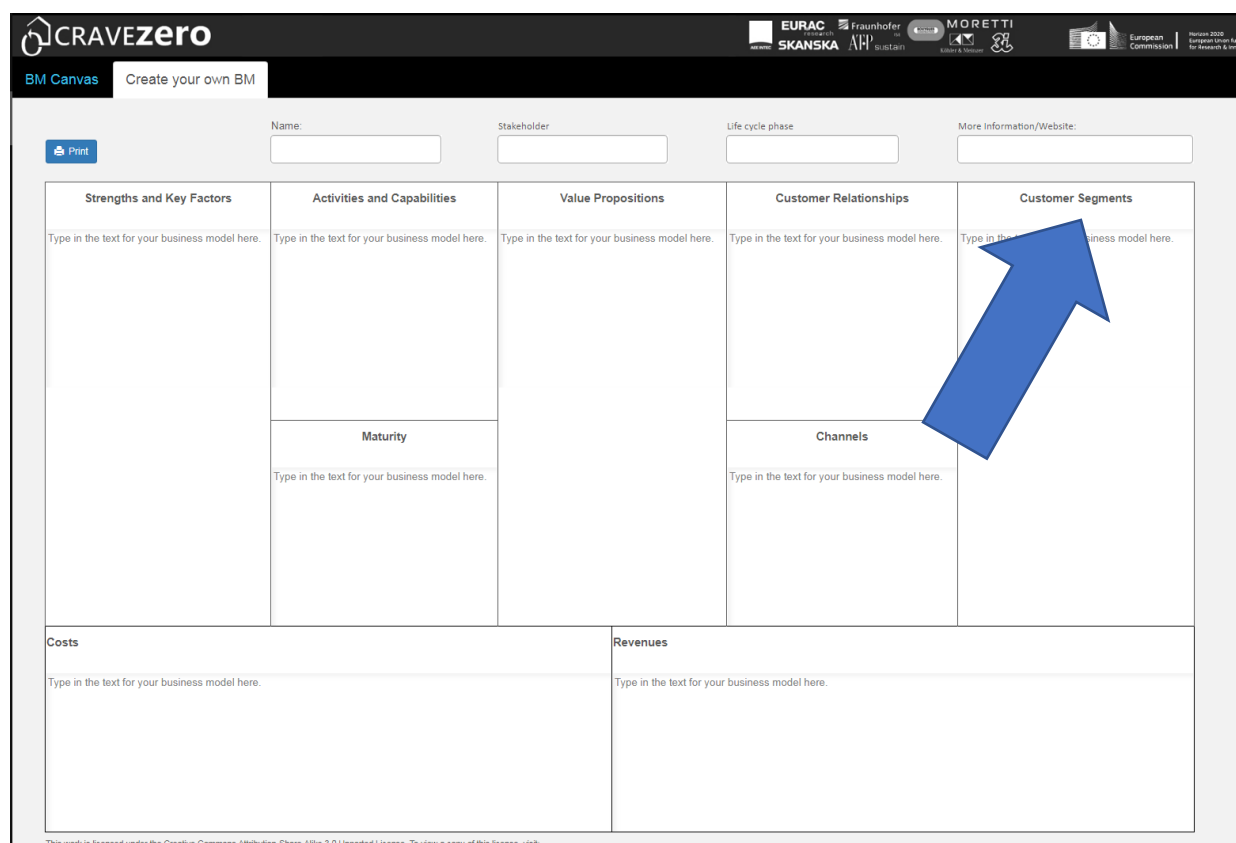
- Their needs require and justify a distinct value proposition.
- They are reached through different distribution channels.
- They require different types of relationships.
- They have a substantially different profitability.

- They are willing to pay for different aspects of the value proposition.

Here are a few examples of different types of customer segments:

- Mass Market: There is no distinction between different customer segments for BMs which focus on mass markets. The value propositions, distribution channels, and customer relationships all focus on one large group of customers with similar needs and problems.
- Niche Market: With this market; specific, specialized customer segments are targeted. The value propositions, distribution channels, and customer relationships are all fixed to the specific requirements of a niche market.

- Segmented: Some BMs distinguish between market segments with slightly different needs and problems. The indicated customer segments have similar but varying needs and problems. This may lead to some implications for the other modules of the BM, such as the value proposition, distribution channels, customer relationships, and revenue streams.
- Diversified: A company with a diversified BM has two unrelated customer segments with different needs and problems.
- Multi-sided Platform: Some companies serve two or more interdependent customer segments. Both segments are necessary to make the BM work.



The screenshot displays the CRAVEzero BM Canvas tool. At the top, there's a header with the CRAVEzero logo and a navigation bar. Below the header, there are input fields for Name, Stakeholder, Life cycle phase, and More information/Website. The main canvas is divided into several sections: Strengths and Key Factors, Activities and Capabilities, Value Propositions, Customer Relationships, Customer Segments, Channels, Costs, and Revenues. A large blue arrow points to the 'Customer Segments' section, which is currently empty. The interface is clean and professional, with a light gray background and white text.

Figure 10: Customer Segments (http://www.cravezero.eu/pinboard/Canvas/BM_Canvas.htm)

6.8. COSTS

‘Costs’ (Figure 11) module gives information about all costs incurred to operate the BM of a firm. The questions which should be asked to fill this section are:

- What are the most important costs inherent in our BM?
- Which key resources are most expensive?
- Which key activities are most expensive?

‘Costs’ describes the most important costs happening while taking care of a company under a particular BM. Creating and delivering value, maintaining customer relationships, and generating revenue, all cause costs. After defining key resources, key activities, and key partnerships, it is relatively easier to calculate these costs. Some BMs, though, are more cost-driven than others.

Types of Cost Structure:

Costs naturally should be minimized in every BM. However, some BMs place more emphasis on cost structures than other BMs. That is why it can be useful to give more details about two broad classes of BM cost structures:

- Cost-driven: Cost-driven BMs focus on minimizing costs at every possibility. This approach targets for leanest cost structure, low price value proposition, maximum automation, and extensive outsourcing.
- Value-driven: Some companies focus on value creation instead of the costs. Premium value proposition and a high de-

gree of personalized service usually characterize value-driven BMs.

A ‘Cost Structures’ can have the following characteristics:

- Economies of scale: Cost advantages that a business enjoys as its output expands. For example, bigger companies benefit from lower bulk purchase rates. This and other factors cause average cost per unit to fall as output rises.
- Economies of scope: Cost advantages that a business enjoys due to a larger scope of operations. For instance, in a large company, the same marketing activities or distribution channels may support multiple products.
- Fixed costs: Despite the volume of goods or services produced, fixed costs stay the same. Salaries, rents, and physical manufacturing facilities are some examples of fixed costs. Some businesses, such as manufacturing companies, are characterized by a high proportion of fixed costs.
- Variable costs: Variable costs are the costs that vary proportionally with the volume of goods or services produced. Some businesses are characterized by a high proportion of variable costs.

Figure 11: Costs (http://www.cravezero.eu/pinboard/Canvas/BM_Canvas.htm)

6.9. REVENUES

The 'Revenues' (Figure 12) module represents how a company generates cash from each customer segment. The questions which should be asked to fill this section are:

- For what value are our customers really willing to pay?
- For what do they currently pay?
- How would they prefer to pay?
- How are they currently paying?
- How much does each revenue stream contribute to overall revenues in terms of percentages of the total?

Successfully answering the question of 'For what value is each customer segment truly willing to pay?' allows a company to generate one or more revenue streams from each customer segment. It is possible for each revenue stream to have different pricing mechanisms (e.g. fixed list prices, bargaining, auctioning, market dependent, volume dependent, or yield management). One-time customer payments (e.g. sales) or recurring events

(e.g. subscriptions) can result with transactional revenues for a BM.

Types of Revenue Streams:

- Asset sale: The most widely understood revenue stream comes from selling ownership rights to a physical product.
- Usage fee: This revenue stream is generated by the use of a particular service. Customers pay according to the amount of service they use.
- Subscription fees: Subscription fees are generated by selling continuous access to a service. License for simulation, other planning tools could be some examples to subscription fees.
- Lending/Renting/Leasing: This Revenue Stream is created by temporarily granting someone the exclusive right to use a particular asset for a fixed period in return for a fee. The advantage of recurring revenues is provided for the lender this way. Renters or lessees, on the other

hand, enjoy the benefits of incurring expenses for only a limited time rather than bearing the full costs of ownership.

- **Licensing:** This revenue stream is generated by giving customers permission to use protected intellectual property in exchange for licensing fees. Licensing allows rights holders to generate revenues from their property without having to manufacture a product or commercialize a service. Licensing is common in technology sectors, such as patent holders grant other companies the right to use a patented technology in return for a license fee.
- **Brokerage fees:** Brokerage fees derive from intermediation services performed

on behalf of two or more parties. For example, brokers and real estate agents earn a commission each time they successfully match a buyer and seller.

- **Advertising:** This Revenue Stream results from fees for advertising a particular product, service, or brand.

Fixed Pricing:

- List Price
- Product feature dependent
- Customer segment dependent
- Volume dependent

Dynamic Pricing:

- Negotiation (bargaining)
- Yield Management
- Real-time-Market

The screenshot shows the CRAVEzero BM Canvas tool. At the top, there's a header with logos for EURAC, Fraunhofer, SKANSKA, AHP, MORETTI, and the European Commission. Below the header, there's a 'Create your own BM' button. The main interface consists of a grid of input fields. The top row has four fields: Name, Stakeholder, Life cycle phase, and More information/Website. Below these are five columns for business model components: Strengths and Key Factors, Activities and Capabilities, Value Propositions, Customer Relationships, and Customer Segments. Each column has a text area for input. Below the columns are two sections: Costs and Revenues, each with a text area. A large blue arrow points to the Revenues section.

Figure 12: Revenues (http://www.cravezero.eu/pinboard/Canvas/BM_Canvas.htm)

In addition to the descriptions above, there is a webinar showing the functionalities here:
<https://www.youtube.com/watch?v=WEYiwYjN-2I>

7.RESULTS

The result of the new found business models show different methods about how to develop new BMs. All these different methods or combination of them can be used to create new business models. In this deliverable 5.3 the new found 17 BMs are presented in the Appendix section.

All content of the BMs is structured according to the Osterwalder BM canvas and the descriptive approach is used from the D5.2 for the explanation of the new BMs. In addition this content can be presented and structured via the developed BM web tool, which can be found on the CRAVEzero Pinboard. Finally the tool can help to analyse and create new BMs.

8.LINK TO OTHER WPS

This WP 5.3 has relations to WP 3 “Cost reduction potentials in processes”. There, one can identify new ideas to create better and cost effective processes in order to implement this new knowledge into a business model. There is also a link to cost and actions to make processes less costly.

The relation to WP4 “Cost reduction potentials for nZEB technologies” is also relevant to BMs who base on technologies provided to the cus-

tomers. There future relevant technologies are identified.

In WP6 “Life-cycle cost reduction of new nZEBs” the BM is related to the whole life-cycle and it can be checked whether the new BM has influence on the overall cost structure.

In WP7 “Prototypical implementation and CRAVEzero pinboard” there will be a possibility of performing a validation of one of the new BMs.

9.DISCUSSION

This report presents an overview of found new BMs and methods to identify them. However, it will be discussed during next stakeholder meetings and workshops in which way a validation of these new BM ideas can be performed. One option is the prototypical implementation in WP7 “Prototypical implementation and CRAVEzero pinboard” where the idea can be checked.

Another option is the stakeholders’ opinion and checks for feasibility and viability.

Third option can be to have company internal discussion and check for implementation of one new promising BM and a structured response to the CRAVEzero partners.

The new BMs described in this report were:

- Either found out in the internet,

- Described by project partners according to their needs or gaps in the businesses or
- Implemented to building sector from other industries.

All these methods at the end agree on that the customer segment should be taken into account to bring a solution to their problems and excite the market with a new business. To monitor the stakeholders and their needs in the building sector, the following reports have been inspected.

The DENA building report 2016 Statistics and analyzes of energy efficiency in the building stock (Figure 13) shows the distribution of households in Germany. According to this report, 58.5 % of 40 million housing units are owned by private individuals. 57.1 % of them are occupied by the house owners themselves and 38.7 % are rented

to tenants while 4.2 % of the units stay unoccupied.

22.1 % of 40 million housing units in Germany are owned by homeowner association. 41.8 % of them are occupied by the owners while 55 % are rented and 3.2 % stay empty.

Private corporations own 7.8 % of the dwellings in Germany and rent close to 100 % of it to tenants.

Residential building cooperatives hold 5.1 % of the dwellings in Germany and also rent close to 100 % of it while only 5 % stay unoccupied.

6.4 % of the dwellings are owned by public authorities and almost all the units are occupied by tenants.

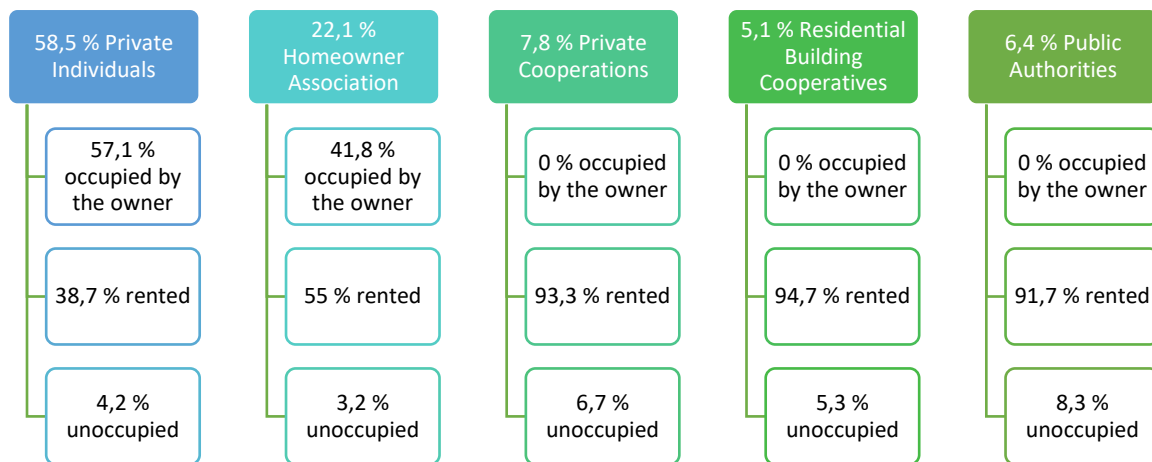


Figure 13: The DENA building report 2016. Statistics and analyzes of energy efficiency in the building stock.

Another idea could be to examine carbon emissions of building types and their users to see who causes how much emission in which kind of building type and describe a business model for this specific type of problem. Figure 14 shows the segmentation of the commercial real estate market from a climate protection perspective. According to the report of 'Finanzforum Energieeffizienz (Energy Efficiency Finance Forum)', own users are responsible for a total of 72 % of emissions in commercial real estate (owner-occupier with professional facility management 35 %, owner-occupier without professional facility management 37 %). Self-users predominantly hold real estate in the areas of industry and com-

merce. For investors, yield-oriented investors account for 13 % of all emissions on behalf of third parties. The other investor groups hold between 3 % and 6 % of the emissions. Investors hold buildings in the areas of office, commerce, hotel and logistics. About 2 % of the real estate is held by owners who cannot be assigned to any of the groups mentioned, eg. small rental.

This study could be helpful to decide whom to address for a new BM. According to this figure, the vast majority of emissions are caused by buildings owned by self-users. At first, a BM addressing the owners could be useful to decrease carbon emission.

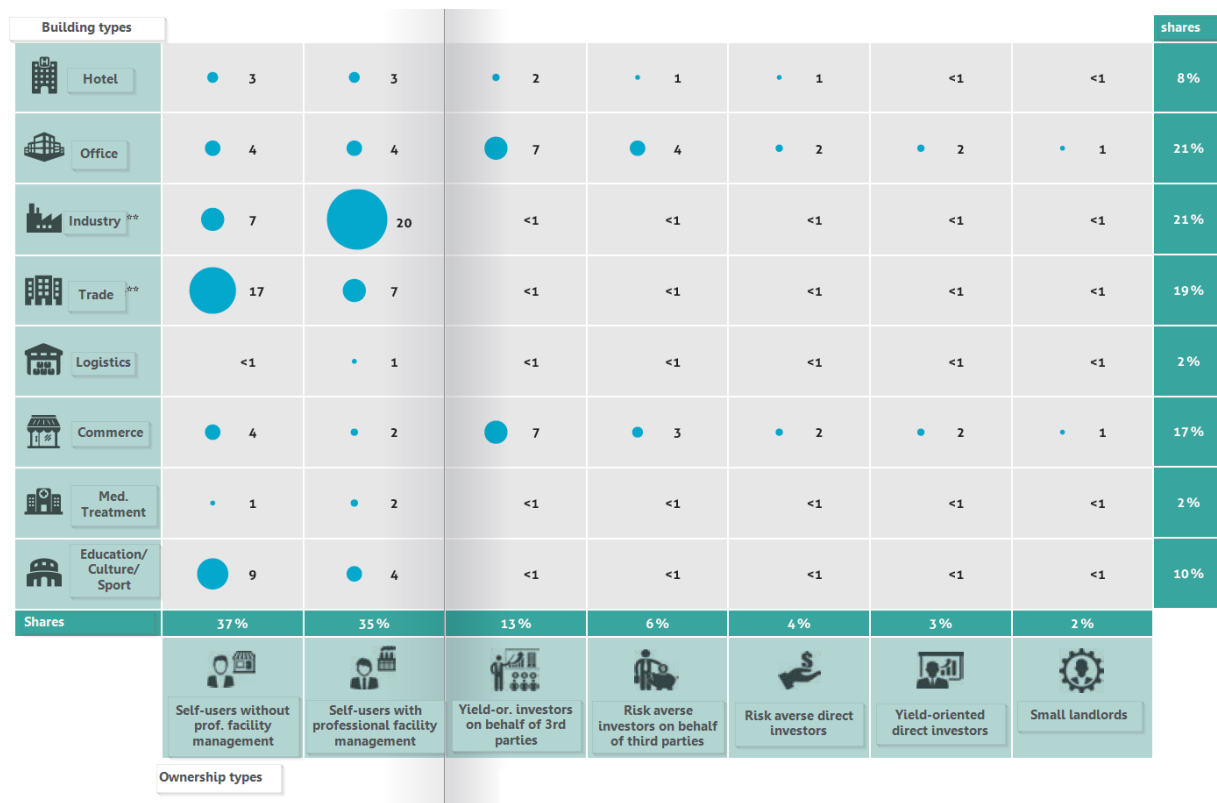


Figure 14: Segmentation of the commercial real estate market from a climate protection perspective

*The emissions were calculated from the bottom-up and corrected according to the assumptions of the Building Efficiency Strategy (assumption base year 2008).

**The following breakdown was made for the division of general industrial and commercial buildings: industry: 46%, commerce: 54%; Consideration of emissions directly or indirectly caused during the use phase by consumers and sources inherent in buildings.

Source: BulwienGesa (2010; 2015); dena (2015); bsi (2015); <http://www.gdv.de/>; statista.de; BaFin (2015); bvi (2015); Roland Berger (2015); ZIA (2013); www.cash-online.de; manager-magazin.de; BMWi (2015) The CO Firm

However, this deliverable does not discuss about how to implement a business model to an already existing environment, working/daily business. This needs further consideration to achieve a successful practice. This will be done later in WP7 “Prototypical implementation and CRAVEzero pinboard” where the idea can be checked.

Another discussion topic is that it seems almost not possible to describe/estimate revenues in a company either with existing BMs or with new

ones. It was observed that with the existing BMs, revenues are rather difficult to estimate due to the fact that they are implemented in the overall business of a company. The same problem continues with the new BMs and this problem is almost impossible to solve with the current techniques at the moment. On the other hand, the costs are easier to describe both for the existing and the new BMs since the inputs, contracts and so on can be easily seen from a company’s expenses.

10. CONCLUSION

One of the conclusions of this report is that there is more than one method to find new BMs. As needs mostly cause developments, existing gaps in a business could also cause the need of searching for a new BM to fix failures. The other meth-

ods are advantage comparison, literature review, new value proposition, better/ new customer relation, new customer, new activities, making key factors and strengths better, nightmare competitor, adjusting from different sectors, combi-

nation of different business models, using CRAVEzero BM web tool or any other choice of business model canvas. Between all these methods mentioned here, 'New value proposition' was the one which was used the most to develop a new business model by the project partners with 'Literature review', 'Nightmare competitor' and 'CRAVEzero BM web tool' haven't been used at all so far.

Another conclusion is the client should be always taken into account. It is quite important to know which customer segment to address during the preparation of a new BM to bring a solution to their problems and excite the market with a new business.

As well as with the existing BMs, estimating revenue still stays as a problem with the new BMs

since revenue is implemented in the overall business of a company. On the other hand, estimating the costs is rather easy comparing to the revenues both for the existing and the new BMs since expenses, inputs, and contracts etc. can be seen from a firm's budget.

Last but not least, the CRAVEzero BM web tool should be taken into consideration more. The tool can be very beneficial for the users who would like to check the business models which have been collected earlier during the previous deliverables. Besides this, 'Create your own BM' function gives the user the ability to develop new business models on the website, download and print them.

11. APPENDIX

BM 61: DEEMS bGrid

VALUE PROPOSITION:

-The bGrid® Smart Building Solution is the final smart building solution you will ever need for your smart building. A network of bGrid® Nodes senses everything that happens in the building and enables fast accurate positioning of people and assets. The bGrid® Smart Building Solution is open enough to connect and communicate with everything in your building from the lighting and climate system to the coffee machines and even people through their smart devices. But bGrid® does not stop there. It also enables controlling light, climate, blinds etc. based on the collected and analyzed data.

-bGrid for Employee (room booking, indoor positioning, workplace finder, colleague finder, personal comfort that "follows" you, smart parking)

-bGrid for Facility Manager (smart cleaning, predictive maintenance, smart security, asset tracking)

-bGrid for Real Estate Manager (building analytics, employee satisfaction, property value, energy efficiency)

CUSTOMER RELATIONSHIP:

Contract with client

CUSTOMER SEGMENT:

Owner-operated office building

ACTIVITIES AND CAPABILITIES:

- TGA Planning
- Ensuring data security
- Workplace concepts
- Interfaces for system control
- Know-how as planner for technical building equipment
- Sensors built into lamps

Key partners are:

- Lighting designers
- Electrical planners

-Planner for technical building services systems

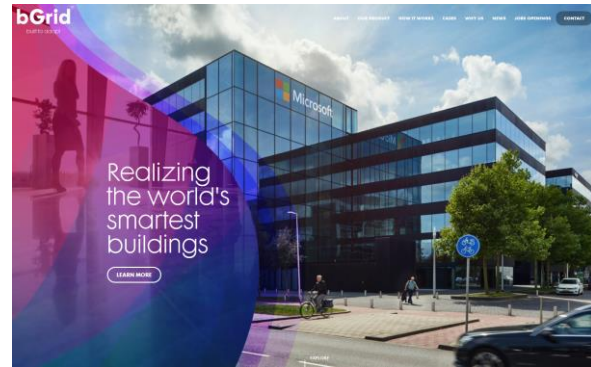


Figure 15: BM 61 - Screenshot: <https://bgridsolutions.com/#device>

REVENUES:

-Savings building for building installations approximately 10-20€/m²

-Savings for facility management (10% lower energy costs, 10% lower maintenance costs, 20% lower cleaning costs, 10% more effective use of conference rooms)

-Soft revenue streams (>5% more productive work force, 20% happier work force, 15% less absenteeism, 10% more effectivity of floor space usage)

COSTS:

-to be defined-

STRENGTH AND KEY FACTORS:

- ✚ Powered by big company
- ✚ Big data background
- ✚ Guaranteed savings

MATURITY:

-to be defined-

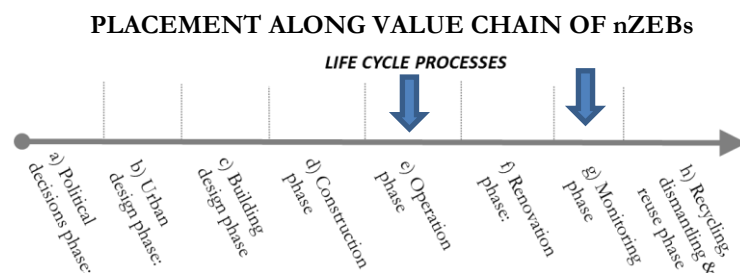


Figure 16: BM 61 - Placement of the BM along the lifecycle processes

BM 62: MONITORING COMPANY: MONITORING SYSTEM

VALUE PROPOSITION:

The company has been designing and manufacturing integrated wireless solutions for energy efficiency since 2004. It designs, plans, installs and manages the monitoring system of the customer. All products are designed by its Research and Development department, which guarantees high quality and the best control over the reliability of the product catalogue. The company has equipped itself with a Quality Management System according to the UNI EN ISO 9001:2015.

CUSTOMER RELATIONSHIP:

In order to get in touch with customers the company provides a website, where are shown some customer success stories and the online catalogue of products. The client can directly check previous projects and find one similar case to his need. Personal assistance and a customer service reachable via telephone hotline as well as internet help the customer with all problems. The company organizes some specific events about its products and monitoring issue.

CUSTOMER SEGMENT:

The BM is mainly focused on giving solutions for industrial and commercial companies. There are also solutions tailor made for private houses wishing to control and reduce their energy consumption and build a smart energy system.

ACTIVITIES AND CAPABILITIES:

The service portfolio includes the inspection and planning in order to choose the right product and fulfil possible regulatory requirements. The company offers installation and testing service, however, thanks to “Plug & Play” electrical panels, pre-wired and pre-configured, the customer can choose to follow itself the installation phase. Finally, an easy online platform permits the acquisition and display of measured data.



Figure 17: BM 62 - Screenshot: <https://kerberos.energy/en/xmonitor>

REVENUES:

Revenues are made depending on the relevant contract. The main source of revenue is represented by the sale of meters, sensors, data centers and actuators. Then there is an annual fee for the data storage and management of the platform.

COSTS:

The most expensive expenditure of the company is the designing and production of its products, followed by personnel expenditures for the planning, installation, consultancy and customer support.

STRENGTHS AND KEY FACTORS:

- ✚ “Plug & Play” electrical panels, ready to be just installed
- ✚ Easy coordination (designers and installers inhouse)
- ✚ Reduced energy consumption and optimized system management
- ✚ Certified data security

MATURITY:

The company, born in 2004, improves continuously its services and products thanks to the Research and Development department

Placement along value chain of nZEBs

In the following figure, add arrows to indicate main (blue) and additional (red) fields of operation.

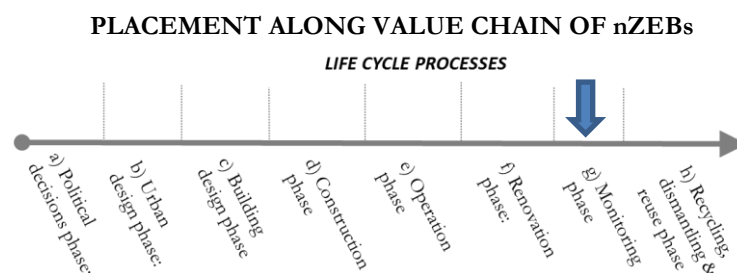


Figure 18: BM 62 - Placement of the BM along the life-cycle processes

BM 63: COLLECTIVE SELF CONSUMPTION: SUNCHAIN

VALUE PROPOSITION:

Based on blockchain & IoT technologies, Sunchain's solution manages the energy exchanges within local energy communities, gathering producers, consumers and prosumers.

This solution promotes local green energy cooperative projects by providing a solution that optimizes self-consumption rates and lowers electricity bills.

Power production and consumption data are encrypted, signed and recorded in the blockchain directly from the smart meters. The energy allocation between all involved participants is securely processed and certified.

CUSTOMER RELATIONSHIP:

The company developed a business to business strategy, where they contract with firms, local authorities and communities for the implementation of their innovative products and solutions.

CUSTOMER SEGMENT:

The offer is dedicated for various type of customers: social and private landlords and communities, as well as local authorities and can be implemented for a single building or for a whole district.

ACTIVITIES AND CAPABILITIES:

Regarding blockchain applications to the energy sector, Sunchain has been a leader. The company developed its own blockchain specifically designed for small energy exchanges.

It's a consortium blockchain, using no mining process that benefits from very low electricity consumption. This 'tokenless' blockchain, not linked to cryptocurrency, meets trust and scalability requirements.

Sunchain also develops its own IoT modules that are plugged on smart meters and collect electrical data. A web app enables users to follow their energy consumption, from the traditional retailer and from the local solar plants.



Figure 19: BM 63 - Screenshots: <https://www.sunchain.fr/en>

REVENUES:

Revenues of the company are made firstly by selling the IoT module and by implementing the solution as a CAPEX investment. Secondly, service operation and maintenance are assured.

COSTS:

Costs are R&D expenses, mainly composed by internal workforce. Along with that, electronic components supply, IoT modules manufacture, and cloud service build company's global costs.

STRENGTH AND KEY FACTORS:

The main strengths are as follow:

- Collective self-consumption management
- Electricity bills reduction,
- Dynamic sharing of energy,
- Near real-time visualization via a web app,
- Trust in data, security and certification

MATURITY:

Sunchain has been developing its solution since 2016. Currently, this solution is implemented on two 30 kWc collective PV projects: in a social housing building and in a small district of 7 building, representing 30 users. In 2019, 4 projects would be set up with a total power of 425 kWc PV.

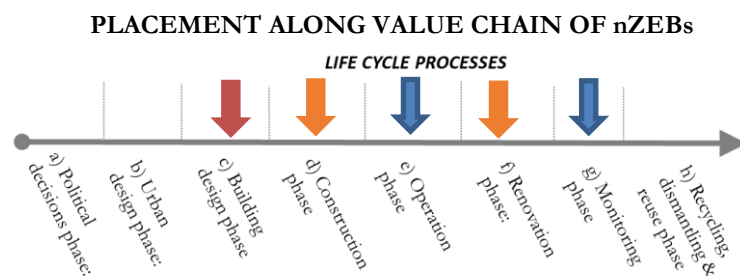


Figure 20: BM 63 - Placement of the BM along the life-cycle processes

BM 64: BUILDING COMPANY (REAL ESTATE DEVELOPER): ADVANCED CUSTOMERS COMMUNICATION AND INTERNAL SCHEDULING PROJECT AND QUALITY MANAGEMENT (FICTITIOUS MODEL)

VALUE PROPOSITION:

Real estate developers usually have a very high repetition rate in project execution with the individual buyers and partners. Database-based project management in an IT system, that simultaneously depicts and documents the process steps and automatically maps the structured customer communication in each step would represent a multifactorial improvement of the process. Cloud exchange of data and online confirmation for the individual process steps would be conceivable. The "virtual accessibility" of the blueprint would be possible. Again, the online accessibility of the customer makes sense. Every plan change would be comprehensible for the customer and the online approval possible.



Figure 21: BM 64 - Screenshot:

<http://property.sulekha.com/responsibilities-of-real-estate-developers-624585-blog>

CUSTOMER RELATIONSHIPS:

In addition to the "normal" communication channels this part of the customer relationship refers to the communication after the conclusion of the contract. In addition to an ordinary information exchange, the individual process steps of the contractual relationship are simultaneously documented

REVENUES:

After an introductory phase, the added value comes from the advantages of improved and structured communication with the customer, the improvement of the internal processes, the minimization of the possibility of errors and the automatically accompanying parallel process documentation

CUSTOMER SEGMENT:

The offer is for the buyers of the apartments and helps to structure the communication in the whole process: from the contract to the purchase, the execution planning and construction, payment and cost monitoring.

COSTS:

The company would have primarily more personnel expenses but in the medium and long term, this measure will have a cost-reducing and efficiency-increasing effect.

ACTIVITIES AND CAPABILITIES:

A wide range of customer relations, project and quality management could be covered by a database, controlled by different access rights in an IT system. All recurring steps are mapped in the system and work like a to-do list which can be viewed by both the client and the account manager of the company. The construction progress and the construction schedule are presented and useable for all partners. Error minimization and time savings are possible.

STRENGTHS AND KEY FACTORS:

- ✚ Database based communication for complex requirements
- ✚ Better coordination and communication (with the client and also internal)
- ✚ Quality and project management

MATURITY:

-to be defined-

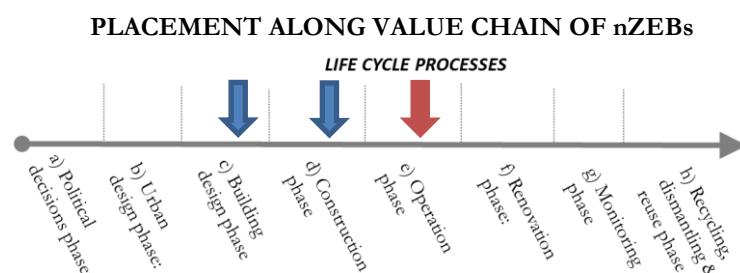


Figure 22: BM 64 - Placement of the BM along the life-cycle processes

BM 65: REAL ESTATE DEVELOPER BECOMES ENERGY SUPPLIER WITH CHP-PLANTS AND PV (FICTITIOUS MODEL)

VALUE PROPOSITION:

Real estate developers usually are in the beginning of the project realization the owner of the property. With the notarial certification, ownership of the property and the apartments pass to the buyer. Here both the company and the buyers can register special rights of use in the land register. A possible model could be that the company retains the special use rights as registered easement at the CHP- plant and the photovoltaic system and thus becomes an energy producer. Since the state feed-in tariff for renewable electricity in Germany is falling, it would make economic sense to sell the produced electricity to tenants and buyers. Since the customer has the free choice of provider, the price of electricity (to be economically attractive) must be below that of the public providers. Due to the statutory degressive reduction of the feed-in tariff, this model is still interesting. The discounted sale nevertheless generates higher revenues than the feed-in tariff. Customers receive renewable, sustainable and locally produced energy.

CUSTOMER RELATIONSHIPS:

The customer relationship already exists through the entire project period from the purchase, the planning to the execution of the building. The "green" benefits of locally produced electricity and heat can be discussed and explained through direct customer contact.

CUSTOMER SEGMENT:

The offer is for the buyers and tenants of the apartments.

ACTIVITIES AND CAPABILITIES:

Housing companies need the proof of compliance with the Energy Saving Ordinance for their buildings. In most cases, the required result is achieved through a combination of thermal building envelope improvements, energy efficient equipment and a share of locally produced renewable energy. The Real Estate developer has the advantage of achieving the required results and could simultaneously act as an energy producer. Due to the drop in the price of feed-in tariffs

for electricity, it is becoming increasingly attractive to offer it for the local consumption. Consumers benefit from the slightly lower price compared to the public providers. The company can promote the sustainable principle and increase the acceptance of renewable energy through the uncomplicated access for owners and tenants.

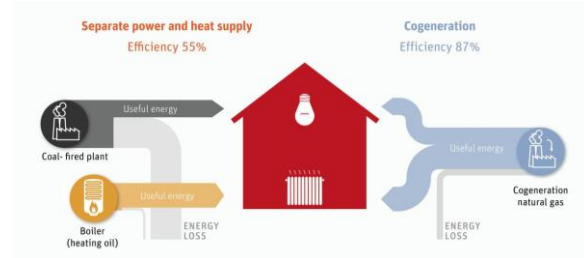


Figure 23: BM 65 - Screensbot:

<https://en.wikipedia.org/wiki/Cogeneration>

REVENUES:

The revenues are made with the sale of electricity and heat. The profits may not likely to be very high, but the Energy Saving Ordinance (ENEV) will be awarded and investment in the purchase and maintenance of the facilities will be self-evident. An added value is also created by the image gain for the company.

COSTS:

The company would have primarily the manageable investment costs for the plants. Depreciation and maintenance are covered by the income.

STRENGTHS AND KEY FACTORS:

- ✚ Companies benefit from the achievement of the Energy Saving Ordinance (ENEV) for the building and at the same time have the opportunity to act as an energy producer
- ✚ Customers have cheap access to locally and sustainably produced energy (heat and electricity)
- ✚ Increase of the acceptance of renewable energy systems through easier access

MATURITY:

-to be defined-

PLACEMENT ALONG VALUE CHAIN OF nZEBs

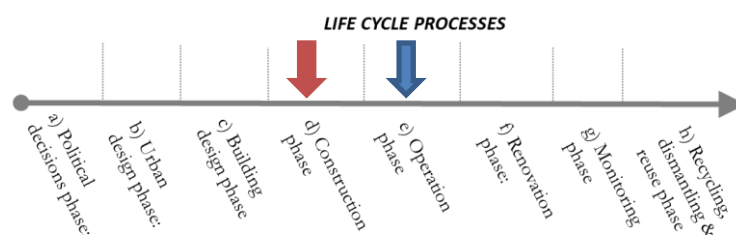


Figure 24: BM 65 - Placement of the BM along the life-cycle processes

BM 66: PLANNING AND CONSULTING COMPANY: nZEB TECHNOLOGY SOLUTIONS (FICTITIOUS MODEL)

VALUE PROPOSITION:

Naturally, nZEB buildings are increasingly equipped with DHW and HVAC systems (also on the basis of the arithmetically based standard of assessment), with better efficiency and increasingly complex technology and control systems. Individual system components are supplied and installed by different trades, but must be controlled and operated in daytime operation via complex control systems. Responsibilities in planning, operation and maintenance blur and increase the complexity of the plant and the resulting communication within the companies. The offer should include a carefree support starting with independent information about available and efficient systems on the market. Planning, installation, operation and maintenance are carried out from a single source. The customer receives a proven system from this single source without having to negotiate with different contact persons.

CUSTOMER RELATIONSHIPS:

All common principles of customer relations are conceivable. The most important factor is that the complexity of decision-making, execution and operation by one vendor is significantly reduced. The company has the possibility to "accompany" the product and the service over the entire lifecycle chain. The cradle to cradle principle would be easier to implement.

CUSTOMER SEGMENT:

The offer could be wide spread and could include nearly every segment: Builders, industry, municipalities, real estate developer

ACTIVITIES AND CAPABILITIES:

The service portfolio should provide a care free service (one hand) for calculation, planning, execution and maintenance of all energetically relevant systems and system components. In principle, it is conceivable that the operator also takes over the equipment rental.

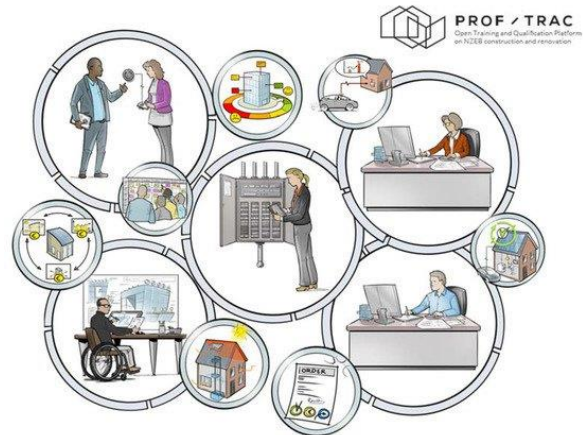


Figure 25: BM 66 - Screenshot: <https://www.mdpi.com/2075-5309/7/4/107>

REVENUES:

Revenues are made depending on the relevant contract with the individual partner. The provider must clearly emphasize this added value in order to represent the additional costs for the customer. Moreover, additional revenue streams for the rental of the plants are possible.

COSTS:

The company would have, in addition to the expenses for the plants themselves, planning, construction and service costs so primarily personnel expenses.

STRENGTHS AND KEY FACTORS:

- ✚ One hand solution for complex requirements
- ✚ Easy coordination and communication (within one company)
- ✚ Good market overview through independent research
- ✚ Life-long customer support for lock-in

MATURITY:

-to be defined-

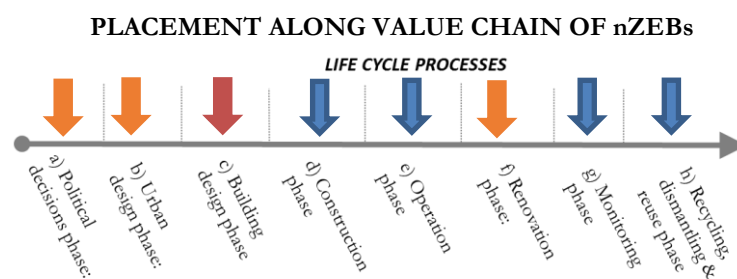


Figure 26: BM 66 - Placement of the BM along the life-cycle processes

BM 67: EASY COMMUNICATION ONLINE VALUE PROPOSITION:

With this BM, it is aimed to combine the internal workflow with customer communication to keep customer always up to date for main processes. A tracking tool for processes like shipment tracking can be useful to ease the process both for the company and the customer.

CUSTOMER RELATIONSHIPS:

The purpose of this BM is to automate the process of following an order from a company. Therefore, automated services (notification, email etc.) can be an option for customer relationships. Besides that, self-service of personal assistance would also serve the purpose.

CUSTOMER SEGMENT:

The offer could be wide spread and could include nearly every segment: Residential, commercial and industrial buildings, real estate owners, property administrators, designers, builders etc.

ACTIVITIES AND CAPABILITIES:

The service portfolio should provide a care free service for problem solving, networking, communicating online, and tracking the stages of a project.

REVENUES:

Revenues are made from license, usage and/or subscription fee for the tracking app.



Figure 27: BM 67 - Screenshot:

https://www.greenteksolutionsllc.com/blog/The_new_Information_and_Communication_Technologies_-ICT-

COSTS:

The company would have, in addition to the expenses for the plants themselves, tracking system expenses.

STRENGTHS AND KEY FACTORS:

- ✚ One hand solution for complex requirements
- ✚ Easy coordination and communication with the tracking app
- ✚ Decreasing the staff cost of a company which would be used for the communication purposes instead of tracking app.

MATURITY:

-to be defined-

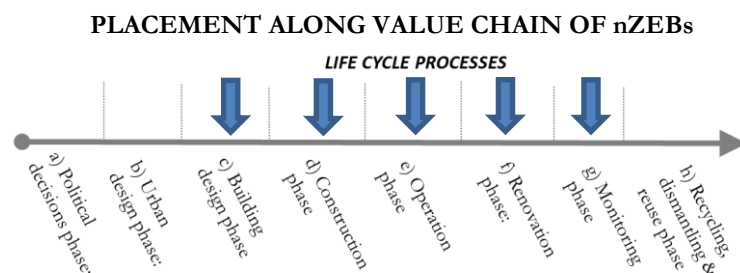


Figure 28: BM 67 - Placement of the BM along the life-cycle processes

BM 68: ONE-STOP-SHOP WASTE

VALUE PROPOSITION:

With the building industry getting heavy every day on the environment, it is inevitable to try to find solutions to this problem. The focus of this BM is to bring all the used material from buildings, refurbish and resell them by bringing the stakeholders together. This BM could be helpful with waste reduction, newness, customization, design, cost reduction, CO2 emission decrease, recycling, and decreasing raw material need.

CUSTOMER RELATIONSHIPS:

Customer relationships could be done with personal assistance/ consultancy, automated services or self-service.

CUSTOMER SEGMENT:

The offer could be wide spread and could include: mass market, multi-sided platform, wholesale buyer, retailers, construction companies, homeowners.

ACTIVITIES AND CAPABILITIES:

The service portfolio should provide a care free service for consultancy to eliminate waste, collect waste materials from different processes of the building sector, refurbish and sell waste.

REVENUES:

Revenues are made from refurbished/recycled product sale, assembling, constructing, and subscription fees for One-Stop-Shop service, consultancy and construction site waste management.



Figure 29: BM 68 - Screenshot: <https://www.goodwillsocal.org/one-stop-shop/>

COSTS:

The company would have, in addition to the expenses for the plants themselves; dismantling, delivery, refurbishing/recycling, reconstruction, fixed costs (salaries, utilities, rents), marketing.

STRENGTHS AND KEY FACTORS:

- ✚ Bringing all the used material from buildings, refurbish and resell them by bringing the stakeholders together
- ✚ Helpful with waste reduction, newness, customization, design, cost reduction, CO2 emission decrease, recycling, and decreasing raw material need.

MATURITY:

-to be defined-

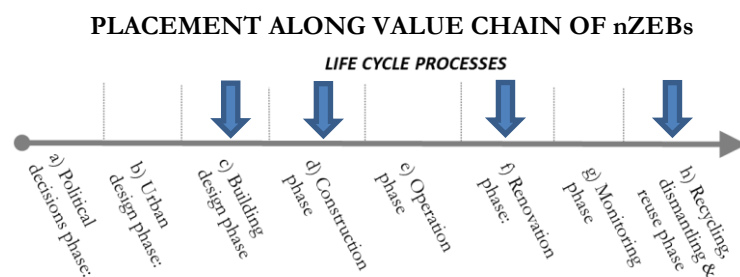


Figure 30: BM 68 - Placement of the BM along the life-cycle processes

BM 69: TRUST US

VALUE PROPOSITION:

Building a trust mechanism between a company and its customers is an advantage for the both sides. When the customers feel safe and satisfied with a company for the solutions they offer to their customers, customers will keep going back to the same company. This can work vice versa. A company will feel motivated when they see their customers happy and keep choosing them for their problems. Because of the reasons indicated above, this BM aims to build trust mechanisms and behaviours for the each step of a company by independent certifications, giving services and guarantees, and ranking visible in the public.

CUSTOMER RELATIONSHIPS:

Customer relationships could be done with personal assistance/ consultancy, automated services or self-service.

CUSTOMER SEGMENT:

The offer could be wide spread and could include: Residential, commercial and industrial buildings, real estate owners, property administrators, designers, and builders.

ACTIVITIES AND CAPABILITIES:

The service portfolio should provide a care free service for consultancy for trust actions, self-awareness, responsiveness, value congruence, and networking



© Can Stock Photo - csp24416751

Figure 31: BM 69 - Screenshot: <https://www.canstockphoto.com/trust-us-stamp-24416751.html>

REVENUES:

Revenues are made from license fees. The client gives money, and the firm offers services and money back guarantees.

COSTS:

The company would have, in addition to the expenses for the plants themselves; license fees, insurance, and guarantees.

STRENGTHS AND KEY FACTORS:



MATURITY:

-to be defined-

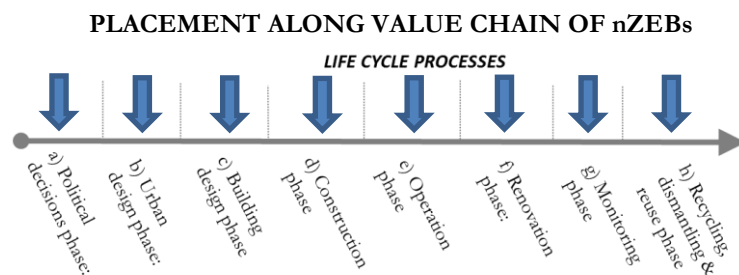


Figure 32: BM 69 - Placement of the BM along the life-cycle processes

BM 70: RENT INSTEAD OF BUY

VALUE PROPOSITION:

Lighting can create a definitely different atmosphere in spaces. That is why professional lighting especially in offices is quite important for the productivity of the employees. However, the owners may not want to invest huge amounts for it. This is why this 'Rent Instead of Buy' can be advantageous for some businesses. This business model offers high lighting quality at the workplace. The owners will have no expenditure for the maintenance and servicing of the illuminants.

CUSTOMER RELATIONSHIPS:

Customer relationships are carried on with contracts.

CUSTOMER SEGMENT:

The offer could be wide spread and could include: Residential, commercial and industrial buildings, real estate owners, owners of halls and shops, property administrators, designers, and builders.

ACTIVITIES AND CAPABILITIES:

The service portfolio should provide a care free service for consultancy, detailed design, installation, service and maintenance.

REVENUES:

Revenues are made from renting for the provision of light sources for a fixed contract period.



Figure 33: BM 70 - Screenshot: <http://winled.com/en/blog/article/Office-lighting-design>

COSTS:

- There are no investment costs for the lighting for the owner
- The company rents out the lighting quality at the workplace, which means that the owner can plan the rental costs on an ongoing basis
- No costs for the investment
- No costs for servicing and maintenance
- No rent increase for the duration of the contract

STRENGTHS AND KEY FACTORS:



MATURITY:

- to be defined-

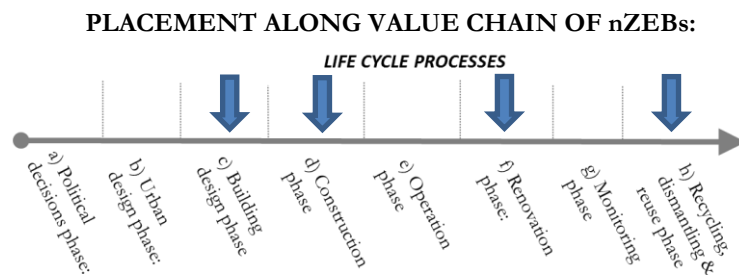


Figure 34: BM 70 - Placement of the BM along the life-cycle processes

BM 71: CO₂ EMISSION DECREASE

VALUE PROPOSITION:

This BM aims to create both operationally and environmentally outstanding smart buildings, maximize sustainability and substitute with renewables and natural processes.

CUSTOMER RELATIONSHIPS:

Customer relationships could be done with detailed website to answer all the possible questions, contacting the customer support, online catalogs and brochures, calling a consultant and references of previous projects on the website with description of the problem, solution adopted, and benefits obtained.

CUSTOMER SEGMENT:

The offer could be wide spread and could include: Residential, commercial and industrial buildings, real estate owners, property administrators, designers and builders.

ACTIVITIES AND CAPABILITIES:

The service portfolio should provide a care free service for consultancy for monitoring and testing, reducing energy waste, BMS, modeling, simulation and calculation, moving from non-renewable to renewable energy sources, solar and wind-power based energy innovations, zero emissions initiative, Blue Economy, the Natural Step and green chemistry



Figure 35: BM 71 - Screenshot: <https://sites.ndtv.com/breathe-clean/how-green-buildings-can-reduce-your-carbon-footprint-2>

REVENUES:

Revenues are made from depending on the relevant contract and customer made services with different revenues from consultancy, electric installation, maintenance and renovation.

COSTS:

The company would have, in addition to the expenses for the plants themselves; producing products for CO₂ emission solutions, personnel expenditures for the installation phase, consultancy and customer support, communication, infrastructure, marketing and commercial activity.

STRENGTHS AND KEY FACTORS:



MATURITY:

-to be defined-

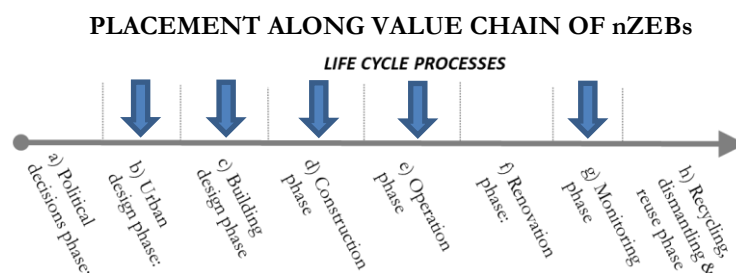


Figure 36: BM 71 - Placement of the BM along the life-cycle processes

BM 72: FULL SERVICE FOR ARCHITECTS

VALUE PROPOSITION:

This BM aims to help each customer segment separately and give full service. Architects, as an example customer segment in this case, are being focused on for this specific BM. A company who works with this BM can help architects with defining their work for nZEBs, planning aspects, customer communication, hand-over projects, guarantees and running the database over lifetime.

CUSTOMER RELATIONSHIPS:

Customer relationships could be done with personal assistance/ consultancy, automated services or self-service.

CUSTOMER SEGMENT:

The offer could be wide spread and could include: multi-sided platform, homeowners, residents and consultant companies.

ACTIVITIES AND CAPABILITIES:

The service portfolio should provide a care free service for consultancy for full service for architects and delivering respective documents.

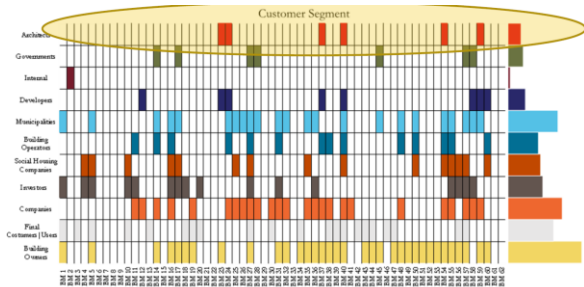


Figure 37: BM 72 - Screenshot: www.cravezero.eu

REVENUES:

Revenues are made from subscription fees, licensing, advertising and brokerage fees.

COSTS:

The company would have, in addition to the expenses for the plants themselves; salaries, rents, utilities and license fees.

STRENGTHS AND KEY FACTORS:



MATURITY:

-to be defined-

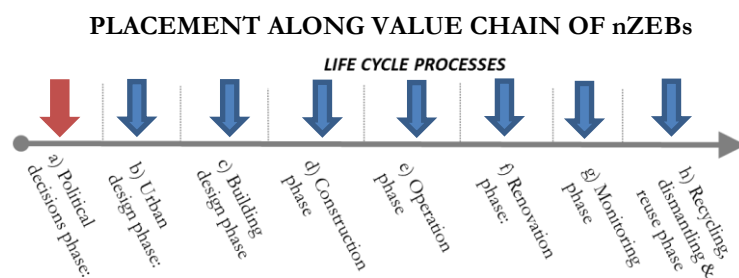


Figure 38: BM 72 - Placement of the BM along the life-cycle processes

BM 73: REPURPOSE FOR SOCIETY/ENVIRONMENT

VALUE PROPOSITION:

With this BM, it is aimed to help clients to optimize their energy, operate efficiently, maximize energy efficiency and sustainability, find solutions with electrical distribution system and energy.

CUSTOMER RELATIONSHIPS:

Customer relationships can be handled with detailed website to answer all the possible questions, contacting the customer support, online catalogue, brochures, calling a consultant, references of previous projects on the website with description of the problem, solution adopted, and benefits obtained.

CUSTOMER SEGMENT:

The offer could be wide spread and could include: Residential, commercial and industrial buildings, real estate owners, property administrators, designers and builders.

ACTIVITIES AND CAPABILITIES:

The service portfolio should provide a care free service for consultancy for:

- Reducing energy waste
- Not for profit
- Hybrid businesses, Social enterprise (for profit)
- Alternative ownership; cooperative, mutual (farmers) collectives
- Social and biodiversity regeneration initiatives ("net positives")
- Base of pyramid solutions
- Localization
- Home based, flexible working



Figure 39: BM 73 - Screenshot:

www.cecodoor.com/en/site/cecodoor/products/energy-efficiency/

REVENUES:

Revenues are made from depending on the relevant contract, hybrid businesses, social enterprise for profit-ing, customer made services with different revenues from consultancy.

COSTS:

The company would have, in addition to the expenses for the plants themselves; personnel expenditures for consultancy and customer support, communication, infrastructure, marketing, and commercial activity.

STRENGTHS AND KEY FACTORS:



MATURITY:

-to be defined-

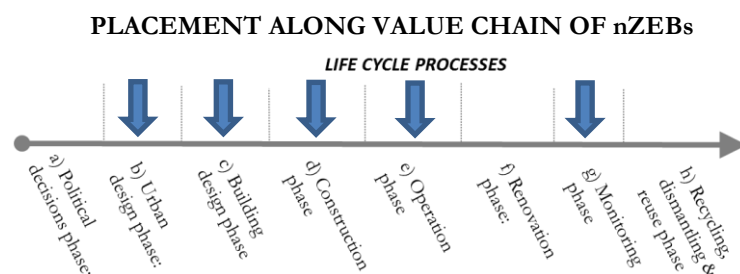


Figure 40: BM 73 - Placement of the BM along the life-cycle processes

BM 74: QUALITY AND COMFORT INCREASE VALUE PROPOSITION:

With this BM, it is aimed to help clients with optimizing energy, operating efficiently, maximizing profitability and energy efficiency, IT infrastructure, control devices, integrated facility management, and energy solution.

CUSTOMER RELATIONSHIPS:

Customer relationships can be handled with detailed website to answer all the possible questions, contacting the customer support, online catalogs and brochures, calling a consultant if need be, references of previous projects on the website with description of the problem, solution adopted and benefits obtained.

CUSTOMER SEGMENT:

The offer could be wide spread and could include: Residential and commercial buildings, real estate owners and designers.

ACTIVITIES AND CAPABILITIES:

The service portfolio should provide a care free service for consultancy for:

- Monitoring/Testing
- Programmable control
- 24/7 monitoring of HVAC, lighting and metering
- Increasing comfort
- BMS
- Critical power
- Electrical distribution
- Industrial automation services
- Modelling
- Simulation/Calculation

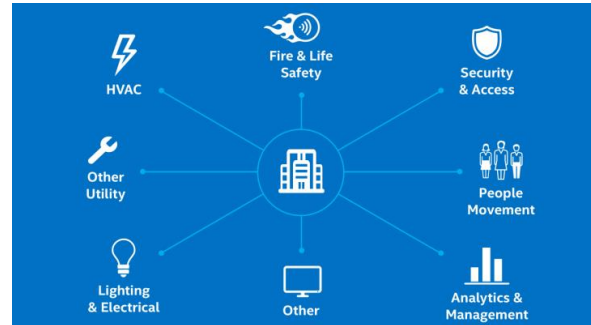


Figure 41: BM 74 - Screenshot:

<https://www.intel.com/content/www/us/en/smart-buildings/opportunities/occupant-comfort-and-productivity.html>

REVENUES:

Revenues are made from depending on the relevant contract, customer made services with different revenues from consultancy, electric installation, maintenance and renovation.

COSTS:

The company would have, in addition to the expenses for the plants themselves; personnel expenditures for the installation phase, consultancy and customer support, communication, infrastructure, marketing and commercial activity.

STRENGTHS AND KEY FACTORS:



MATURITY:

-to be defined-

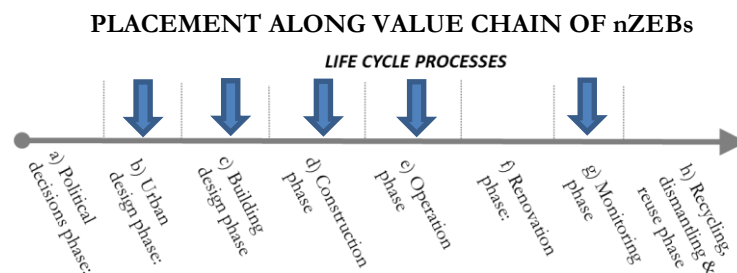


Figure 42: BM 74 - Placement of the BM along the life-cycle processes

BM 75: ENERGY EFFICIENCY AND MONEY SAVING

VALUE PROPOSITION:

With this BM, it is aimed to help clients with optimizing energy, operating efficiently, maximizing profitability and energy efficiency, IT infrastructure, control devices, integrated facility management, energy solution, maximizing material and energy efficiency and substituting with renewables and natural processes.

CUSTOMER RELATIONSHIPS:

Customer relationships can be handled with detailed website to answer all the possible questions, contacting the customer support, online catalogs and brochures, calling a consultant, and references of previous projects on the website with description of the problem, solution adopted and benefits obtained.

CUSTOMER SEGMENT:

The offer could be wide spread and could include: Residential, commercial and industrial buildings, real estate owners and property administrators.

ACTIVITIES AND CAPABILITIES:

The service portfolio should provide a care free service for consultancy for:

- Monitoring/Testing
- Programmable control
- 24/7 monitoring of HVAC, lighting and metering
- BMS
- Modelling
- Simulation/Calculation
- Increased functionality (to reduce total number of products required)
- Dematerialization (of products/packaging)
- Move from non-renewable to RES
- Solar power-based energy innovations



Figure 43: BM 75 - Screenshot:

<https://isoilonline.com/2018/07/us-losing-ground-race-energy-efficiency/>

REVENUES:

Revenues are made from depending on the relevant contract, and customer made services with different revenues from consultancy, electric installation, maintenance and renovation.

COSTS:

The company would have, in addition to the expenses for the plants themselves; producing products for energy efficient and money saving solutions, personnel expenditures for the installation phase, consultancy and customer support, communication, infrastructure, marketing and commercial activity.

STRENGTHS AND KEY FACTORS:



MATURITY:

-to be defined-

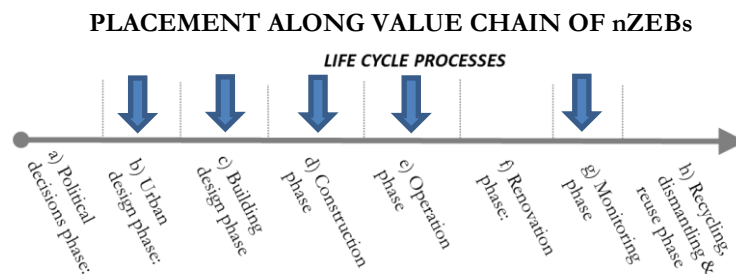


Figure 44: BM 75 - Placement of the BM along the life-cycle processes

BM 76: ENCOURAGE SUFFICIENCY

VALUE PROPOSITION:

With this BM, it is aimed to help clients with optimizing energy, operating efficiently, IT infrastructure, control devices, integrated facility management, electrical distribution system and energy solution.

The purpose is to create both operationally and environmentally outstanding smart buildings, maximize energy efficiency and sustainability

CUSTOMER RELATIONSHIPS:

Customer relationships can be handled with detailed website to answer all the possible questions, contacting the customer support, online catalogs and brochures, calling a consultant, and references of previous projects on the website with description of the problem, solution adopted and benefits obtained

CUSTOMER SEGMENT:

The offer could be wide spread and could include: Residential, commercial and industrial buildings, real estate owners, property administrators, designers and builders.

ACTIVITIES AND CAPABILITIES:

The service portfolio should provide a care free service for consultancy for:

- Consumer education (models); communications and awareness
- Monitoring/Testing
- Programmable control
- 24/7 monitoring of HVAC, lighting and metering
- Reducing energy waste
- BMS
- Critical power
- Electrical distribution
- Industrial automation services
- Simulation/Calculation
- Demand management
- Product longevity
- Premium branding/Limited availability

-Frugal business

-Responsible product distribution/promotion



Figure 45: BM 76 - Screenshot: <https://www.eqmagpro.com/japan-will-explore-new-avenues-for-energy-self-sufficiency/>

REVENUES:

Revenues are made from depending on the relevant contract, and customer made services with different revenues from consultancy, electric installation, maintenance and renovation.

COSTS:

The company would have, in addition to the expenses for the plants themselves; producing products for sufficient and long lasting solutions, personnel expenditures for the installation phase, consultancy and customer support, communication, infrastructure, marketing and commercial activity

STRENGTHS AND KEY FACTORS:



MATURITY:

-to be defined-

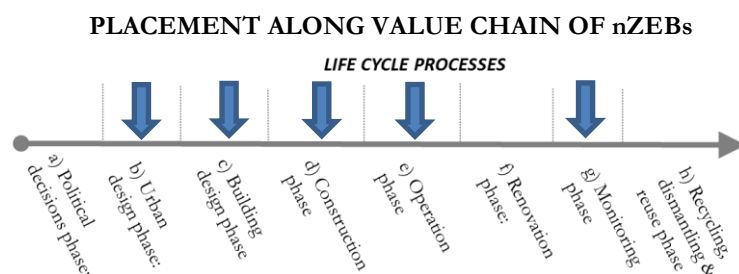


Figure 46: BM 76 - Placement of the BM along the life-cycle processes

BM 77: CONSTRUCTION COMPANY – DOPPIOUNO START-UP

VALUE PROPOSITION:

Doppiouno combines low cost of the construction (investment) and affordability for the prospective users (purchasing power) and build flexible and reversible residential towers. Typological study, technology and design of the utility installations allow for conspicuous savings in terms of building costs, energy consumption, and maintenance. These design and technological solutions also ensure that the interior layout of the units is flexible and able to accommodate different use requirements, and heterogeneous dwelling types.

CUSTOMER RELATIONSHIP:

In order to get in touch with customers the company provides a detailed website. References of previous projects and all services offered by the company are shown on the website. Personal assistance, a customer service reachable via telephone hotline as well as internet and the offer of maintenance services helps building a long-term customer relationship.

CUSTOMER SEGMENT:

The offer is wide spread. Students, city users, single-income families, young couples, singles, senior citizens and expatriates represent segments that are not properly addressed by the current property market, and this prevents them from finding the right housing solution. Doppiouno responds well to their needs.

ACTIVITIES AND CAPABILITIES:

The service portfolio includes providing the necessary information for customers, consultancy, construction and its supervision as well as optional financing subsidies. Maintenance service and customer support.



Figure 47: BM 77 - Screenshot: <http://doppiounostudio.com/>

REVENUES:

The company offers dwellings with different layouts, ranging from the studio flat to the four-room apartment. Moreover, additional revenue streams for financial consultancy, interior furnishing or maintenance service.

COSTS:

The most important costs are represented by building materials, followed by personnel expenditures for the construction phase, consultancy, maintenance and customer support.

STRENGTHS AND KEY FACTORS:

- ✚ Flexible and customisable dwellings
- ✚ Low cost of investment and affordability
- ✚ Environmental, social and economic sustainability

MATURITY:

Start-up

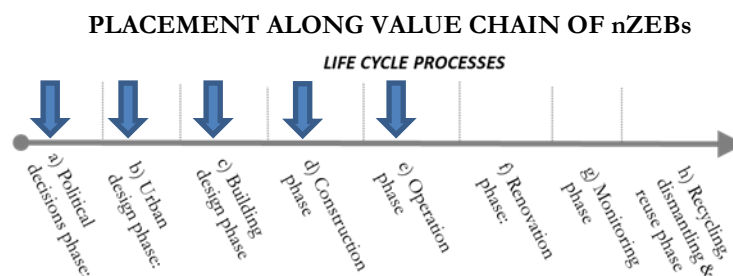


Figure 48: BM 77 - Placement of the BM along the life-cycle processes

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