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Profit from garbage - a case of Rotterdam and the blue economy

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Abstract

In my paper, I examine the blue economy framework in the case of RotterZwam. First, I examine the framework on a theoretical level in the context of new business models, comparing it to the industrial ecology and to the green ecology; and then I look at the practical level through the case study of RotterZwam. RotterZwam is a Dutch company using coffee grounds to grow mushrooms and selling these mushrooms to restaurants.

My main research question is whether this responsible way of value creation is competitive against the conventional business model and other new business models. I examine the advantages and limitations the company has to face due to their chosen business model and answer my research question based on looking at the financial and social performance of this blue economy company.

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1. Introduction

In my paper, I study the concept of blue economy which is a possible business solution for a relevant and crucial issue of today, the dilemma of sustainability. I focus on the understanding and the analysis of this model in context of other similar new business models on a theoretical level and through a real life example on the practical level. My main research question is whether this responsible way of value creation is competitive against the conventional business model and other new business models. I examine the advantages and limitations the company has to face because of their chosen business model and answer my research question by looking first at the theory and then at the financial and social performance of this blue economy company. Considering my research methods to answer this question, I conducted primer and secondary analyses. In the first part, I examined the literature of the blue economy and the other business models. In the second part, I did a primer analysis through an interview with the two entrepreneurs.

First, I introduce the relevant and urgent issue of sustainability and sustainable development that proves the need to change the growth oriented mindset of the conventional business models to something new. After this, I introduce the business model concept, the necessary definitions and its fundamental parts, and then the difference between the conventional and the new business models.

After distinguishing the conventional and the new business models, I divide the second category in three parts (industrial ecosystems, the green and blue economy) and I introduce these parts separately to see the concept of blue economy in a broader context. I close the theoretical level with the understanding and analysis the blue economy business model through comparing the three examined models.

In the second part of my paper, I introduce the company and the business model of RotterZwam. The main activity of this company is the production of mushrooms on coffee grounds using the blue economy framework. I analyze the different parts of its “blue” business model and highlight the advantages and disadvantages which the company realizes only because of the use of this specific model.

To conclude, I provide a summary of my results from the theoretical and the practical parts of the analysis and I outline opportunities to develop further the paper. Considering the relevance of my paper, I strongly believe that the issue of sustainability is urgent and relevant

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and the business solution of the blue economy is interesting, new (concept after 2010) and not so well-known in Hungary.

2. End of sustainability – need for new business models

According to the latest demographic forecasts, by 2030 the population on the Earth will be around 8 billion. If we assume that the developing countries are approaching the developed countries, the consequences in terms of sustainability will be serious (Szépvölgyi, 2002). Nowadays this problematic phenomenon is becoming increasingly observable; the world around us is changing in a dramatic way and in a fatal direction. It is easy to see that the scale of growing human economic subsystem is relative to the finite ecosystem. Under these circumstances the environment is a major constraint of human progress. According to Goodland (1995) the limitations of the biophysical environment are getting worse both in the sense of production (resources) and consumption (waste shrinking). If these two factors do not stay within the assimilation capacity – so the harvesting of renewable capacities is faster than their regeneration period, and production and consumption are not in balance in case of non-renewable resources – the current pattern will be not sustainable any more. There are scarce resources and today's trend is that the consumption is unfortunately faster than the production in terms of natural resources. On top of this, there is a lot of wasting. The continuous depletion of the irreplaceable capacities is leading to unsustainability, and the number of individuals can be sustained by the environment becomes limited (The Blue Economy website, 2011a). In numbers and statistics the ecological footprint is the most popular and well-known method to calculate and show how wrong is this situation of sustainability exactly.

Considering that this trend is basically coming from the conventional business models and from the over weighted focus on economic growth, companies have an important role in changing it and make the human production and consumption patterns sustainable again.

As a conclusion it can be easily seen that the current trends and the conventional business models are not sustainable any more, there is a need for new business models.

2.1.What is sustainable development?

It is important to clarify that growth is not equal to development. Development can be sustainable unlike growth. According to the World Wildlife Fund (1993, p. 32) sustainable development is “improvement in the quality of human life within the carrying capacity of supporting ecosystem”. From the viewpoint of The Brundtland Commission (1984, p. 15.) the development can be sustainable only when “it meets the needs of the present without

compromising the ability of future generation to meet their own needs”. Based on this it can be stated that the problem of sustainability applies not only in the present but in the future as well.

Sustainability can be examined on different levels. We can talk about it in a global level or in parts. If we divide it into categories, the main types of sustainability are the environmental, economical and social sustainability.

According to Goodland (1995) the economic sustainability is about increasing the efficiency of using goods and striving for equal distribution. The main goal of social sustainability is decreasing poverty. Regarding to this paper the third type is the most relevant, the environmental sustainability. For saving this, people have to protect their raw material sources for human needs and decrease waste, so in other words to maintain life-support systems.

To sum up, the issue of sustainability (especially the environmental sustainability) is an urgent and relevant problem nowadays. In the near future there will be biophysical impossibilities with the current growing patterns. Companies have an important role in changing the present situation, and the most adequate way for this is changing the conventional growth-oriented business models to renewed and mostly development-oriented business models.

3. Theoretical background – definitions and concepts

From these problems I can conclude that for achieving sustainability a paradigm shift is necessary, which can be started from the companies' side with changing their business models to a more sustainable one. To write about the necessity of business model change first of all I have to clarify what I understand under the concept “business model”.

3.1. Definition and function of business models

In the next section first I introduce the definition and function of business models, and then I examine the origin of the concept. After this I present the main differences between the so called „conventional” and „new” business models. The first part of the section is based on my bachelor thesis, especially regarding to the references and the structure, I use the same sources (Title of the thesis: *The business model of music talent shows – Does special Hungarian model exist? (2012)*).

The topic of business models has rich academic background, according to Amit, Zott and Massa (2010, p.5.) there are several hundred articles in this field. In the articles examined by them 44% of the authors created their own definition, and only 19% referred to an already existing definition. From this we can conclude that these definitions are rather different, but they contain a few common points. These articles agree on the fact, that the framework “business model” is a completely new unit of the analysis and it seeks to outline the whole value creation process of a company through detailing the activities with the sake of completeness. After showing the common points of the articles I introduce a couple of definitions in more detail, namely the definitions of Porter (2013), Zott and Amit (2001), Teece (2010), Osterwalder and Pigneur (2010), Johnson, Christensen and Kagermann (2008) and Barakonyi (2008).

According to Porter (2013, p.13.) the business models show the way how a company does its business and makes profit. By this interpretation it is important to emphasize that making profit is not equal with creating value.

In the article of Zott and Amit (2001) the concept business model shows the content, structure and control of the planned transactions, and the way of value creation through taking advantage of opportunities.

Teece (2010) refers to the phenomenon of business model as the organizational and financial structure of the business. In more details the business models show the way how the company creates and delivers value to the customers while creating revenue and profit for itself.

In Osterwalder and Pigneur's (2010) opinion the business model writes down the logic behind the way how the organization creates, delivers and fixes value.

The concept of Johnson, Christensen and Kagermann (2008) contains four main elements. The first is the value proposition, the second is the profit formula (revenues and costs), the third is the key resources and the fourth is the key activities. The company creates and delivers value for the customers and owners through putting together these four elements.

Of course it is not a good idea to overvalue the means of the business model, because it usually excludes an important factor: the situation of competition (Barakonyi, 2008). Based on this, a good business model is not enough to substitute the strategy; it is only an additional tool.

Based on the above mentioned definitions the emphasis of the business models is always on value creation, customer focus and the way of being profitable.

From these definitions it can be clearly seen that business model answers the questions related to the operation of the company, for example it tells who the customer is, what the product is, how the customer can get the product and how value is created to both of the customer and the company (Chesbrough and Rosenbloom, 2002).

In practice Osterwalder and Pigneur's model (2010) is the most suitable for analyses, because it can be used in a very transparent way, and it includes all the important above mentioned elements. That is why I chose their definition and model to do the analysis of the business case of RotterZwam.

3.2.The origin of the business model concept

Although the definition appeared already in 1957 in the article of Bellman, Clark et. al, it was not widely used until the appearance of the Internet. After this, an article of Chesbrough and Rosenbloom (2002) was the starting point of the boom of related articles on this topic. According to them the main reason of this boom and of the change of conventional business thinking was the appearance of online based companies.

3.3.The Osterwalder business model canvas

After clarifying the necessary background information about the definition and origin of business models, I introduce the elements of Osterwalder et al.'s business model canvas, which I use later to analyze the blue economy business model in the case of RotterZwam.

As I mentioned before, the business model introduces the logic of value creation, delivering and fixing in an organization (Osterwalder et al., 2010). The Business Model Canvas (Osterwalder et al., 2010) shows the process of value creation in nine points.

It is important to see, that there is a strong relationship between the nine pillars, so each of them have to be considered carefully to build up a good business model. The points and their connections can be seen in the next figure:

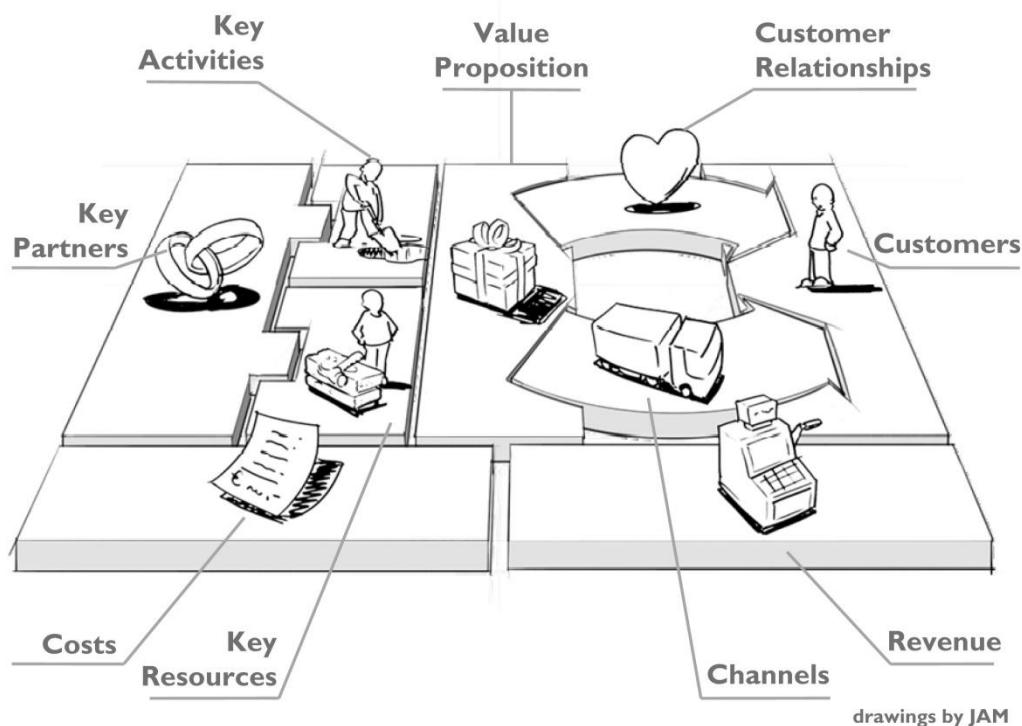


Figure 1: The Business Model Canvas of Osterwalder and Pigneur (2010).
Source: Osterwalder and Pigneur (2010): Business Model Generation p. 18-19.

In the next part I list and introduce briefly the nine elements of the model from the supplier side to the direction of the customers, so from left to right based on Osterwalder et al. (2010).

- Key partners: This item contains the network of partners who are required to a well operating business model. The function of these key partners can be sharing and reducing risks, achieving the economy of scale together, getting an easier access to resources through a bigger bargaining power etc. The main types of key partners are

suppliers who can be in a relationship with the company in very specific way, for example through a joint venture or a strategic alliance.

- Key activities: These are the most important activities, which have to be conducted by the company to achieve successful operation. For instance production, problem solving, consulting, network building etc. can belong to key activities.
- Key resources: Companies need these special resources for creating the value proposition and for keeping the relationship with the customers. The four main types of resources are the physical, financial, intellectual and human resources.
- Value proposition: This is the core element of every business model. It introduces the products and services which are the means of value creation for different customer segments. This is the special “thing” which the customers choose a certain company for and which solve the problems and meet the needs of customers (for instance this can be novelty, better performance compared to the others, customizing, design, brand etc.).
- Customer relationships: This element of the business model describes the types of the relationships between the customers and the company on a scale from the personal to the automated.
- Channels: This part of the business model shows the ways of getting in touch with the different customer segments, the communications and the delivering of the value proposition. This is the exact connection between customers and the company. There are direct or indirect channels.
- Customer segments: These people or organizations are the targets of the company’s products and services (it can be a mass market, a niche market, a segmented market, a diversified market etc.).
- Cost structure: It includes all costs related to the operations, so to the above mentioned seven parts of the business model. In some cases this part is the core of the model, for example in the case of discount airlines.
- Revenue streams: Similar to the costs, this is also a summarizing part. It shows the amount of money coming from the customers. An important issue of this part is pricing. If we reduce the revenue with the costs we get the profit of the business model.

From the perspective of this paper introducing the parts of business models was necessary, because later on I compare different business model types, and I analyze one concrete case in the type of blue economy business model.

In the next subsections I divide the potential business models into two groups: the “conventional” and the “new” business models.

3.4. The conventional business models

According to Jonker (2012) economic growth is a restricted concept; it does not pay attention to the total welfare, only to an economic aspect of it. Considering that the main goal of the conventional business model is economic growth, it can be seen that this concept is restricted as well. Conventional business model a tool for creating value to the customers and to the company but does not consider the aspects of a broader group of stakeholders, for example the aspects of the society or the environment. The main driver of the conventional business model is doing profitable business and this supports the unsustainable resource wasting habits of the society (Müller, 2012).

The new business models

In my paper I focus on new business models, because those might provide a solution for the scarcity and unsustainability problem outlined in the first section. According to Jonker (2012) the main goal of new business models is to make profit in a sustainable way. The key attributes of these new business models compared to the conventional ones are sharing, trading and creating (Müller, 2012). The first one is related to sharing knowledge, social capital, time, ability, ideas, equipment, property, data, transport etc. The second attribute concerns building connections and trading with the remaining capacities. The third factor focuses on creating multiple values (social, economic and ecological values). It is important to see that renewing a certain part of the conventional model is not enough, in order to obtain a sustainable business model the whole structure of value creation is to be reformed. In order to achieve competitive advantage, these new models are supposed to result in a better performance in several aspects than the previous ones; “just” eco-friendliness is not enough to attract the customers. The innovation should be design driven; new business models should be formed to align with the real needs of the stakeholders, to achieve economic success. The most common starting point of these new business models are the innovative value propositions and multiple value creation (Jonker, 2012). In general, the main added value of

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the new business model concept is the focus on sustainability and the attempt of “greenifying” the current business proposition.

4. Three types of new business models

In this section I list, briefly introduce and compare three popular new business models, the industrial ecosystems, the green economy, and the blue economy. The scope of the analysis and the comparison is the following. I strived to select all of the aspects which help to cover most of the processes and stakeholders.

- Basic principles
- The degree of deviation from the conventional model
- Flexibility – adaptive capability of the model (e.g. demand-side shock)
- Economies of scale
- Additional customer benefits
- Environmental consciousness
- R&D + innovations
- Revenue + cost structure
- Job opportunities
- Political influence
- Degree of environmental consciousness
- Limitations

First I introduce the industrial ecosystems.

4.1. Business model of industrial ecosystems

4.1.1. The main principles of the model

According to Szépvölgyi (2002) the previous linear model of industrial production (the base of the conventional business model) is not viable anymore. In the linear model the natural resources and energy are transformed through industrial processes to end products (based on the demand of the society), and the waste created during this process is absorbed by the environment.

In this model the solution for the sustainability issue is the introduction of a new system called industrial ecosystem which replaces the linear model with a non-linear and which is integrated better in the natural environment.

This model considers the natural environment and the industrial production as elements of the same ecosystem, and it optimizes the resource and energy consumption and the waste

production. The logic behind the model is that the output of one process can be the input of the next one, so resource consumption and waste creation can be limited to the lowest possible level. Altogether this model is process and product design built on a strong integrated environmental aspect.

4.1.2. The goal of the model

The purpose of the industrial ecology (the supporting science of the industrial ecosystem model) is to copy the operating principles of natural systems and then to adapt them to human-made artificial systems or technologies. By adapting these rules the production can be closed-loop, technically and economically efficient and more sustainable.

4.1.3. The main tools of the model (Kerekes, 2007):

- System-oriented testing of the interactions between the industry and the environment
- Combination of material and energy streams
- Decreasing the environmental impact of industrial processes
- Coordination of the industrial and environmental systems
- Transforming the open-loop systems to closed-loop systems
- Biomimikre (imitations of the environment)

4.1.4. Limitations of the model

The most important limitation of the industrial ecosystem model is the high transaction and coordination costs that occur during system optimization and process design. Another problem can be the imperfect match between the waste and the necessary inputs, if it is not 100%, the circulation is damaged.

4.2.Green economy business model

4.2.1. The main principles of the model

The literature of green economy is rapidly expanding, mainly because of the attention attracted after the financial crises. Among the main publishers there are influential international organisations, governments, NGOs and think tanks (United Nations, s.a.). According to the UNEP (s.a.) the green economy “improves human well being and social equity, while significantly reducing environmental risks and ecological scarcities”. The main characteristics of the model can be described as “low carbon”, “resource efficient” and

“socially inclusive”. It focuses on growth but this growth is driven by investments which reduce the carbon emission and enhance resource efficiency. These investments are usually catalyzed by targeted public expenditure (Springett, 2012).

4.2.2. The goal of the model

Green economy's goal is to catalyze three main things. First it aims to help the issue of renewed national policy development, second it triggers international cooperation and third it supports sustainable development.

4.2.3. The main tools of the model

The main tools of the model are incremental improvements. It modifies the conventional system in small steps, substitutes a few products/processes with another, but it does not change the whole system in its basics.

4.2.4. Limitations of the model

The green business model has an impact only on specific products in niche markets, for example in the tea or coffee market with the fair trade products. Developing and marketing these products require substantial investments as a result the prices are usually higher than the competitors' “not green” prices. This fact would not be a problem if these products had additional customer benefits but usually there is no noticeable difference from other conventional products (Müller, 2012). If there is a demand-side shock in the market, the price of these products surpasses the reservation prices of customers that results in a severe volume decrease which causes that the profitability of this model becomes vulnerable.

There are other crucial issues concerning this model. The basic principles do not serve the goal of sustainability in the most possible way. For example using corn as a feedstock for bio fuels can be problematic, because this results in the need for a higher genetic control in order to make the output predictable and standard. Using palm oil for producing biodegradable soaps is also an issue, considering the fact that production of palm oil destroys the natural environment of a lot of animals.

4.3. Blue economy business model

After describing two types of new business models, I briefly introduce the business model which is the focus of this paper, the blue economy model.

As I mentioned above my research questions relate to the blue economy model. The purpose of this paper is to describe and analyze the blue economy model on a theoretical and practical level. In terms of the theoretical analysis it is important to see the model in context of similar models and compare it to these models. In the practical level I examine the concept through a real example and draw a conclusion about its features, competitiveness, advantages and disadvantages in the given case.

4.3.1. The main principles of the model

The main principle of the blue economy is “using what is available and address the needs of society” (The Blue Economy website, 2011b). “Using what is available” means that the model uses one’s waste as the resource for another. From this aspect it is similar to the industrial ecology mode, but the blue model emphasizes using locally available resources, based on the example of the nature, that can only work with what is locally available.

Another important principle is that in nature each process generates multiple benefits. Based on this, entrepreneurs try to stand on multiple feet and create multiple sources of cash flow. This can be achieved by using the economies of scope instead of the economies of scale.

4.3.2. The goal of the model

“The main purpose of the model is eliminating the unsustainable use of materials and energy in the process” (The Blue Economy website, 2011a). This means that the concept focuses on reducing waste production; it tries to achieve zero emission.

4.3.3. The main tools of the model

The tool of eliminating the unsustainable use of materials is based on finding sustainable solutions inspired by the nature’s design. It utilizes mostly the law of physics, chemistry and biology, especially the change of pressure and temperature. This model is rather a bottom-up initiative unlike the previous two, the change of ecological framework comes from entrepreneurs through small innovations and local implementation.

4.3.4. Limitations of the model

One of the main limitations comes from the basic principle “zero emission”. There is always a limit of opportunities in renewing resources and sometimes due to hygiene or health standards it is not possible to use something again.

Due to the limitations and the purpose of this paper other existing models such as the capital stock model, SEER business model or the cradle to cradle approach are not described in detail. The other models were described to be able to compare the blue economy model and place it within the existing literature. The following section provides a comparison between the analyzed models according to the aspects outlined within the introduction. One of my research questions is whether the blue economy model is superior (more competitive) to the two other introduced business models?

4.4. Comparison of the three models

In this section I compare the industrial ecosystems, the green economy and the blue economy from a number of aspects and draw a conclusion to close the theoretical part of my paper.

	Industrial ecosystems	Green economy	Blue economy
Basic principles	non-linearity – focus on the nature	social equity resource efficiency	zero emission local initiatives
Degree of deviation from the conventional model	radical ✓	incremental (small corrections) ✗	radical ✓
Flexibility	not flexible ✗	not flexible ✗	flexible ✓
Economies of scale	yes ✓	yes ✓	no ✗
Additional customer benefits	no (the products are the same) ✗	no (only the “greenness”) ✗	yes (freshness of the products) ✓
Environmental consciousness	yes ✓	no ✗	yes ✓
R&D and innovations	yes ✓	yes ✓	yes ✓
Revenue + cost structure	multiple revenue streams, higher costs ✓	conventional revenues, higher costs ✗	multiple revenue streams, lower costs ✓
Job opportunities	yes ✓	yes ✗	yes ✓
Political influence	yes ✓	yes ✓	no ✗
Level of helping the environment	yes ✓	no ✗	yes ✓
Limitations	match between waste and input, high costs	high costs and lower demand	non-renewable materials,

			regulations
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Table 1: Comparison of the industrial ecosystem, green economy and blue economy (source: own structure)

From the table it can be seen that considering these aspects the blue economy model scored the best. It has only two disadvantages, firstly the lack of focus on economies of scale so it cannot enjoy the cost reducing opportunities given the higher production volumes. Secondly it does not have political influence because it is a small local initiative usually; the main users of the model are small entrepreneurs. The main advantages of the blue economy model which can make it competitive are the flexibility (it can react to the demand changes flexible, because it has local, usually personal supplier and customer contacts), the additional customer value (for instance freshness), which is based also on the local aspect and lower costs thanks to the optimized and flexible capacities.

The main differences come from the differences in the main principles of the models. The green economy focuses more on social sustainability, of which the in depth analysis is out of the scope of my paper. The industrial ecology does not have additional benefits to the customers (besides sustainability), so it is not competitive against the conventional business models today. The blue economy model is competitive, mainly because of its “local” aspect and this is the one which is very close to the business logic through its popularity among innovative entrepreneurs.

From this comparison I can conclude that the blue economy model is the most competitive and sustainable among the three examined new business models. It is important to see that this depends highly on aspects and weights, and it is possible that only this certain comparison favoured to the blue economy model.

5. RotterZwam case – profit from garbage

RotterZwam is a Dutch company which was founded in 2009 by two entrepreneurs, Mark Slengers and Siemen Cox. They based their company on a blue economy business case; the core activity is producing shiitake mushrooms on coffee ground. This mushroom is valuable because of the high protein content; it can substitute meat in nutrition. In the next section, I present the business model of the company. The motivation of the entrepreneurs is mostly personal, my interviewee, Mark was a sustainability consultant, but he wanted to do more, to get faster results in “improving sustainability”, so he started to actually do something for the environment.

5.1. Business model

To describe and analyze the business model of the RotterZwam, I use the above (in section 2) mentioned Business Model Canvas from Osterwalder et al. (2010). All information which I use in the next subsections is from the interview which I conducted with the entrepreneurs.

The Business Model Canvas

 Key Partners Local pubs and coffee sellers, other members of the community In the near future: future: IKEA	 Key Activities Research and development, Producing mushrooms, Holding workshops	 Value Proposition Fresh shiitake mushrooms (customers get it in less than 5 hours after harvesting)	Customer Relationships B2B sales, focused sales to small partners, direct relationship – flexible delivering	 Channels Direct channels, delivering by bicycle – no levels between the producer and the customers	Customer Segments Restaurants and bakeries in a 10 km circle In the near future: Retailers and coordinators to reach customers more directly
Cost Structure Electricity and water Renting fee Price of bags and straw (not any more)			 Revenue Streams Multiple revenue streams: Mushroom selling, holding workshops and seminar for customers and companies Financing: crowd funding		

Figure 2: The Business Model Canvas of RotterZwam (Source: own figure based on Osterwalder et al., 2010)

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- Value proposition: RotterZwam is selling shiitake mushrooms. The core competence of this value proposition is firstly that this kind of mushroom is high quality and it contains a lot of protein, so it can substitute meat in the nutrition.
- Key partners: Due to the blue economy model, RotterZwam works only with local suppliers. This means that the entrepreneurs are cycling around in a 10 kilometres circle of the company and collect the coffee ground from pubs and restaurants in this circle. It is a mutually beneficial partnership for the members, because RotterZwam get materials for producing mushrooms for free and these pubs and restaurants do not have to pay for eliminating waste. This is another corner stone of the blue economy framework; the inputs of the company are out of waste. Potential future partner can be IKEA, but only if producing containers will be built in the stores or in the 10 km circle of the stores, because now IKEA is too far away, and it would go against the model to go and collect the coffee there. Now the entrepreneurs are thinking about new materials for using together with the coffee ground instead of the expensive straw, for example tomato leaves. They are negotiating with tomato farms at the moment.
- Key activities: One of the key activities is “investigating”, which means continuous research and development. The main topic of research is harvesting; the entrepreneurs are studying the harvesting limits of the coffee ground in different temperatures and pressures. This is another important point of the blue economy model that it is strongly based on innovations and innovations build on the law of physics, mostly on changing temperature and pressure in a specific way. RotterZwam is a member of the international mushroom learning network, which phenomenon is also an important element of the new business models (included the blue economy), it is a part of the “sharing” attribute. These members of the community share the knowledge and the know-how with each other. It takes around 2 years to get this know-how from scratch. Of course, the key activities are the production and to realization of multiple value creation principles of the blue economy model, the entrepreneurs hold workshops for the customers (as a hobby) and for the “competitors”, other companies to transfer the know-how. The competition is not so threatened in these types of activities, because it is strongly local-oriented, and they do not have competitors in their 10 km circle area. Over the Netherlands, there are 10-12 company with this business model, and they rather help each other than compete against each other.
- Key resources: You do not need specific resources for doing this business model, it is not related to a special place; you can do it all over the world. Of course, it is

necessary to use electricity and water for the production and for keeping the necessary temperature and pressure on. During the production, they put the coffee ground into bags (in shape of a box bag, and the material is some kind of special canvas), and the mushrooms are coming out from the bag when it starts to grow. So they need these bags for growing the mushrooms. This is one of the problematic points of the model; they cannot reuse these bags because of hygiene standards and because of the fact that this is not suitable for repeated usage. So at this point of the production, they have emission, waste, “zero emission” cannot be realized. Besides the necessary resources for the production, the partnerships, the knowledge and the network are the most valuable resources of the company. Without them (e.g. suppliers of the coffee ground or know-how about the harvesting) the model is not functional.

- Customer relationships: The selection of the customers also follows the main principle of blue economy, “act locally”. The customers are B2B customers, so restaurants and bakeries for example in the 10 km circle area. These restaurants are “happy” with the small amount as well, and they are quite flexible in the issue of delivery. The main reason for this is that at the moment RotterZwam is not producing a lot of mushrooms, only 4-5 kilos per week, so it is not the only supplier of these customers, just an additional one. After investigating the most efficient way of harvesting, they will have 100-200 kilos per week (in 2 year time period) and they will broad this customer base, maybe in the direction of B2C solutions, in cooperation with retailers or coordinators. It is important to save the core advantage of the model “freshness”, they cannot allow more than 2 additional actors into the supply chain.
- Channels: RotterZwam has a bicycle to collect the coffee grounds and to deliver the products. It reaches its suppliers and customers in a direct way, mostly because of their small amount.
- Customer segments: The customers are not segmented at the moment; RotterZwam has only 5-6 clients, who are similar in needs and conditions.
- Cost structure: From the principles of the model, most of the resources are out of waste, so for example they do not pay for the coffee grounds. The biggest cost factors are the price of the bags, the price of the electricity and the water and the renting fee. They use a building which is owned by the city, and they have to pay only a small amount of money for it, but this will increase soon, so they have to think about sharing the building. The building has a big territory, but only a small part can be used as special rooms for the production, they use only 20 m² at the moment, and this place

would be enough for producing 200 kilos per week. It was a swimming pool before. Although the useful territory is small, they still have empty rooms, so it is a good idea to rent it to other small entrepreneurship and share the renting fee.

- Revenues: From the specific multiple value creation factor of the blue economy model comes multiple cash flows, multiple revenue streams. It generates revenue from selling the mushrooms, holding seminars and workshops, or spreading the know-how through internship programs for example. Now they have an intern from Sweden, who does not get a salary, but work for them, and her original workplace pays a fee for RotterZwam for this kind of mentorship. The financing is based on crowd funding, they have a webpage and they collect the contributions there. The company is not profitable at the moment, the revenues are equal to the costs, and there are no salaries, but the entrepreneurs think that after finding the right way of harvesting, they can increase the volume drastically and the will be profitable soon. Their prices based on the conventional competitors' prices, they sell one kilo of mushrooms for 10 Euros excluding tax to their partners.

In the next subsection, I highlight the parts of the business model which are strongly related to the fact that they are “blue” and the parts which go beyond the concept.

5.2. Why is it blue?

Three main elements of “being blue” can be caught in the business model of RotterZwam. We could see that in almost each of the parts of the model the main principles are present.

First, the model focuses on being local; it serves customers and gets resources only in a 10 km circle area. This gives one of the core competitiveness (besides the sustainability): they can produce high quality mushrooms and deliver it in 5 hours after harvesting. This freshness is a real additional benefit for the restaurants or bakeries for example.

Second, it is out of waste. Although it cannot realize the principle “zero emission” because of the bags, it uses the waste of others (pubs and coffee sellers) to produce the main product. When the coffee ground is not useable any more, they give it further as animal food. Originally, coffee ground is not suitable for being animal food because of the chemicals, but after producing mushrooms on it, the chemicals disappear.

Third, innovation and small entrepreneurs are the key. Without continuous research, this model cannot be profitable, they need to find out the ways of being more and more efficient and produce more and more from this scarcity. Sharing the know-how is an important element of the blue economy concept.

Of course there are several other little evidences of being blue economy, but the most important is, that the entrepreneurs define themselves as blue economy entrepreneurs, they know and try to follow the main principles as far as it is possible.

5.3. Advantages and limitations of the blue economy model

The main advantages of pursuing this business model are personal. These entrepreneurs are happy to contribute to sustainability and they can do it (from the near future) profitable. They can learn about something interesting in a big community with sharing the knowledge with each other. Due to the multiple value creation, they have a broader viewpoint about themselves, and about their products, they can feel real contribution and not a one-sided job.

As I mentioned in the previous subsections, the model of RotterZwam is not perfect of course, there are many opportunities to develop it. First of all, there is a waste because of the bags. These bags can be replaced by recyclable containers or bio bags but this needs investment and this moment the entrepreneurs do not have the necessary capital to do this. This refers to the next limitation of the model, the profitability. It can work profitable, and it can create value for the customers and for the company, but “you will not be rich from this” – Mark Slengers (2014). The main reasons of these are advantages from another aspect; the price of staying local and selling fresh products is that your volume has limits.

We can see that in this given case the blue economy framework has a lot of additional values for the operation, mostly because of the principle “being local”, “out of waste” and the inspiration of innovations and sharing the knowledge. Of course we found limitations, achieving “zero emission” seems to be a long way to go, but the company is on a good track and they believe that it is possible.

6. Conclusion

From my research I can conclude that the blue economy model is a good way for being more sustainable, for making sustainable development possible in the business environment. It has a lot of special attributes, which can have restrictive nature, for example the “staying local” principle, but this can ensure a competitive advantage against the conventional model (in this case this principle had the impact of “freshness”) as well. My example case supported the theoretical part, what I concluded from the comparison as main advantages were observable in the real life example as well.

For developing this paper it would be interesting to examine the examples of other entrepreneurs and with a bigger pattern to draw up a bit more general consequences. Of course from one interview it is not possible to conclude for the whole model, the function of this example was rather to see a possible realization of blue economy on the practical level.

7. Summary

In my paper I studied the concept of blue economy which is a possible business solution for a relevant and crucial issue of today, the dilemma of sustainability. I focused on understanding and analyzing this model in context of other similar new business models on a theoretical level and through a real life example on the practical level.

First I introduced the relevant and urgent issue of sustainability and sustainable development that proves the need to change the growth oriented mindset of the conventional business models to something new. After this I introduced the business model concept, the necessary definitions and parts of it and then the difference between the conventional and the new business models.

After distinguishing the conventional and the new business models I divided the second category in three parts (industrial ecosystems, the green and blue economy) and I introduced these parts separately to see the concept of blue economy in a broader context. I closed the theoretical level with understanding and analyzing the blue economy business model through comparing the three examined models.

In the second part of my paper I introduced the company and the business model of RotterZwam. The main activity of this company is producing mushrooms on coffee grounds using the blue economy framework. I analyzed the different parts of its “blue” business model and highlight the advantages and disadvantages which the company realize only because of using this specific model.

To conclude I provided a summary of my results from the theoretical and the practical parts of the analysis and I outlined opportunities to further developing the paper. After the theoretical comparison I thought that the main advantage of the blue economy is the flexibility and the principle zero-emission. In my example there was a great emphasizing on the local acting, and actually it was the base of the competitive advantage.

8. References

Amit, Raphael – Zott, Christoph (2001): Value Creation in E-Business. Strategic Management Journal. Volume 22, Issue 6-7, p. 493–520., 2001. June-July

Barakonyi Károly (2008): Üzleti modellek. Vezetéstudomány 39. k. 2008. May

Chesbrough, Henry – Rosenbloom, Richard S. (2002): The role of the business model in capturing value from innovation: evidence from Xerox Corporation's technology spin-off companies. Industrial and Corporate Change, Volume 11, Issue 3. p. 529-555.

Goodland, Robert (1995): The Concept of Environmental Sustainability. Annual Review of Ecology and Systematics, Volume 26, p. 1-24.

Johnson, Mark W. - Christensen, Clayton M. - Kagermann, Henning (2008): Reinventing Your Business Model. Harvard Business Review, December 2008. p. 59-68.

Jonker, Jan (2012): New business models. An explorative study of changing transactions creating multiple value(s). Working Paper. Nijmegen School of Management. Radboud University Nijmegen.

Kerekes Sándor (2007): Környezetgazdálkodás, fenntartható fejlődés. Debreceni Egyetem Agrár- és Műszaki Tudományok Centruma. Agrárgazdasági és Vidékfejlesztési Kar. Debrecen

Müller, Matthias (2012): Design-Driven Innovation for Sustainability: A New Method for Developing a Sustainable Value Proposition. International Journal of Innovation Science. Volume 4 · Number 1.

Osterwalder, Alexander – Pigneur, Yves – Tucci, Christopher L. (2005): Clarifying business models: origins, present, and future of the concept. Communications of AIS, Volume 15, Article

Osterwalder, Alexander – Pigneur, Yves (2010): Business Model Generation. John Wiley & Sons, Inc., Hoboken, New Jersey.

Pauli, Gunter (2010): A Kék Gazdaság; 10 év 100 innováció 100 millió munkahely. PTE KTK Kiadó, Pécs

Springett, Delyse (2003): Business Conceptions Of Sustainable Development: A Perspective From Critical Theory. Business Strategy and the Environment. 12, p. 71–86.

Szépvolgyi János (2002): Ipari ökológia: az ipar és a környezet kapcsolatának újragondolása. Magyar Tudomány, December

Teece, David J. (2010): Business Models, Business Strategy and Innovation. Long Range Planning 43 (2010) 172-194.

Available at: http://ac.els-cdn.com/S002463010900051X/1-s2.0-S002463010900051X-main.pdf?_tid=4f4fa392-2351-11e2-8acf-00000aabb0f26&acdnat=1351684470_c288d12202f3ab41449c77cda006d868

Accessed: 21 March 2014

The Blue Economy website, 2011a: The official history of the brand blue economy

Available at: <http://www.blueeconomy.eu/page/historie>

Accessed: 17 March 2014

The Blue Economy website, 2011b: The principles of the blue economy

Available at: <http://www.blueeconomy.eu/page/dieprinzipien>

Accessed: 17 March 2014

UNEP s.a: About GEI. What is the "Green Economy"?

Available at:

<http://www.unep.org/greeneconomy/AboutGEI/WhatisGEI/tabid/29784/Default.aspx>

Accessed: 15 March, 2014

United Nations, s.a.: Green economy in the context of sustainable development and poverty eradication

Profit from garbage? – A case of RotterZwam and the Blue Economy

Available at: <http://sustainabledevelopment.un.org/index.php?menu=1224>

Accessed: 15 March, 2014

Zott, Christoph – Amit, Raphael – Massa, Lorenzo (2010): The Business Model:

Theoretical Roots, Recent Developments, and Future Research

Available at: <http://www.iese.edu/research/pdfs/di-0862-e.pdf>

Accessed: 13 March 2014