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# How to explore the commercial viability in berries grown above the Arctic-Circle?

*Arctic BioPlants*

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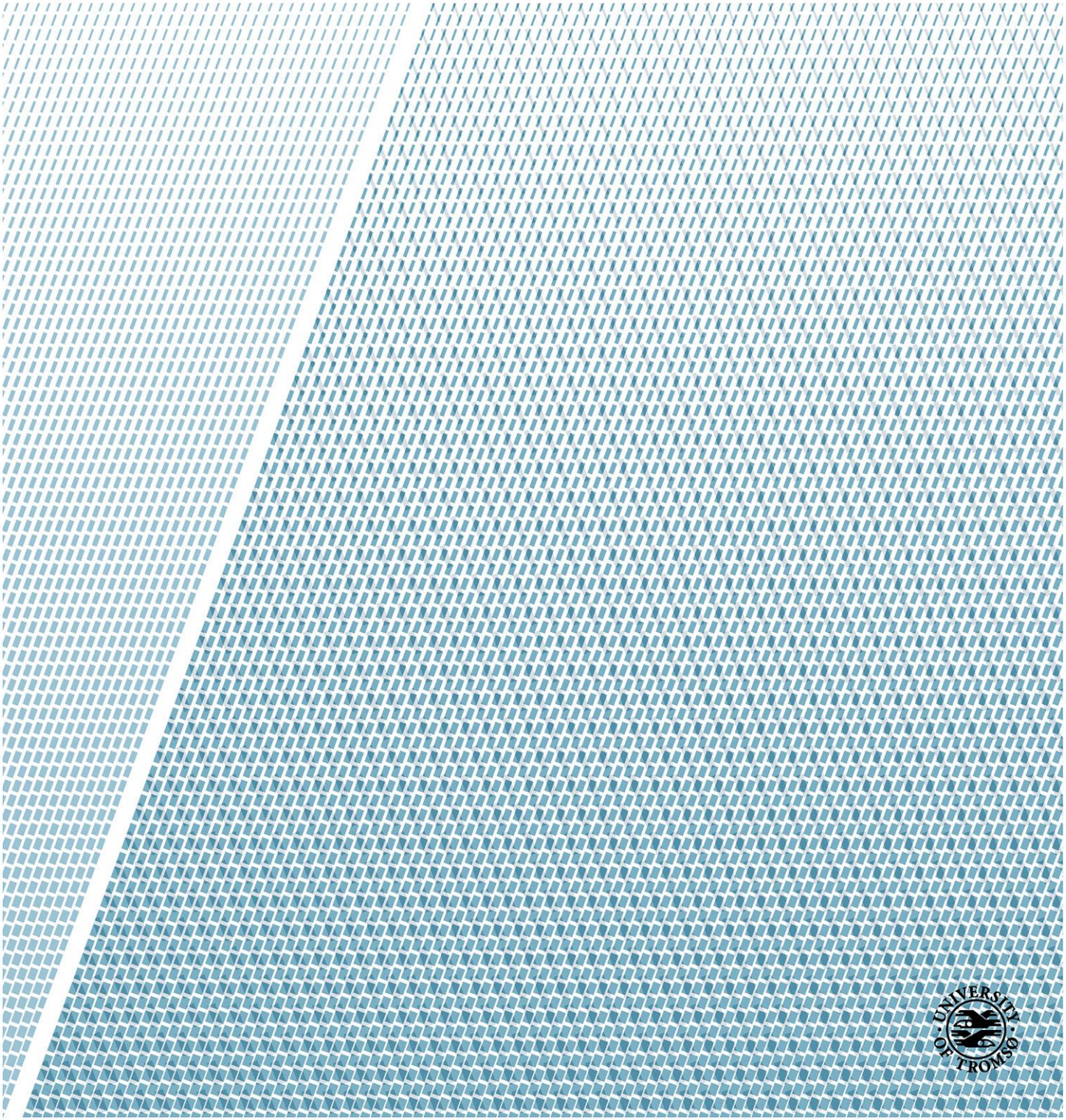
*Master thesis in Business Creation and Entrepreneurship - May 2014 (30 credits)*



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## Abstract

It has been proven that wild berries grown above the Arctic Circle contains higher levels of antioxidants compared to other places in the world. The business idea is to utilize wild, naturally grown Arctic berries processed into freeze-dried, minced berry-powder and sell it as a high-quality nutritional supplement. Arctic BioPlants (hereby referred to as ABP) operates in the health-nutrition industry, which in Norway has revenue of approximately NOK 2.2 Billion, whilst having a steady growth for the past 10 years. The idea came to life as a reaction to the increased focus on keeping a healthy diet, and the struggles that are associated with such a diet. By removing some of these struggles, such as short shelf-life on fresh berries and that frozen berries takes up to much space in the freezer, the inventors reaches an expanding market group. The berries in question are grown in the wild, which enables the inventors to provide the market with a sustainable product that also meets the needs of the consumers.

The main objective of this thesis is to develop and enhance the understanding of the commercialization process for a start-up company with a research-based idea. The thesis consists of four different parts: introduction, technical study, market study and eventually a business plan. The introduction chapter will function as an overview of the whole thesis where we present the structure and methodology that will guide us throughout the thesis work. In the technical study we uncover the innovative potential for ABP's product. In the market study we have explored the market opportunity for ABP, and developed viable market strategies. The thesis' ends with a business plan constructed from our main findings in the previous sections. The business plan is a stand-alone document, for internal and external use, mainly for potential employees and investors. The business plan will summarize the most important findings and present a commercialization strategy for ABP.

Our findings show that it is both possible, and important to pursue sustainable business ideas. This can be done in collaboration between academia and industry in order to gather and utilize resources. ABP`s business idea is an incremental – sustaining innovation, which implies that the products added value to the market has to be clearly expressed towards the consumer.


Key words: Berries, Arctic, research based, business creation, start-up venture, sustainability

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# 1 Introduction Chapter

## 1.1 Introduction

The main objective of this thesis is to further develop and enhance the understanding of the commercialization process for a start-up company with a research-based idea. The knowledge-based idea chosen for this thesis is a local Tromsø company called Arctic BioPlants, hereby referred to as ABP. ABP currently consists of two researchers in the field of biochemistry, Rune Muladal and Andrzej Siwek. Rune and Andrzej started their business in order to serve a growing demand for clean, nutritional, and functional food. The business idea is to utilize wild, naturally grown Arctic berries. The berries are to be processed into freeze-dried, minced berry-powder and sold as a high-quality nutritional supplement. The juice remaining from the freeze-drying process could also be utilized. This will be discussed further in the market study. ABP's head office is located in Tromsø, a city in the far north of Norway, above the Arctic circle (66°33′42,5″N). Just a few miles away from their head laboratory, we find thousands of acres with blueberries, crowberries, lingonberries and many other sorts of berries that naturally exist in the wild. Being located in this Arctic climate gives ABP the advantage of having complete access to a sustainable source of berries right in their own "backyard". Berries that are grown above the polar circle do have a distinguished feature, with the fact that they contain up to five times more vitamins and antioxidants than berries grown south of the polar circle (Uleberg. et. al, 2012).

In addition to having instant access to a sustainable resource, ABP location gives the advantage of being in the same city as Norway's largest freeze drying laboratory (DryTech). In return, Arctic BioPlants has the opportunity to harvest, produce and also sell nutritional products all in the same county. In today's society where increased globalization has erased borderlines, it is becoming more of a rarity having everything from raw materials to sales gathered in one place.

In order to create a deeper understanding for the innovation at hand, and the commercialization process for this company, this thesis consists of four main parts; introduction, technical study, market study and finally a business plan.

The introduction chapter will provide an overview of the entire thesis and aims to highlight the relationship between the three remaining parts that the thesis consists of: a technical study and a market study that eventually will form the basis for a business plan. Most importantly in the introduction chapter, we aim to formulate a main research question designed to frame and set the foundation for a study of commercializing a research – based business idea. To be able to answer the research question, specific research methodology and theoretical frameworks has to be chosen, argued for and justified. These theoretical frameworks and research methodology will function as a platform and support, for the decisions and assumptions made further on in this thesis. Firstly, this chapter will include a presentation and discussion on the emerging focus on health/super food that is the background for this business idea. Further on, the role of universities and how they play their role regarding entrepreneurship will be discussed. Next, theoretical frameworks and research methodology linked to the different parts of the thesis will be presented. Lastly, thesis limitations will be discussed and a conclusion drawn on earlier discussion will be offered.

## 1.2 Addressing the topic

To explain what type of product and industry we are working with, we will in this paragraph take a step back and elaborate on the circumstances that has lead up to the reason for creating a product like minced powder from freeze-dried berries. According to the Longman Dictionary of Contemporary English (1990), food can be defined as something that living creatures take into their bodies to provide them with energy needed to live and develop. Christina Ratti (2001) defines high-value food (superfood/functional food) as food that naturally has above the average value worth as compared to others. To explain that in simple term, food that people are willing to pay or sacrifice more to obtain. Examples of high-value food that could be mention are (Ratti, 2001)

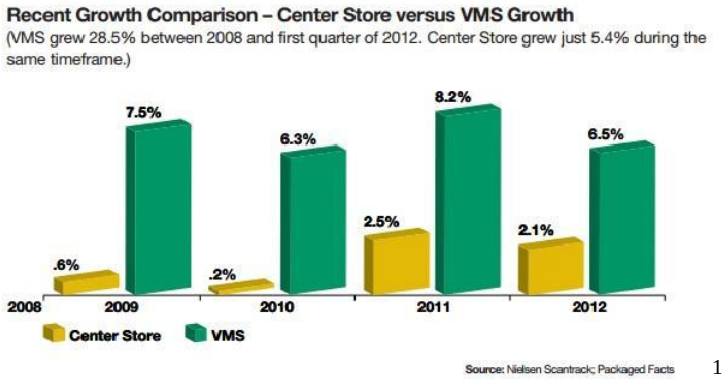
→ Seasonal and perishable commodities, due to their limited availability

→ Baby food, since it is desirable to feed them with maximum quality and nutritional foods

→ Distinguished organoleptic foods, such as aromatic herbs or coffee

→ Special end use foods, those used for outdoor activities, military rations or instant meals.

High-value food has for several years been marketed under the labels of superfood and functional food. The industry that concerns superfood and functional food, the so-called VMS industry (Vitamins Minerals and Supplements), has emerged rapidly in the past few years.



[1]

**Figure 1: Growth comparison US VMS market**

The figure shows the VMS industry growth in the US, versus the general center-store growth. This displays the increasing demand for vitamins, minerals and supplements in the US market.

In this thesis, we have chosen to use the term superfood several places, this paragraph will clarify the term superfood and why we have chosen to use it. Superfood is a marketing term used to describe foods with supposed health benefits. The term is fairly new in the marketing world and has been actively used for the past 10 years, based from our research. The MacMillan Dictionary describes it as *"a food that is considered to be very good for your health and that may even help some medical conditions"* [2]. Examples of foods that typically are being described as superfood are blueberries, carrots, broccoli, spinach and seaweeds. In

[1] Vestcom.com, marketing service company (02.03.2014)

[2] http://www.macmillandictionary.com/dictionary/american/superfood (02.03.2014)

this thesis, we focus on a variety of berries. All of the berries used by ABP can by the description from MacMillan dictionary be categorised as superfood.

Medical journals like Cancer Research UK are negative to the scant empirical research that has been done to the foods that are being called superfood, and claims that superfood is just a marketing tool, with little scientific basis to it[3]. Navindra Seeram (2008) has explored empirical results in health benefits from eating berries implies that a marketing term like superfood would have a stronger impact if there were some regulations regarding the products that can be labelled as superfood**.** Seeram is correct in his statement since there are no requirements to what can be marketed as superfood. Due to the lack of requirements, the European Union (EU) banned the use of the term superfood in marketing within the EU in 2007 (BBC, 2007). The term that replaced superfood in the European market was "functional food". Whenever you read either superfood or Functional Food in marketing ads, the products tend to be more or less the same. For that reason, both the term "Super Food" and the term "Functional Food" will be used throughout this thesis.

Our role as students is to make the project transition from its current position inside a research facility, to the stage of commercialization and introduction to the market. This is done by exploring the opportunities for ABP in the VMS industry. The combination of different competence and skill sets when putting together a team consisting of people from both academia and industry is exciting. ABP's expertise in the field of biotech, and master students with extensive knowledge and passion about the different stages of commercialisation, might be the mixture that is needed to secure a successful commercialisation process.

The extraction of vitamins and antioxidants offers a wide range of possibilities when it comes to potential products that ABP can deliver. In this thesis and the future development of ABP, the focus has been on developing minced, freeze-dried berries in powder form. The justification for this will be further explained in the technology chapter. The end product could potentially come in the form of many different products. However, the initial thought is to penetrate the market with packages of berry-powder, while simultaneously carry out

[3] http://www.cancerresearchuk.org/cancer-info/healthyliving/cancercontroversies/superfoods/ (02.03.2014)

product development. It is important to mention that ABP do not need to be the producer of these end-products, they can outsource production to a third party. There is a potential for selling extracts to different kinds of producers of health supplements. Smoothie and coffee makers for instance, could be interested in including high quality vitamins and antioxidants in their product range. For example, producing extracts and selling it to an international coffee brewery for production of a new antioxidants coffee type could be an alternative, examples of partners could be Starbucks or CofeeBean. The next chapter sets out to explain the collaboration between academia and industry with regards to developing research ideas and commercializing businesses.

## 1.3 The role of academic entrepreneurship as a gateway to resources.

Innovation includes concepts of novelty, commercialization/or implementation (Popadiuk, and Choo, 2006) and has become "*the integral driver of the knowledge economy*" (Philpott et al., 2011:161). In this thesis we define innovation as process of developing an idea into a product or a service that generates value for the customer and income for the idea owner. In other words, innovation involves applying new solutions that can satisfy customer and user needs, create new ones or change the way of doing things. A firm's innovative abilities can be defined as "*an ability to recognize the value of new, external information, assimilate it, and apply it to commercial ends*" (Cohen and Levinthal, 1990:128). Thus, innovation depends on a firm's ability to identify opportunities and needs in the market, absorb information and make it applicable in order to commercialize it. Therefore, companies that prove to have these characteristics and abilities have greater possibility to succeed in an ever-growing competitive market place.

Being a significant source for innovation, universities have in recent years cared for what we can refer to as a "third mission", contributing to innovation and social change besides teaching and research (Rasmussen and Sørheim, 2006). By doing so, we can create a collaborative arena between universities and industries; producing, developing and transferring knowledge (Foss et. al 2013). Research on this field is referred to as academic entrepreneurship (Foss et. al 2013), and is important in order to understand how collaboration between the educational sphere and market sphere can create better products and service. These kinds of universities are often referred to as entrepreneurial universities (Etzkowitz,

2003). For securing successful collaboration between academia and industry, networks relations between the different actors have to be established.

New firms and potential entrepreneurs need to have extensive knowledge not only about their technology, service or product, but also about potential markets, consumer needs and intellectual property rights. Being experts on their field of research and technology, academic entrepreneurs have a tendency to turn their focus solely on technical aspects of the innovation, to the detriment of business aspects *(*Franklin, Wright and Lockett, 2001). This is supported by Soetanto and Van Geenhuizen (2011) saying that because of the newness, lack of market consolidation, poor market knowledge availability and limited bargaining power, many hopeful entrepreneurs finds themselves struggling in early stages. Having networks supporting you with information is extremely important. Semrau and Werner (2013) define entrepreneur's networks as the set of relationships or contacts held by the entrepreneurs. They further states that these network relations are expected to provide you access to the resources you need, and that entrepreneurs who rely on external resources can profit from developing and maintaining network relationships. Companies like ABP, should therefore seek to broaden their network in order to gain the knowledge which they do not possess within the organisation.

Furthermore, Soetanto, and van Geenhuizen, (2011) defines social networks as networks consisting of important "partners" that potentially could provide resources that are considered valuable for firm's growth. Entrepreneurs who know that they themselves do not have all the necessary competence will be more likely to succeed. Other people will possess some of the knowledge and experience that you need in order to triumph. Creating a link between market and academia can help create "give and take" relationships ensuring better products and services.

Another way of overcoming the gap between academia and the market sphere can be to educate people through entrepreneurship programs. The growth in educational programs focusing on entrepreneurship has been striking the last decade (Streeter et.al, 2002). One explanation for this could be the increased focus and understanding of entrepreneurship as a

source of innovation, and peoples increasing focus on being independent and pursuing their dreams of being business owners (Streeter et.al, 2002). Opportunity recognition and analysis, teamwork, leadership and creative problem-solving are subjects often found in these kinds of programs, as well as managing intellectual property rights and venture creation. Effective entrepreneurial universities allows students to work with real life business plans in collaboration with start-ups or small businesses (Streeter et.al, 2002), research shows that graduates who have been involved in entrepreneurial programs are more likely to start new businesses (Rasmussen and Sørheim, 2006). Therefore, a relative new term called co-entrepreneurs has occurred (Foss et al., 2013). One of the co-entrepreneurs main tasks is to function as counterbalance for the technical focus. Meaning that both the academia/research sphere and market sphere covered. In addition, the combined network between inventors and co-entrepreneurs can be shared, opening for knowledge sharing between different actors involved in the process. Since ABP now has included us as business students, they are able to create that counterbalance between the two inventors who are highly technical and us students, who are more into the business aspects.

The University of Tromsø has shown increasingly interest in academic entrepreneurship by establishing Business Creation and Entrepreneurship as a part of the study programme at The school of Business and Economics (HHT). HHT acknowledge the fact that the innovation process changes in research-based societies, as described by Etzkowitz (2003). During a short period of time, the BCE program has produced several companies of different sizes operated by BCE graduates. These include Moose on the Loose, Globesar and D'Liver, among others. An entrepreneurial programme like BCE, requires resources and relevant networks as we discussed earlier. As a result, a tight relationship to Norinnova Technology Transfer AS (NTT) has been established. NTT functions as a support network for commercialization of business ideas, and thereby function as a business incubator and network provider, bridging academia and the commerce sphere (Foss et al., 2013). The co-operation with the industry, in the form of Norinnova Technology Transfer and Connect is a reactive response to the changes in the innovation and venture creation environment.

Throughout a screening process done by NTT, BCE students are presented with business ideas that have been considered to be valuable and potentially could be commercially viable.

Our thesis involves the analyses, and hopefully commercializing of freeze-dried berries, in the form of berry powder. Rune Muladal and Andrzej Siwek, two researchers working in collaboration with BioForsk Nord (BFN) serves as idea providers. BFN has national responsibility for research and processing of wild berries. The other actors involved in this project are The school of Business and Economics providing BCE students, and NTT who provides consulting and network services. In this way, industry and academia is connected through several actors. Based on knowledge gathered throughout the study done in the fields of innovation and the commercialization phase, we as BCE students, have the complimentary skills desired by the idea providers. By utilizing these connections, resources are shared among the different actors, which hopefully will result in a successful commercialization phase. Presented in the next chapter, you will find a main research question accompanied by two sub-question corresponding to the technical and market study.

## 1.4 Defining Research Questions

To narrow the scope of this master thesis, it is important to define a research question that will function as a guideline for future research. The research question should be formulated in such a way that it clearly and specifically articulates the aim of the research (Kumar and Phrommathed, 2005). Kumar and Phrommathed (2005) described it as the first and most important step in the research process. As described in the paragraphs above, ABP aim to serve a growing demand for clean health-supplement that has not been processed with synthetic ingredients. We seek to uncover if there is a demand for such a product, and how such a demand could be exploited. To determine and embrace the potential at an early phase of the commercialization process, certain steps must be accomplished, and can be summarized in the following way: "*The product development and commercialization process requires effective planning and execution throughout the supply chain, and if managed correctly can provide a sustainable competitive advantage*" (Rogers et, al. 2004: 43). By using raw-materials that are grown under the northern-lights, they have a chance to capture the essence of what many people view as sustainable healthy products that are grown in an equally sustainable and healthy environment. Not only are the berries grown in a wild and free environment, they also inhabit certain qualities that none other can produce anywhere else in the world (see technical study). This leads us to our research question:

*How to assess the commercial viability of berries grown above the Arctic Circle by analysing its innovative potential, and market opportunities?*

In order to answer the main research question in a thorough way, we construct two sub-research questions, one focused on the technology and one focused on the market. Combined, these sub-categories will help us uncover the commercialisation potential for ABP's business idea, and answer our main research question. Firstly, in order to map out what kind of value Arctic BioPlants brings to the market, we must analyse the technology and how it can bring novelty or value to the market sphere. The technical research question has therefore been formulated as following:

*What is the value proposition and innovation level for Arctic BioPlants products?*

When the question of novelty and value proposition has been answered, the question about how to turn the invention into being a profitable and sustainable product within a commercial market rises. In order for the business to last in the future, there must be a demand in the market for the products. Thus, research about potential markets has to be conducted. We ask the following market study research question:

*What is the market opportunity and thereby the optimal marketing strategy for Arctic BioPlants products?*

We have chosen to answer this question by dividing the market study into three main parts; How Arctic BioPlants innovation will affect the market, a market analysis and a market strategy. We will now elaborate on the particular theoretical frameworks we have chosen to help us address the different research question stated above.

## 1.5 Choice of theoretical frameworks

### 1.5.1 Technical study

The technologies that concern extracting vitamins and antioxidants from berries are many and complex. Thus, a detailed description will be presented in the appendix, while a simplified version is offered in the technical study. As of today there are several production methods that could be suitable for ABP. However, freeze-drying has been considered to be the most preferable method. Naturally, we will therefore offer a thoroughly explanation of this method. In addition, to highlight why this method is considered most preferable, a second production method will be discussed and a comparison of the two methods will be offered.

According to Petrusson (2004), an entrepreneur who are valuing his or hers innovation in a start-up situation, needs to question which utilities and other values that are to be realized. Therefore, a modified version of the one presented in Petrusson (2004) will be discussed. Here, customer utilities are viewed through structural control, trademark and idea/function. By doing so, we are able to understand what kind of value lies in our innovation and how it can satisfy customers and their needs. The identified customer utilities can be used to build viable business strategies. Well-constructed value propositions help companies understand what their product really is worth to their customers (Anderson et.al, 2006), and help them allocate scarce resources in smart ways that satisfies customer needs. Put in a simple way, value propositions tell us how your product or service delivers value to the customer.

Lastly, the technical study will include a discussion of the innovation that ABP possess. In order for us to do a study on the innovative aspects of this product, we need to look at both the technical side and the market aspect to the innovation. The innovation has to cover some kind of need in the market if the idea is going to have a chance as a commercial product. Consequently, we will look into theory that will help us classify our innovation as either incremental or radical (Aboulnasr et.al, 2008; Dewar and Dutton, 1986), and disruptive or sustaining (Rigby et.al, 2002). The classification of the innovation will determine what kind of market approaches that are suitable. Together with data collected in the market study, these classifications will uncover how we should place ABP`s innovation among other similar

products in the market, and which strategies ABP should use. After the technical study has been conducted, and the uniqueness and value that lies behind the innovation has been uncovered, a study revealing the market and thereby ABP`s market potential is presented.

### 1.5.2 Market Study

The aim of the market study is to examine market potential, and based in the information gathered, develop market strategies. Defining the customer and what matters to them are important questions to answer in this section. The decisions made in the technical study regarding innovation level and how we classify the innovation will influence the overall market strategy. Both industry trends and market trends have to be examined. To be able to conduct a study, relevant frameworks have to be applied and are described in detailed below

When launching a business idea, knowing your competitors is important when choosing which strategies to follow and which one to avoid. Competitor identification is considered to be a key task when developing and planning competitive defence and response tactics and strategies (Bergen and Peteraf, 2002). When discussing competition, it is often easy to focus solely on direct competitors. Research also suggests that in addition to direct competitors, businesses should pay attention to several other factors as well (Porter, 2008). For instance, substitute offerings that can lure customers away should be analysed on the same grounds as direct competitors. In this thesis, focus has been put on identifying the most relevant competitors in terms of use of raw materials, geographical location and presence in our home market. This is carried out in order to create an overview of existing actors, predict competitiveness and identify competitive advantages.

PESTEL is an analytical tool used to investigate the political, economic, social, technological, Environmental and legal macro environmental factors that can influence a company's development (Johnson et. al, 2008). These factors will differ from industry to industry and country to country. In the case of our innovation we have considered the social, technological, environmental and legal factors to be of greater importance. The food industry is constrained by multiple laws and social status and the increasing focus on healthy eating and living is affecting people's buying patterns towards functional food. The purpose of this analysis is to

create a deep understanding of macro environmental factors that might influence our business strategies.

Doing strategic management planning requires careful environmental analysis. The Swot analysis (Strength, weaknesses, opportunities and threats) framework functions as an analytical tool for categorizing internal and external environmental factors that are considered to be of significant importance for the organization (Pickton and Wright, 1998). In addition to being a tool that emphasis on its output, SWOT should be used as a tool for management and business development as a dynamic process; improving strategic plans, improving understanding of the factors affecting the business performance, improving teamwork and improving understanding of different point of views of the actors involved.

By using these frameworks together, we will reveal the true market potential for ABP, and create an understanding of what actions that has to be taken in order for this product to be a commercial success. Derived from our findings during our market research, viable market strategies have to be developed. In order to structure our work, we have divided the market-strategy into five segments:  price-, product-, promotion-, placement and production-strategy. Each of the five segments serves an important purpose for the commercialization process. We based the choice of these segments on the four P`s of the marketing mix: product, price, placement and promotion (Grönroos, 1997) and adjusted it slightly by adding a fifth P, production, making it more suitable and applicable for our thesis.

The original 4 P's are in this thesis used as a framework to structure how ABP can satisfy the market's need. Together they describe what you are selling, at what cost, where you are going to sell it and how you are going to promote it (Porter, 2008). Each of the 4 P's are variables that plays a vital role in attracting customers to your business. How you decide to mix these variables, will influence on how successful your business turns out to be. This indicates that the variables are connected. For instance, if you decide to sell a high end product to an expensive price, you will have to sell it in places where high-end customers shop, and promote it likewise (Porter, 1979). The fifth P, production, is added because there is a need to focus on production as a vital part of our entry strategy. Going into long-term relationships

with actors that possess the knowledge and production capacity is considered to be vital for the further development of this company.

### 1.5.3 Business plan

The fourth and last part of this master thesis will consist of a business plan (BP). The BP will function as a realistic picture of the business idea and plans for the future. It also helps to identify the pain in the market and opportunities that might lie ahead. According to William Sahlman (1997), a BP is mainly written for two purposes. Firstly, it should function as a tool for the entrepreneurs. Secondly, it serves the purpose as an overview for potential investors and people with interest in the business. For the entrepreneur, the BP will help to keep track of the original plans and thoughts along the way. It also prepares you as an entrepreneur to start your own enterprise and map out plans, set goals and milestones and create a vision for your business. Also, it will function as a decision making tool. The BP also covers financing and economics, which is a crucial parts of new business ventures. The BP allows the entrepreneur to present his or hers business idea to potential investors and stakeholders. This way, the entrepreneur can sell his business idea by using the BP as a way to organize her thoughts in an easy and understandable way, creating interest and attract attention. If the BP is organized well and attracts the potential stakeholder's attention, more information can be offered at a later stage.

In order to build strategies and create a business plan for the future, relevant market information is needed. The next chapter explains the chosen methodology, which was used for collecting the data needed for precise, and thoroughly planning.

## 1.6 Research design and methodology

In order to determine the type of research design that will be used in this thesis, we must firstly examine the research questions themselves, as these will decide the type of methodology most appropriate to an accurate assessment of the current topic. All three of our research questions begin with the words "what," or "how," which suggests that we, as students, are trying to obtain a better understanding of the research topic. We are trying to understand *what* is happening, without a focus on *why.* Through our questions we are examining the context of the situation surrounding the topic without changing the environment, and therefore it is not truly experimental (Tsang, 1997). This leads us to the conclusion that we are conducting descriptive research.

One way of doing descriptive research is through a case study (Stake 1995). Case studies are the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances. We are exploring the commercial potential of ABP, which is related to a product within a real-life context. By viewing ABP as one single unit, and defining the uniqueness of this one specific unit, we are aiming to describe the story of ABP in a social, business and historical context. The aim of this type of intense study on one single unit is to provide an interpretation which makes the meanings of the study clear (Eriksson and Kovalainen, 2008). Based on this, a case study approach is the most suitable research design to use in order to answer our research questions.

Secondary data included documents provided by the idea providers, industry reports, online sources and academic articles. We found most of the articles we have used by searching on key words in Google Scholar and other online-databases. Other articles and books are found in the University library. For the interviews, we wanted to know how our customers would form the product, and why. Thus, we interviewed sales personnel at health-nutrition stores. In addition, after we had identified what we believed to be our main customer segment, a questionnaire uncovering buying and user patterns was made and delivered to several superfood users. The questions made were specifically designed to find out where consumers retrieved their information with regards to health-supplements, and how our competitors were marketing themselves.

For our research, we also collected data by the use of design thinking. Design thinking is a methodology that helps you empathize with your customer and end-user, putting yourself in their shoes and enabling yourself to see the pain statement (Brown, 2008). The pain statement describes what kind of issues the customer or end-user currently has when buying similar products. This methodology is very useful in order to understand the commercialization process from beginning to end, and is a good qualitative addition to our methodology. Tim Brown (2008) explains design thinking to be a human centred approach to innovation research. His statement is that *"thinking like a designer can transform the way you develop products, services and even strategies*" (Brown, 2008:1). In our case, we empathized by interviewing our future customers, discussed with the inventors on how might we improve this potential product, testing out prototypes together with potential customers, and repeating the steps all over again. This method did help us to understand the true value of the product, identify the pain that the customer experienced, structure rounds of testing, and finally modify the product to suit customer needs in a better way. Design Thinking is divided into five main steps that are illustrated in the figure below:

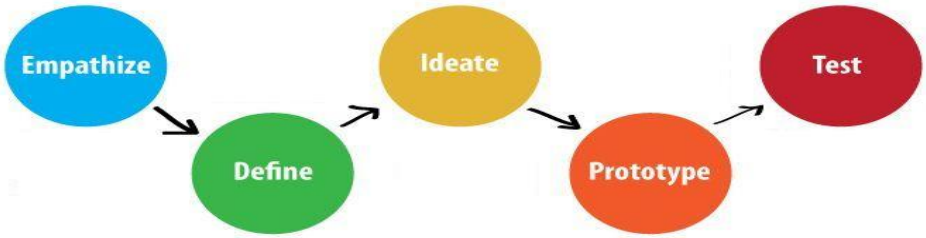



**Figure 2: Design thinking process (Brown, 2008)**

In the first step, empathizing with the consumer is important. Learning about the audience for whom you are designing a product for is a key element in order to understand the customer's needs. Secondly, we defined and constructed a point of view that is based on user needs and insights. Thirdly, we went through an ideation phase. In this phase we brainstormed with the purpose of generating a solution based on our findings in the first two steps. Fourthly, we started prototyping. This involved building a representation of one or more of the ideas we

came up with during the ideation phase. In the last stage, we tested out the product we have prototyped. Testing is best done by returning to the original user group, retrieving as much feedback as possible, with the purpose of improving the product further. The process we went through is illustrated in appendix 3.

## 1.7 Research limitations

Discussing the limitations of the research gives us an overview over the strong and weak parts of the thesis, which highlights where the main focus areas have been during the research. One obvious limitation to this thesis research has to do with the time frame. The company in question, is a newly established company, that has not been given the time to commercialize and test their products in the market before initiating this master thesis. The shortage of time makes it difficult to gather empirical data over a longer period to see market reactions and the ventures development over time. Given longer time, more variables and more thorough and qualitative research could have been done on each of the focus areas where research was being done. Also, our lack of technical expertise in the biochemics industry was a weakness for us, with regards to fully understand the technical aspects when extracting the vitamins from the berries. Due to these limitations, we had to make certain assumptions in several parts of the thesis, which may or may not be true, depending on the future development of ABP. The uncertainty of our assumptions is most prominent in the financial parts of the BP, where the assumed sales volume and prices, may differ extensively from the real figures in the future.

## 1.8 Conclusion and reflections

The main purpose of this introductory chapter is to highlight the study's research questions, how the thesis is constructed and how the structure will help answering the research questions. The study deals with the commercialization process of a research-based idea, focusing on exploiting the natural resources above the Arctic Circle. Scientists Rune Muladal and Andrzej Siwek sought out an opportunity for a natural product that could be produced locally in Tromsø by exploring the many possibilities of freeze-drying and marketing within the Tromsø region. Rune and Andrzej presented their idea to us in our fourth semester of the

BCE studies. As co-entrepreneurs we will assist them in the commercialization process of their business idea. Due to the mission of the study, our main research question is: "*How to assess the commercial viability of berries grown above the Arctic Circle by analysing its innovative potential, and market opportunities?"*

In addition, we have specified the main objective for the technical and market study. In the technical study we try to unfold what type of innovation we are working with. We do that by describing the technology and identifying its value in an innovation map. The innovation map has four aspects to it, customer utilities, structural control, trademark and idea/function. Exploring these aspects helps us to visualise different perspective of the value that the end-user will receive by using our product, and thereby finding out where to place it in the innovation matrix (figure 5).

The main purpose of the market study is to identify and examine the market potential, and to develop an optimal strategy for ABP products within the identified market. In order for us to do this, we have used suitable frameworks, such as competitor-, SWOT- and PESTEL-analysis, as well as collecting primary and secondary data through interviews, workshops and written/electronic articles. The final chapter of the thesis is a business plan where the main objective is to demonstrate how we could execute a successful and viable commercialization of ABP`s products. The business plan is constructed based on our main findings in the previous chapters.

In this introductory chapter, we also determined our research design and methodology in order to answer the main research question. Since our study is exploring a venture in a real-life context, the research design we have chosen is a descriptive research by doing a case study followed by a qualitative research method including both primary and secondary data. We collected primary data by conducting observations, unstructured-, semi-structured and structured interviews as well as design thinking. Secondary data was collected by utilizing research articles, online sources and information from the idea providers.

Cooperation and interaction is important aspects in most situations in life, and could in many ways be described as the foundation for this master thesis. Due to the collaboration between academia and industry, with the purpose of commercializing a research-based idea, we as students received a unique opportunity to function as co-entrepreneurs. The university identifies commercial value, and NTT connects the university and industry. Thus, to secure a successful commercialization of ABP products, all of the actors have to fulfil their role and interact with each other in an effective and sustainable way.

Throughout this process, the idea providers have been able to make use of knowledge uncovered by research, and communicated it towards NTT and to us as co-entrepreneurs. This has created a common understanding of the business idea, the purpose, the planned activities and the end goal, which is commercialization. As a result, we have experienced collaboration between all the different actors throughout this study that has led to productive meetings and fruitful results. Seeing and experiencing these kind of collaborations from a student's perspective throughout real-life interactions with actors from the industry, has resulted in learning outcomes which only could be gained in very few selections of study programs.

During the BCE study, we have gained an understanding of entrepreneurship, including the struggles and the highlights that come with the entrepreneurial life. Most importantly, we have seen the contribution entrepreneurs and innovations provide to the global society, and that small (incremental) innovations might be just as important as radical and disruptive ideas. Minor improvements on already existing products, might lead to bigger societal changes in the end. Before we began our journey in the BCE studies, neither of us knew that by putting something as creative and "hands-on" as ideation and idea evaluation in an academic context, we are able to identify and utilize different business opportunities, in a realistic and viable matter.

Throughout the process of writing this thesis, we have faced several struggles which we eventually have overcome. One of the struggles was that ABP is working within a field of technology that was basically unknown territory for both of us. We had little knowledge about biochemistry and the health-nutrition market. To overcome this struggle we had to create an

open co-operative working environment between us students, our supervisors, and our idea providers. Thankfully, our supervisors and idea providers are highly competent within their respective field of expertise. They managed to communicate and interpret the information we needed, and gave us an understanding of how to write this type of master thesis. For the BCE study and its management, a successful commercialization of ABP in collaboration with students will generate credibility that can help attract motivated students, reinforce the collaboration with NTT and thereby increase the focus on innovation within the industry. For students and researches, we hope that this study, and hopefully the commercialization of ABP, will function as motivation to utilize knowledge and to pursue their dreams of being entrepreneurs.

# 2 Technical Study

## 2.1 Introduction

The main objective with the technical study is to describe the technical details of the methods used for extracting vitamins and antioxidants from berries and to clarify the value we bring to the market. Our product, powder of minced freeze-dried berries, will have to derive from a production method called freeze-drying. In these technical descriptions, we will elaborate on other methods as well, in order to justify our choice of methodology. The technical descriptions presented in this chapter are based on descriptions given to us by our idea providers, Andrzej Siwek and Rune Muladal, literature, and preliminary work done by us in the previous semester. There are two main extraction methods that are chosen for this process, maceration by the use of ethanol, and freeze-drying. There are several differences in these processes and their outcome. After describing the methods in detail for the purpose of creating a deeper understanding, we will do a comparison and discussion in order to highlight the differences between them and uncover why dry-freezing is considered to be the most preferable method for ABP and their plans for further product development.

By examining the technical details and customer utilities, we are able to discuss and define what type of innovation ABP possess. When we know how the technology works and how these types of products are produced, only then can we create an overview over the innovative situation for ABP. Next, we will discuss customer utilities by the use of three key elements in our innovation map, to see what value ABP is bringing to market with this new product. Finally, we will provide a conclusion of the key elements discussed in this technical study. By the time we have reached a conclusion to this section, we will have discovered the innovative potential of ABP`s products.

## 2.2 Technical Descriptions

### 2.2.1 Technical Description Maceration

The word maceration is derived from the Latin word *maceratus*, which means to soften. In reference to medicinal and aromatic plants, maceration refers to the preparation of a solution by soaking plant material in vegetable oil, water, ethanol or other hydrophilic solvent. The extraction of active constituents from plants is one of the most critical steps in the development of natural products for commercial use. The simplest example of extraction may be brewing a cup of coffee, wherein caffeine and tannins are extracted from coffee beans in hot water. All living organisms contain complex mixtures of chemicals, usually held within cellular structural material (protein, lipid, polysaccharides etc.) of which some are desired while others are not. Thus, taking out the desired part from the whole crude drug is referred to as extraction and it is done in solvents where ingredients move from one phase to another. The maceration process goes through a 9-step procedure (Siwek and Muladal, 2013):

| | |
|---|---|
| 1. | Plant material is crushed into powder or cut to small pieces |
| 2. | The material is placed in a closed vessel |
| 3. | The selected solvent is added |
| 4. | The material stays in solvent for 7 days (time may variate), and are shaken occasionally |
| 5. | The liquid is being strained off |
| 6. | Solid residues are pressed in order to recover as much occluded solution as possible |
| 7. | Strained and expressed liquids are mixed |
| 8. | Clarification by subsidence or filtration |
| 9. | The liquid is evaporated and the material is concentrated |

**Table 1: Maceration process**

The solvent (menstruum) ABP has chosen for the potential maceration process of extracting vitamins and antioxidants from berries are ethanol. This is due to the fact that ethanol's alcohol level prevents microbial growth within the batch, as well as having vaporising qualities. At the end of the maceration process the results will be a concentrated liquid with a high level of antioxidants and vitamins that could be used for several different purposes. Typical end products that could be developed and commercialized with the materials that have gone through maceration is vitamin capsules and ingredients that could be used for cooking or drinks in order to add antioxidants and vitamins into everyday food. In addition to selling to private customer, maceration gives us a product that potentially could be sold on the B2B market (business to business) without the need for additional processing. For example, extractions from maceration could be injected directly in products offered by smoothie and coffee makers (Siwek and Muladal, 2013)

### 2.2.2 Technical Description Freeze drying

As mentioned in the introduction of this chapter, we have chosen freeze-drying as our preferred method for making our end product. We will use the facilities and expertise at DryTech AS herein Tromsø to conduct the actual freeze-drying. The term drying generally refers to the removal of moisture from a substance. It is the most common way of food preservation throughout time. Vacuum freeze-drying is the best method of water removal with final products of highest quality compared to other methods of food drying (Ratti, 2001). The process of freeze-drying is divided into four stages (Ratti, 2001, Siwek and Muladal, 2013):

| | |
|---|---|
| 1. | Pre-treatment |
| 2. | Freezing |
| 3. | Primary drying |
| 4. | Secondary drying |

**Table 2: The four stages of freeze-drying**

*Pre-treatment* includes any method of treating the product prior to freezing. In many instances the decision to pre-treat a product is based on theoretical knowledge of freeze drying and its requirements, or is demanded by the products quality considerations.

*Freezing* is done by placing the material in a freeze drying flask and rotating the flask in a bath, called a shell freezer, which is cooled by mechanical refrigeration, dry ice and methanol/liquid nitrogen. On a larger scale, freezing is normally done using a freeze-drying machine. The material is brought down on such a low temperature that the solid and liquid parts of the material cannot coexist. The freezing phase is the most critical process in freeze-drying food, because the product can be spoiled if done badly.

*Primary drying* is done by lowering pressure (to the range of a few millibars), and enough heat is supplied to the material for the water to sublime. In this initial drying phase, about 95% of the water in the material is sublimated (removed).

*Secondary drying* phase aims to remove unfrozen water molecules, since the ice was removed in the primary drying phase. When the process is complete, the vacuum is usually broken with an inert gas, such as nitrogen, before the material is sealed. At the end of the entire operation, the final residual water content in the product is around 1-4%, leaving the berries with an 80% weight reduction.

Potential end-products derived from freeze drying that ABP wants to commercialize are either from whole freeze dried berries, or from minced powder of the freeze dried berries. Examples of products are tea-bags, vitamin supplements for hunters and soldiers that could be put into their ready-made diet or a sachet concept, where the dry material derived from freeze drying are placed inside a bag for direct hot water infusion. The bag will prevent the material from going into the liquid that the vitamins and antioxidants are dissolved. One big advantage you get from freeze drying is the loss of weight, without losing the vitamins and antioxidants in the materials. The end product with the biggest market potential, as we see it, is multi-purpose

minced powder from freeze-dried berries. The utilities and possibilities around that type of product are explained in further detail in chapter 2.3.

The next chapter offers a comparison of the two methods we now have introduced, with the purpose of articulating why freeze drying is considered to be the most preferable method for ABP's further development.

### 2.2.3 Comparison of Technologies

In the case of ABP, we consider the main issues that need to be addressed when deciding choice of technology and methods are quality, cost and what generally is considered the most practical solution. Taking the cost aspect into consideration for the type of product that might be commercialized from ABP, we will look at other competing methods and technologies as well as the two chosen methods, described above.

Conservation of berries has been done for centuries, with methods that are both high and low-tech. The most cost efficient way of conserving berries have usually been air-drying. Comparing with freeze-drying, sublimation (freeze) drying is far more effective in preserving valuable food compounds than traditional air-drying. However, air-drying is 4-8 times more cost efficient (Michalczyk. et al, 2009). Comparing quality of the end product from different methods, the most preferable method is not the most cost efficient. Derived from that, we can conclude that when it comes to drying berries, the method might be different, depending on the market you are targeting. If you are to target the high-end market, chose freeze drying for the best result. If you are aiming for the low-end market, chose air-drying for a most cost-efficient production. That leaves maceration and juicing the berries left as two alternatives for preserving berries. It has been proven that vitamins and antioxidants mainly exist in the skin of the berries (Siwek and Muladal, 2013; Blomhoff, 2008). By only juicing berries and throwing away the skin and other remains, you remove most of the vitamins and the antioxidants as you go along. The taste is left, but the vitamins are mostly gone. Therefore, for the use of berries in a market where customers want a high concentration of vitamins and minerals, we can rule out juicing. That leaves us with the choice of the high-quality method of freeze-drying, the low quality method of air-drying and maceration.

**Freeze-drying as the preferred method for ABP**

When it comes to the implementation and actual production, we have to look for what resources we need, and what resources are available for us right now. At the current stage, ABP does not have any processing plants, nor do they have any equipment to perform either maceration or freeze-drying. However, a local company in Tromsø called DryTech do have the biggest freeze-drying facility in Norway. In addition, they are interested in doing a project together with ABP. As for maceration, we would have to seek foreign markets to outsource that service. This practicality might be of a major character, both when it comes to physical location regarding the marketing of the product as a high-north product, and when it comes to trusting your co-operative partner that we see it as a major incentive to choose freeze drying.

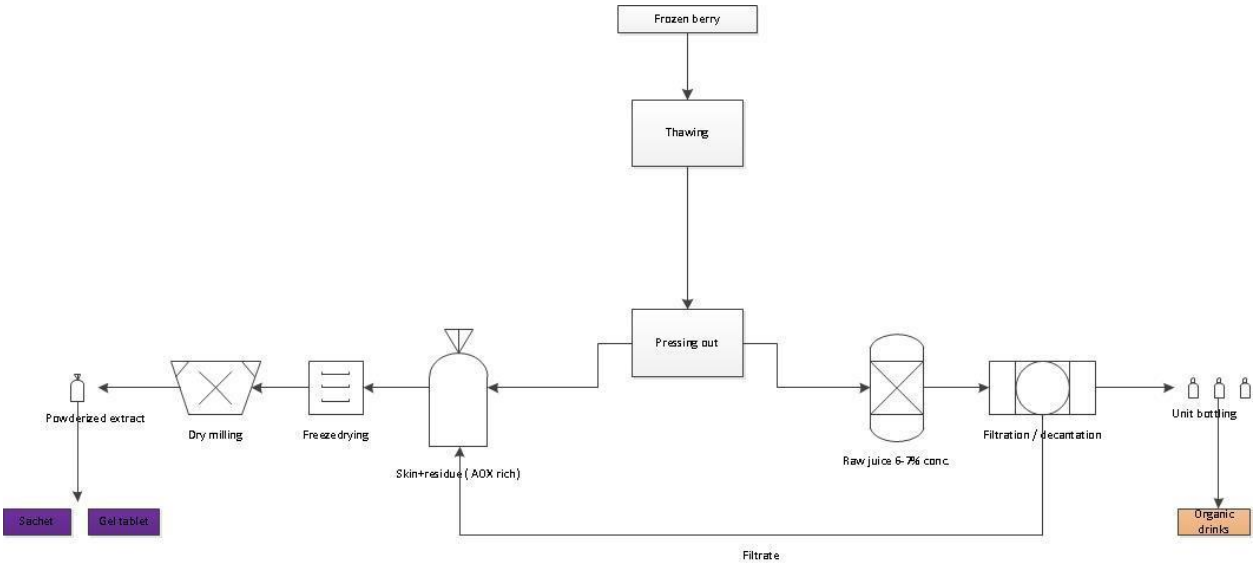



**Figure 3: Production line freeze-drying**

In order to penetrate a market, a business idea has to deliver real value to the customer. The next paragraph addresses customer utilities by the use of several different building blocks put together to create an understandable structure. By doing so, we are able to explain how ABP's berry-powder can make a significant difference in the market.

## 2.3 Identification of customer utilities

According to Petrusson (2004) an entrepreneur who are valuing his or hers innovation that are in a start-up situation, needs to question which utilities and other values that are to be realized. More specifically, the entrepreneur has to know how the innovation is going to be identified by the customer and clearly present this value to potential investors and stakeholders. Also, and maybe most importantly, the entrepreneur need to have extensive knowledge about the delivered value in order to make correct strategic considerations and decisions for the future of his or hers business (Petrusson, 2004).

In order to answer the question regarding utilities, there are several building blocks in an innovation that needs to be examined. Using what we can refer to as an "innovation map" can help structuring this work. "*By adapting an innovation map, one is able to strategically visualize the key elements that have to be claimed for the innovation to become a commercial success"* (Petrusson, 2004:186). The chosen innovation map consist of 4 different aspects; customer utilities, structural control, trademark and idea/function.

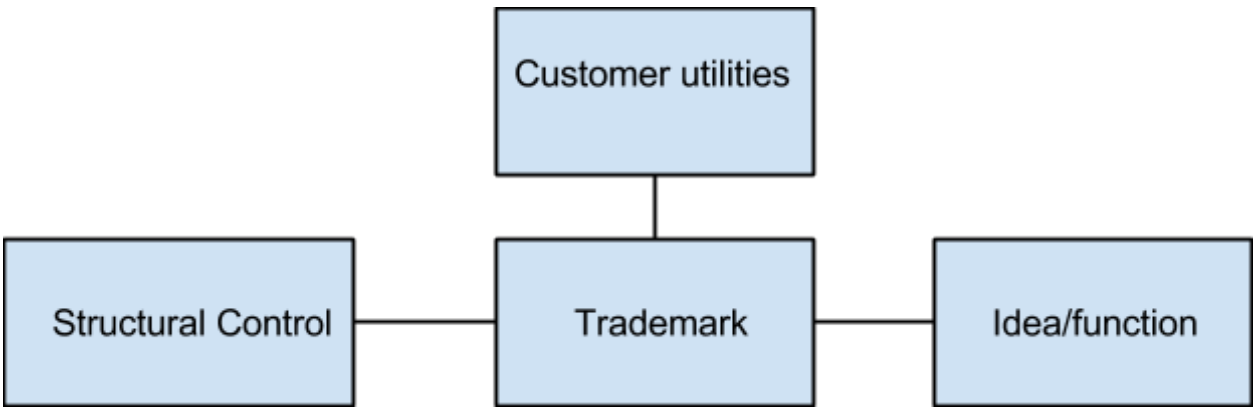



**Figure 4: Innovation map for ABP products (Petrusson, 2004)**

Since we are dealing with a product meant to give health benefits to the everyday consumer, i.e regular people interested in a healthy lifestyle and clean eating, we see *Structural Control*, *Trademark* and how the powder *Functions* when it is used in other food products as the key elements that would need to be carefully analysed. We will start off by discussing structural control in the next paragraph.

### 2.3.1 Structural Control

Recognition of the importance of intellectual property makes the entrepreneur more interested in structural control and the value that lies in the term (Petrusson, 2004). The first key element for our innovation map is the structural control of the innovation. By structural control we mean the control over the products intellectual rights, which are the rights given to persons over the creations of their minds. They usually give the creator an exclusive right over the use of his/her creation for a certain period of time[4]. The most known intellectual property is patents. In order to be granted a patent the invention has to be new, have an inventive step that is not obvious to someone with knowledge and expertise in the subject and it has to be industrially applicable[5]. When valuing ABP's products up against the requirements to be granted a patent, we find that it is not new or have an inventive step, since there are similar products in the market already. Researching other areas of the business idea that could be protected has to be prioritized. A second alternative is to keep parts of the business idea a trade secret.

Trade secrets are information with commercial value and that the company who possess the information wants to hide or conceal from their competitors (Friedman et. al, 1991). The information is kept concealed by having nondisclosure agreements, and employment laws that prevent people who are involved in the company to leak the trade secrets. Even though trade secrets do not give you the exclusive commercial rights to your invention like a patent does, it does come with some benefits compared to patents. Trade secret does not require a long application process, annual fees, and they are not disclosed to the public. However, if the trade secrets do leak out of the company, anyone has the opportunity to use the information to start up a competing business. DryTech, ABP`s potential collaboration partner in Tromsø highly rely on trade secrets as their intellectual property rights, therefore, it is natural for us to choose that direction as well, when we are discussing our IPR strategy. Structural control will also be obtained through trademarks, which we will elaborate on in the next paragraph.

[4] http://www.wto.org/english/tratop_e/trips_e/intel1_e.htm (28.02.2014)

[5] http://www.ipo.gov.uk/types/patent/p-about/p-whatis.htm (28.02.2014)

### 2.3.2 Trademark

The second key element in our innovation map is trademark. Trademarks are, as mentioned in the paragraph about structural control, an intellectual property together with trade secrets. The reason for us to put trademark as an individual key in addition to structural control, is because trademarks are considered of such high value for ABP`s customer utilities. The customer valuation of a product is largely related to the initial perception of a product. "*Value is the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given."* (Woodruff, 1997: 141).

To illustrate this effect, comparison to similar Norwegian product within the VMS industry can be done. Voss Water[6] had an instant success as the number one quality water to buy, due to the brilliant work the company did to promote themselves as the healthiest and most high-end product out there. What they did this was referring to their Norwegian water sources within clean environments. Their trademark became their main customer utility, and thereby their source of income. The same characteristics can be used for the promotion of ABP`s products. The berries are harvested in a free open environment in the high north, under the northern lights. It is produced, packed and shipped, all from the same geographical area. One can imagine how a product that is all natural, containing a high amount of vitamins and minerals without any added ingredients, would be perceived by customers who only has heard about the magical northern lights and midnight sun. Therefore, we decided to use trademark as a separate key in the innovation map. It is important to establish a brand that could be trademarked in the early beginning, in case we do catch instant success and are known by our initial brand. The rules that regulate trademarks states that it must be in use in commerce and it must be distinctive[7]. Distinctive trademarks are categorised as trademarks that does not give any association to what the product is or do. If the trademark does, it is classified as descriptive and thereby determined as an intellectual property. For ABP, this means that the end product has to be more distinctive than the company name. As a suggestion we did come up with Aralia, it might give associations to aurora referring to the northern lights, but not to the product or the products functions. For the third and last key element, we are going to elaborate on product functions.

[6] https://www.vosswater.com/ (28.02.2014)

[7] http://www.law.cornell.edu/wex/trademark (28.02.2014)

### 2.3.3 Idea/function

The third key in our innovation map is Idea/function. Technical functions like freeze-drying and maceration can be viewed as complex and difficult to understand for the end-user. Therefore, one of the main tasks for the entrepreneur is to translate complex technical functions into customer utilities so that the end-user understands the real value behind the service or product. ABP's product is at the moment not composed of any highly complex technology besides production method. The description of functionalities is therefore solely based on different kinds of usage of the berry-powder. Based on the description given in chapter 2.2, the function of ABP`s invention is a versatile powder, derived from berries that are grown and harvested above the polar circle. The powder could be used in smoothies, yogurts, ice-cream topping, cake topping, supplement to dietary shakes and all other areas where you would like to add more vitamins/antioxidants, colour and flavour. It provides the customer with an easy solution to an everyday problem, namely how to make a quick and healthy meal every day of the week. Simply by adding some ABP powder, the positive nutrition values of the customer's meals increase. On the packing of our product, we want to show the customer where the berries have been harvested, processed and packed. By illustrating the undisturbed environment this product has derived from, the customer gets full information about the product they use for nutrition, something that is rare in today's market. Below, there is a user function table describing different kinds of use.

| **Functions** |
|---|
| 1. Use powder as a nutritional ingredient in everyday cooking, in bread, pasta, poorage, etc. |
| 2. Use powder as topping on cakes, ice-cream, and other desserts |
| 3. Use powder for nutrient supplement in "outdoor meals" when cooking without kitchen. |
| 4. Dissolve in hot water, for making tea or sports drinks |
| 5. Completely traceable sustainable product |

**Table 3: ABP user functions**

In this chapter we discovered that ABP are bringing several value propositions to the market. Table 3 clearly illustrates that the product is a multi-purpose supplement which can be used by different groups of people in different settings. What we also discovered was that in order to protect the idea from being copied or re-produced by a competitor, the best structural control for this type of product would be to establish a strong and recognizable trademark. The next chapter will elaborate further on how the findings in this chapter can utilized for the end-user.

## 2.4 Discussing the utilities

After examining the innovation map, analysing and discussing different kinds of functions, we identified several customer utilities. As displayed in table 4, each function creates a value, or a utility for the end-user. The customer utilities will be further discussed below.

**Nutritional ingredient in everyday cooking**

Nowadays, most people live hectic lives, struggling to allocate time between work, family and spare-time activities. Furthermore, people have to find time to make healthy food consisting of the right, nutritional ingredients for themselves and their family. Processed, fast food often becomes the solution. ABP's product simplifies the art of cooking nutritional food that also tastes good. Instead of storing loads of fruits in your home, a package of berry-powder can contain the same amount of antioxidants and vitamins as hundreds of fresh berries. This will make it easy and convenient to add healthy ingredients in all types of foods, snacks and drinks where it is suitable with the berries flavour and colour.

**Nutritional topping on cakes, ice cream, and other desserts**

Whenever people make soft desserts, they often feel the need to add topping as complementary colour and taste. The usual toppings are chocolate powder, liquorice, tutti-frutti sprinkles and so on. All of these usual toppings are full of sugar, and are lacking nutritional content. There is usually so much sugar in the desert alone, that one would rarely notice the lack of sugar in the topping itself, as compared to traditional sprinkles. The colour

in ABP`s powder are also very strong and defined in all the different berries we use for freeze-drying and mincing. These characteristics makes ABP`s powder a great nutritional and sugar free alternative to traditional toppings and sprinkle.

**Use as nutrient supplement, for outdoor-meals**

Hikers, hunters and military personnel often carry big rations of food and supplements when they are out wandering in the wild. When wearing a backpack you have limited space, thus having to be selective when considering what you are going to bring along. Also, when out walking in wild nature, there is always an underlying danger of being forced to stay longer than planned due to unanticipated incidents. Having a pack of ABP's product in their backpack offers the user a change to include fewer and lighter ingredients needed to add vitamins and antioxidants to their meal. In case of an emergency, ABP's product will also ensure extra energy that enables you to last longer in the wild with limited resources.

For example, all military personnel in Norway each carry one or several portion package filled with breakfast, lunch, dinner an extra items designed to give the soldier extra energy when dealing with extreme surroundings. Dry-Tech, as we have mentioned earlier, currently produce and deliver portion packages to military units in large parts of Europe. Today, these portion packages include energy drinks and dark chocolate, among others. Including berry-powder would drastically increase the nutritional values in these field meals without adding too much weight and taking up too much space.

**Dissolve in hot water, for making tea or sports drinks**

Whenever a customer wants to make tea, or a sports drink on the go, they can simply add the minced freeze-dried berry powder into hot water. The result is a cup of tea or sport drink that is made in an instant, with the taste and colour as traditional tea and sports drink, but without sugar and with berries. One could look at it as the healthy version of the Ricola instant tea[8] which contains 85% added sugar, as oppose to our powder that has 0% added sugar.

[8] http://www.ricola.com/en-ch/Products/Herb-teas/Instant-tea (07.03.2014)

**Completely traceable, sustainable product**

When one uses a product for nutritional purposes, there is great value to the consumer to know what they eat and where this product has derived from. Full product knowledge is a rare and desired detail in today's market. Customers get to see the entire production line, from harvesting to packaging, visualised on the product. This ensures the consumer that what they eat is clean, healthy and derives from a sustainable environment, creating trust between the consumer and the manufacturer. Below, the utilities are illustrated in a table, next to the function they derive from.

| Functions | Utilities |
|---|---|
| 1. Use powder as a nutritional ingredient in everyday cooking, in bread, pasta, porridge, etc. | Simplifies the art of cooking nutritional food that also taste good. Gives the user easy access to healthy supplements. |
| 2. Use powder as topping on cakes, ice-cream, and other deserts | Creates good taste, gives a good look, without adding sugar |
| 3. Use powder for nutrient supplement in "outdoor meals" when cooking without kitchen. | Fewer and lighter ingredients are needed for making a meal. Key users are hunters, army personnel and hikers |
| 4. Dissolve in hot water, for making tea or sports drinks | Making a drink of actual berries, giving the customer an authentic experience |
| 5. Completely traceable, sustainable product | The customer feels assured that the product is produced and processed all in a sustainable eco-friendly environment |

**Table 4: ABP user utilities**

To sum up the utilities, we offer a product that adds positive nutritional qualities to the consumer's food. These qualities can be utilized in a simple and applicable manner, in several areas of use. For the next chapter, we will go deeper into the theory which deals with classification of an innovation. We will also define what type of an innovation ABP is

bringing to the market, both with regards to technology and to the market.

## 2.5 Discussing the innovation

Innovation includes concepts of novelty, commercialization/or implementation. It is the process of developing an idea into a product or a service that generates value for the customer and income for the idea owner (Popadiuk, and Choo, 2006). In other words, innovation is applying new solutions that can satisfy customer and user needs, create new ones or change the way of doing things. Delivering products or services that are better or more effective than existing solutions in the market is one way to innovate. For example, the mobile phone made radical changes in our way of connecting with other people, in the sense that we could make a call from any place or location. It is important to differentiate between the terms invention and innovation. While innovation is something new and different to the existing solutions as explained above, an invention is the creating of the idea itself. If an idea hasn't been developed into a product or a service, or if it hasn't been commercialized, it's not an innovation (Popadiuk, and Choo, 2006). An invention becomes an innovation when it is able to break into markets and create value. In that sense, ABP is so close to having an innovation, that we describe the powder to be an innovation in this paper. This is due to the fact that the product has been developed and produced in a pilot-testing phase. The next section will address whether or not ABP is a company with innovative abilities, in order for them to exploit their innovation.

A firm's innovative abilities can be defined as "*its ability to recognize the value of new, external information, assimilate it, and apply it to commercial ends*" (Cohen, and Levinthal, 1990:128). Thus, innovation depends on firm's ability to identify opportunities and needs in the market, absorb information and make it applicable in order to commercialize it. Companies who prove to have these characteristics and abilities therefore have greater possibility to succeed in an ever-growing competitive market place. ABP has done exactly what we describe above. They have recognized the value of this knowledge about berries, and therefore made a product to commercialize their knowledge. Therefore, we define ABP to be a company with good innovative abilities. Based on the results presented above, we describe ABP as a company that have an innovation, and to be a company with the abilities to

commercialize it. Further we will explain how they can commercialize their innovation. In order for us to do so, we will in the next paragraph elaborate and define what type of innovation ABP currently possess.

To determine what kind of innovation ABP possess, we have to define some basic words and concepts. We will elaborate on the two dimensions on both market (sustaining - disruptive) and technology (incremental - radical). We will start off by looking at the technical aspect and describe the terms *incremental,* and *radical*.

*Radical innovations* differs from other new products or services in that they either have substantially different technology in use or deliver higher benefits compared to existing products (Aboulnasr et.al, 2008). This could for example be newly developed technology based on research or products/services that utilizes resources in a way that significantly differs from existing technology, and delivers higher value to the customer and end-user. The degree of novel knowledge embodied in the innovation also says something about the degree of the innovation. Radical innovations often contain a high degree of new knowledge (Dewar, and Dutton, 1986). The personal computer (PC) for home use and the Internet can in that sense be viewed as radical innovations. The first computers were made to be calculators. New technology made the personal computer a household item that most companies throughout the world purchased and used for their everyday business within a few decades. Further, when the Internet was introduced, people could connect with each other from different parts of the world and files could be shared without being limited by borderlines. A drastically increase in globalization was one of the major effects, and because of that, new ways of doing business appeared. These two radical innovations drastically changed our way of working, sharing and connecting with people from different parts of the world. As a result, radical innovations have a higher probability of destabilizing markets and cause customers to reconsider their existing purchasing behaviour (Aboulnasr et.al, 2008). In other words, there is likelihood that radical innovations will offer new market opportunities and threaten competitive positions, securing development for the future.

However, radical innovations are not uniformly positive or can guarantee success (Aboulnasr et.al, 2008). Many radical innovations have failed because they have not been able to capture an adequate part of the market. If the buyer or end user of the product does not find the value that is delivered sufficient, the innovation will fail. For example, the first electric car that was introduced to the market in 1888 failed due to market circumstances that were out of their control, such as the battery capacity and access to electricity. Radical innovations are often more expensive to develop than incremental innovations (McDermott and O`Connor 2002) something that is a major challenge for small companies or single entrepreneurs.

On the other side of the scale we find *incremental innovations*. In contrast to radical innovations, incremental innovations are minor improvements or small adjustments to current technology and offer a low degree of novel knowledge (Dewar, and Dutton, 1986). The iPhone, for example, can be classified as an incremental innovation. The new mobile phone from Apple Inc. received enormous positive response from its audience when arriving some years back, but the technology that was presented was not that great. In its software we found technology that had been on the market for several years. Nevertheless, with its new phone, Apple managed to satisfy customer needs and deliver value that was consider being higher than what their competitors delivered, applying an easy user interface and using technology like touchscreens that had been on the market for several years. These small changes made the iPhone one of the most successful, incremental innovations we have seen during the last decade, simply by making it smaller, prettier and easier to use.

In already established industries, incremental innovations is an important competitive factor, and firms who are bringing in important incremental innovations to the market often benefit it in terms of market shares (Banbury and Mitchell, 1995). Incremental changes begin when one or several designs have been accepted in the market. Firms deliver the same core products, but with different twist and features. These twist and different changes then tends to happen incrementally. Incremental changes then continues until another design has been accepted and it starts all over again. This tells us that in order to survive, companies need to innovate constantly to keep up with rapid changes in their environment and convince customers that their products or services deliver higher value than their competitors. Firms should therefore

focus on rapid incremental innovations and introduction and being first to market with these innovations (Banbury and Mitchell, 1995). Competition is constantly growing no matter what business you are in. Constant innovation can therefore create a competitive advantage for your firm, securing market shares at an early stage of the incremental innovation cycles' as explained above. Being first to market with new innovations and features can give firms major advantages, leaving their competitors struggling behind. Keeping up these innovative processes over time will enhance this advantage. Constant incremental change is the key word in this context but remains as a big challenge for companies to keep up with. For the next paragraph, we will further elaborate on the innovations impact on the market, describing the two terms disruptive and sustaining.

*Disruptive innovations* can be described as innovations that create entirely new markets and business models (Rigby et.al, 2002). Companies that have made disruptive ideas in the past are facing big challenges when they are trying to copy the success with a new disruptive idea they can commercialize. This phenomenon is also known as the *"innovator`s dilemma"*, which is used for industry leaders who are trying to reinvent themselves by developing and successfully commercializing disruptive innovations that challenge their existing business models (Slater and Mohr, 2006). One of the most famous disruptive ideas is the iPhone from Apple. The iPhone was just another cell phone that did not even have a camera or a possibility to send MMS, something that made it a worse product than the competing products from Samsung, but it was very disruptive in the market. Due to the user interface and the design, the market changed completely and the iPhone became an immediate success, setting a new benchmark for smart-phones. Another famous disruptive product is the refrigerator, which put ice-sellers in all the big cities out of work. The refrigerator, invented by Carl Von Lippe in 1876, opened a whole new world for consumers all over the world. By using his invention he gave them the opportunity to radically change the way they stored their food and planned their shopping. The old way of conserving food through salting or with ice chambers turned almost obsolete, and was switched out in favour of the new technique.

The biggest challenge for disruptive ideas, as we see it, is to make customers accept and embrace the change in their consumer behaviour. In order for a disruptive idea to be a

success, the customers have to choose this new product over the one they already are using (Slater and Mohr, 2006). This implies that normally, the customer base will come gradually. A typical market strategy for introducing disruptive products is to divide the marketing mix into three stages. In the early days, technology dominates. All that matters is being better, faster, and cheaper or have more powerful technology. In the middle stages, marketing dominates. It is all about getting those early adopters to join in. And in the end, where the technology is a commodity, user experience and design can dominate (Norman, 1998). After elaborating on disruptive ideas, we now want to describe the other end of the scale, the innovations that are sustaining in the marketplace.

A sustaining innovation is one that meets the demands of existing customers in established markets (Rigby et.al, 2002). Most companies are launching products for a sustaining market, mostly because it is easier to calculate the customer base you might have for your products in a well-established market. In addition to having a more predictable market, many of the products that are characterised as sustaining, are simply an improvement of an already existing product, many times originating from the same manufacturer. For example, a new version of a car model can be sustaining since the targeted customer base are mostly the same and are likely to upgrade their old model to a newer one. After a disruptive product has been launched and opened a new market, new products entering that market will then be sustaining, even though they would have been characterised as disruptive had they been launched earlier. The probability of creating a successful, new growth business is 10 times greater if the innovators pursue a disruptive strategy rather than a sustaining one (Rigby et.al, 2002). Next, we will apply this theory to our case of ABP`s product in order to determine what kind of innovation our business idea represents.

When classifying what kind of innovation we have at hand, we have to look into both the process of producing the merchandise, which is dry-freezing, and the end-product itself to determine if there are any radical changes compared to existing solutions in the market today. The process of dry-freezing berries does not represent novel technology, and is already widely used in several industries, including the health supplements industry that ABP are aiming for. At the moment ABP is forced to use well-known technology mainly because tested methods ensures high quality at a reasonable price. Hence, the production methods presented in this

project do not represent any novel technology.

The same conclusion can be drawn regarding berry-powder. Similar products have been sold in the market for many years, and people are already buying various products that either contains antioxidants from berries, or pure antioxidant extracts. However, ABP does not aim to produce any radical products that have never been introduced in the past. We are aiming to improve the current offering in the market by using berries with qualities that are better than the current market offering. This is done by utilizing high-quality berries and the unique competence we have within our close geographical surroundings, such as DryTech with their freeze drying facilities and the collaboration with BioForsk Nord on the arctic environment. Hence, the incremental innovation ABP are bringing to market is that it is solely based on berries from above the Arctic Circle that possess higher quality than berries from other parts of the world, combined with having the whole production line from raw materials to end product gathered in the north of Norway. This implies that the market will most likely be the same as before the introduction of ABP`s products, given the description we made earlier about what could be described as a disruptive innovation. We can therefor define it to be sustaining in the marketplace. If we had been dealing with a radical innovation, it is likely that peoples buying patterns had been changed, and the market would have evolved. Figure 5 below represents ABP`s position in the innovation matrix:

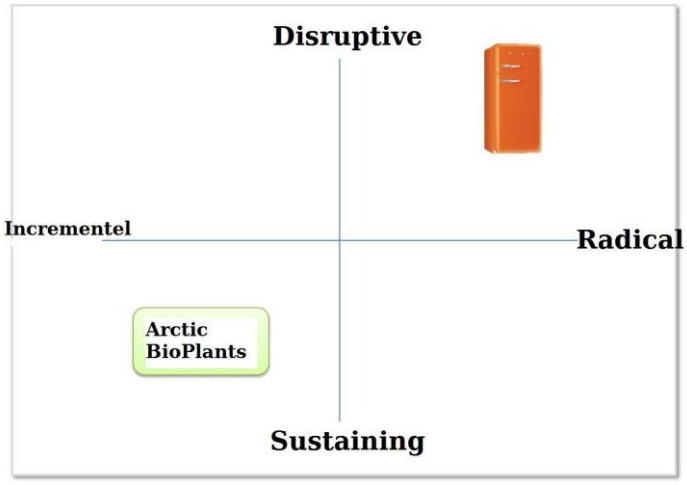



**Figure 5: ABP`s position in the innovation matrix**

As illustrated in figure 5, ABP is currently in the bottom left of the square, since both the product and the methods are well known in the industry and in the market. This particular place in the innovation matrix has also been called "the economic core" (Kirchhoff, 1994), the largest number of firms within the small business sector is placed here in the bottom left corner. In the top right corner, the refrigerator represents a radical disruptive innovation. This indicates that ABP are entering a market with many existing actors and will have to take market shares from their competitors. Existing market shares implies that there are already an established customer base that are purchasing this type of products. Thus, there are both advantages and disadvantages to having an incremental-sustaining innovation. As described above, user experience and design can dominate the consumers' choice of product (Normann, 1998). Therefore, it is important for ABP to articulate these certain qualities to the end-user.

## 2.6 Conclusion

In this technical study, we have described the production method we are going to use as already existing and known in the market. Since we are outsourcing our extraction methods to a third party, in our case DryTech, there is no novelty for us in the extraction methods we use. The chosen production method is freeze-drying, due to its proven quality and ABP`s easy access to production facilities. The chosen production method preserves the qualities of the berries in the best way possible. Based on relevant theory, we concluded the innovation to be a sustaining, incremental innovation. The end product will be placed in a well-known market category, although the end product itself is not that well known to the consumers. There are a few suppliers who offer powder from freeze dried berries, but there are several differences in the raw materials they use and the result from the freeze-drying. We therefore conclude that ABP`s product derived from well-known technology. However, it results a product that gives the consumer new value due to the difference in quality, and the fact that the entire production process is located above the Arctic Circle.

Now that the technology has been examined and the end product has been defined, the next challenge is bringing it to the market. The next steps includes examining the market and developing viable market strategies that takes into consideration what type of innovation we

have, and takes advantage of the added value that ABP currently possess. This leads us to the market study presented in the following chapter in this thesis.

# 3 Market study

## 3.1 Introduction

This chapter has the objective of answering our sub-research question for the market study presented in the introduction chapter: *What is the market opportunity and thereby the optimal marketing strategy for Arctic BioPlants products?* The information we will gather in this study will be used to develop a viable market strategy and further write a business plan.

In the first section of this market study we will offer a discussion around ABP's impact on the market, derived from the conclusions made in the technical study regarding ABP possessing a sustaining incremental innovation. The challenges that arise due to this classification and how we can overcome them will be discussed. Further, a thoroughly market and situation analysis to uncover the market potential for ABP will be offered. We will start off by examining the current situation in the VMS market , analysing products and distribution methods. Next, market identification and segmentation is offered. Further, internal and external opportunities and threats are analysed and discussed by using well-known frameworks like SWOT and PESTEL, in addition to doing a competitor analyses in order to understand the competitive landscape that ABP is to operate in. Our findings will be the groundwork for our future strategy. To structure our work, a modified framework consisting of the 4 P's will be applied. This modified framework reveals the thought strategy for the commercialization of this product.

## 3.2 The impact of ABP on the market

In the technical study, we concluded that ABP`s innovation is an incremental sustainable innovation. This definition will affect how we plan the market strategy. There is no correct answer when it comes to the question of what type of innovation that is most likely to succeed of disruptive or sustaining ones. However, when it comes to sustaining innovations,

Christensen and Raynor (2003) finds that the most exciting growth occurs when an innovation improves in ways that changes the current offerings in the market. These are sustaining improvements, relative to the initial innovation, improvements that stretch to meet the needs of more and more profitable, high-end customers (Christensen and Raynor 2003). When launching incremental, sustaining innovations, Christensen and Raynor (2003) states that in most cases, the established actor will win. This is mostly due to the fact that established competitors will possess the resources needed to keep a positive cash-flow during the whole run. To be able to gain the resources that a company need to compete with existing competitors, the entrepreneurs need to prove to potential investors that they have what it takes to stand up against companies with larger and stronger resources that already are well established in the market. Last but not least, the entrepreneur needs to change buying patterns, and enable people to see the value behind their product or service.

One way of overcoming this challenge is by actively using the already established connection to the University of Tromsø, BioForsk and Norinnova. These are well-known, established actors with extensive networks and reputations. These connections could potentially provide ABP with access to new networks that possess new knowledge and information. The potential collaboration on production and product development with Dry Tech also needs to be evaluated in order to legitimize the business idea. As mentioned, Dry Tech already has agreements in several countries with serious buyers. Taking advantage of their position would not only provide us with access to established connections, but potential investors would also consider us as more attractive. We have elaborated more about these potential agreements further in this chapter.

In addition to using high quality berries, we believe the production method in collaboration with Dry Tech makes the end-product both look and taste better than what our competitors are currently offering. We see this as an opportunity for us to enlighten the consumers about the products they buy, and about the added value that ABP introduces to the market. Since we have complete knowledge about the content in our product, we can use that as a competitive advantage, as long as we are able to communicate that outwards to the consumers. The following market and situation analysis seeks to explain what and who is the target market for ABP, and how big that market is.

## 3.3 Market and situation analysis

Creating an understanding for the current and future market is important in order to identify if there is a market opportunity for selling ABP's freeze-dried, minced berries to businesses or consumers. Therefore, this section will provide detailed market information about the situation today and the potential opportunities and threats that lies in the future. This information is gathered and analysed in order to make viable market strategies. First, field studies to uncover current product and distribution trends will be reviewed. These studies were conducted in local stores in the Tromsø area. Next, segmentation of our chosen target market will be provided to be able to make viable market entry strategies. These market segmentations are based on our research and our findings in the field studies we have conducted. Further on, thoroughly research of internal and external factors is done in an opportunity and issue analysis. This was carried out by collecting primary and secondary data. Primary data was collected by conducting observations in local sales-channels and carrying out interviews with sales personnel. By doing so, we would create a deeper understanding of the current situation within the industry today, preparing us for identifying market opportunities and potential segments of interest.  Secondary data was collected using written and electronic material provided by the idea providers and online sources.

### 3.3.1 Field study and observations

In order for us to grasp the market situation today and discover what the current status is with regards to products, competitors and distributors, we must analyse the VMS market. Due to closeness and resource limitations, observation and research was done within Norwegian stores and markets. This includes creating an overview of the total market in terms of identifying similar products and products that can be related to ours. Also, identifying sales channels and the current situation within these were prioritized.

We conducted a field study and observed what kind products that contain berries that were offered in the market. For this part we chose to do a qualitative study on the markets in Tromsø. To create a comprehensive picture of the current situation, we included a wide range of both online and online and physical stores, meaning grocery stores, health-nutrition stores

and functional food stores. After some preparations, we headed out looking in store shelves, analysing content to see what type of products that were marketed as functional food, with special focus in products containing berries from Norway and abroad. Thus, we would have identified what kind of products existed, what the products consisted of, where the berries originated from and who produced them. In return, we would be more suitable to place and differentiate our product from those already existing in the market sphere. The second step of the research included looking at the content description in order to see what percentage of the content were berries. Our findings showed that the market today consist of several types of product categories that are labelled and marketed as berry-products. Products found in supermarkets mainly consisted of tea, juice and milk-products such as yoghurt and sour milk with berries. One of the main findings showed that the ratio of berry content in these products were lower than 10% on all supermarket products. These products were marketed with pictures of berries that covered the entire product label. This lead us to believing that we have an opportunity to take market-shares from this market by clearly displaying that ABP sells products where berries are the main ingredient, not a minor part of the product.

The products that were sold in health-stores (SunKost and Life) had a much higher degree of berry-content and were marketed as "clean" products: products without any added artificial ingredients. The typical health-store product categories were berry-extracts, either in the form of powder or juice, or dried/freeze-dried berries. The most interesting finding in health-store products were that most of the berries originated from outside of Europe. Further investigation uncovered that most of the berry-products were produced in Brazil and Northern America. These findings have strengthened our belief in the potential that lies in the northern-Norwegian raw-materials.

Further on, questions for the sales personnel were prepared. The main question focused on whether or not personnel received questions from customers about products that contained berries, and what the latest trends regarding these products were. Our presumptions were that there is an increasing demand for berry products and those consumers are becoming more aware of the actual content rather than what is being marketed on the product label. The results after the interviews proved our presumptions with regards to content-awareness and to some extent the increase in the demand for berry products (see Appendix 1). The general

feedback from these interviews were that if someone were to use raw material from northern Norway, and have the production located in the region, they saw a large market potential. Because their customers are already buying berries from foreign countries, from unknown harvesting grounds, the sales personnel assumed that there would certainly be a demand for products that were even cleaner and more traceable. The next steps include market identification and segmentation in order to identify our main market and target audience. This involves analysing the current market potential in form of revenue, analysing what percentage of the market ABP should aim for and identify the main end-user of ABP's product.

### 3.3.2 Market identification and Segmentation

When conducting market identification for ABP, we examine the value proposition presented in chapter two, technical study. The reason for this examination is to identify what type of market has a demand for the type of utilities that ABP is offering. Our conclusion of the value proposition was that we offer a product that adds positive nutritional qualities to the consumer's food in an easy way, whilst preserving good taste and colour. Firstly, an analysis of the current market in Norway will be offered. Next, a description of what we have identified to be our main target audience/end-user is discussed.

One of our main competitive advantages is our geographical location. Being close to the high-quality berries and the production line is an incentive to separate Norway as its own market. Norwegian consumers will be able to see the entire production line, from harvesting to packaging, here in the high north. Focusing on the fact that we have a low degree of pollution related to transportation will emphasise on our eco-friendly profile. However, this will only apply in the Norwegian market. When selling the product in foreign markets, shipping products becomes necessary, resulting in loss in some of our credibility as an eco-friendly and sustaining product. Thus, we divide the market into different geographical areas since we may have to use different marketing strategies in each of them. ABP are selling products that not only adds nutritional value, but also gives the consumer a feeling of the mystique and rarity that one finds in the northern lights and the unknown Arctic. The value of a product from the high-north might be a lot greater to a German or Japanese consumer than for the Norwegian consumers, who have already experience with the Arctic and its northern lights. For this

reason, we have decided to analyse the Norwegian market as our initial market, and discussed potential future markets under 3.3.3 “Future markets”.

Most of the similar products we have described as competing products (see competitive analysis 3.4.1), can be found in health nutrition stores such as Life[9] and Sunkost[10], and in pharmacies. Distribution channels vary between both online and physical stores. There are also grocery stores which have vitamins and supplements in their product range. Therefore, we also include them in our market as a sub-category in the lower end of the exclusivity scale, but with higher mass volume. When including grocery stores and pharmacies, the Norwegian health-nutrition supplement market has revenue of NOK 2.114 million. In percentages of this, 45% of the market is related to vitamins and minerals and has revenue of NOK 951 million[11].

| Market size | In NOK and percentage |
|---|---|
| Health nutrition | NOK 2.114 Million (100%) |
| Vitamins and Minerals | NOK 951 Million (45%) |

**Table 5: Norwegian VMS market**

While the table above describes the market size for the health nutrition market and vitamin and minerals market in Norway, the table below illustrates the market share ABP is aiming to acquire based on our current production limit. The main product, and thereby market share, comes from minced powder of freeze-dried berries. However, we have included two other end-products in order to speculate in revenue for future products and market share.

[9] http://life.no/ (21.03.2014)

[10] http://sunkost.no/ (20.03.2014)

[11] http://www.brn.no/brnno/Bransjen/Markedsdata/Statistikk/ (26.03.2014)

| Product | Volume | Price per kg | Revenue | Market share |
|---|---|---|---|---|
| Minced powder | 3000kg | NOK 1500 | NOK 4.500.000 | 0,21% Total<br>0.47% VM |
| Potential new products brought to market | | | | |
| Mixed powder | 15000kg | NOK 600 | NOK 9.000.000 | 0,42% Total<br>0,94% VM |
| Juice from freeze-drying | 18.900 liters | NOK 100 | NOK 1.890.000 | 0,1% Total<br>0,2% VM |
| *Total* | | | *NOK 15.500.000* | *0,73% Total*<br>*1,61% VM* |

**Table 6: Market share ABP in the Norwegian VMS market**

The two products we include came about as a result from both a DT Workshop and the inventors themselves. We will not go into further details with regards to the "mixed-powder products", because they are just at the ideation phase. Nevertheless, we include them in order to visualize what market share we potentially could acquire by selling products that derives from the main product. The table is divided by three different end-products: Minced powder, mixed powder and the juice that remains from the freeze-drying process. The total production capacity is found under volume, while the calculated price for each kilogram end-product is found under price. The calculated price is what the end-users have to pay. Lastly, the potential revenue and market share is calculated. The revenue and market share is what the distributors will create by selling ABP`s products.

Before we can stipulate profits and mark-ups on the numbers represented above, we will display the production cost. Prices displayed in the table below are suggested prices to the

distributors, to show the production profit potential. To make one kilo minced freeze-dried powder from berries, it takes 10 kilo of berries.

| **Cost driver** | **Price pr. kg minced powder** |
|---|---|
| Berries | 80 |
| Freeze-drying, mincing and packaging | 240 |
| **Total production cost** | **320** |
| Sales price pr. kg | 800 |
| **Production profit** | **480** |

**Table 7: Production calculation minced freeze-dried berries (all numbers represented in NOK)**

From the freeze-drying process, we can retain seven litres of berry-juice for every kilo of freeze-dried berries. To further exploit the market potential of the berries, the juice could be sold as a secondary product. The only added cost would be packaging and shipping. The juice is, as mentioned in the technical study, not as rich in antioxidants and vitamins as the freeze-dried berries. Therefore, we might have to differentiate the two products in order not to degrade the high-quality of the minced powder. These types of juices, such as Ritni[12], are sold in the market for around NOK 100 pr. litre. We could therefore stipulate a price to the distributors for around NOK 50 pr. litre. This would result in a totally different production profit, bringing NOK 350 in extra profit for every kilo of freeze-dried berry. Before we have defined the juice as a complete product, we could sell it to a third-party as a "white-label" product for half-price, 25NOK pr. litre. We would also calculate 10% wastage of the juice in the production process, which leaves us with 6,3 litres pr. 10kg of berries.

[12] http://www.ritni.no/index.php/no/ (12.03.2014)

| | |
|---|---|
| **Cost of packaging (2kr pr. liter)** | **37.800** |
| **Revenue 50kr pr. liter** | **945.000** |
| **Production profit juice** | **907.200** |

**Table 8: Production costs Juice**

Due to the relative high cost of producing minced powder from freeze-dried berries, we have to market ourselves as a high-end product that is more expensive than alternative sources to vitamins and antioxidants. This implies that we will have to look into market segments containing end-users with higher than average purchasing power. We have used three tools of segmentation to find our target market and segments within these markets: Geographic, demographic and behaviouristic criteria (Marcus, 1998).

In the introduction and technical chapters we introduced the superfood/functional food concept. These terms have become generic due to market forces using them as common terms for describing food with higher nutritional levels than ordinary food. The term organic food has been used to describe natural food that potentially has positive utilities and higher values of, for example, vitamins and antioxidants. When conducting market segmentation, the most traditional approach is a demographic segmentation (Marcus, 1998). According to Dettmann and Dimitri (2009), who has done a demographic profile of organic product consumers in the US, the typical consumer of health food is between 30-60 years of age, who has middle to high income. These results are coherent with studies done by the Norwegian Industry Council for herbal remedies[13]. Since ABP`s powder is an organic product and the results are coherent, we base our demographic segmentation on these research data. Other approaches to segmentations should also be considered, such as buyer attitude, motivation and preferences (Marcus, 1998). After the table, a discussion around our main target audience based on a questionnaire designed to uncover user preferences is presented.

[13] http://www.brn.no/brnno/Bransjen/Markedsdata/Statistikk/ (24.03.2014)

| **Target audience** | |
|---|---|
| Female | High level of education |
| Medium-high income | 30-60 years of age |

**Table 9: Demographic target segment**

Further, we wanted to find out more about our typical buyer. This included identifying product preferences, where the end-user finds information and inspiration, and buying patterns. These are important factors to undertake in order to build viable market strategies. We are aware of the fact that the main buyer is not always the end-user. Therefore, we formulated a questionnaire and forwarded it to ten superfood users, asking them how, where and why they bought their products.

The majority of the correspondents answered that they mostly bought vitamins, protein and dried berries. The questionnaire revealed that all of the correspondents bought, or planned to buy superfood products in physical stores rather than on the internet. This implies that the look, feel and overall design of the product have significant impact on the buyer's decision making process. It could also imply that product knowledge obtained by sales personnel and their personal opinion could have effect on the buyer's decision making process. The results also showed corresponding answers in terms of why the correspondents bought superfood. Using superfood products as a way of securing vitamin infusion and energy supply that was not covered by their daily diet was frequently mentioned as reasons to buy these kinds of products. Thus, one can assume that high value products with high nutritional levels are more likely to be adopted by this user group. Since berries grown above the polar circle contain higher nutritional levels, ABP has to take this opportunity into consideration and adapt their strategies accordingly.

One of the most important elements we wanted to uncover throughout the questionnaire was where superfood users found information about products, and what kind of sources that influenced them. Again, the answers we received where very much correlated. All of the correspondents answered that media like internet, blogs, and friends and family were their main source of information. Thus, for a product in the superfood market to gain success, a lot is dependent of what we can refer to as "Word of Mouth" (WOM).

WOM has been widely used to describe interpersonal communication where none of the participants are marketing sources (Bone, 1995). In other words, information about products or services tends to travel from one source to the next, independent of marketing campaigns. Surveys done shows that up to 59% fewer says that they buy products because of their ads (Trusov et.al, 2009). Further, it is widely accepted that sources dominated by non-marketing information are being weighted by consumers when taking decisions on which products to buy (Richins, 1983). This tells us that the effect of marketing through traditional channels like TV-ads and commercials is in recession. We have reason to believe that this applies in our industry. So WOM opens up for sharing of knowledge and experience among consumers, and is particularly prominent on the internet (Trusov et.al, 2009). Our results showed that internet and especially blogs, is the correspondents main source of information. Many companies has started to do sponsorships with blogs operating in their field of interest, offering free product samples, and in return gaining consumers attention. By using this to our advantage, ABP can potentially create cheaper and more effective attention in the market place. This will be discussed further on in the market strategy paragraph. WOM can be a good source of market attention, but it may also have the opposite effect if the end-user experiences negative effects of your product, and decides to share negative experiences with other users (Richins, 1983). Ways of decreasing these effects could be to offer warranties or offer new, free of charge products.

In this paragraph, we have discussed and defined what we see as our initial market based on geographical distance, demographic segmentation, and consumers preferences. To sum up the initial customer segment in Norway, we state that we have identified our main buyer of berry-powder to be females between 30-60 years old, with medium to high income that buys food characterized as organic food/superfood/functional food, and is concerned about the health of

herself and the people around her. In the next paragraph, we look into the future by defining where ABP should expand the business activities to.

### 3.3.3 Future markets

When ABP have penetrated the initial market in Norway, and have established ABP as a well-known trademark within the Norwegian VMS industry, there is time for expanding. For future markets, we see Japan as a market where ABP`s product might be a success. Japan was the first country to define food for specified health uses as a own product category "FOSHU" (Menrad, 2003). The Japanese ministry of health has specific rules for what type of foods that could be labelled "FOSHU" and in the year 2000, the turnover for these products in Japan was around $ 2 Billion. The total turnover in the Japanese market for functional food, including FOSHU approved and not FOSHU approved food, was $14 Billion (Menrad, 2003). When ABP are able to upscale the production of their products, the Japanese market will be the first target. Since ABP is located in Tromsø, where Japanese tourists spend more than 100.000 nights at hotels every year[14], we have the possibility to test out the products on the tourists. This way, we can obtain critical feedback before launching the products in Japan. This would help decreasing any risks involving going global with our product. As with the Norwegian market, there is a need for partnership agreements with Japanese distributors.

Making agreements with foreign partners is a process that requires careful planning and research, and cross-border relationships create managerial problems due to cultural differences (Kanter and Corn, 1994). Differences in values, practices, behavioural styles and organizational assumptions create difficulties when trying to make long-term agreements with potential partners. Japanese organisations values trust based relationships rather than contracts as one of the most important aspects of business (Lothia et.al, 2009). Therefore, if ABP decides to move into Japan, it is required that they need to understand what creates trust in an international marketplace like Japan. In this case, trust can be defined as confidence in another's credibility, goodwill and integrity. In other words, honesty and faithfulness are qualities that are valued by Japanese customers. Also, Japanese customers seem to be very futuristic in their business orientation, valuing long term agreements. This causes them to be

[14] http://www.tv2.no/a/3667181, http://www.avinor.no/avinor/presse/_nyhetsarkiv?ASIA-SATSING_HAR_GITT_STERK_%C3%98KNING_I_HOTELLOVERNATTINGER&id=181-161073 (28.03.2014)

highly risk averse, avoiding uncertain situations. As a result of this, Japanese business men and women feel most comfortable with credible partners that can show to earlier results of success and demonstrate competence (Lothia et.al, 2009).

Based on the discussion above, building long-term relationships, built on mutual trust and goodwill, should be prioritized if ABP decides to move into the Japanese market. Giving the customer assurances throughout contracts, offering exclusive rights to products are potential measures that could create trust between buyer and seller, giving the buyer assurance against supplier's defection (Hagen and Choe, 1998). Also, gaining good results from other markets and being able to demonstrate success and competence is also important. This supports our decision of penetrating our home-market before considering penetrating Japan. ABP could chose to expand the business not only by penetrating new markets, but also by implementing new ways of exploiting the product. We will elaborate further on that topic in the next paragraph.

### 3.3.4 Future potential areas of use

During the development phase that ABP currently is going through, finding new situations of use for the product based on berry-powder has been prioritized within the development team. In the technical study, we described several functions and coherent customer values. Even though the inventors has extensive technical knowledge and information about the product, we wanted to further investigate if there were some market or areas where the product could be applicable, that the development team might had overlooked. We therefore initiated a design thinking workshop with participants from outside of ABP. The workshop would also function as a potential verification if the participants came up with the same or similar situations of use as ABP already had generated.

| Gender | Occupation | Age |
|---|---|---|
| Female | Leader of incubator, Norinnova | 49 |
| Male | Advisor, Norinnova | 59 |
| Female | Business student | 25 |
| Male | Business student/carpenter | 36 |
| Male | Business student | 25 |
| Female | French business student | 25 |
| Male | Consultant, DT Lab | 28 |
| Female | Hotel manager | 27 |
| Male | Business student | 25 |

**Table 10: List of workshop participants**

Because we wanted to generate new ideas, unaffected by previous research, we needed to bring in fresh minds that potentially could bring new insights. As a solution to this obstacle, we ended up with inviting people from the outside. These participants obtained none, or scant knowledge about the product, to a design thinking workshop that we organized. The workshop was held in March at The Lab for Design Thinkers at the University of Tromsø. Nine people divided into three groups participated in 1,5 hour of brainstorming activities, designed to let the participant's minds wander freely and release all of their craziest ideas for new areas of use. The participants were carefully chosen. We invited people with different backgrounds and occupations, since diversity is important when the aim is to get as many different perspectives at once (Brown, 2008). See table 10 for complete list of participants.

The workshop was divided into three phases; introduction, ideate, define and prototyping. We started off by telling the participants as little as possible about the product, letting them touch

and look at it if they wanted to. Because we did not want push the participants in any certain direction regarding areas of use, we knowingly held back information that told anything about what the product was meant for and how it was made. In the second phase (ideate), post-it notes and pens were handed out and each group received their own white-board. The participants were then told to generate as many situations of use as possible within a limited amount of time. Further, each group chose, among all of their ideas, one area where they saw the biggest market potential. The groups then continued with that one idea, prototyping, drawing and making stories about situations of use to illustrate their point. The workshop ended with all of the groups sharing their ideas with the other participants.

The following table illustrates several potential areas of use generated by the three groups during the workshop, and discussed in plural. The table shows each of the group's top 3 areas of use. (See appendix 3 for full table and information about the workshop).

| Group 1 | Group 2 | Group 3 |
|---|---|---|
| Smokeless tobacco | Spices | Cosmetics |
| Sachets for one-time use | Baking ingredient | Medicine/drug* |
| Yoghurt addition inside the lid | Smokeless tobacco | Cocktail mix/drinks |

**Table 11: DT Workshop results**

**(Medicine/drug was used as common term for health supplement)*

To sum up, the groups managed to come up with several areas of use for the berry-powder they were introduced to. In terms of what already has been mentioned in the technical study as functions and customer values, the workshop mainly functioned as confirmation for what we already had been thinking. The groups confirmed our assumptions that the powder would be suitable for baking, drinks and smoothies among others. However, we also received some very interesting ideas for potential future areas of use that could influence the direction of the company. Cosmetics and smokeless tobacco was frequently mentioned, and has to be

considered to be of interest for further development of both market strategy and product design. These ideas have to be subject for future R&D due to high cost with regards to research and proof of concept. It is important to mention that the result might differ with regards to the group of participants. ABP should therefore try to initiate similar workshops in the future.

### 3.3.5 Strength through partnership

Having the ability to exploit external knowledge is a critical component of innovative capabilities (Cohen and Levinthal, 1990), and formation of strong partnerships is a way of finding and maintaining competitive advantage (Mohr and Spekman, 1994). Thus, companies need to put a strong focus on networking towards other actors that potentially could be of great value for developing their business further. We will therefore in this paragraph elaborate around the many possibilities we see in partnerships, both financial and strategic. Firstly, we are going to elaborate on the strategic possibilities that we have in our domestic market. Being located in Tromsø, opens up several opportunities for a small start-up company like ABP.

One of the major limitations when starting up a new business, as mentioned in the introductory chapter, is limited resources. Like for several other businesses, this is also the case for ABP. Since we have a small amount of resources available to penetrate the market, we see it as too demanding to open up own sales outlets (Solberg and Nes, 2002). This would require large amounts of financing that would be difficult to obtain. This tips us in the direction of the business to business segment; selling to distributors for resale. Our findings showed that there is willingness to invest in local products amongst distributors. By selling to distributors for reselling, ABP would decrease the need for heavy investments like own sales subsidiaries and marketing costs. When we look at potential partnership agreements we separate suppliers and customers. We start off by discussing potential customers that might become partners.

The health-nutrition store Life, located on three sites in Tromsø, currently have several local products in their product range. These products originated from both small and medium sized providers from the north of Norway. The presence of local products in their stores indicates

that there is a demand in the market for these kinds of products. Establishing a professional relationship to Life might give ABP the flying start they need for introducing their product to the market. There are also bigger franchises that have the same approach to local products. One of the biggest is Coop, with more than 100 local stores[15]. Coop covers a nation-wide market in Norway, and in Tromsø they offer a wide range of local products. By establishing a partnership with Coop and becoming part of their product range, ABP would obtain access to a huge number of distributors nationwide within Coop's network, all within a relative short period of time.

With regards to suppliers, we have to look at the suppliers of raw-material, and the service suppliers of freeze-drying. When it comes to production as well as distribution, the company we have mentioned in the technical study, called DryTech might become a key ally. DryTech is located in Tromsø, and currently possess the biggest freeze-drying facilities in Norway. We see them as a key partner when it comes to production of freeze dried berries. In addition to producing freeze dried products, they have established several distribution agreements with both domestic retailers, and 11 international partners[16]. DryTech might be our ticket for a future international market. How we are able to become partners with their retailers through being a part of DryTech`s product range, depends deeply on the agreement we are able to put together between ABP and DryTech. There are few suppliers of berries from the northern parts of Norway, thus we might have to look into Finland and Sweden to find alternative suppliers. Askim Frukt og Bærpresseri is a producer of juice products from berries that are grown in the high north. Since they only commercialize the juice in the berries, there might be a possibility to buy the residuum from their juicing process, and use it for our raw material. This has been confirmed by Askim Frukt og Bærpresseri in April 2014. In that case we would gain higher control over our common suppliers of berries.

Forming strategic long-term partnerships with distributors and manufacturers requires strategies for how to maximize potential benefits for you and your partner. Mismanaging of partnerships can create risks, and potentially be very cost full (Mohr and Spekman, 1994).

[15] https://coop.no/om-coop/virksomheten/ (26.02.2014)

[16] http://drytech.no/index.php/no/forhandlere-oransje (26-02-2014)

Finding potential partners and establishing agreements requires resources like time and money, resources which many start-up companies lacks. Thus, creating understanding for what factors that affect the success of partnerships can be fruitful.

ABP is dependent on other actors in the marketplace to carry out their business strategies, as is the situation of most start-up ventures. For example, dependence is created in the production stage. Since ABP at the moment does not have the resources to get hold of their own freeze-drying facilities and sales subsidiaries. Therefore, ABP is depending on successful partnerships with established actors. Dependent firms should therefore rely on adding value for partners at a relatively small cost to itself (Cohen and Levinthal, 1990). For ABP and potential Norwegian distributors' agreements, this would mean offering high quality, exclusive products harvested, produced and sold in Norway, that distributors cannot get their hands on anywhere else. In the Japanese market, a different approach with focus on the northern light and the clean, arctic nature as discussed earlier could be an alternative to add value for the distributors, and finally and end-user.

To be able to add value, companies also need to understand what expectations and requirements their partners have (Cohen and Levinthal, 1990). Thus, having frequent status update meetings to keep a mutual understanding is important. For instance, frequent meetings with distributors can help ABP gain valuable insights on current and new industry trends and feedback from end-users. In the start-up phase, it should be relatively easy for ABP to carry out such strategies due to the fact that both manufacturer and distributor are located in Tromsø. In later phases when going global is an alternative, viable strategy has to be made. However, before you can carry out the measures above, trust, willingness, commitment and proper communication are important factors to establish (Mohr and Spekman, 1994; Cohen and Levinthal, 1990). Mohr and Spekman (1994), mentions joint planning and goal setting as a way of gaining successful partnerships. Jointly formulating long-term production strategies that encourage both parties to grow and determining what the common future objectives are, can help a start-up company like ABP to be less dependent of frequently extending their social and business network. In the next part of this market study, we have studied the competitive landscape ABP will have to relate and adapt to.

### 3.3.6 Competitive Analysis

For a commercial product to have any possibility of being successful, one has to be aware of the new value they bring into the market (Petrusson, 2004). There is always an alternative to any type of new products that is considered to be the current solution to a certain need or a problem. For example, the bus can be seen as an indirect substitute for driving a car, but Scania (bus manufacturer) is not considered a competitor to Audi. It is the same as getting enough antioxidants and vitamins through fish, wild berries, coffee and dairy products are substitutes for our powder. Unless the new product can upgrade the quality, (as via marketing), the industry will suffer in earnings and possibly in growth (Porter, 1979). We therefore will have to market ourselves as a higher quality product and differentiate ABP somehow from the substitute products and direct competitors. Before we can determine in what way ABP's solution differentiate itself from the products already existing in the market, we have to analyse and evaluate the competition in the market. In this paragraph however, we will elaborate on the current competition within our market segment, mainly focusing on competitors with similar products to ours who we describe as our direct competitors. The competitive analysis will be used as a key tool when we make a marketing strategy for selling ABP`s products.

In table 12, we have listed who we consider to be our main, direct competitors. A comparison of their attributes with ABP`s attributes has been made in order to highlight similarities and differences. The table takes product type, production method and raw-material use into consideration. The listed competitors can be described as the most active in the marketplace as of today with regards to marketing campaigns, presence in the media and shelf space in stores. We have not listed potential competitors that may become a threat in the future, because we see them as indirect competitors, not direct. However, we have written our projections on the competition for future markets at the end of this competitive analysis.

| Logo | Facts | Dried Berries | Freeze-dried berries | Minced berry-powder | Multiple types of berries | Arctic berries |
|---|---|---|---|---|---|---|
| | **BioKing** (www.bio-king.no, www.bioking.at)<br><br>Countries: Norway and Austria<br>Price: 1500kr pr. kg | YES | YES | YES | YES | ***NO*** |
| biokia® | **BioKia** (www.biokia.fi)<br><br>Countries: Finland (International online store)<br>Price: 1350kr pr. kg | YES | ***NO*** | YES | YES | YES |
| bama | **Bama** (www.bama.no)<br><br>Countries: Norway | YES | ***NO*** | ***NO*** | YES | ***NO*** |
| ASKIM FRUKT & BÆRPRESSERI ETABLERT 1936 | **Askim Frukt og bærpresseri** (www.afb.no)<br><br>Countries: Norway | NO | ***NO*** | ***NO*** | YES | YES |
| **ArcticBioPlants (ABP)** | **Arctic BioPlants**<br><br>Countries: Norway<br>Price: 1500kr pr. kg | YES | YES | YES | YES | YES |

**Table 12: Competitor overview**

BioKing is an Austrian company who specializes in selling both dried and freeze-dried berries. In 2009 BioKing established a Norwegian sales office in Oslo. Their products are sold both online and in physical outlets. Some of their products are found in Life`s store in Tromsø. Their websites are in Norwegian and German only, so we do not believe they are selling to international customers. Raw materials, i.e. the berries they use for their production, are harvested in Bulgaria and Iran. This means that ABP can differentiate themselves and actively use the fact that they are using raw materials that consist of a higher quality than BioKing, in addition to avoid raw materials being transported long distances before it reaches the production line. From our point of view, with regards to product quality, look and taste,

ABP has a much more delicate and porous texture in the freeze-dried berries combined with a better taste. ABP can therefore deliver a higher quality product to the end-user.

Askim Frukt og Bærpresseri, who are selling juice from berries, will be our competitors when ABP starts selling the juice that derives from the freeze-drying process. We have listed them as direct competitors not only because of their products, but because they harvest their berries in the same areas as ABP. We are therefore competing for the same suppliers of berries. However, since AFB only uses the juice from the berries, they might become a strategic partner as well as a competitor in the future, if we can buy the raw material from them. This would give us leverage when it comes to suppliers of berries from the high north, as well as prohibiting AFB from becoming direct competitors on both products and suppliers.

BioKia is a Finnish company who are making products most similar to us. BioKia uses berries from Finland, but do not harvest berries from above the polar circle. After a short investigation and email correspondence with BioKia's marketing department, it was uncovered that all of their berries were harvested in the southern parts of Finland. Taking the end-product into consideration, BioKia do sell dried berries. However, they infuse the berries with sugar for a sweeter taste, which collides with the health benefits and nutritional values we see as key utilities for ABP. Their minced powder however is not infused with any sugar, but these berries are not freeze-dried. The berries are air dried and contains a higher degree of water and a moist texture, lowering the quality of the end-product. We have not found any distributors for BioKia`s products, so we suspect that they only sell online to international markets, since their site is written in English, Finnish and Swedish.

Bama is the biggest distributor of berries in Norway, having annual revenue of NOK10 700 Million in 2012. At the moment, they do not sell products that have derived from freeze-dried or dried berries. However, they do manufacture and sell various other products made out of berries with a high content of vitamins and antioxidants, everything from unprocessed fruit and berries to smoothies. Bama has a well-established name in the market, and then presumably well-established agreements with distributors and partners. Their products are found in supermarkets, petrol stations and basically everywhere you can assume to find food

items. Also, BAMA is known for actively supporting top level- and mass sports throughout sponsor agreements and special events. Showing social responsibility throughout influencing children and young people to eat more fruit has established BAMA as one of the major actors in this industry. BAMA's large presence is something that might prohibit us from selling ABP`s products to BAMA`s customers.

Since BioKing and Bama is the only direct competitors who has established agreements with Norwegian distributors as we know of, and Bama only sells products that is not freezed or freeze dried, we see that we do bring new value to the market. ABP could be the first to sell products derived from berries harvested above the polar circle, and the first to sell minced freeze-dried berries in packaging other than bags of 100-400 grams.

For our future market in Japan, there are competitors from USA[17] and Japan (NAKADAI)[18] but we do not have sufficient information about their products to do the same comparison as we have done with Bama, BioKing and BioKia. Bama might also become a bigger threat in the future. Due to their big capital and organization, they have the possibility to produce the same end-products as we do. In the next paragraph we have done an analysis of the internal and external factors which may affect ABP`s future development

### 3.3.7 SWOT Analysis

We have chosen to use a SWOT analysis as a tool to address the key issues which affect our business development, and to highlight the potential for ABPs commercial value. The SWOT analysis consists of four focus areas; *strengths*, *weaknesses*, *opportunities* and *threats*. The analysis is used to identify the internal strengths and weaknesses within our organisation, and to find external opportunities and threats (Pickton and Wright, 1998). The external analysis is described to be an environmental scanning, which creates and overview of the business environment we are working within. Knowing the business environment enables a company

[17] www.miracleberrypill.org (02.04.2014)
[18] http://yamasu.trustpass.alibaba.com/product/138222896-103859124/Crisp_Tomato_Snack_Lightly_Salted_Vegetable_Snack_Japanese_Dried_Fruits.html (02.04.2014)

to prepare predicted scenarios that may or may not occur in the future (Pickton and Wright, 1998).

| Internal Factors | External Factors |
|---|---|
| **Strenghts**<br><br>- Geo-location<br>- Product expertise<br>- Small and adaptable organisation<br>- Well established partners | **Opportunities**<br><br>- Interest from potential customers<br>- International markets through partners<br>- Fast growth<br>- First mover advantage in Norway |
| **Weaknesses**<br><br>- Small organisation<br>- Little financial resources<br>- Occupied team members<br>- Dependent on outsourcing the methods | **Threats**<br><br>- Public harvest grounds<br>- Competitors with much capital<br>- Partners becoming competitors<br>- Team members leaving the project |

**Table 13: ABP SWOT analysis**

**Internal strengths**

One of ABP`s main internal strengths is the geographical location in Tromsø. One of the reasons for it to be strength is the closeness to raw-material harvesting areas. Since the harvesting grounds with the berries are located nearby, we have the possibility to be mobile, and are able to go to the harvesting grounds on short notice. This gives us the possibility to have high quality assurance and mobility to change supplier fast. Secondly, due to freeze-drying being the preferred method of removing liquid from the berries, we have a unique partner in DryTech, who has their freeze-drying facilities here in Tromsø. Having interviewed several local merchants, we discovered that there exists a big interest in selling locally produced products, here in Tromsø. Merchants that are interested in our products before we launch the product are something that might give us the kick-start we need to get market approval. It could also give us the feedback we need for further product development when we are using design thinking as a tool for improving our products.

Further, we have unique expertise in the field of biochemistry and knowledge about berries and the nutritional values, something all of our competitors are lacking. When interviewing them, asking about their products, they found it hard to answer technical question regarding quality and production methods. Both Rune Muladal and Andrzej Siwek are working in the field of biochemistry; therefore, we see that as one of the biggest strengths ABP possess. Rune and Andrzej are currently the only two persons engaged in the company. ABP is therefore highly adaptable for changes. The last internal strength we mention in table 13 is well established partners. Drytech, as mentioned, has the biggest freeze-drying facilities in Norway, but maybe more importantly, they have established sales distribution in 11 different countries. The partnership we have with them might take our product international.

**External opportunities**

Our research in the empathy phase, where we interviewed potential customers and users, revealed a big interest for a new local product. The fact that we had an all sustainable production line from start to finish, seemed to be very appealing to the persons we interviewed. There are three health supplement stores in Tromsø has shown interest in having our powder in her product line. Thus, not only are the end-users curious of what we bring to the market, but our customers, i.e. the retailers, were also positive and showed a big interest for our products. If we get to be a part of one franchises product line, we could use their international relations to get a network of retailers in foreign markets. Both Life and DryTech have distribution channels in countries outside of Scandinavia, they both have stores in Tromsø and are positive about future partnership. Being the small organization that ABP is, we have the opportunity to grow very fast, expanding our operation rapidly once we make it in the domestic market and then later, different foreign markets. We have not yet found anyone that produce minced powder out of freeze-dried berries in Norway. This implies that we will have the first mover advantage in the domestic market, in terms of harvesting grounds and production facilities in Norway.

**Internal weaknesses**

ABP is currently a newly established, small enterprise with a small amount of external funding. It is a well-known fact that distribution agreements with nationwide or international

enterprises requires that ABP is able to deliver high amounts of goods within a short period of time. As a result, this requires a cost demanding warehouse stock, containing both goods and raw materials that can be utilized when the orders are received. For that, we need capital from outside investors. We also need to expand the team if we are going to make agreements with several distributors. Two persons will probably not be enough to handle contracts, quality control, economics and product development at the same time. Before we get to the point where ABP has a positive turnover and are able to pay salaries those the team members, the team will have to keep their current day-jobs and use their spare time on ABP. Since we do not know when ABP becomes a profitable business, and in turn requires full-time attention from the team members, the fact that they are committed to their tasks at their initial workplaces at the same time as building a new venture is considered a weakness. Further on, it is a fact that ABP does not possess a freeze-drying facility or a big mincing mill. Thus, the methods will have to be outsourced to someone who possesses those kinds of machines. Minor mincing can be done by ABP in the beginning. ABP is therefore dependent on the few companies that does have these facilities in Norway and are vulnerable for any changes within the collaborating companies.

**External threats**

The planned harvesting grounds are set to be on public ground in the northern part of Norway, Sweden, Finland and Russia. ABP does not have any rights or guaranties for sole control to the available raw materials. If a competitor wants to use the same raw materials as ABP, there are no regulations that prohibit that. This is due to the fact that the raw materials needed for further production is found on public grounds. A competitor with strong capital might therefore push ABP out of the harvesting grounds by offering higher prices to the berry-suppliers. As mentioned as one of our internal weaknesses, we are highly dependent on good collaboration agreements with potential partners. Since we do not have any production facilities of our own, there is a possibility that our partners might start their own production of similar products and stop delivering to ABP. To overcome such a threat, ABP has to be very thorough when putting together collaboration agreements, ensuring potential partners cannot take over our production line. For a start-up company like ABP to make commercial success, time and money has to be invested by the people who are involved in the project. This requires a dedicated team who are willing to take risk. Due to personal and professional

differences that might exist within a team, this is not something everyone has a desire or ability to do. This may result in some of the team members being tempted to give up on the project and start working on something that gives a higher economical or social pay-off. One solution is to make each team member replaceable, avoiding to be highly depended of individuals.

### 3.3.8 PESTEL Analysis

The PESTEL framework provides a comprehensive list of influences on the possible success or failure of particular strategies. PESTEL is an acronym for political, economic, social, technological, environmental and legal. Politics highlights the role of governments, economics refers to macroeconomic factors such as exchange rates, and social influences include changing cultures and demographics. Technological influences refer to innovations such as the internet, nanotechnology or the rise of new type of materials. Environmental stands specifically for environmental sustaining challenges, like pollution and waste management. And finally we will discuss legal issues, which embraces legislative constraints or changes (Johnson e.t al, 2008).

In different markets, these factors will change, so we will have to do another PESTEL analysis whenever we seek to introduce ABP in a new market. For this thesis we have only completed a PESTEL analysis of the factors with regards to the Norwegian market, since Norway is set to be the initial market. We have chosen four of these factors as key drivers for change. These four factors are environmental, social, technical and legal. The Norwegian economy and political system is so stable, that we consider it not to be price sensitive for products like ours. Therefore, we have excluded them from this analysis. In the table below we have listed the factors we see as the most important in the four key drivers.

| | |
|---|---|
| **S** | Increasing population - Focus on healthy diet and lifestyle - Increase in content awareness |
| **T** | More known technology - Geo-location on facilities - Price on technology |
| **E** | Climate changes - Increasing environmental awareness |
| **L** | Packaging requirements - Food regulations - Traceability requirements |

**Table 14: STEL Norwegian market for ABP**

### Social trends

The Norwegian population recently exceeded 5 million, and has over the past couple of decades grown steadily[19]. Positive birth rate combined with increased immigration is the factors that influence the Norwegian population numbers. This implies that the potential market for buyers of food, and thereby nutritional supplements, is going to grow during the next years. We also see a positive trend in the Norwegian society concerning healthy lifestyles, and people are paying greater attention to their diets and what they are eating[20]. One of the reasons for this could be explained by the increased and easy access to information on the internet and search databases. During the past years, the media has paid greater attention to society's diet. Negatively slanted articles concerning unhealthy diets and lifestyles have become common. Blogs, online news sites and the paper press all highlights recent food trends and negative sides of people's fast-food diets[21]. As well as media attention, increasing numbers of food allergist has raised awareness about people's diets. In Europe, 3-4% of grown-ups and 6-8% of children are affected of different kind of food allergies[22]. Changing eating habits, fast-food and imported food are some of the explanations for this phenomenon. Also, berries from the high north have gotten increased media focus the past few years, due to an increase in interest by the consumers. The recent eruption in Hepatitis A infections in Europe is suspected to come from frozen berries from outside of Europe. The Norwegian

[19] https://www.ssb.no/befolkning/statistikker/folkendrkv (21.03.14)

[20] http://www.brn.no/brnno/Bransjen/Markedsdata/Statistikk/ (25.03.14)

[21] http://www.itromso.no/nyheter/article9367251.ece (25.03.14)

[22] http://www.fhi.no/tema/astma-og-allergi/allergi (25.03.14)

council for food safety only suspects the infection source to be frozen berries, and excludes dried berries as a source of infection[23]. This suspicion gives ground for believing that consumers are willing to pay more for products that are known to be risk free, such as northern berries.

### Technological challenges

One of the main tasks for ABP should be to examine the trend of local produced food. On the other hand, using locally produced food to our advantage gives us limited options regarding freeze-drying and collecting raw material. The technology is expensive and limited resources leave us with few possibilities. Exploring new technologies that could widen the scope of possibilities should be prioritized for the future.

### Environmental responsibility

Governments in Norway and several other countries in the world require traceability[24]. This involves providing full information about the origin of the product, all from collection of raw materials, production, shipping and when the product reaches the end-user. Governments require producer's identification to ensure a traceable product. The reason for this is to ensure access to critical information enabling quick retrievement of dangerous items[25], and give correct and precise information to customers. Being a pioneer in these fields can give firms both advantages of being first movers, using it actively in marketing campaigns, and potentially give them the power to tip new legislative proposals in their favour. We see that both individuals and firms are more aware of the environmental challenges we will face in the future. The Norwegian research council (Norges Forskningsråd) uncovered 8 potential trends[26] that supposedly shall affect our choice of products and services in the future. One of

[23] http://www.aftenposten.no/helse/Mattilsynet-Kok-importerte-bar-7525425.html#.Uz50c_mSxrw (04.04.2014)

[24] http://www.messe.no/no/Mat-og-Emballasje/Nyheter/Mer-og-mer-ma-spores/ (04.04.2014)

[25] http://www.regjeringen.no/nb/dep/hod/tema/ernaring-og-mattrygghet/sporbarhet-i-matproduksjonen.html?id=603405 (04.04.2014)

[26] http://www.forskning.no/artikler/2013/januar/344435 ( 25.03.14)

those was reducing CO2-emissions by for example using collective transportation, use less time flying and buying local food to avoid emission from shipping.

**Legal ground rules**

In the discussion under social trends, content awareness was brought up. Something that has a close connection to content awareness is governmental laws and regulations concerning labelling, marketing and traceability. Today, the Norwegian government enforces and regulates the industry throughout the food safety act. Information about nutritional ingredients is one of the areas the law handles. During recent years we have seen tighter restrictions about how you can label and market your product in a way that does not mislead the consumer, a trend that is believed to continue during the next decade. The Norwegian public authority Forbrukerombudet states in one of their reports about packaging and nutritional information that not all food requires labelling. This will however change when new EØS-regulations arise in 2014-2015[27].

Now that we have analysed the potential market, identified our target audience, and examined the internal and external factors and trends influencing ABP as a company, the next part of this thesis involves formulating a viable market strategy.

## 3.4 Market strategy

Based on the results in the analysis presented above in this chapter, we will plan a strategy for the market introduction of ABP`s products. How you position your product in order to satisfy needs in the market is critical in order to reach your target market and segments, there are four critical elements a business has to consider when doing this: product, placement, price and promotion (Grönroos, 1997). In addition, we will add a fifth P, production. The reason for doing so is that we consider production strategy to be crucial for the further development of ABP. In the end we will conclude with what we see as the most effective market strategy for ABP.

[27] http://www.forbrukerradet.no/_attachment/1133792/binary/9145 (25.03.14)

### 3.4.1 Product strategy

Being a small start-up company gives us certain restrictions we have to relate to when we plan a product strategy. These restrictions are low production capacity in the beginning, low recognition in the market and untested products. As described in technical study, the base product will be powder from freeze-dried berries. We have to make a decision on what end-product we would like to sell in the start-up phase. We could choose to do further development on the base product or start selling the base product and do development simultaneously. If we choose to do further development before we start selling the product, in order to have a product that is more specified for one type of use, we have time to do even more detailed analysis. It might be easier for a consumer to understand how to use the product, and it could create lower barriers to buy the product. However, this development will be time and cost demanding, resources we are lacking. If we wait too long, the market might change faster than we are able to do product development and our analysis would be useless. Instead, we recommend start selling the base product in bags of 100-300 grams, and to do further product development simultaneously, based on the feedback we receive from the consumers and end-users.

We defined the product to be a multi-purpose powder which could be used in dairies, bakeries, dinner and drinks, or purely as a vitamin/antioxidant supplement. The product will be in three versions, blueberry, crowberry and lingonberry powder. Ehmke et.al (2005) suggests that, among others, a product should be seen as a bundle of packaging, quality and brand name. The packaging has to emit a feeling of a high-end product as a statement to show the high-end content in order to hit our target audience. As a result, establishing a brand name that creates a luxurious image for ABP will build on our business's strength that is high-quality products and competent people.

In Technical Study, we wrote that we are using design thinking as a tool for business development. We will take forward the design thinking methodology into our product strategy. By selling one base product we can take retrieve customer feedback to the production facilities, and create spin-off products which meet the needs of the consumer. If the consumer wants the powder in a shaker, in order to use it for sprinkle on cakes, ice-cream and so on, we can develop that product since we know that we have customers who are

already eager to buy it. The same way can be done for testing out the Japanese market. By selling products to Japanese tourists via hotels, lodges and other tourist sites we can observe their reactions and change according to their needs and wishes. By building the business on this brick-by-brick model, we can use the possibility we have right now to exploit a first mover advantage, as we revealed during the competitive analysis. At the same time as we create and establish a trademark, which might become a key factor for our competitive position, we enable ABP to grow together with the consumers in an interactive process. This gives good marketing value, and product development which always puts the customer's needs in focus.

### 3.4.2 Distribution strategy (placement)

Once again we have to take into consideration our limitations, the most relevant factors with regards to distributors are volume and capital. We could choose a business to consumer strategy by selling products with sales subsidiaries such as own stores and agents (Solberg and Nes, 2002). This would give us complete control over branding and what products that are placed close to each other. We could also train the sales staff so that they could give a better description of the product to the customer. However, this strategy is too costly for a small start-up company like ABP, thus we have to look for other types of distribution. An alternative solution is to use distributors (Ehmke et.al, 2005). This strategy is depending on being able to deliver steady year-round supplies. Thus, factors like production and partnerships will determine the success. There are several different distribution strategies including intensive (often used when prices are low), exclusive (restricted to a single distributor) and selective distribution.

The chosen distribution strategy is selective distributions. Selective distribution narrows distributions to a few businesses (Ehmke et.al, 2005), and is suitable when close relationships with customers is preferable and when end-users usually buy products in physical stores. This is coherent with our market research that showed end-users prefer to do their shopping in health-nutrition stores where they could take a look at the products in real life.

When we did field studies, the owner of three health-nutrition stores in Tromsø within the

Life franchise was interviewed. To our advantage, she was willing and happy to have local products in her shelves. She already had good experience with local products from the Tromsø area. By making an agreement with her, we get to sell our products in the stores of a big health-nutrition franchise without having to keep a large amount of inventory at all times. Since we are aiming for Japan as our future market, we believe that starting to sell to Japanese tourists in Tromso would be one way of securing market verification, thus uncovering if there is a need in the Japanese market for ABP product. We would start of by selling products where the tourists are located, for example tourist locations such as Koppangen Brygger[28], Tromsø Villmarkssenter[29] and other lodges. In that way we could save a lot of money on marketing, personnel and store facilities. What we would lose is complete control over marketing and the information flow. We would also have to make sure that the products were placed in the correct shelf and place within the store.

### 3.4.3 Price strategy

The price of the product will determine what kind of product impression end-users will develop. There are several pricing strategies we can consider. Ehmke et.al (2005) mentions cost-plus (production cost + standard percentage of profit), value-based (based on buyer's perception of the received value) and competitive (based in competitors pricing on similar products). Before we have established a recognizable trademark within the market, we might have to have the same pricing level as our competitors, even though we are trying to sell a higher quality product. This would give the end-user a much lower transaction costs, rather than if we price the product a lot higher. If we price the product to low, to ensure that we establish a customer base in the beginning, it might come affect us in a negative way if we start pushing up the prices after a while. This could result in customers not appreciating the increase in price, even though they like the product. Due to the fact that we are delivering a high-quality product, introducing incremental changes and offering the end-user better product than already existing in the market, we believe that the buyer's perception of the product will be that we offer something of higher quality. This indicates that a combination of value-based and competitive pricing strategy will be preferable. Therefore, we define the optimal strategy to be to start at the same price-level as our competitors who offer costly

[28] http://visitlyngen.no (08.04.2014)

[29] http://villmarkssenter.no/?lang=no (08.04.2014)

products, and then see how the market reacts to the new product. With good sales, we increase the price after a while, and vice versa if the demand is not as we projected.

### 3.4.4 Production strategy

We rely on good partnership agreements with DryTech, to use their freeze-drying facilities. If the agreement between ABP and DryTech is not satisfactory and ABP have to buy its own production facilities, it will be highly cost demanding. A new freeze-drying machine with the capacity of 1500 kg from Cuddon ltd costs around EUR 1.185 million[30], in addition to having facilities for it, and people to run it. This is not possible for ABP in the start-up phase, but something that could be planned for the future. As for our suppliers of berries, we rely on the amounts of berries we can buy from external harvesters because ABP cannot harvest all the berries by themselves. As of today, access to raw material is not a problem, since we are buying from a third-party. However, this might be difficult in the future if our competitors start buying from the same place as ABP. As mentioned in the paragraph about competitors, Askim Frukt og Bærpresseri are giving away all of the remainings from their juicing process, we will therefore try to reach an agreement of getting raw-material from them as well. The freeze-dried berries are minced and packed by ABP. Packaging could be outsourced in the future when we want to have a range of different packaging alternatives.

### 3.4.5 Promotion strategy

Promotion strategies are planned in order to reach out to customers and let them know what you are selling (Ehmke et.al, 2005). Since we have chosen to use franchise stores and holiday lodges as our distribution channel, the promotion we gain from them might vary. Therefore, we have to make promotion strategies for both consumers and retailers. We are selling to the retailer, but the retailer only buys from us if the consumers buy from them. The end-users is our target audience, and our promotion strategy will have to be consistent and attracting their attention (Ehmke et.al, 2005). Thus, identifying and finding out what attracts attention was an important part of the market analysis. During our interviews with superfood consumers (Appendix 5), we tried to find out why the end-users bought the products. They were all very much influenced by various bloggers. Everything from fitness blogs to cooking blogs was mentioned. This indicates that the use of word-of-mouth has a stronger influence on

[30] http://www.cuddonfreezedry.com/ (20.03.2014)

supplement products than any other marketing tool. Based on that we would recommend ABP to recruit bloggers to use and review the products rather than using promotion in traditional newspapers or TV advertisement.

We want to brand the products as organic, since they fulfil the international requirements set by IFOAM (international federation of organic agriculture movement)[31]. Furthermore, before the products are verified by IFOAM, we can brand it as ecological and natural. Once the verification from IFOAM is in place, we obtain a certification sticker from Debio, the Norwegian organic certification council on all the products. This certification will serve us well when we are promoting ABP towards retailers, since they can put ABP products in the organic shelves in their stores. We also believe that such a certification would raise the quality perceived by the consumer.

## 3.5 Conclusion

The purpose of this market study was to answer our market research question: *What is the market opportunity and thereby the optimal marketing strategy for Arctic BioPlants products?*

We have analysed the current competition in the market and found several direct competitors. The high market participation by different manufacturers gives us grounds for believing that the demand is high enough for a new entrant like ABP. A Norwegian market with revenue of 1.000 MNOK, which is increasing every year, is recognised by us as a big opportunity for a company who brings in new value to the market. ABP`s value proposition represents new value to the consumer, and should therefore have a solid opportunity to sell products both to established and new customers. With the results of this market research as a basis, we can conclude that: *"The Norwegian health-nutrition market represent a growing business opportunity both now and in the future, Arctic BioPlants bring in new value to the market to serve consumer's needs"*

[31] http://www.ifoam.org/pt/ifoam-standard (08.04.2014)

We then wanted to outline a market strategy for how to introduce ABP to the initial markets. We did field studies by interviewing local health-nutrition stores, and suppliers of berries. The local store owners were positive to new products coming from the high north. They will help ABP to kick-off the market penetration and drive the business further by implementing ABP products in their stores. Not having many resources, with regards to money, production facilities and work capacity is a challenge and we discovered that Tromsø is a place where these obstacles can be manageable.

A good relation with local freeze-drying manufacturers and local stores enables us to produce a low amount of products in the start-up phase. Getting raw materials from the high-north could be solved by purchasing derivatives from juice producers such as Askim Frukt og Bærpresseri or from harvesters in Finnmark and Sweden. With regards to future markets, Japan is identified as a market that has a high interest of clean health-products, through their food quality council "FOSHU". Since there are many Japanese tourists coming to Tromsø every year, we can test out ABP products on the tourists and retrieve feedback from them before we start selling in Japan. We can thereby conclude with: "*The optimal market strategy for Arctic BioPlants will be to establish a trademark in the health-nutrition market in Tromsø and with time expand the marketing efforts to other regions and markets*"

# 4 Business Plan

## 4.1 Executive summary

The global society has for the past years had a rapid increase in the focus on eating healthy. Consumers have developed a much higher content-awareness, whit regards to to what they put into their bodies. One of the most popular foods that are being exploited is berries. Berries contain high amounts of vitamins and antioxidants and are produced in the wild, under pure organic conditions (Blomhoff, 2008). Rune Muladal and Andrzej Siwek observed that very few suppliers in the market were using forest berries from above the Arctic Circle and wanted to explore the possibilities around these berries.

What they discovered through their research, was that due to the rarity of northern lights and midnight sun, the berries grown above the Arctic Circle contained up to 4 times higher level of vitamins and antioxidants than the same berries grown anywhere else in the world (Uleberg et. al, 2012). Being outdoor enthusiasts who had been eating these berries since their childhood, they saw a commercial opportunity that they wanted to explore. Their business idea is to freeze-dry and mince berries that are grown above the Arctic-Circle, and to sell it as a nutritional supplement for food and drinks.

The mission of Arctic BioPlants is: "*To produce and sell high-quality nutrition to health conscious consumers, by exploiting natural resources that are grown above the Arctic-Circle*".

The vision statement is: "*to preserve the environment by producing sustainable foods*"

## 4.2 The problem

Eating healthy has become increasingly important to the general public for the last few years. Internet blogs, articles and videos with a focus on home-made, healthy cooking and fitness are apparently on everyone's news feeds in social media. The term superfood, food that has high nutritional levels, has grown popular the recent years. At the same time as the new trend of eating healthy is increasing, so are the problems connected to it. With regards to berries, which is rich in antioxidants and vitamins and one of the most popular sources to superfood, the main problem areas is short shelf-life and storage space. One can either buy fresh berries, something that has to be done on a daily basis if you are to use berries in your every-day cooking, or buy bags of frozen berries, which takes up a lot of space in the freezer.

In addition to the problems mentioned above, content-awareness has become a more important factor to consumers. The end-users want to know where the berries come from and how they are processed. Our findings showed that very little of the berries sold in the market originates from Norway, or the rest of Scandinavia. This leads to another problem with regards to the ecological footprint made by the manufacturers of these berries. By harvesting and shipping the berries from southern Europe and northern America, the products become subject to unnecessary pollution.

## 4.3 The solution

Even though there is plenty of wild-berries grown in the northern countries, studies has also showed that blueberries, crowberries and lingonberries grown above the Arctic circle contains a higher level of nutritional values than found in similar berries anywhere else in the world (Uleberg, et.al, 2012). This was a natural resource and opportunity that Rune Muladal and Andrzej Siwek believed they had to take advantage of. Rune and Andrzej started discussing how they might create a natural product which contains high levels of nutrition, a product that does not take up to much space and could be conserved in different temperatures for a long period of time. Through their work at BioForsk, they have been in touch with the local freeze-drying company DryTech, who produces freeze-dried field meals. They start discussing if it would be possible to freeze-dry the berries that are grown in the wild in the Tromsø region. Andrzej did research on the local berries, and found out that blueberries, lingonberries and

crowberries grown above the Arctic Circle contains a higher level of vitamins and antioxidants then the same berries grown anywhere else in the world. They saw an opportunity to exploit the natural resources and expertise that are located in their local region. Rune and Andrzej went on to inestigate further, and started prototyping. They contacted local harvesters of berries in Finnmark and the local freeze-drying facility, DryTech. The result is freeze-dried berries which contains all of the qualities they were seeking. By mincing these freeze-dried berries into powder, they make the product even more applicable for cooking since it dissolves in water and blends in with other ingredients. At this stage, Rune and Andrzej have created a solution for adding high nutritional values in the food, from a natural and sustainable source.

What started as a solution to getting high level of vitamins and antioxidants in field-meals, has now evolved into a berry-powder product, that not only works for that single purpose, but also for everyday-cooking.


*The pictures shows minced powder from freeze-dried berries*

## 4.4 The company Arctic BioPlants

ABP will be established as a Norwegian limited-stock company in the third quarter of 2014. The team currently consists of Rune Muladal and Andrzej Siwek, with a mutual agreement of

a 50/50 ownership structure between them. When the company is established as a joint-stock company, we as students will be brought into the company as members of the board.

***Rune Muladal,*** is a biologist and an entrepreneur from Tromsø, Norway. He has several years of experience in the field of biology and entrepreneurship and is currently the manager of a successful company. Rune is an outdoor enthusiast who is able to spot a business opportunity where many others do not. Rune has a special focus on natural resources and innovation in the Arctic region.

***Andrzej Siwek,*** inhabits a masters degree from biotechnology and is an experienced researcher who has years of expertise in multiple research projects. Andrej works as product developer and researcher at Ayanda AS, an international, Norwegian-rooted company that provides innovative solutions and technology to many top players in a health care segment around the world.

***Kristoffer Fagerborg***, studies M.Sc. Business Creation and Entrepreneurship at UiT and has a background in leadership, innovation and marketing. Kristoffer has been working to expand his family business "Koppangen Brygger" in Lyngen, as well as having a part time job at the University, whilst studying.

***Steinar Omnes,*** has a background in business economics, and experience as a project economics. He is a graduate student in M.Sc. Business Creation and Entrepreneurship at UiT and has been a part of several small start-up ventures, such as "SubSeeker" and "Innovation Omnes". Steinar has international experience through his studies in three different countries (Mauritius, Norway and Bali)

**Team knowledge profile**

The table below presents the joint knowledge profile for the team members. We have separated the table into hard and soft qualities. The hard factors are represented on the upper

side, such as technical, financial etc. The soft factors are represented on the lower side of the table, factors like initiative, and communication skills. The X marks that the respective team member is very strong at the given area of expertise.

| **RM= Rune Muladal SO= Steinar Omnes AS= Andzej Siwek KF= Kristoffer Fagerborg** | | | | |
|---|---|---|---|---|
| Factors / Persons | RM | SO | AS | KF |
| Technical | X | | X | |
| Financial | X | X | | |
| Project leading | X | | X | X |
| Marketing/Sale | X | X | | X |
| Production | | | X | |
| *Initiative* | X | | X | |
| *Communication skills* | X | X | | X |
| *Selling skills* | | X | | X |
| *Negotiation skills* | | X | | X |

**Table 15: ABP team-knowledge profile**

As displayed in the table above, the team has a combined diversity of expertise within several aspects of business creation and business management. Rune and Andrzej are bringing in what we call the hard factors, they know how the production line should work and they possess the technical competence. These qualities are vital for the production and the product development. Steinar and Kristoffer fulfil the team's total knowledge profile by providing the team with qualities more related to business development. Because a company such as ABP has to deal with the production line as well as sales and marketing, there is a need for all of the soft factors in addition to the hard factors.

### 4.4.1 Partnerships

To ensure a successful commercialization of ABP, several important partnerships has to be established. There are three different actors that have been identified: Producers with access to freeze-drying facilities, distributors and berry suppliers. Firstly, establishing a viable and long-term agreement with the local producer Dry-Tech has to be prioritized. At the current time, initial meetings have been conducted and the first trial productions have been

completed. Such a partnership will complete ABP`s profile as a supplier of berry-powder grown, harvested and produced in the north of Norway. Secondly, the local distributor of health- and superfood, Life, has confirmed that there is a need in the market for local products and willingness to adopt those to their product lines. Thirdly, being dependent of harvesting berries from above the Arctic Circle, securing access to raw materials is crucial for the company`s future production. Today, there are several producers who utilize the juice from the berries, and not the residuum. Askim Frukt og Bærpresseri has confirmed that there are possibilities to acquire or buy the remainings of their production. A local producer in Skibotn in Troms has confirmed the same. In addition, ABP is currently participating in an international collaboration for exploring the possibilities for harvesting stations where businesses or individuals can deliver berries in exchange for money.

## 4.5 The Market

### 4.5.1 Industry Trends

We see a positive trend in the Norwegian society concerning healthy lifestyles and people paying greater attention to their diets and what they are eating[32]. One of the reasons for this could be explained by the increased and easy access to information on the internet and search databases. During the past years, the media has paid greater attention to society's diet. Negatively slanted articles concerning unhealthy diets and lifestyles have become common. Blogs, online news sites and the paper press all highlights recent food trends and negative sides of people's fast-food diets[33]. As well as media attention, increasing numbers of food allergist has raised awareness about people's diets. In Europe, 3-4% of grown-ups and 6-8% of children are affected of different kind of food allergies[34]. Changing eating habits, fast-food and imported food are some of the explanations for this phenomenon. Also, berries from the high north have gotten increased media focus the past few years, due to an increase in interest by the consumers. In Northern America, the general growth rate of vitamins, minerals and supplement is more than 4 times the growth rate of general stores.

[32] http://www.brn.no/brnno/Bransjen/Markedsdata/Statistikk/ (25.03.14)

[33] http://www.itromso.no/nyheter/article9367251.ece (25.03.14)

[34] http://www.fhi.no/tema/astma-og-allergi/allergi (25.03.14)

Coherent with this, governments in Norway and several other countries in the world, now requires traceability[35] from collection of raw materials, production, shipping and when the product reaches the end-user. Governments require producers' identification to ensure a traceable product. The reason for this is to ensure access to critical information enabling quick retrievement of dangerous items[36], and give correct and precise information to customers. Being a pioneer in these fields can give firms both advantages of being first movers, using it actively in marketing campaigns, and potentially give them the power to tip new legislative proposals in their favour. We see that both individuals and firms are more aware of the environmental challenges caused by toxic emissions. The Norwegian research council (Norges Forskningsråd) uncovered 8 potential trends[37] that supposedly shall affect our choice of products and services in the future. One of those was reducing CO2-emissions by using public transportation, use less time flying and buying local food to avoid emission from shipping.

### 4.5.2 Market size and segmentation

ABP are targeting the Norwegian health-nutrition market, also described as the Norwegian "superfood" market. Distribution channels in this market vary between both online and physical stores. There are also grocery stores which have vitamins and supplements in their product range. Therefore, we also include them in the market as a sub-category in the lower end of the exclusivity scale, but with higher mass volume. When including grocery stores and pharmacies, the Norwegian health-nutrition supplement market has revenue of NOK 2.114 million. In percentages of this, 45% of the market is related to vitamins and minerals and has revenue of NOK 951 million[38].

[35] http://www.messe.no/no/Mat-og-Emballasje/Nyheter/Mer-og-mer-ma-spores/ (04.04.2014)

[36] http://www.regjeringen.no/nb/dep/hod/tema/ernaring-og-mattrygghet/sporbarhet-i-matproduksjonen.html?id=603405 (25.03.2014)

[37] http://www.forskning.no/artikler/2013/januar/344435 ( 25.03.14)

[38] http://www.brn.no/brnno/Bransjen/Markedsdata/Statistikk/ (26.03.2014)

| Market size | In NOK and percentage |
|---|---|
| Health nutrition | NOK 2.114 Million (100%) |
| Vitamins and Minerals | NOK 951 Million (45%) |

**Table 5: Norwegian VMS market**

While the table above describes the market size for the health nutrition market and vitamin and minerals market in Norway, the table below illustrates the market share ABP is aiming to acquire. The main product, and thereby market share, comes from minced powder of freeze-dried berries. We have however, included two other end-products in order to speculate around the revenue for future products and market share. The two products we include came about as a result from both a design thinking workshop, which we conducted at the DT Lab at UiT (see appendix 3) and the inventors' themselves. Because they are in the ideation phase, we will not go into further details with regards to the mixed powder. However, we include them in order to visualize what market share we potentially could acquire by selling products that derives from the main product. The table is divided by three different end-products: Minced powder, mixed powder and the juice that remains from the freeze-drying process. The total production capacity is found under volume, while the calculated price for each kilogram end-product is found under price. The calculated price is the ABP`s suggested retail price (MSRP). Lastly, the potential revenue and market share is calculated. We are aware of the broad market scope in table 6, which could be narrowed down even further. However, due to the secrecy amongst health-nutrition retailers and lack of financial information from our competitors, the entire vitamin and mineral industry in Norway is used to visualise a potential market share.

| Product | Volume | Price per kg | Revenue | Market share |
|---|---|---|---|---|
| Minced powder | 3000kg | NOK 1500 | NOK 4.500.000 | 0,21% Total<br>0.47% VM |
| Potential new products brought to market | | | | |
| Mixed powder | 15000kg | NOK 600 | NOK 9.000.000 | 0,42% Total<br>0,94% VM |
| Juice from freeze-drying | 20.000 liters | NOK 100 | NOK 2.000.000 | 0,1% Total<br>0,2% VM |
| *Total* | | | *NOK 15.500.000* | *0,73% Total*<br>*1,61% VM* |

**Table 6: Market share ABP in the Norwegian VMS market**

According to Dettmann and Dimitri (2009), who has done a demographic profile of organic product consumers in the US, the typical consumer of health food is between 30-60 years of age, has middle to high income, and is most likely female. These results are coherent with studies done by the Norwegian Industry Council for herbal remedies[39]. However, the end-user might differ from the ones who purchase the product. By interviewing "superfood" customers, we discovered that they also buy products for their friends and family, a discovery which might become important when putting together a marketing strategy.

### 4.5.3 STEL - analysis

We have chosen four of the PESTEL factors as our key drivers for change. These are factors we believe will have the largest impact on ABP. The drivers are social, technological, environmental and legal, listed in the table below:

[39] http://www.brn.no/brnno/Bransjen/Markedsdata/Statistikk/ (24.03.2014)

| | |
|---|---|
| **S** | Increasing population - Focus on healthy diet and lifestyle - Increase in content awareness |
| **T** | More known technology - Geo-location on facilities - Price on technology |
| **E** | Climate changes - Increasing environmental awareness |
| **L** | Packaging requirements - Food regulations - Traceability |

**Table 16: PESTEL Norwegian market for ABP**

### Social trends

The Norwegian population recently exceeded 5 million people, and has over the past couple of decades grown steadily[40]. Positive birth rate combined with increased immigration is the factors that influence the Norwegian population numbers. This implies that the potential market for buyers of healthy food is going to grow during the next years. As described above, there has been an increased focus on healthy diet and lifestyle for the past years, much due to social media and blogs. Having more and more information available online, right in people's hands, has created a higher demand for content awareness. Consumers are more eager to know where the products they eat come from, and what they are made of.

### Technological challenges

One of the main tasks for ABP should be to look into the trend of locally produced food. On the other hand, using locally produced food to ABP`s advantage, leaves them limited options with regards to freeze-drying and collecting raw material. The technology is expensive, a new freeze-drying machine costs around EUR 1,2 Million, and the limited resources leaves ABP with few possibilities.  Looking into new technologies that could widen the scope of possibilities should be prioritized for the future.

[40] https://www.ssb.no/befolkning/statistikker/folkendrkv (21.03.14)

**Environmental responsibility**

Since empirical evidence has proved that global warming is caused largely by burning fossil fuel, companies have a responsibility to reduce their emissions from these energy sources. Hereby lays the challenge with regards to manufacturing and transportation of goods. Being a company located in Tromsø, close to where the harvesting grounds for the berries, and being close to the production facilities leaves us with very low degree of damaging emissions in the manufacturing phase. ABP do have a challenge when it comes to shipping and transporting the products out to their distributors. They should always strive to sell products that are as environmentally sustainable as possible.

**Legal ground rules**

Something that has a close connection to content awareness amongst consumers is governmental laws and regulations concerning labelling, marketing and traceability. Today, the Norwegian government enforce and regulates the industry throughout the food safety act. Information about nutritional ingredients is one of the areas the law handles. During recent years we've seen tighter restrictions about how you can label and market your product in a way that does not mislead the consumer, a trend that is believed to continue during the next decade. The Norwegian public authority Forbrukerombudet states in one of their reports about packaging and nutritional information that not all food requires labelling. This will however change when new EØS-regulations arise in 2014-2015[41].

### 4.5.4 Competitive landscape

The table below shows the identified competitors that are established within the Nordic "superfood" industry. Their similarities and differences to ABP is somewhat visualised in the compared attributes

[41] http://www.forbrukerradet.no/_attachment/1133792/binary/9145 (25.03.14)

| Logo | Facts | Dried Berries | Freeze-dried berries | Minced berry-powder | Multiple types of berries | Arctic berries |
|---|---|---|---|---|---|---|
| | **BioKing** (www.bio-king.no, www.bioking.at)<br><br>Countries: Norway and Austria<br>Price: 1500kr pr. kg | YES | YES | YES | YES | ***NO*** |
| biokia® | **BioKia** (www.biokia.fi)<br><br>Countries: Finland (International online store)<br>Price: 1350kr pr. kg | YES | ***NO*** | YES | YES | YES |
| bama | **Bama** (www.bama.no)<br><br>Countries: Norway | YES | ***NO*** | ***NO*** | YES | ***NO*** |
| ASKIM FRUKT & BÆRPRESSERI ETABLERT 1936 | **Askim Frukt og bærpresseri** (www.afb.no)<br><br>Countries: Norway | NO | ***NO*** | ***NO*** | YES | YES |
| **ArcticBioPlants (ABP)** | **Arctic BioPlants**<br><br>Countries: Norway<br>Price: 1500kr pr. kg | YES | YES | YES | YES | YES |

**Table 12: Competitor overview**

These competitors all have similar attributes as ABP. All competitors are focusing on the nutritional value their products bring to the end-user in their marketing. However, ABP is the only company that delivers powder of minced freeze-dried berries from above the polar circle. In addition, ABP is the only Norwegian manufacturer of dried and freeze-dried berries, as we know of.

BioKing is the only manufacturer with sales offices in Norway. Their production and main office however is located in Austria. Being the only company seeking to freeze-dry

Norwegian berries in Norway, this leaves us with a wide range of domestic partnership opportunities, such as agreements with harvesters of berries and freeze-drying companies such as DryTech.

Askim Frukt og Bærpresseri has their main focus on selling juice from pressed fruit and berries. Utilize and harvesting similar berries, we consider them to be a direct competitor due to the issues that may occur when both actors are seeking to utilize the same berries. In addition, they deliver a substitute product in the form of juice. However, we anticipate a potential partnership opportunity with them since they do not use the remainings of the berries after they have been pressed. By buying their remainings, we will have access to the same raw-material as we normally would have bought un-pressed from other harvesters of berries.

BioKia is the company with the most similar products to ABP. Their minced powder derives from air dried berries, not freeze-dried. Air-drying does not remove the same level of water from the berries, so the products from air-drying become subjects to short shelf-life and mold. At the moment they do not have any Norwegian distributors. To international consumers, they sell through their own online store.

Bama is the biggest company when it comes to making berry-based products with revenue of NOK 10.700 Million, but they do not sell concentrated berry-products. What they do have is a lot of equity and capital, so they have the opportunity to create a directly competing product if they wanted to.

### 4.5.5 SWOT-analysis

The SWOT-analysis is applied to identify internal strengths and weaknesses and to identify external opportunities and threats in the market. The following figure represents a SWOT analysis for ABP.

| Internal Factors | External Factors |
|---|---|
| **Strenghts**<br><br>- Geo-location<br>- Product expertise<br>- Small and adaptable organisation<br>- Well established partners | **Opportunities**<br><br>- Interest from potential customers<br>- International markets through partners<br>- Fast growth<br>- First mover advantage in Norway |
| **Weaknesses**<br><br>- Small organisation<br>- Little financial resources<br>- Occupied team members<br>- Dependent on outsourcing the methods | **Threats**<br><br>- Public harvest grounds<br>- Competitors with much capital<br>- Partners becoming competitors<br>- Team members leaving the project |

**Table 13: ABP SWOT analysis**

The main strength of ABP is the geo-location and the product expertise, as there are no other companies in Norway, doing the same thing as ABP. Being located in Tromsø, close to both the harvesting grounds for the berries, production facilities for the freeze-drying process and to the research environment regarding biochemistry gives this start-up company in all of the mentioned areas. The two inventors are highly educated and experienced biochemists, so they have good insight to the content of the products and valuable knowledge when it comes to further research and development of potential new products. The strengths are very coherent with the biggest weaknesses, which we identify to be a small organization with fairly occupied team members. The inventors are working full-time as biochemists during the day and the company currently consists of those two inventors.

We find the biggest opportunities and threats to be first mover advantage in Norway and that our partners might become our competitors. The first mover advantage might give ABP a head-start when it comes to getting distributors and business partners. It could also establish the trademark of ABP to become strong within the health-nutrition market. The threats of our partners might become our competitors will always be a threat as long as the company is doing well. So in order to reduce the risk of losing a positive partnership, ABP has to create

incentives for the parents not to leave the current agreement. This will have to be an ongoing process for the team in ABP.

## 4.6 Business strategy

### 4.6.1 Initial Target Segment

In order to enter the Norwegian vitamin and mineral market, we are targeting the high-end part of the market where end-users demand added value in order to be persuaded. We are planning to sell our product to health nutrition stores like Life and Sunkost. This means eliminating alternatives as selling to grocery stores, and instead aims for the high-end markets, finding our main end-user by targeting the places where they usually do their superfood shopping. The reason for doing so is that we believe the high-end market is the best springboard for future expansion. Secondly, the demand for added value suits our high-quality product well. Local and national distributors show willingness to adopt high-quality products and sell them in their stores. By Introducing a high-quality product to a high-end market will help establishing a brand quickly, while we at the same time can prepare for further research and development.

Since ABP is a research-based start-up venture, where most of the decisions with regards to strategy have not been made yet, we will outline a strategy for each of the key sections that decide what type of business this is and where it should be headed. So we defined the key sections to be product, price, placement, production and promotion. Very closely linked to the four P`s of the marketing mix, but we have added production as a key section, since the end-product is still in a prototyping stage.

### 4.6.2 Product strategy

Being a small start-up company, gives us certain restrictions we have to relate to when we plan a product strategy. These restrictions are low production capacity in the beginning, low recognition in the market and untested products.  If we keep prototyping and wait too long, the market might change faster than we are able to do product development, and our analysis

would be useless. Instead, we recommend start selling the base product in bags of 100-300 grams and to do further product development simultaneously, based on the feedback we get from the consumers and end-users. We define the product to be a multi-purpose powder which could be used in dairies, bakeries, dinner and drinks, or purely as a vitamin/antioxidant supplement. The product will be in three versions, blueberry, crowberry and lingonberry powder. The juice will be sold "as-is" as a pure natural product without any additives.

### 4.6.3 Setting the price

Before we have established a recognizable trademark within the market, we might have to have the same pricing level as our competitors, even though we are trying to sell a higher quality product. This would give the end-user a much lower transaction costs, rather than if we price the product a lot higher than the competitive products. If we price the product to low, to ensure that we get a lot of customers in the beginning, it might come back to us in a negative way when we start increasing the prices to a more similar level as ABP`s competitors. The customers might not appreciate the increase in price, even though they like the product. So the strategy will be to start at the same price-level as our competitors, and then see how the market reacts to the new product. With good sales, we increase the price after a while, and vice versa if the demand is not as we projected.

### 4.6.4 Placement and distribution strategy

Once again we have to take into consideration our limitations, the most relevant factors with regards to distributors are volume and capital. If we choose a business to consumer strategy by selling the products with sales subsidiaries such as own stores and agents, it would give us complete control over the branding, and what products that are placed close to each other. Having sales subsidiaries is of course expensive and adds a lot of risk for a start-up company. When we did field studies, the owner of three health-nutrition stores in Tromsø within the Life franchise was interviewed. To our advantage, she was willing and happy to have local products in her shelves. She already had good experience with local products from the Tromsø area. By making an agreement with her, we get to sell our products in the stores of a big health-nutrition franchise. Agreements with local stores within a national franchise such as Life, who has 130 stores nationwide, could open up the opportunity for nationwide distribution quite rapidly. When looking at future markets and distribution channels, we

identify Japan as a potential market opportunity. Japanese tourists spend over 100.000 nights in hotels and lodges in Tromsø every year, this gives ABP a great possibility to test out the products to international consumers without taking the product to them first. Having that in mind, a second distribution channel could be; hotels and lodges who want to increase the exotic experience for the Japanese tourists. By selling healthy products that are grown and manufactured under the northern lights. This opens up the possibility to get feedback from international consumers and to change the product according to the consumer's needs, before going to the domestic Japanese market.

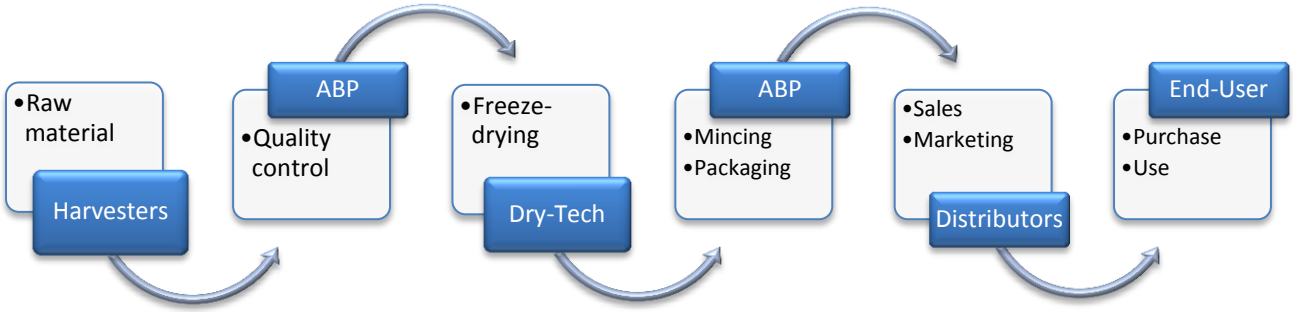



**Figure 6: ABP`s distribution model**

### 4.6.5 Production strategy

A new freeze-drying machine with a capacity of 1500kg of berries, costs around EUR 1,185 Million. Since ABP does not have the capital to do such an investment, we rely on good partnership agreements with other freeze-drying companies. DryTech is the biggest and most advanced freeze-drying facility in Norway, they are also located in Tromsø. They have done the freeze-drying process during the prototyping phase, and they still have available capacity in their facilities for the initial production phase. We have calculated an annual production of around 20.000kg of berries for the first years, DryTech stated that their current available capacity is around 30.000kg annually. If ABP makes an agreement to use that capacity, there is still room for 50% growth within ABP. The raw-material could either be bought from harvesters in Finnmark, as it is today, or it could also be bought from companies who produce juice from berries, such as Askim Frukt og Bærpresseri and other small producers of berry-juice. We have been in contact with a local juice producer of crowberry-juice, called Midnight Sun Products who are located in Troms. They were positive to a partnership agreement with regards to their remainings from the juicing process. The freeze-dried berries are minced and

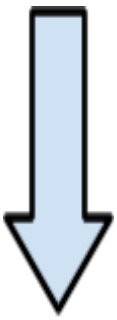
packed by ABP. Packaging could be outsourced in the future when we want to have a range of different packaging alternatives.

### 4.6.6 Promotion strategy

We are selling to the retailer, but the retailer only buys from us if the consumers buy from them. So we did interviews with purchasers of "superfood" in order to find out where they got the product information and found new products. Our findings were that they were all very much influenced by bloggers. Diets and lifestyle blogs have increased tremendously in social media the past few years, and word-of-mouth marketing seems to be the strongest marketing channel as of today. Based on that we would recommend ABP to get bloggers to use and review the products rather than using promotion in traditional newspapers or tv advertisement. We want to brand the products as organic, since they fulfill the international requirements set by IFOAM (international federation of organic agriculture movement)[42]. But before the products are verified by IFOAM, we can brand it as ecological and natural. Once the verification from IFOAM is in place, we get a certification sticker from Debio, the Norwegian organic certification council on all the products. This certification would be good to have when we are promoting ABP towards retailers, since they can put ABP products in the organic shelves in their stores. We believe that such a certification would raise the quality perceived by the consumer.

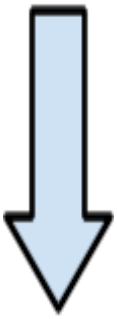
[42] http://www.ifoam.org/pt/ifoam-standard (08.04.2014)

## 4.7 Goals



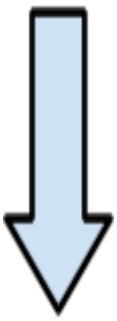
**Phase 1 (Q3 2014): Establishing the company as a limited stock company**

The company will put together a board, set up job descriptions and register ABP as a limited stock company in the third quarter of 2014. The board will amongst others, consist of Rune Muladal, Andrzej Siwek, Steinar Omnes and Kristoffer Fagerborg



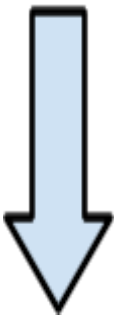
**Phase 2 (Q3 2014): Agreements with suppliers**

In this stage we will finalize the agreements needed to get enough raw material and production facilities. There is an ongoing dialog as of today, these agreements will be final and formalized in third quarter of 2014



**Phase 3 (Q4 2014):Product development**

The prototype is already done, the finishing touches with regards to packaging and design will be done in the end of 2014



**Phase 4(Q1 2015): Full production**

When all agreements with partners and the finished product has been determined, full production will start from the beginning of 2015. Full production meaning 3000 kg freeze-dried berries, and 18.900 litres of juice.

For detailed action plan, se appendix 5

## 4.8 Business model - how to make money

The following table illustrates ArcticBioPlant`s business model.

| **Key Partners** | **Key Activities** | **Value Propositions** | **Customer Segments** |
|---|---|---|---|
| *DryTech*<br>*Life*<br>*BioForsk*<br>*Norinnova* | *R&D*<br>*User feedback*<br>*Networking*<br>*Production* | *High nutritional value*<br>*Uniqueness*<br>*Long shelf-life*<br>*Takes little space*<br>*Multi-functional*<br>*Natural product*<br>*Nordic berries* | *"Superfood" users*<br>*High-end market* |
| **Cost Structure** | **Key Resources** | **Channels** | **Revenue Stream** |
| ***Variable***<br>*Raw material*<br>*Freeze-drying*<br>*Mince and packaging*<br><br>***Fixed***<br>*R&D*<br>*Salary*<br>*Office facilitites* | *Trademark*<br>*Innovation Norway*<br>*The ABP team*<br>*Location* | *Web page*<br>*Health-nutrition stores*<br>*Hotel and lodges*<br>*Word of mouth* | Minced powder<br>Juice derivatives |

**Table 17: Business model canvas**

Arctic BioPlant will provide a solution to some of the problems connected to keeping a healthy diet. The minced freeze-dried powder will be sold as a multi-purpose nutritional supplement that could be used in food and drinks. The juice that derives from the process will be sold to a distributor of fruit and berry-juice as a white label product during the first year and in the second year as an Arctic BioPlant product. The products will be marketed and sold under the "superfood" umbrella, through physical and online health-nutrition stores, as well as in hotels and lodges.

## 4.9 Critical risks

| Risk | Probability 1-10 | Impact 1-10 | Risk factor |
|---|---|---|---|
| Market reluctance | 3 | 8 | **11** |
| Partners leaving | 3 | 7 | **10** |
| Lack of funding | 4 | 6 | **10** |
| Competitors develop similar product | 6 | 2 | **8** |
| Loss of key-personnel | 2 | 6 | **8** |
| IPR infringement lawsuits | 1 | 5 | **6** |

**Table 18: Arctic BioPlant risk analysis**

What we have identified as the biggest risk is market reluctance, and losing partners. If the market does not approve the product, there is no business to be made. One would have to start searching for new markets and re-invent the product, which is time consuming and expensive. If DryTech decides to not continue, as our producer of freeze-drying, ABP would have to buy its own freeze-drying facilities. A new freeze-drying machine with the capacity of 1500 kg from Cuddon ltd costs around EUR 1.185 million. Losing key-personnel and not get funding

right away, will always be a risk, but new investors and new staff members will to some degree always be available, if the business is doing well.

There is a chance of being attacked by an infringement lawsuit, our searches in WIPO, EPO and the Norwegian patent and trademark database, has resulted in no patent findings in this area of business. Since this is all based on concept that is available to anyone, it is highly unlikely that ABP should face those types of accusations in the future. The fact that no one can protect a known concept with a patent implies that ABP will have to find other sources of IPR (Intellectual Property Rights) to protect the business idea. This will be done by establishing a well-known trademark and by protecting the design of the packaging and logos.

## 4.10 Financials

Expenses are mainly allocated to operations, we calculate the salary costs by NOK 500.000 pr. 100% employed staff member. Salary is multiplied with 1,6 in order to include social costs such as insurance, benefits, employment tax and more. This gives us a cost of one 100% hired employee of NOK 800.000. For the first year of operations in 2015, we calculate two 50% positions and we will add one staff member each year until 2018.

| Position/Year | 2015 | 2016 | 2017 |
|---|---|---|---|
| CEO | 0,5 | 0,5 | 1 |
| Senior developer | 0,5 | 0,5 | 1 |
| Sales representative | | 1 | 1 |
| Full time equivalent | 1 | 2 | 3 |
| **Total salary cost** | **800.000** | **1.600.000** | **2.400.000** |

**Table 19: Salary budget for the next three years***

*Note: Salaries in NOK

We will recommend the distributors to have a shelf-price of 1500 NOK pr. kg minced powder, which is the same as our competitors. We will in the beginning set a price to distributors of 800 NOK pr.kg minced powder.

| Cost driver | Price pr.kg berry | Price pr. kg minced powder |
|---|---|---|
| Berries | 8 | 80 |
| Freeze-drying, mincing and packaging | 24 | 240 |
| **Total production cost** | **32** | **320** |
| Sales price | | 800 |
| **Production profit** | | **480** |

**Table 7: Production calculation minced freeze-dried berries (all numbers represented in NOK)**

| Year | 2015 (800kr) | 2016 (800kr) | 2017 (800kr) |
|---|---|---|---|
| Sales Volume | 3.000kg | 4.000kg | 6.000kg |
| Revenue | 2.400.000 NOK | 3.200.000 NOK | 4.800.000 NOK |
| **COGS** | **960.000** | **1.280.000** | **1.920.000** |
| **Operating result** | **1.440.000 NOK** | **1.920.000 NOK** | **2.880.000 NOK** |

**Table 20: Operating result minced powder 2015-2018**

The juice will be sold in the first year to a third-party as a "white-label" product, since we have not established the juice as its own product. This will happen in 2016, and then the distributors will get a price of 50kr which is half of the shelf-price.

| Year | 2015 (20kr) | 2016 (50kr) | 2017 (50kr) |
|---|---|---|---|
| Sales volume | 18.900 litres | 25.200 Litres | 37.800 litres |
| Revenue | 378.000 | 1.260.000 | 1.890.000 |
| **COGS** | **37.800** | **126.000** | **189.000** |
| **Operating result (-10%)** | **340.200 NOK** | **1.134.000 NOK** | **1.701.000 NOK** |

**Table 21: Operating result berry-juice 2015-2018**

| Income statement | 2015 | 2016 | 2017 |
|---|---|---|---|
| Revenue | 2.778.000 | 4.460.000 | 6.690.000 |
| (COGS) | 997.800 | 1.406.000 | 2.109.000 |
| Gross profit | 1.780.200 | 3.054.000 | 4.581.000 |
| (Operating expenses) | 1.158.020 | 2.112.960 | 3.089.440 |
| **EBIT** | **622.180** | **1.016.640** | **1.604.960** |

**Table 22: ABP income statement**

For detailed financial statement, see appendix 6

From the cash-flow statement we see that the capital requirement before reaching profit sums up to 245.000 NOK, this capital requirement is covered by several contributors who are listed in table 23:

| Contributor | Amount |
|---|---|
| VRI-Troms, Troms Fylkeskommune | 125.000 |
| Innovation Norway | 300.000 |
| Own efforts | 425.000 |
| **Total capital** | **850.000** |

**Table 23: Capital contributors**

## 4.11 Exit Strategies

For the future expansion of the company, we will now discuss potential exit strategies. Due to our lack of expertise within valuation of a company, we have no specified value for the company at the current stage. However, we can plan for a potential exit strategy without specifying the amount. In the competitor analysis, we discovered that one of the competitors, Bama, has annual revenue of 10 700 Million NOK. Having a competitor with this kind of capital, opens up the possibility to either initiate a merge, or sell the entire company to Bama. Since ABP will be established as a limited stock company in 2014, there is also a possibility to sell shares to private investors, such as business angels or venture capitalists. Before any of these actions are initiated, ABP should be completely aware of their market value, and get a thorough valuation from an objective expert in the field

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## Appendices:

**Appendix 1: Interviews with sales personnel in VMS markets**

**Appendix 2: Annual revenue Norwegian VMS store market**

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## Appendix 1: Interview with sales personnel in VMS markets

**Interview 1 (Store "Life")**

**Do you sell many products that market themselves with berry content?**

*- Yes we do, traditionally we have sold a lot of blueberry and cranberry products quite steady for all the years we have had the three stores in Tromsø, I believe that people's awareness of the health benefits from these berries are fairly high*

**Do you see any differences in that kind of market over the past years?**

*- Actually, we sell more and more "clean" products, that contains pure berries, without any other put-in ingredients, we see that consumers are moving away from the ready-made products and are using pure berries as ingredients in their cooking, bread and cereals for instance. Typical products are dryfreezed dried berries that are either whole or crushed into powder*

**What do you think about the possibility to sell local products that are harvested and produced in the same area, with full traceability?**

*- I have no doubts about the fact that the norwegian people are really into consuming local products and would actually accept a higher price for a product where they can see the whole production line displayed on the label. In Tromsø there has been several start-up companies that focus on seminars and event centres where you pick the raw-materials yourself and then make your food at the same place, so I believe that if you could capture some of that essence in a of-the-shelf product, there would be a high demand for it. Just recently we have started to sell products from "Nordlys Mat" who harvest and produce all of their products on Alta, Finnmark.*

**Interview 2 (Store "SunKost")**

**Do you sell much products that market themselves with a berrie content?**

*- Yes, the demand for berries with a high level of antioxidants and vitamins are selling pretty good, the traditional products that contains blueberries and cranberries are always a*

*best-seller, but we have also started to sell more and more exotic berries from outside of Europe, I believe it is due to the good marketing from those companies.*

**Do you see any differences in that kind of market over the past years?**

*- As I said in the previous question, we sell more and more products with exotic berries, such as Mulberries, acai and godi berries. Typically dried berries that could be used for cooking*

**What do you think about the possibility to sell local products that are harvested and produced in the same area, with full traceability?**

*- It is all about how you market it I guess, if you are able to create the picture of ecological berries that are grown and harvested under natural conditions and of consumers believe in the health benefits they could gain from these type of products, I`m sure there is a big potential there.*

# Appendix 2: Annual revenue Norwegian VMS store market

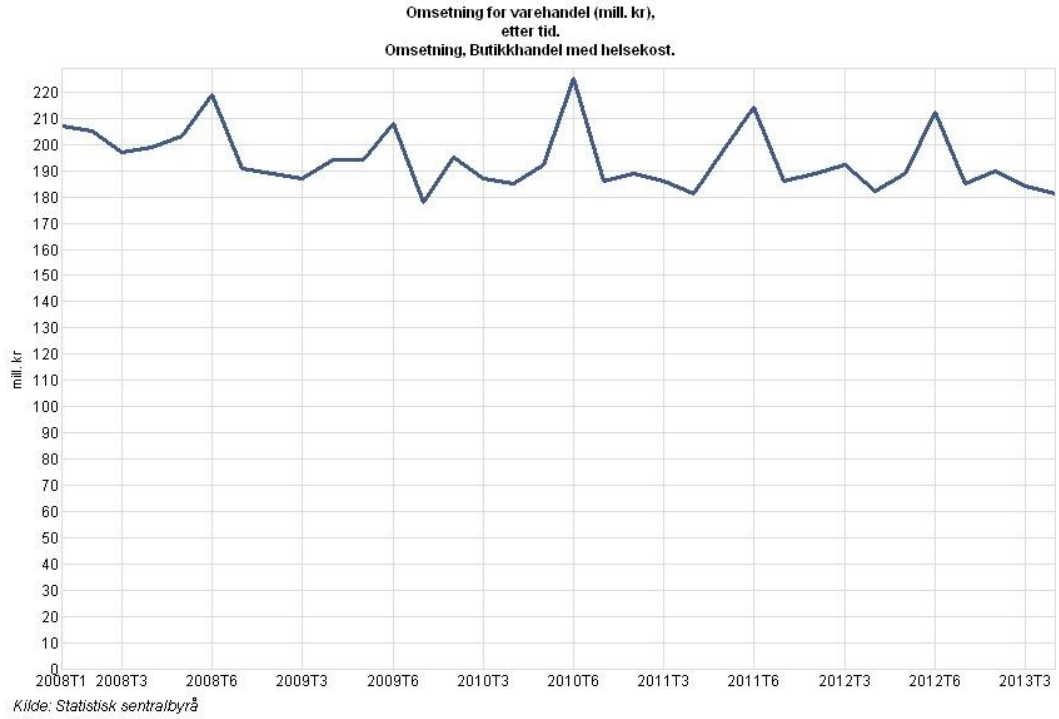



*Figure 2: SSB, annual revenue norwegian VMS market*

## Appendix 3: Design Thinking Workshop

The agenda for the workshop was to get people from outside of the project to bring in their ideas about how someone might use the powder. The workshop was divided into three parts, first we divided the nine participants into three groups. We gave them one product sample each, one with blueberries, one with lingo berries and one with crowberries. Then we asked them to come up with as many ideas as possible, without putting any limitations to their ideas. We call this phase ideation. Secondly, the teams were to pick out the top two-three ideas they felt had the highest potential for commercialization. Thirdly, the teams were to select their best idea and present their idea for the rest of the groups. We had three different ideas presented by the groups, the first was to use the powder as a multi-functional spice or ingredient you have in your kitchen, for cooking bread, making milkshakes and as a spice on lasagne and other meals. The second group wanted to use the powder for drinks, both as energy drinks and as a cocktail for pubs and bars. Their vision was that you could make the drinks you have today in the same way as usual, but with added vitamins and anti-oxidants. The strong colour in the powder makes it a very good ingredient in a cocktail mix at a club. The last group wanted to develop sachets, with small portions of the powder and just eat the powder raw, somewhat like a dry vitamin-shot.

All of the groups were eager to taste and try out the powder on food and in their coffee and water, they all really liked the concept of a pure natural product having so much vitamins and antioxidants in it. Pictures from the workshop are presented below:

Each group came up with 20-30 ideas during the ideation phase, we wanted to see if there was any coherence between the different groups, so we gathered all of their ideas which were written on post-it notes and put them into a word cloud:


The result from the ideation phase is that many of the participants were tapping into cosmetics, because of the colour and since the product is all organic, so the idea to make use of the colour was very coherent. Same thing goes for drinks, candy and drug. What we see as the biggest findings, is that all of the participants did come up with usages other than vitamin pills and traditional usages of health-supplements. These findings will be valuable for the product development, since we now what the consumers want.

# Appendix 4: Questionnaire for SuperFood users

## Brukere av SuperFood

**Hvorfor kjøper du SuperFood?**

SuperFood definerer vi som mat som inneholder høyere verdi av næringsstoffer en vanlig mat. Dette kan være f.eks: bærpulver, tørkede bær, alger, vitamintilskudd eller lignende. Nevn de tre viktigste grunnene til at du kjøper SuperFood.

**Hvor kjøper du SuperFood?**

**Hvilke typer SuperFood bruker du eller har tidligere kjøpt?**

**Kjøper du til deg selv eller andre?**

Hvis du kjøper til andre, til hvem kjøper du?

**Hvor får du informasjon om SuperFood?**

**Din alder**

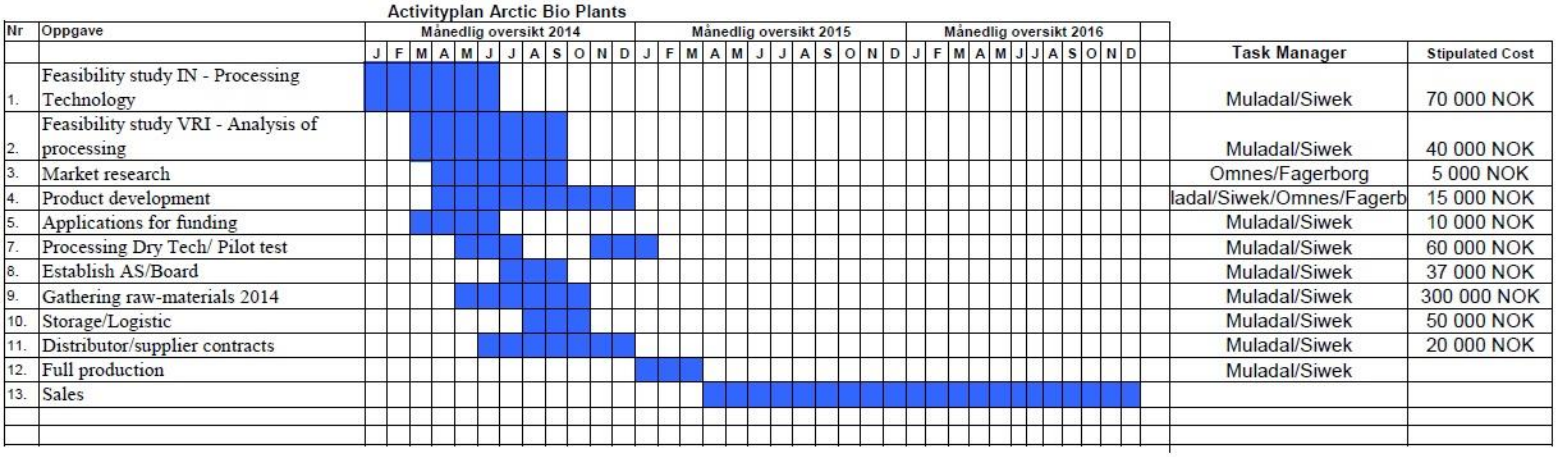
**Er du mann eller kvinne?**

| Hvorfor kjøper du | Hvor kjøper | Hvilke typer SuperFood | Kjøper | Hvor får du | Din | Er du |
|---|---|---|---|---|---|---|

| SuperFood? | du SuperFood? | bruker du eller har tidligere kjøpt? | du til deg selv eller andre? | informasjon om SuperFood? | alder | mann eller kvinne? |
|---|---|---|---|---|---|---|
| Mer næring, energi og vitaminer | Helsekost | Gojibær | Meg selv | Internett | 20 | Kvinne |
| Få nok vitaminer som jeg ellers ikke får i meg gjennom maten. For å få energi. For å unngå overvekt. | Mest på vanlige dagligvarebutikker. Men også på holsekost. | Mye lavkabo (sukrin, mandelmel osv). Vitamintilskudd. Tørkedebær. | Til meg selv, også litt til min samboer. | Mest media( blogger og nettaviser) + familie | 20 | kvinne |
| Overskudd, god ernæring og blodsukkerstabilt | Herbalife og helskostforretninger | måltidserstattere, proteinbarer, vitamin-og mineraltilskudd, alger, hampfrø, chiafrø, FOS, kakaonibs, bipollen, gojibær, omega 3, melkesyretabletter | Samboer og meg | internett, jobb og venner | 27 år | kvinne |
| sundt, gir energi, godt | sunkost | tørkede bær, vitamintilskudd, acai | til meg selv | blogger | 26 | kvinne |
| Sunt, føles bedre, tror det er bedre | Helgekost | Tørkede bær | Meg selv | Venner, magasiner, tv | 26 | Kvinne |
| Sunt, energigivende, alternativ snacks | Helsekost, nettet | Gojibær, vitamintilskudd, qunioa | Meg selv | Blogger, google, blader | 25 | Kvinne |

# Appendix 5: Action plan 2015-2017

Activityplan Arctic Bio Plants



| Nr | Oppgave | Task Manager | Stipulated Cost |
|---|---|---|---|
| 1. | Feasibility study IN - Processing Technology | Muladal/Siwek | 70 000 NOK |
| 2. | Feasibility study VRI - Analysis of processing | Muladal/Siwek | 40 000 NOK |
| 3. | Market research | Omnes/Fagerborg | 5 000 NOK |
| 4. | Product development | ladal/Siwek/Omnes/Fagerb | 15 000 NOK |
| 5. | Applications for funding | Muladal/Siwek | 10 000 NOK |
| 7. | Processing Dry Tech/ Pilot test | Muladal/Siwek | 60 000 NOK |
| 8. | Establish AS/Board | Muladal/Siwek | 37 000 NOK |
| 9. | Gathering raw-materials 2014 | Muladal/Siwek | 300 000 NOK |
| 10. | Storage/Logistic | Muladal/Siwek | 50 000 NOK |
| 11. | Distributor/supplier contracts | Muladal/Siwek | 20 000 NOK |
| 12. | Full production | Muladal/Siwek | |
| 13. | Sales | | |

## Appendix 6: Financial statements

### Income Statement 2015-2018

Minced powder of freeze-dried berries

| | | 2015 | | 2016 | | 2017 |
|---|---|---|---|---|---|---|
| Sales price | kr | 800,00 | kr | 800,00 | kr | 800,00 |
| Berries | kr | 80,00 | | | | |
| Freeze-drying | kr | 200,00 | | | | |
| Mincing and p | kr | 40,00 | | | | |
| **Result** | **kr** | **480,00** | | | | |

Berry-juice

| | | 2015 | | 2016 | | 2017 |
|---|---|---|---|---|---|---|
| Sales price | kr | 25,00 | kr | 50,00 | kr | 50,00 |
| Packaging | kr | 2,00 | kr | 5,00 | kr | 5,00 |
| **Result** | **kr** | **23,00** | **kr** | **45,00** | **kr** | **45,00** |

| | | 2015 | | 2016 | | 2017 |
|---|---|---|---|---|---|---|
| **Minced powder** | | | | | | |
| Sales volume | | 3000 | | 4000 | | 6000 |
| Revenue | kr | 2 400 000,00 | kr | 3 200 000,00 | kr | 4 800 000,00 |
| Production co | kr | 960 000,00 | kr | 1 280 000,00 | kr | 1 920 000,00 |
| ***Operating res*** | ***kr*** | ***1 440 000,00*** | ***kr*** | ***1 920 000,00*** | ***kr*** | ***2 880 000,00*** |
| **Juice** | | | | | | |
| Sales volume | | 18900 | | 25200 | | 37800 |
| Revenue | kr | 472 500,00 | kr | 1 260 000,00 | kr | 1 890 000,00 |
| Production co | kr | 37 800,00 | kr | 50 400,00 | kr | 75 600,00 |
| *Operating res* | *kr* | *434 700,00* | *kr* | *1 209 600,00* | *kr* | *1 814 400,00* |
| **Total operatir** | **kr** | **1 874 700,00** | **kr** | **3 129 600,00** | **kr** | **4 694 400,00** |
| **Expences** | | | | | | |
| Salary | kr | 800 000,00 | kr | 1 600 000,00 | kr | 2 400 000,00 |
| R&D (10% of ( | kr | 187 470,00 | kr | 312 960,00 | kr | 469 440,00 |
| Office | kr | 120 000,00 | kr | 120 000,00 | kr | 120 000,00 |
| Marketing | kr | 40 000,00 | kr | 60 000,00 | kr | 80 000,00 |

### Profit and loss quarterly 2015-2018

| | 2015 | | | | 2016 | | | | 2017 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| **Minced powder** | | | | | | | | | | | | |
| Sales volume kilo | | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1500 | 1500 | 1500 | 1500 |
| Revenue | | kr 800 000,00 | kr 800 000,00 | kr 800 000,00 | kr 800 000,00 | kr 800 000,00 | kr 800 000,00 | kr 800 000,00 | kr 1 200 000,00 | kr 1 200 000,00 | kr 1 200 000,00 | kr 1 200 000,00 |
| Production cost | | kr -320 000,00 | kr -320 000,00 | kr -320 000,00 | kr -320 000,00 | kr -320 000,00 | kr -320 000,00 | kr -320 000,00 | kr -480 000,00 | kr -480 000,00 | kr -480 000,00 | kr -480 000,00 |
| *Operating result* | | *kr 480 000,00* | *kr 480 000,00* | *kr 480 000,00* | *kr 480 000,00* | *kr 480 000,00* | *kr 480 000,00* | *kr 480 000,00* | *kr 720 000,00* | *kr 720 000,00* | *kr 720 000,00* | *kr 720 000,00* |
| **Juice** | | | | | | | | | | | | |
| Sales volume liters | | 6300 | 6300 | 6300 | 6300 | 6300 | 6300 | 6300 | 9450 | 9450 | 9450 | 9450 |
| Revenue | | kr 157 500,00 | kr 157 500,00 | kr 157 500,00 | kr 315 000,00 | kr 315 000,00 | kr 315 000,00 | kr 315 000,00 | kr 472 500,00 | kr 472 500,00 | kr 472 500,00 | kr 472 500,00 |
| Production cost | | kr -12 600,00 | kr -12 600,00 | kr -12 600,00 | kr -31 500,00 | kr -31 500,00 | kr -31 500,00 | kr -31 500,00 | kr -18 900,00 | kr -18 900,00 | kr -18 900,00 | kr -18 900,00 |
| *Operating result* | | *kr 144 900,00* | *kr 144 900,00* | *kr 144 900,00* | *kr 283 500,00* | *kr 283 500,00* | *kr 283 500,00* | *kr 283 500,00* | *kr 453 600,00* | *kr 453 600,00* | *kr 453 600,00* | *kr 453 600,00* |
| **Total operating result** | | **kr 624 900,00** | **kr 624 900,00** | **kr 624 900,00** | **kr 763 500,00** | **kr 763 500,00** | **kr 763 500,00** | **kr 763 500,00** | **kr 1 173 600,00** | **kr 1 173 600,00** | **kr 1 173 600,00** | **kr 1 173 600,00** |
| **Expences** | | | | | | | | | | | | |
| Salary | kr -200 000,00 | kr -200 000,00 | kr -200 000,00 | kr -200 000,00 | kr -400 000,00 | kr -400 000,00 | kr -400 000,00 | kr -400 000,00 | kr -600 000,00 | kr -600 000,00 | kr -600 000,00 | kr -600 000,00 |
| R&D (10% of OR) | kr - | kr -62 490,00 | kr -62 490,00 | kr -62 490,00 | kr -76 350,00 | kr -76 350,00 | kr -76 350,00 | kr -76 350,00 | kr -117 360,00 | kr -117 360,00 | kr -117 360,00 | kr -117 360,00 |
| Office | kr -30 000,00 | kr -30 000,00 | kr -30 000,00 | kr -30 000,00 | kr -30 000,00 | kr -30 000,00 | kr -30 000,00 | kr -30 000,00 | kr -30 000,00 | kr -30 000,00 | kr -30 000,00 | kr -30 000,00 |
| Marketing | kr -10 000,00 | kr -10 000,00 | kr -10 000,00 | kr -10 000,00 | kr -15 000,00 | kr -15 000,00 | kr -15 000,00 | kr -15 000,00 | kr -20 000,00 | kr -20 000,00 | kr -20 000,00 | kr -20 000,00 |
| Others | kr -5 000,00 | kr -5 000,00 | kr -5 000,00 | kr -5 000,00 | kr -5 000,00 | kr -5 000,00 | kr -5 000,00 | kr -5 000,00 | kr -5 000,00 | kr -5 000,00 | kr -5 000,00 | kr -5 000,00 |
| **Total expences** | kr -245 000,00 | kr -307 490,00 | kr -307 490,00 | kr -307 490,00 | kr -526 350,00 | kr -526 350,00 | kr -526 350,00 | kr -526 350,00 | kr -772 360,00 | kr -772 360,00 | kr -772 360,00 | kr -772 360,00 |
| **EBIT** | kr -245 000,00 | kr 317 410,00 | kr 317 410,00 | kr 317 410,00 | kr 237 150,00 | kr 237 150,00 | kr 237 150,00 | kr 237 150,00 | kr 401 240,00 | kr 401 240,00 | kr 401 240,00 | kr 401 240,00 |
| Income tax | | kr - | kr -85 700,70 | kr -85 700,70 | kr -85 700,70 | kr -64 030,50 | kr -64 030,50 | kr -64 030,50 | kr -64 030,50 | kr -108 334,80 | kr -108 334,80 | kr -108 334,80 |
| Net income | kr -245 000,00 | kr 317 410,00 | kr 231 709,30 | kr 231 709,30 | kr 151 449,30 | kr 173 119,50 | kr 173 119,50 | kr 173 119,50 | kr 337 209,50 | kr 292 905,20 | kr 292 905,20 | kr 292 905,20 |

### Cash Flow Statement 2015-2018

| | 2015 | | | | 2016 | | | | 2017 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Opening balance | 0 | kr -245 000,00 | kr 72 410,00 | kr 389 820,00 | kr 707 230,00 | kr 944 380,00 | kr 1 181 530,00 | kr 1 418 680,00 | kr 1 655 830,00 | kr 2 057 070,00 | kr 2 458 310,00 | kr 2 859 550,00 |
| Gross margin | 0 | kr 624 900,00 | kr 624 900,00 | kr 624 900,00 | kr 763 500,00 | kr 763 500,00 | kr 763 500,00 | kr 763 500,00 | kr 1 173 600,00 | kr 1 173 600,00 | kr 1 173 600,00 | kr 1 173 600,00 |
| Expences | kr -245 000,00 | kr -307 490,00 | kr -307 490,00 | kr -307 490,00 | kr -526 350,00 | kr -526 350,00 | kr -526 350,00 | kr -526 350,00 | kr -772 360,00 | kr -772 360,00 | kr -772 360,00 | kr -772 360,00 |
| Ending balance | kr -245 000,00 | kr 72 410,00 | kr 389 820,00 | kr 707 230,00 | kr 944 380,00 | kr 1 181 530,00 | kr 1 418 680,00 | kr 1 655 830,00 | kr 2 057 070,00 | kr 2 458 310,00 | kr 2 859 550,00 | kr 3 260 790,00 |
| **Change in cash** | **kr -245 000,00** | **kr 317 410,00** | **kr 317 410,00** | **kr 317 410,00** | **kr 237 150,00** | **kr 237 150,00** | **kr 237 150,00** | **kr 237 150,00** | **kr 401 240,00** | **kr 401 240,00** | **kr 401 240,00** | **kr 401 240,00** |