The Implications of Finnish Cleantech Discourse

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Abstract:

In this Master’s thesis the discourse created and spread by Helsingin Sanomat, the largest newspaper in Finland, is studied with the tools of discourse analysis. The study period ranges from 2012 to 2016.

The theoretical framework for this thesis includes previous discourse analysis done on cleantech, nation branding as well as media influence and power.

This study assumes that media has power over the regular people in defining what is talked about and how it is framed. Media brings forward any dissonance within the political field and has the means to influence how conflicts are resolved in the end.

In the study five discourses are identified, four of which form two pairs of conflicting discourses. These discourses are identified as cleantech being the export hope of Finland and its counterpart, focusing on the difficulties cleantech has been facing when it comes to commercialization; the discourse of environmental regulation as a promotive force for cleantech and its counterpart of environmental regulation acting as a prohibitive factor for cleantech; and finally the discourse stating that if everyone works together a cleaner, better future is achievable through cleantech.

As cleantech is widely talked about on the political field as well as the media in Finland, it is important to understand how exactly cleantech is framed by which actors. Based on this study cleantech is viewed as important for Finland’s future but everyone’s help is needed in order to achieve this future. The government, municipalities, corporations and regular people all need to commit to the cleantech future.

Keywords: cleantech, discourse analysis, Helsingin Sanomat, nation branding, media power
1 INTRODUCTION

Cleantech as such was born only in 2000 but it became a very recognizable sector in just a decade (Caprotti 2012: 370) and now in 2017 it is a concept no one in Finland seems to be able to escape. Cleantech covers a wide range of technologies as well as processes that are environmentally sustainable such as renewable energy and nanotechnology (Caprotti 2012: 370). Cleantech is supported by both private and public investors which is shown in the vast amount of investment put into it, which grew 220 % from 2008 to 2011 according to Ernst & Youn (Davies 2013: 1285). The global total market capitalization in 2013 was 170 billion US dollars (EY 2013: 4). Actually, many of the technologies that are today viewed as cleantech did exist before the year 2000, but what was not there is the “cultural economic wrapper” that really makes cleantech. The cleantech discourse frames it as the sixth technological revolution. (Caprotti 2012: 371.)

Stefan Ambec and Paul Lanoie (2008: 45) argue that traditionally sustainability has signified additional costs and thus the loss competitive advantage from a company's perspective. They argue that it has been the governments' responsibility to minimize the tragedy of commons which still inevitably happens, while businesses have felt that environmental protection is without a doubt an additional cost. Ambec and Lanoie (2008: 46) however argue that there are several ways in which being environmentally conscious can help a company succeed on the market: as a result of new sustainable practices they may have access to new markets with conscious consumers, they can differentiate their products better, or they can sell their clean technologies to other companies. Further, being environmentally conscious can lead to reduced costs as less resources will have to be allocated to risk management with stakeholders, resource efficiency may lead to less materials being purchased as well as less energy being used, and more sustainable practices may also lead to more motivated workforce. Environmentally sustainable companies also have access to lower cost capital as there are so called “green funds” that only give to sustainable companies and even traditional banks borrow more easily to companies that are considering the environment (Ambec & Lanoie 2008: 54). Therefore Ambec and Lanoie (2008), drawing from a pool of literature, argue that the traditional idea of sustainability as only being an unavoidable cost imposed by governments is not really up to date. The current discussion on cleantech also supports this argument fully.
1.1 The Finnish Cleantech Arena

In 2005 The Finnish Innovation Fund Sitra published a report called “Making Finland a leading country in innovation - Final report of the Competitive Innovation Environment Development Programme” in which cleantech is not yet mentioned, but Finland is highlighted as a possible leader in information and communications technologies. However, it is highlighted that technologies that save energy will become the next big thing in innovation (Sitra 2005: 13-14). In 2007 they published a national action plan for advancing cleantech called “Cleantech Finland – improving the environment through business”. In the pamphlet it is argued that cleantech will be the next big thing after IT and as with IT, Finland would have the possibility of being at the forefront of the emergence of this new trend (Sitra 2007: 11). The way to achieve a leading position would be to transform the whole country of Finland itself as a forefront agent in cleantech. The report argues that Finland already has a steady standing among scholars and politicians as being environmentally active. That frame of mind must be carried on to the private sector to make Finland attractive to companies specializing in clean technologies. (Sitra 2007: 15.) To help with this, the home market for clean solutions must be inflated by creating more conscious consumers starting from primary schools and making sure that public spending and funding favors clean technologies as well as taking up the hard media of environmental regulations and laws (Sitra 2007: 29-30). This report drafted the basis for Cleantech Finland, a network for cleantech companies in Finland.

1.2 The study objectives

Before and during my studies, cleantech was something that everyone was talking about. The idea of being both environmental and creating a profitable business was fashionable especially since even in the midst of an economic downturn people inside the cleantech industry still remained positive. The United Nations defines sustainable development as something that “--seeks to achieve, in a balanced manner, economic development, social development and environmental protection” (United Nations 2017). Cleantech focuses on the business and the environmental side of this definition but even so cleantech is often considered as a means to achieve sustainable development. Cleantech is a win-win between business and the environment and as such seen as a way to maintain the way of living people in developed countries are used to both in achieving further growth in such
a way that the environment will not suffer further and by providing a cleaner means for people in the still developing countries to achieve similar standard of living without having to have the environment pay the price. This way it can also be seen as something that promotes social development.

Discourse is all that is written or spoken about a topic. Discourse creates meanings for those topics and also shapes them (Foucalt 1972 in Väliverronen 1998: 25). Discourse is created by everyone in the society but those with power and those with most listeners have the largest effect on discourse as well. Mass media is a big influence on discourse as it creates a symbolic reality the members of which are exposed to the same media content and affected by it (Seppänen & Väliverronen 2014: 69). The media makes news of things that are considered important and thus it regulates what people think about (Wanta, Golan & Lee 2004: 364). In Finland, cleantech has become a regular topic on the media, and it has been so for the past five years. Cleantech is framed important for Finland and for the whole world. I was interested in finding out what exactly is talked about when cleantech is the topic of news. Who are the actors associated with cleantech and how do they talk about it. The tool that I chose for my study was discourse analysis as it works well when looking into a large body of text produced by one or multiple sources. In my study, I focused on Helsingin Sanomat, the largest newspaper in Finland.

1.3 The research questions

I wanted to study the Finnish cleantech discourse. I was interested to see conflicting discourses and delve into who creates what type of discourse. Cleantech is something that is consequential in the media, and that is present for a lot of Finnish people. Cleantech as a concept is disposed to conflict as it combines environmentalism and business. To what extent these two are emphasized may differ along with who is talking. What makes cleantech especially interesting in the Finnish context is its supposed export potential in a country whose exports made up to 35.4% of the gross national product in 2016 (Elinkeinoelämän Keskusliitto 2017). Thus my research questions are as below:

1. What different discourses can be found within the cleantech discourse in Finland?
2. Do these discourses conflict with each other, and how do they balance between the environmental and business aspects of the concept?

The purpose of this study is to examine the Finnish cleantech arena critically with the tools of discourse analysis. I am interested in finding out what types of discourse there exists in Finland on cleantech and who it is created by.
2 THEORETICAL FRAMEWORKS

The aim of this thesis is to study the concept of cleantech and its portrayal in the Finnish media. Thus, it is important to first define cleantech. Secondly I will define the means of burrowing into the concept of cleantech which in this study is discourse analysis. One dominant way and cause of building the cleantech discourse in Finland has been nation branding so this concept is also explained here. Finally, since the study is about the cleantech discourse as portrayed by the media, media’s importance and influence will also be discussed.

2.1 Cleantech

Two people that have influenced the cleantech sector are Ron Pernick and Clint Wilder who in 2007 published a book called The Clean Tech Revolution, a book translated into seven languages, which defines cleantech as: “---any product, service, or product that delivers value using limited or zero nonrenewable resources and/or creates significantly less waste than conventional offerings” (Georgeson, Caprotti & Bailey 2014: 221). This definition is however far from agreed and some people that work within the field of cleantech do not subscribe to the idea of cleantech as a label at all (Georgeson, Caprotti & Bailey 2014: 222).

O’Rourke (2009: 1) argues that cleantech brings together two slightly opposing prominent trends from the 21st century: innovation as a means for economic growth and nature conservation. The prevalent idea has been that if companies are regulated heavily in the name of environmentalism, their competitiveness is diminished. This was however challenged by Porter and van der Linde in 1995 when they proposed that actually if this regulation leads to companies making investments in innovations which actually would lead to increased competitiveness, and a win-win situation of environmental conservation and more competitive companies (Markusson 2011: 294). Markusson (2011: 295) argues that in the academic world it is imperative to make a distinction between innovations that aim at natural conservation and those that simply have this as a side product when focusing on for example resource efficiency. This distinction is however not made in the world of business. In the world of business there is no border between “environmental intentions” and “environmental outcomes” as established in the
world of academia by Markusson (2011). Where cleantech is involved it is rather the win-win at the core of the concept of cleantech, it does not matter if being environmental is the first hand intention or not.

Alfred Marcus, Paul Shrivastava, Sanjay Sharma and Stefano Pogutz (2011) introduce a concept called green economy which is interlinked with cleantech but has a wider scope. Green economy is putting green and the economy together, therefore it refers to the wish to maintain our current high standard of living but minimize the negative effects this has on the environment we live in. For a green economy to work jobs must be created and economic growth maintained but this must be done in a sustainable way in a world where resources are currently overused and in which pollution is a major problem associated with growth. (Marcus et al. 2011a, xi.) Thus cleantech innovations play a large role in creating a green economy. Anna Chernykhivska (2015) identifies cleantech manufacturing and R&D as the newest tool in creating a green economy. Older tools include sustainable food processing and green manufacturing such as using recycled materials in production. Thus it could be argued that cleantech is also the strongest tool as the potential of for example nanotechnology may not be fully yet realized.

Timo Busch, Bryan T. Stinchfield and Matthew S. Wood (2011, 82) examine the interrelations of the three pillars, environment, social and economic, of sustainability. They argue that previous management literature has been most concerned with how to maintain the economics of the firm while keeping in mind the restrictions set by the previous two. Consumers prefer cheap products even if they are unsustainable, and it takes time to learn to do things in a new, more sustainable way which leads to costs and time loss, so companies are not very willing to shift their customary way of doing things (Busch, Stinchfield & Wood 2011, 84). However Busch, Stinchfield and Wood (ibid.) argue that in the long term being both socially and environmentally sustainable can affect the company’s financial performance in a positive way, and it can be a source of competitive advantage. Busch, Stinchfield and Wood (2011) contrast investments in more socially and environmentally sustainable practices and investments in innovation. They find that investing in innovations is more lucrative in short term but forms a U-curve with diminishing returns whereas investing in socially and environmentally sustainable practices may not yield immediate returns but becomes profitable in long-term and can be a source of long-term competitive advantage. Cleantech as being innovative in producing especially environmentally sustainable technologies seems thus like at least a partial answer.
Markusson (2011: 296) argues that any technology can be called clean if the alternatives are less clean. Markusson (2011: 300) created a framework for examining cleaner innovations. He notes that innovations that do not lead to environmental improvement, and those that lead to these improvements unintentionally are “business as usual” - innovations. Innovation that leads to environmental innovation can further be divided into two: the kind of innovation that is mainly done for the purposes of environmental improvements has no business case, and is not profitable in the eyes of business, whereas the kind of innovations that have both environmental and economic motives will lead to the win-win situations that are nowadays most often dubbed as cleantech. For Markusson (2011: 301) the search for resource efficiency is not an intentional environmental reason, however, he also notes that in cases where resource efficiency is highly pronounced, the environmental considerations can be dismissed and the practice only seen as “good engineering”. Thinking of environmental concerns must be something that brings on the table something special, something different in order for it to be noticed.

In 2010, investment in cleantech amounted to almost a quarter of all venture capital investment in the United States, and global investment in cleantech was nearly eight billion dollars (Marcus et al. 2011b, 128). By Marcus et al.’s (2011, 129) count Finland was the fourth active economy in investing in cleantech focusing on energy production between 2003 and 2009. Marcus et al. (2011b, 132) identify what aspects matter to gaining venture capital investment: strong universities for making new technologies easily understood and accessible, the current economic situation, public policies such as government support for new innovations, past experiences of the venture capitalists and the existence of an exit strategy for them. After being successful in IT enterprises, many venture capitalist have now moved on to cleantech as it has become the new hit market.

Ernst & Young look at the different areas of cleantech and their development from 2011 to 2013. They identify the areas as: energy efficiency products, wind, solar, renewable energy generation and biofuels. All of these areas apart from biofuels suffered a decline in their market cap from 2011 to 2012, solar the largest and energy efficiency products the slightest. The global finance crisis has thus also affected the cleantech sector but all of the areas improved slightly again from 2012 to 2013. The revenue growth has been largest in biofuels and solar has faced a revenue decline from 2011 to 2013. (EY 2013: 8)
2.1.1 Cleantech in Finland

Raimo Lovio (2013: 28), a professor at Aalto University School of Business, argues that cleantech has been talked about in Finland since mid-1990. The term itself was taken into use after Sitra’s environmental program 2005-2007. Lovio argues that the financial crisis that started in 2008 also had a big impact on the global interest on clean technologies. Lovio (2013: 30) notes that cleantech itself is best described as a business sector which can be divided into two, a sector that is focused on technologies that directly aim at environmental conservation and a bigger sector that is defined very broadly and consists of all technologies and companies that produce a cleaner alternative to other options. Raimo Lovio (2013: 31) also links cleantech into the megatrends prevalent in today’s global world. The population growth leads to resource scarcity and increased pollution. Both of these are problems that cleantech companies strive and promise to solve, and Lovio (2013: 31) argues that companies that will not or cannot transform themselves are bound to lose against cleantech companies. Lovio (2013: 32) argues that environmental regulations will get increasingly strict all around the world and that Finland would have a competitive advantage in the long run if the government would create stricter environmental regulations already now, forcing Finnish companies to be early movers into the new environmentally conscious global world.

Sitra’s action plan for cleantech tries to tackle the issues the global world is facing now. It links cleantech strongly to the megatrends: globalization, urbanization, global warming, resource scarcity and especially the limited amount of clean water as well as growing middle class all of which scream for cleaner technologies and new cleaner ways of doing things (Sitra 2007: 14-15). According to Sitra cleantech is the new technological revolution after IT and as such Finland can be at the forefront (Sitra 2007: 11).

Cleantech Finland is a network of organizations that identifies itself as “Solutions to environmental and energy-efficiency problems. Top cleantech experts to partner with or invest in. A vibrant network of the world’s cleantech elite.” The network includes 82 companies of varying sizes. What is common to them is that they have something to do with cleantech. The idea behind Cleantech Finland is to bring together companies and experts that have knowledge on cleantech to solve energy efficiency and environmental problems for both other companies and the public sector and also to connect investors and partners to the cleantech companies in Finland. Cleantech Finland defines cleantech as “Cleantech (= clean + technology) refers to technology, services, solutions, process
innovations or products that help reduce the environmental load caused by human activity, to save energy and natural resources and to improve the living environment. Cleantech business can solve economic, ecologic and social challenges.” (Cleantech Finland 2015.) The definition ten years ago was somewhat different: “Cleantech means all those products, services, processes and technologies that prevent or reduce impacts of harmful actions on the environment. Cleantech stands for better quality, efficiency, progress, effectiveness, profitability and excitement” (Hästö 2013, 9). What is interesting is that first of all, they have already given up on the complete prevention of harm to the environment and given more room to the social side at the cost of not being so environmentally strong. Sustainability is often nowadays understood as the triad of environmental, business and social concerns (see for example Rodríguez et al. 2002, 8) which is very visible in this new definition of cleantech as well.

In 2013 the combined turnover of Finnish cleantech business was 25.8 billion Euros which constitutes a 5% increase from 2012. Finland’s share of global cleantech market is estimated at 1% which does not sound like that much but as Finnish GDP is valued at 0.4% of the global GDP, the value of cleantech is indeed significantly larger. (Cleantech Finland 2015.) Cleantech Finland puts China as number one in the top ten markets for Finnish cleantech, Russia and Germany come in second and third, respectively, Sweden is number four and Brazil fifth. (Cleantech Finland 2015.) Of the five, China, Germany and Sweden also have their own vibrant cleantech industry. In China, wind power has wide state support and local players are often state-supported. Cleantech companies are given a lower tax rate of 15% whereas the regular tax on corporations is 25%. In 2010, a National Renewable Energy Action Plan was put in place. It uses $735 billion of government spending for energy saving, reducing emissions and other ecological considerations. (EY 2011.) Globally, China is the biggest market for cleantech and has the second largest number of cleantech companies, coming second only to the US. Germany is third both in market size and the number of companies, and far behind the two big players. (EY 2013: 4.) The Swedish equivalent of Cleantech Finland is Cleantech Inn Sweden which has 49 member organizations (Cleantech Inn 2015).

Tekes (innovations network and financier) and Finpro (an organization that helps Finnish companies internationalize) in addition to other organizations. The Prime Minister’s Office has also been quite active in promoting cleantech.

There has not been a lot of research into the Finnish cleantech field. As said, cleantech as such is rather a new phenomenon. There have been theses written on cleantech in Finland in recent years. Antti Ahola (2014) from the University of Helsinki wrote about how Finland is moving towards a society in which cleantech technologies are at the center of and what are the implications and challenges relating to this. He argues that the Finnish society will not at least in the near future see this change because most cleantech companies and innovations are focused on exports and are meant for growing markets. Jiao Wang (2014) from Aalto University of Business wrote her thesis on small and medium sized Finnish cleantech companies and their possibilities in China with a focus on the challenges they may be facing. Another focus of her thesis was the role of the Finnish government in mediating better futures for the companies. Hans Karjula (2013) from Turku School of Economics studied the exact same topic. Both found China problematic for Finnish companies due to lack of resources, hard competition and cultural issues. Finally Annina Hästö from Svenska Handelshögskolan (2013) studied how Finnish cleantech companies promote their business through storytelling and branding of Finland as a country to do business in Russia.

2.2 Discourse Analysis

Rose (2001: 136) defines discourse as “groups of statements which structure the way a thing is thought” and the actions that follow from that thinking. Discourse is not permanent but always changing and it is tied to the social and historic context it exists in. Further, discourse shapes what is it talking about, its object, and that is why discourse analysis studies not only what is said about the world but who it is being said by and how. (Foucalt 1972 in Väliverronen 1998: 25.) When doing discourse analysis, one must firstly be concerned with the structure of the discursive statements and secondly on the context of them: who is saying them and what are the circumstances in which they are said (Tonkiss 1998 in Rose 2001: 149). Discourse analysis justifies the study of texts (both written and spoken) as studies into institutions, social norms and power (Väliverronen 1998: 26).
One must look at how things are being described and categorized within a specific discourse and this must be done is such a way that one tries one’s hardest to not have too many presumptions beforehand, a process that may be made easier through reading and re-reading multiple times (Rose 2001: 150). Coding of the data is helpful in finding themes, identifying what significant words or wordings are recurring in the source material and what meaning do they have (Rose 2001: 150-151). What is extremely important in discourse analysis is statements that have something to do with the truth or with scientific facts because that is power discourse at its purest (Rose 2001: 154). Any contradictions found within the specific discourse must also be addressed carefully (Rose 2001: 155). Lastly, anything that is clearly missing, left unsaid, within the discourse, is also extremely important (Rose 2001: 157). To summarize, to do discourse analysis properly, one must fully familiarize oneself with the texts under scrutiny and pay attention to even the smallest details in case they carry some meaning (Rose 2001: 158). 

On the social aspect, it is important to note who the text studied with discourse analysis is produced by and what is its assumed audience (Rose 2001: 159). One important point about discourse analysis is that it cannot seek to be exactly truthful since it is analysis of texts which can often be read in multiple different ways. So rather than seek the ultimate truth, discourse analysis should strive to be persuasive. (Rose 2001: 160.) One’s analysis can be supported with enough textual or visual evidence, by linking it with previous studies, by being coherent enough or by examining dissenting voices in the discourse to explain why they differ (Rose 2001: 161). 

Before discourse analysis, there was a research genre known as content analysis. Its golden time was between the 1930’s and 70’s. Content analysis was interested in finding out what texts were about, how they described the world and what attitude it culminated. Content analysis was quite narrow in its focus as it did not take into account the context of the texts. Contrary to content analysis, discourse analysis grants the surrounding world texts are in an important role within the analysis. (Väliverronen 1998: 15.) 

Rose (2001: 164) separates, deriving from Foucault’s work, the first form of discourse analysis that has been the topic of the two previous paragraphs, from another that is centered around institutions and the discourse they produce. This discourse is produced with “institutional apparatus”, the knowledge the institution is built on, and “institutional technologies” which practice that knowledge in action (Rose 2001: 166).
For the study of cleantech discourse in Finland, both of these forms of discourse analysis are relevant.

2.3.1 Discourse Analysis on Cleantech

Caprotti (2012: 372-373) identifies the discursive core of the cleantech discourse as cleantech being revolutionary. The discursive agents spread and create the discourse of cleantech. They can include anyone talking about cleantech: workers, journalists, politicians, publics. The discursive arena is the sphere in which cleantech discourse takes place: institutions, media and cleantech markets. Finally, there are the discursive strategies that center on technologization and defining what actually is accepted as cleantech. (Caprotti 2012: 373.) Georgeson, Caprotti and Bailey (2014: 218) argue that markets are always produced socially from networks of buyers and sellers and their mutual trust which needs to be fed in order for the market to grow and continue to exist. Cleantech falls under the realm of “financialization of nature and the environment” but it has not been as widely studied as an investment area as for example the carbon emissions trading market. Cleantech as a sector gets lots of investment and is also active in producing technologies and materials such as renewable energy. These of course feed each other and the discursive strategies of framing cleantech the smart choice for both the sake of return of investment and for the environment adds to this, creating “self-realization of economic thought”. (Georgeson, Caprotti & Bailey 2014: 220.)

The discourse surrounding cleantech differs significantly from the environmentalist “green movement”. In cleantech discourse profitability is key and radical environmentalist discourse totally erased. Cleantech is the answer to the perceived need for sustainable technologies without threatening any of the market functions and principles. (Caprotti 2012: 379.) Caprotti (2012: 380) argues that the cleantech sector is built up by discourse centering on cleantech as the smart choice: it is an answer to the climate crisis but in such a way that it also generates return on investment and economic growth. Cleantech is also set aside from mere “environmental technologies”: it is more than that because it is not only about compliance to state regulations but about really making money (Caprotti 2012: 381). Georgeson, Caprotti and Bailey (2014: 222) argue that cleantech gets invested in not because of the environmental benefits it can have but because of its potential returns that can however be derived from drivers that might have environmental underpinnings. Cleantech, although advertised as being the answer to the
climate crisis, is quite different from “greentech” because it brings both “financial upside” and sustainability (Caprotti 2012: 381). However, it would not be right to argue that cleantech is just “greenwashing” either, the environmental considerations are there but to what extend is the real question (Georgerson, Caprotti & Bailey 2014: 224).

Caprotti argues that the Cleantech Group, a large network of cleantech companies, is responsible for shaping a lot of the cleantech discourse and that it has since 2005 tried to define the cleantech sector to position it better. This positioning has then led to an increase in investments which is turn has bloated up the sector. (Caprotti 2012: 379-380.) Georgerson, Caprotti and Bailey (2014: 224) highlight the importance of networks for cleantech endeavors. The picture is quite complex as both the investors and the companies themselves form tight networks that interact among and with each other (Georgeson, Caprotti & Bailey 2014: 224-226; Davies 2013). Georgerson, Caprotti and Bailey (2014: 224) identify actors such as venture capital investors and legal advisors for them and other investors and corporate finance and communications advisors who are trying to help cleantech companies get investors interested. Co-investing is also taking place to reduce risk (Georgeson, Caprotti & Bailey 2014: 224). It is argued that advisory firms have a very steady footing and an important role in cleantech investment networks (Georgeson, Caprotti & Bailey 2014: 225).

The reputation and identity of both cleantech companies and the individuals working in them is created within the cleantech sector networks. The more companies and individuals interact with each other, the stronger their role within the cleantech sector becomes and thus the more power they have in the future – power to for example shape the cleantech discourse further. (Georgeson, Caprotti & Bailey 2014: 225.) Georgeson, Caprotti and Bailey (2014: 226) argue that cleantech is a risky area of business and thus the networks are important as they increase due diligence and make it easier for investors to spread the risk wider. For the cleantech companies the network also helps market entry into new areas and sharing expertise (Georgeson, Caprotti & Bailey 2014: 226). Davies (2013: 1288-1289) identifies three worldwide cleantech meta-clusters: EcoChuP which is the Eco-Innovation Cluster Partnership for Internationalization and Growth, ICN which is the International Cleantech Network and GCCA which is the Global Cleantech Cluster Association. Cleantech Finland is not a part of any of these meta-clusters. Some of the benefits of meta-clusters are as follows: reducing the cost of production and other economies of scale related to specialization and higher
productivity, sharing of expertise and knowledge and increased attraction for investors (Davies 2013: 1289).

2.3 Nation Branding

Nation branding itself should be and is subject to discourse analysis. The cleantech sector in Finland is deeply interconnected with the practice of nation branding and thus it is important to look at this phenomenon carefully. Kaneva (2011: 181) defines nation branding as “a compendium of discourses and practices aimed at reconstituting nationhood through marketing and branding paradigms”. She divides the phenomenon into technical-economic, political and cultural discourses of which the first is the most widespread (Kaneva 2011). Kaneva (2011: 122) notes that one of the most cited models for understanding nation branding is Anholt’s “national brand hexagon” which identifies tourism, exports, governance, investment and immigration, culture and heritage, and people as the six dimensions of nation branding.

Janine Widler (2007: 145) notes that the nation-state is a social construct, meaning that while it is real, it is not natural, rather, it is something created by people. Widler (2007: 146) also notes that nation branding is something that is happening in the globalized world we live in nowadays, therefore, globalization is actually enforcing the nation-state thinking, not wiping it away. She argues that the world is a marketplace, and nation branding is used to rival with other countries just like products on the store shelves (Widler 2007: 146). Nation branding however differs significantly from product branding because a nation’s brand cannot really be protected as it is not owned by the nation. Therefore different actors can use the brand for their own purposes which may not be beneficial for the country itself. A nation can also have many brands, as countries evoke all kinds of images that can be used for brand creation. (Fan 2006: 8.) In the ideal case, a nation brand is strong which makes it more difficult to abuse (Fan 2006: 9).

Through active nation branding a brand can be developed but there can also be a nation brand that exists without conscious branding (Fan 2006: 12). A nation brand could act in such a way that it creates a competitive advantage for the country and companies coming from that country in comparison with international competition. A very strong nation brand will not only add to the economic aspects of a country, these being the companies coming from that country, but also on the political and social aspects giving
the country itself a positive picture in the minds of the international community. (Fan 2006: 9.) Fan (2006: 10) writes about how a country might sometimes want to promote a strong nation brand whereas sometimes promoting a more common image might be beneficial. His example is that of Nokia which according to him downplayed its Finnishness and focused on a global brand. When creating a nation brand, it has to be remembered that in an international environment certain images might have both negative and positive connotations depending on where the image is received. Fan also reminds that like in other marketing strategy branding is only one component: also R&D, production, finance and distribution must work in order for the nation brand to hold real value. A powerful image on its own is not enough: there must also be some substance. (Fan 2006: 11.)

Widler (2007: 147) argues that in the nation branding discourse it is assumed that all nations have something special about them, something that sets the apart from all the other nations, and give them competitive advantage. The difficulty about branding is pointing out that advantage, setting the nation apart from all others but doing it is such a way that the nation is not reduced to only this one thing, and downplaying everything else. Diversity within a nation makes it more difficult to create an idea of a nation-brand as it is essential that those belonging within the realm of the nation in question have more in common with each other than with those outside of the nation. In countries with very diverse population this might pose an issue. (Widler 2007: 148.)

In her study Widler (2007: 148) found out that stereotypes are important for nation branding because even though they might be wrong, they create a basis on which to start building a brand on. Stereotypes have the potential to make nation branding easier, but branding is needed so that the whole nation will not be only defined by its history and outdated, false, or biased opinions (Widler 2007: 148).

In creating and sustaining a nation brand, the citizens have an important role. Fan (2006: 11) notes that sometimes the brand created for the nation might seem unfamiliar to those actually living in the country. Widler (2007: 146) argues that everyone living in a country are in fact somehow related to creating the brand for the nation, that there is no way for them not to. Derived from here she asks if a person is supposed to move out to another country that better fits their own ideology if the created nation brand for the country of their residence no longer overlaps with how they identify themselves (Widler 2007: 149). One of the biggest issues with comparing nation branding with branding
done by corporations is indeed the issue of ownership: a nation brand is not really owned by anyone and it is being shaped by many different actors, most important of which are the citizens (Hytönen 2012: 50). In her study, Widler (2007: 146) found that nation brand managers acknowledge that among the best things for a nation brand is if the citizens of that nation believe in the brand so that they are enthusiastic about it: people will not be told how to behave but their behavior shapes how the nation is perceived outside.

In her dissertation Kaisa Hytönen (2012: 42) remarks that nation branding is a way to use soft power to influence other countries, and it can be used the same way as diplomatic relations. She argues he political aspect of nation branding is not stressed in the branding work itself, which is mostly about branding as a method of marketing, but it is clearly visible when looking at where the branding work is led from (Hytönen 2012: 52). However, nation branding is not equal to diplomacy, as in diplomacy nations are in dialogue with each other whereas marketing is about constantly bringing forward the good sides of yourself. In addition, nation branding is not only done by one agent like diplomacy. (Hytönen 2012: 54.)

2.3.1 Nation Branding in Finland

Kaisa Hytönen (2012: 62) argues that the start of Finnish nation branding is with Kalevala and other national stories as well as with Finnish composers, authors and the historical events that shape how Finland is perceived both in and out the country. During the times of war in the 19th century, nation branding relied heavily on diplomacy and on the official bulletins issued by the President’s Office. Since the 1960’s there has been specific taskforces specialized in creating and shaping the picture of Finland abroad. In the 1980’s it became increasingly important to distinguish Finland from the USSR and create an image of Finland as a modern Western nation to promote foreign trade. (Hytönen 2012: 63.) Hytönen (2012: 64) identifies the systematic nation branding activities to have started in 2006 when Finland Promotional Board (FPB) was created as a part of the Foreign Ministry. For FBP promoting tourism has been a nuclear objective. Hytönen lists Tekes, Finpro, Ministry of Economic Affairs and Employment and Ministry of Education and Culture as other actors creating the Finnish nation brand. She notes that nation branding in Finland got its official status in 2007 when it became a part of the government program. Nation branding in Finland is led by the Foreign Ministry that
created the taskforce of Finland Promotional Board. FPB is composed of 30% business participants such as Finnair (the only corporation within FPB) and Finpro, 30% public participants such as the Foreign Ministry and 40% communications and science participants such as Tekes and the Finnish Forest Foundation (Hytönen 2012: 68).

During 2008-2010 there was a separate commission comprised of 22 people that were seen to be important for the international image of Finland (Hytönen 2012: 68). This commission was initiated by Aleksander Stubb who was the Foreign Minister at the time, and its mission was to find out what is central to the Finnish nation brand and then create an action plan based on this (Tehtävä Suomelle 2010: 19). The report published in 2010 by the commission identifies six objectives for the polishing of Finnish nation brand: 1) fostering the exports of Finnish products and services, 2) promoting foreign investment in Finland, 3) advancing tourism in Finland, 4) strengthening Finland’s international position, 5) making Finland more attractive to foreign professionals, and 6) ameliorating the Finnish national self-esteem (Tehtävä Suomelle 2010: 23).

The report gives Finnish companies a mission: make business by solving global problems. The writers remind that Finland is known for its good quality products and trustworthy corporations. If companies take it upon themselves to solve issues haunting the global population, they have a real chance to grow and become more and more profitable. (Tehtävä Suomelle 2010: 61.) The Finnish know how in technology and manufacturing is stressed. The report argues that in Finland problems are solved with new technologies and that the whole nation is interested in new technologies. As an example the writers mention that in Finland everyone has an opinion on how to solve the energy crisis. (Tehtävä Suomelle 2010: 81.) This report does not stress cleantech as an important part of the Finnish nation brand but does acknowledge the existence of Cleantech Finland. Cleantech Finland’s wide focus on all cleantech technologies is however criticized; the authors of the report propose a stricter focus on water technologies as Finland was already very well known in that area, and because technologies for water are the most profitable ones of all cleantech. (Tehtävä Suomelle 2010: 152.)

Other actors shaping the Finnish nation brand are Finnfacts/TAT which is part of Finpro, a news agency specializing in promoting Finnish know-how abroad, Finpro itself which is an international consultancy service working together with Finnish companies with the aim of making them better known abroad and thus promoting Finnish business,
Invest in Finland which works at getting foreign direct investment into Finland, Visit Finland (Matkailun edistämiskeskus until 2014) which aims at promoting tourism into Finland, Tekes which provides funding for innovative companies, Ministry of Economic Affairs and Employment, and the Foreign Ministry. All of the above are member of Finland Promotional Board FPB. Actors that shape the Finnish national brand but are not members of the FPB include Ministry of Education and Culture and the Center for International Mobility CIMO that organizes both study and work related exchanges as well as scholarship programs aimed at making Finland international and tolerant. (Tehtävä Suomelle 2010: 325-333.)

Hytönen (2012: 89) argues that nation branding has become so important because the old diplomatic ways were found to be inadequate in today’s world. There are new challenges rising from the global world, and nations need to answer to these challenges by changing how they operate. She found that the most significant change is that political competition between countries is no longer dominant: economic aspects and countries’ ability to fend for themselves in the global marketplace far outweighs in importance. The scarcity of natural resources as well as innovations and technological advancement are contributing to a world where corporations instead of nations hold the power. (Hytönen 2012: 89-90.) One of the new responsibilities of a county is identified as creating and maintaining a competitive edge in regards to other countries. In Hytönen’s study, she found that 38% of respondents thought that nation branding is a basic task that government needs to take care of. Respondents felt that nation branding is a very important task for Finland and that it cannot be trusted in the hands of anyone but the government itself; also as nation branding is about how Finland is seen abroad, it seems natural this task would be undertaken by the government. (Hytönen 2012: 109-110.) The most important role for the Finnish government in relation to its people is upholding the welfare state. The second most important role is to provide economic wellbeing: promoting imports and exports, taxation and advancing foreign investment into Finland. Thirdly, the government must make sure all of its citizens have opportunities for success. Hytönen argues that nation branding does not help the government fulfill these roles, even though it does help it to fulfill the new role expressed above of creating a competitive advantage in relation to other countries. (Hytönen 2012: 113-114.)
2.4 Media

Mass media was identified as quasi-interaction by John B. Thompson (in Seppänen & Väliverronen 2014: 69). He argues that the message only travels in one direction (even though the public can for example write a counterword to an article published in a newspaper) but still connects people into a common symbolic reality through people watching the same programs on the TV and reading the same news in the newspapers (Seppänen & Väliverronen 2014: 69). Media tells people what to think about as it gives the public those pieces of news that are considered important (Wanta, Golan & Lee 2004: 364). The media is close to the people and affects their opinions much more than the government as can be gathered from the statement by American historian Theodore White: "No major act of the American Congress, no foreign adventure, no act of diplomacy, no great social reform, can succeed in the United States unless the press prepares the public mind." (Wanta, Golan & Lee 2004: 367). This view clearly shows that the media is an important adjuster of the public opinion.

Janne Seppänen and Esa Väliverronen argue that media and especially its news editorial staff should be considered as an expert organization whose function is to produce news pieces that are as close to the truth as possible. The reporters form a similar institution along with the police, doctors and pilots who are trusted on the basis of their job status. These institutions need to be relied on in the modern society and if trust in them is shattered, also the feeling of security goes along with it. (Seppänen & Väliverronen 2014: 67.) Even if reporters to try achieve as truthful news as possible, what they write is always just a representation of the truth, of the world. When writing, the reporter has to choose what to include and what to leave out, what to stress and what to hide. (Seppänen & Väliverronen 2014: 90.) The news articles and what they say are not the reality itself but an illustration, a view into the reality, mediated by the reporter (Seppänen & Väliverronen 2014: 94). Robinson (2001: 255) also notes that the media has been accused of serving as a spokesperson for the elite, for dominant political parties and large corporations. If this is true, the news served will not be as objective as the receiver might hope.

There are certain conventions related to the used language and photographs that guide reporters (Seppänen & Väliverronen 2014: 97). Also the reported topics vary between newspapers and periodicals and the yellow press. Certain types of news are reported in
certain way because journalists already have a routine which optimizes their use of time. However, if news are always served the same way, they will also be received in the same way. Therefore the public already knows what it will get when reading for example a political piece. This has some advantages but it also shapes how the world is viewed by the public significantly. Seppänen and Väliverronen give an example about political pieces always being written in either as arguments, conflicts, games or theater. The reader will always expect to be served political news that fall into one of these categories and gradually start to view politics itself as theater, game, conflict or disagreement, not separating the news story from the reality anymore. Here the media has not only defined what is talked about but also determined how it is talked about. Of course it is not only the media that creates this discussed reality but a big role is also played by the professional publicists especially when it comes to political news or news concerning large corporations. (Seppänen & Väliverronen 2014: 98-100.) Still, what is received by the public is done so via the media.

The importance of metaphors and chosen words used by the media is rationalized with the example of “greenhouse effect”. Seppänen and Väliverronen argue that as a metaphor it is very successful because what is happening is that the climate is becoming warmer just like in a greenhouse but it is unsuccessful as a term because of the positive connotation people get from the word “greenhouse”. It does not evoke the need to act fast to ward off anything. Nowadays “greenhouse effect” is not used so much but it has been replaced by “climate change” and in some instances “climate crisis” to stress the importance and the need for action. Also terms “carbon footprint” and “ecological footprint” are used to remind that people are leaving marks into the world. (Seppänen & Väliverronen 2014: 101.) The term “cleantech” has also evolved from always having to be explained into a common term. The effect of writing out “technologies that aim at being environmentally sustainable but also creating economic gains” to simply using the term “cleantech” is significant. If no longer explained, the term may lose part of its magnitude as the receiver may not remember the actual full meaning.

Reporters have their own journalistic discourse that shapes how pieces are written but that also shapes the perceived reality. Discourses create knowledge and “the truth” about its topics. These social truths become part of “common knowledge” and get accepted by people. (Seppänen & Väliverronen 2014: 105.) Seppänen and Väliverronen also describe the “imaginary community”, a concept created by Benedict Anderson, consisting of people that are exposed to the same media content. When people are reading a
newspaper, it usually happens alone inside one’s own home but there are other people in their own homes reading the same newspaper. These people are exposed to the same created, represented reality from the same newspaper. These people have a shared consciousness as they are shown the world in the same way with each other. This shared consciousness is created by journalists, by the media. (Seppänen & Väliverronen 2014: 115-116.)

Journalism itself has been in a state of change since the 1990’s. Before that time, the media was marked with stability, providing stable employment and it had a valued status as a trusted news provider. The internet has stirred up the question as to who are journalists and who creates knowledge. Social media corrodes the traditional power of mass media. (Seppänen & Väliverronen 2014: 160.) However, traditional journalism can still be separated from those providing content unprofessionally. Journalists’ occupational identity is categorized by ethics, autonomy, objectivity and quickness as well as them providing a public service. (Seppänen & Väliverronen 2014: 161.) This ties with the original idea expressed at the beginning of this chapter of journalists producing news that are as close to the truth as possible, and this is what separates professional journalists from other content providers. Journalists with their occupational identity form an institution that is trusted and is viewed as something that can be trusted.

Due to being ever-present both in people’s lives and within other institutions and organizations, media has power in the society. Media has influence on people and it affects people’s attitudes, opinions and actions. (Seppänen & Väliverronen 2014: 170-171.) Media’s power is sometimes viewed negative and some argue that politics and culture would be “purer” without media being there to taint them (Seppänen & Väliverronen 2014: 172). Seppänen and Väliverronen identify media’s power to be mostly symbolic. People become part of the reality provided by the media when they watch TV, read newspapers, use the internet or listen to music. However it is not only the media that creates the symbolic reality, as there are laws and regulations in place. Still, the shared knowledge, the conversation topics and what is “in” is in large part something that is present in the media. A study by Wayne Wanta, Guy Golan and Cheolhan Lee (2004) clearly shows that those countries that are viewed as important by regular people in the United States are those countries that had gotten the most media coverage, couple of exceptions notwithstanding. Further, if the media coverage had been positive, the public opinion about those countries was positive; if a negative image had been
portrayed, also the opinion of the people on that country was negative (Wanta, Golan & Lee 2014: 372-373).

It has been shown that media is mostly following what is already talked about rather than creating what is talked about. Over one third of all news articles published are based on bulletins by different agents, and one in every five was quoted from some other news agency. (Seppänen & Väliverronen 2014: 185-186.) The finding that news stories are based on official sources, especially coming from the political arena, is known as the manufacturing paradigm because in this view the idea is that media does not dispute the elite but that it is actually manufactured by them. According to some researches, it seems that media does not criticize the dominant politicians and political parties at all but rather only serves them fully. Other researchers have contested this view and argue that even though media may not create the counterforce for dominant politics, it does give an equal voice to those within the political field who would oppose the dominant voices thus giving them the option to contest the elite on an egalitarian domain. (Robinson 2001: 526.) The manufacturing paradigm has received a lot of criticism as it completely overlooks the journalists’ ability to be critical towards what they receive and because of its assumption that the media could not affect the dominant parties within the society which has been shown to be untrue (Robinson 2001: 529). However, it has also been shown that if there is a strong consensus about a topic, the media is unlikely to be the first to criticize this consensus (Robinson 2001: 531). Media has most power when there is an on-going debate over an issue because then it can affect the outcome (Robinson 2001: 535-536).

2.4.1 Media in Finland

In Finland there is freedom of the press which means that the government cannot dictate what media covers and how. However, only four large corporations make up to 65 % of media revenue in Finland. These four are Sanoma, Alma Media, Bonnier and Otava. (YLE 2017b). Still, Finnish people trust the media most in the 36 countries studied by Reuters in 2017. When asked if news in the media can be trusted, 62 percent of Finns answered affirmative. (Newman et al. 2017: 21.)
In Finland digital news reach 89% of people traditional formats like newspapers and TV are followed by 87 percent. To look for news 62% of respondents answered that they go on the website of a traditional media house. (Koivuranta 2016.)

Helsingin Sanomat is by far the most read newspaper in Finland even though the recent decline in its circulation, 30% from 2010 to 2015 (MediaAuditFinland 2017). A study made by TNS Gallup in 2016 shows that still 689 000 people read Helsingin Sanomat daily (Sanoma Media 2017a). According to Reuters newspapers reach 94% of people in Finland when looking at both digital and traditional printed media. This is the most of the eleven countries in the study. (Sanomalehtien liitto 2017.) 67% of people think Helsingin Sanomat is extremely reliable or reliable according to a study made by Taloustutkimus in February 2017. This percentage represents the whole country; when asking how reliable people feel their area’s largest newspaper is, the corresponding percentage is 72 (YLE 2017a).

The news reporting of Helsingin Sanomat and TV channel Nelonen have been consolidated since 2011 (Seppänen & Väliverronen 2014: 26). Helsingin Sanomat news on TV channel Nelonen reach eight percent of the population every week whereas the printed Helsingin Sanomat reaches 21 percent of the population. Online Helsingin Sanomat reaches 30 percent of the population. (Newman et al. 2017: 66.)
3 METHODOLOGY

3.1 Research Setup

To study cleantech discourse in Finland I felt that the most natural resource is Helsingin Sanomat, the largest newspaper in Finland. Media concentrates on current topics and shapes how they are talked about. Media has power if not in determining what is important at a given point in time, then at least in defining how that phenomenon is processed and how it will be preserved for the coming generations. For my study I chose digital newspaper articles because of their accessibility, not only to me but for anyone interested in reading what has been written about cleantech in the past five years.

I was interested in finding out the prevalent themes in the Finnish cleantech discourse. While looking into previous discourse analysis done on cleantech, I had come across Federico Caprotti’s work. His work identified the core of the cleantech discourse as being its revolutionary aspect and the additional features which he identified as cleantech being market-driven and a response to the climate crisis (Caprotti 2012). His findings served as a preliminary hypothesis when reading through my material and forming my analysis.

In this study, discourse analysis can be understood both as a research method and part of the theoretical background. On one hand discourse analysis is the tool I used to analyze my material, the articles of Helsingin Sanomat. On the other hand, the whole concept my study centers on, cleantech, is a discursive, created concept that does not exists without the discourse that builds it. Therefore discourse analysis and the concept of discourse are also an integral part of the theoretical background this study is built on.

3.2 Data Collection

For the purposes of discourse analysis, the quality of the data is more important than the quantity (Rose 2001: 143) so I had to make sure to collect a representative sample. First I collected all the articles from Helsingin Sanomat between years 2012 when the word
cleantech first appeared in a Helsingin Sanomat article and the end of year 2016. 2017 was not included because of time limitations as I was doing most of my analysis in the spring of 2017 and discourse analysis requires reading the material multiple times over for the study to be able to sink into the discourse and draw credible conclusions from the available material. After the preliminary choice I eliminated those articles that featured the word cleantech but were not actually about cleantech. An example of such articles were profiles of people that were mentioned to have had something to do with cleantech or companies’ stock listing notifications.

Articles from the digital version of Helsingin Sanomat were chosen because of the accessibility both for myself and for others interested. Digital newspapers as opposed to the printed ones are more easily sharable with friends online and thus can potentially have a wider audience than traditional newspapers (Varsani 2016). However newspaper stories have always had the potential for sharing as in certain areas certain (local) newspapers are read and stories in them become discussion topics at workplaces (Seppänen & Väliverronen 2014: 116). One of the clearest advantages from the publisher’s point of view when comparing print and digital media is the feedback gotten: with digital articles, it is easy to get statistics as to which articles are most read (Varsani 2016). With Helsingin Sanomat, the digital content is very similar to the printed one, of the articles studied only eight were not also published in the printed version of the newspaper.

3.3 Data Analysis

I started my data analysis by reading through the articles in Helsingin Sanomat making up my material for analysis. First I only read the titles and tried to categorize the themes that the titles only were suggesting. Then I cursively read the articles and at the same filled in key themes that the text suggested. I used ATLAS.ti 8.0 to see how often certain concepts were recurring. Such concepts were the Finnish parliament which recurred 53 times and the Finnish exports industry which was found 49 times. I also made a word cloud to see the most common words in the articles. Words that had a high frequency were for example parliament, energy, cleantech, the world, economy, climate change, corporation, CEO and renewable. Rose (2001: 151) points out it is not always the words
that appear most often that are the most important but that the research must be made in such a way that the concepts become clear regardless of the words themselves.

The linguistic aspects that should be paid special attention to according to Jäger (in Wodak and Meyer 2001: 25) are argumentation, implications and sources of knowledge. An idea that has been advocated for in multiple studies (see for example Mäkilä 2007, Väliverronen 1998, Fairclough 2002) is that discourse is a representation of the reality, not a reproduction of it. Mäkilä argues that behind each single news article there are several choices like wording that create the representation of reality that the complete article in question advocates for. This representation of reality that is created is both affected by the discourse the article is created a part of and also affects the discourse back in turn. Discourse shapes what is written and how, and what is written becomes part of that discourse. (Mäkilä 2007: 141.) A representation is always a creation of the writer, and the writer chooses what to include and what to highlight (Fairclough 2002: 13).

Norman Fairclough (2002: 58) argues that when studying mass media it is always important to pay attention to who gets to take part in the creation of news, who has a voice and who does not. Fairclough (2002:58) further argues that media is usually highly controlled and only gives room for the voices of those that have political, economic or cultural power. Because media houses are in most cases corporations looking to achieve economic benefits, the texts they create can be seen as cultural commodities that move on the market trying to achieve maximum benefits for the company (Fairclough 2002: 61). My subject, Helsingin Sanomat, is a company owned by the Sanoma Corporation which is a listed company in NASDAQ OMX Helsinki (Sanoma Media 2017b). Media and its output, be it a newspaper article or a news piece in the evening news, always includes an ideology or ideologies: the writer’s and the company’s the writer is working for. Media is not unbiased nor is it the source of absolute truth. (Fairclough 2002: 66.) Fairclough further reminds that the people working in the media seem to trust certain institutions without questions. As examples of such institution he mentions the government, the police and higher education institutions. (Fairclough 2002: 69.) Fairclough’s suggestion is very well supported by my research subject as political influences were the main theme in almost 30% of all of the articles studied.

In my study I have identified discourses that are contrary to each other. These discourses are advocated by different people and what is interesting is identifying by whom which type of discourse is created and strengthened by. Valtonen (1998: 102-103) argues that
different discourses are always contending for hegemony. Certain discourses may achieve a stronger foothold among people and become part of the shared knowledge or even truths, something that is taken for granted. Valtonen (1998: 103) argues that certain discourses will always be stronger than others in media and achieve the hegemonic position. In my study I found strong contending discourses: discourses that were struggling to become hegemonic but that had not yet achieved it.

In the next chapter, the articles making up my research material are introduced more thoroughly. In the chapter after that, the found discourses will be discussed.
4 HELSINGIN SANOMAT ARTICLES

In this chapter I identify the articles making up my research material. First the sections inside Helsingin Sanomat that the chosen articles fell into are introduced. Helsingin Sanomat consists of Main news, the Editorial, News in Finland, the City (metropolitan news), News from Abroad, Economy, Sports, Culture, Opinions, Today, Comics and Radio and TV. On different days the sections differ a little but the main content as above remains the same. (Helsingin Sanomat 2017.) There is the facsimile of the printed version of Helsingin Sanomat available online, but the online site for Helsingin Sanomat has more up to date news as well. Some sections like Helsingin Sanomat in English only exist online.

After the categorization by news article section, I move into the themes identified by me into which the articles chosen can be sorted into. These themes are a step closer into the discourses found within the articles. The themes were identified by reading the articles. Categorization was sometimes difficult as the articles had multiple possible themes. The theme that came across the strongest was chosen in these cases.

The big picture, how cleantech was written about in Helsingin Sanomat, and how that changed in the period of 2012-2016 is explained next in the final chapter of this section. This is not yet my full analysis, only the preliminary thoughts that the articles evoked. The final analysis is found in the next chapter in which I have identified five prominent discourses found within the articles in Helsingin Sanomat.

4.1 Article categories

After going through my material as explained in section 3.3 Data collection what I was left with can be categorized by year or by article type. The below type summarizes the articles that constitute the material for analysis. In this table you can see in which section and what year the articles were published in. The sections are in two layers because of space limitations. The sections are sorted from the most common to the least common.
Altogether there were 198 articles that fit the topic. Most articles were written in 2014, 71 pieces. 50 articles were written in 2015. In 2016 there were 35 articles which is close to the amount in 2013 which was 34. 2012 has clearly the least amount of articles with only eight pieces.

Most articles featuring cleantech were published in the Economy section of Helsingin Sanomat. They constituted about 31.3% of all the articles. The second largest group was pieces written to the opinions section, 17.7%. These articles were written by people ranging from students to university professors and Members of Parliament. Many articles in the opinions section were written as responses to something published earlier in Helsingin Sanomat, either an article or another opinions piece. News in Finland, “Kotimaa” was the third largest section with 15.2% of all articles. 13.1% of cleantech articles were editorials written by either Helsingin Sanomat journalists or guests such as Members of Parliament or professors. 7% of the Helsingin Sanomat articles about cleantech were published in the politics section. International News constituted 4% of articles published, and 3.5% of cleantech articles were published in the section written in English which was only published on the website of Helsingin Sanomat, not in the
printed magazine. 3% of the cleantech articles were categorized under “The City” which is a section consisting of local news in the metropolitan area of Helsinki, Espoo and Vantaa. Finally, 2% of the cleantech articles were published in the science section. Rest of the articles, 6 pieces in total, were published in miscellaneous sections including Culture, Sports and People.

As noted above 17.7 % of the articles were published in the opinions section and 13.1 % were editorials. As some editorials were written by outside agents such as politicians or corporate representatives, it can be said that about 70 percent of the articles studied were written by the Helsingin Sanomat journalistic staff. Some of the articles written by the journalists may be based on official bulletins from the parliament or other official sources. That is however not specified for the purposes of this study.

4.2 Article Themes

The sections the articles were published in Helsingin Sanomat as introduced above in Table 1 gave some indication as to what kind of subjects the articles were about but I wanted to look deeper than that. After reading the articles multiple times and analyzing them based on content I identified nine themes the articles fell into. Below Table 2 summarizes the categories I was able to identify irrespective to the sections the articles were published in.

Table 2 Themes Found in the Material

<table>
<thead>
<tr>
<th>Theme</th>
<th>Count</th>
<th>Percentage of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Politics: Finnish/EU</td>
<td>57</td>
<td>28.8%</td>
</tr>
<tr>
<td>Importance of Cleantech in the Future</td>
<td>41</td>
<td>20.7%</td>
</tr>
<tr>
<td>Finnish Exports</td>
<td>27</td>
<td>13.6%</td>
</tr>
<tr>
<td>Environmentalist Considerations</td>
<td>17</td>
<td>8.6%</td>
</tr>
<tr>
<td>Single Innovation/ Company Profile</td>
<td>16</td>
<td>8.1%</td>
</tr>
<tr>
<td>Investment in Cleantech</td>
<td>14</td>
<td>7.1%</td>
</tr>
<tr>
<td>Innovations/Technological Knowhow</td>
<td>12</td>
<td>6.1%</td>
</tr>
<tr>
<td>Finland’s Poor Economic Situation</td>
<td>10</td>
<td>5 %</td>
</tr>
<tr>
<td>Universities and Education</td>
<td>4</td>
<td>2 %</td>
</tr>
<tr>
<td><strong>Sum</strong></td>
<td><strong>198</strong></td>
<td><strong>100 %</strong></td>
</tr>
</tbody>
</table>
Some articles would have fit into multiple themes but all articles were categorized according to the theme they fit best into. The most prevalent theme was that of politics, both Finnish national politics and wider European Union politics. Articles fitting this theme included for example those that detailing policies taken into use or outlining, both on the national and the EU level, politician's views and statements about cleantech and news about any political conferences and decisions made with respect to cleantech. The politics theme made up 28.8 percent of all the analyzed articles.

The second largest theme included articles that advocated for cleantech and underlined its importance in the future. This category made up 20.7 percent of all articles and included articles that accentuated and asserted as a fact that in the future cleantech will be huge and important. Somewhat interconnected to this theme was the third theme of Finnish cleantech exports, which was identified as the theme in 13.6% of the articles. These articles detailed how Finnish cleantech is being promoted abroad and into which countries Finland is most actively promoting cleantech to. This theme added to the importance of cleantech in the future with framing it as Finland's future export hope.

Also the fifth largest theme detailing single innovations or companies in the cleantech sector is interconnected to these two themes. Articles making up this theme varied in length from short notices to multiple page stories but were clearly affiliated with each other due to detailing single companies. In most of these articles it was mentioned in which country or countries those companies were doing well and why. These types of articles made 8.1 percent of the total. Finally, also connected to this larger theme of commercialization of cleantech, is the sixth largest theme of investing in cleantech. These articles detailed who was investing into cleantech and how much was invested into clean technologies. Some articles also called for more investment to be brought into cleantech. First North, the alternate stock market meant for small enterprises, was featured heavily as well as angel investors. The theme on investment made up to 7.1% of the total amount of articles. Thus this larger theme of commercialization of cleantech is actually the largest theme altogether as it makes up to 49.5% of the total amount of articles. However, I felt this theme had to be split into the introduced smaller themes, especially since the largest theme in this collection of themes, the importance of cleantech in the future, is not purely commercial.

A very specific theme found is one focusing on environmental issues plaguing the world. These articles constituted 8.6 percent of all material. They included articles about the Earth Overshoot Day which is the day on which people have used up all the resources
Earth is able to generate for that year, and articles that argued that talking about cleantech is still not enough to save the Earth. These articles are demanding much stricter environmental regulations and consideration for the nature.

6.1 percent of the articles highlighted Finnish technological knowhow and painted the picture of Finland being or at least being on its way of becoming at the forefront of cleantech worldwide. Connected to this theme is also the theme of Finnish universities and other higher education in connection to cleantech which made up two percent of all the articles. These articles were focused on the high standard of university education in Finland and the work done in higher education institutions to create and to innovate more cleantech solutions. Without universities and other higher education institutions, the high standard of education and high quality teachers and professors, there would not be cleantech innovations for Finland to export and excel at.

These themes somewhat follow Caprotti’s 2012 study in which he argued that cleantech discourse balances between the financial aspects and the environmental considerations. The larger identified theme of commercialization and the environmental theme make up this dichotomy. However, the significant political theme does not solely fall into either one of these aspects. Politicians are meant to make decisions that affect the current situation within the nation and internationally but also in the future. The articles that fell into the political theme featured politicians from the wide Finnish political scene, including the environmentalist party The Greens as well as more economically oriented parties such as The National Coalition Party.

4.3 Cleantech in Helsingin Sanomat

Cleantech is very relevant as a news topic for Helsingin Sanomat. In the beginning of the study period, the concept of cleantech had to be explained to the readers. Cleantech was also referred to with another term “environmental business”. This term is much more self-explanatory than cleantech. It is also notable that in 2012 the reasoning for why cleantech is good needed to be made. The more towards the end of the study period the articles are, the more obvious it becomes that Finland should promote cleantech.

In 2012 the first article featuring cleantech is written by Minister for Development at the time, the Greens Heidi Hautala, and it is about development cooperation. She argues that
on top of public money, private money is also needed in development cooperation and that this could be done with Finnish knowledge on cleantech. The assumption here is that companies want to do good, to help less fortunate, and to take on “a global obligation” (Helsingin Sanomat 17.2.2012). In 2012 it is clear that cleantech is still a new concept in the Finnish media, and that its rationale needs to be advocated for. In the editorial written by Matti Alahuhta, the president of Kone Corporation at the time, and Mikko Kosonen, the president for Finnish Innovation Fund Sitra, argue that the time for thinking environmentalism as something that slows down or prevents economic growth is over. They write to promote efficient resource usage and making durable items to be sold as services rather than goods. (Helsingin Sanomat 23.3.2012.) What is also notable here is that the writers do not ask for political help, they are only writing that Finnish companies themselves need to be more assertive and bold in creating international success for themselves. Satu Hassi from the Greens, member of the European Parliament, saw it necessary to write to the Opinions page defending “green” jobs. She writes that the Finnish people should get on board with the changing energy market and not just tell each other that the change to greener world is a hoax. (Helsingin Sanomat 15.6.2012.)

In 2012 the term cleantech was not yet as established as it is now, it is referred to as “environmental business” [ympäristöliiketoiminta] (Helsingin Sanomat 9.7.2012). The term cleantech was largely limited to those of renewable energy solutions (Helsingin Sanomat 12.7.2012). In the beginning of 2013 the term “environmental business” as before was dropped, but what cleantech means was still defined as “technologies that diminish negative environmental impacts and promote energy efficiency” (Helsingin Sanomat 18.1.2013).

An article published 19.7.2013 in Helsingin Sanomat brings forth that half of business connected to cleantech companies in Finland is created at mechanical workshops. Cleantech is identified as the solutions that save energy, use materials efficiently and minimize pollution. This does not actually mean that what is being done with cleantech solutions is actually sustainable, it just means it is more sustainable than the option of doing things the old way that does not really consider the nature as a stakeholder. In the article the presidents of two large cleantech companies, Outotec and Wärtsilä, are being interviewed as well as the Executive Director of Cleantech Finland. Therefore it is not surprising that the article does not criticize the very definition of cleantech but presents it just as Cleantech Finland presents it. A short article also featuring the Executive
Director of Cleantech Finland at the time Santtu Hulkkonen summarizes cleantech as a term taken into use for marketing purposes encompassing, according to Cleantech Finland, products, services, processes and systems that harm the environment less than the other options (Helsingin Sanomat 19.7.2013).

Branding cleantech as “the new Nokia” is a theme that first appears in 12.7.2012 (Helsingin Sanomat). An angel investor and the chairman of Finnish Business Angels Network, Jaakko Salminen, argues that investors are not actually looking for the new Nokia, but rather multiple smaller enterprises to invest in. He sees that the culture of big companies has developed in Finland because of the need to get everyone working after the wars, and that is why there is still not enough people interested in start-ups and innovation. He argues that only politicians are looking for the new Nokia. (Helsingin Sanomat 17.7.2015.) Also Paavo Rautio, reporter for Helsingin Sanomat writes: “After losing its Nokia Finland has been looking for the next big thing to make money. The gaming industry and cleantech have been among the proposed successors”. (Helsingin Sanomat 29.5.2015.)

Satu Hassi, member of the European Parliament (The Greens), argues (Helsingin Sanomat 15.4.2013) that in Germany and Denmark adopting green technologies has created jobs that allow numerous people to prosper while protecting the environment. The assumption here is that the same could also be done in Finland.

In two articles Helsingin Sanomat equates fighting climate change with cleantech. They use terms “climate business” and cleantech interchangeably. It’s written: “--- there is already over 3000 businesses in Finland that provide solutions to battle climate change. In addition, couple thousand companies are thinking of starting work in cleantech.” (Helsingin Sanomat 14.7.2015 & 15.7.2015). Cleantech is widely framed as the solution for the climate crisis, a way for Finland to grow its way out of the economic downturn and protect the environment at the same time (Helsingin Sanomat 25.4.2016). Finland’s knowhow in technological solutions that help conserve the environment need to be exported and marketed better and more (Helsingin Sanomat 28.12.2016). Small Finnish companies, cleantech companies included, get the most investor capital in all of Europe proportional to the GDP (Helsingin Sanomat 28.11.2016).
5 ANALYSIS

At the end of the last chapter, the gradual change in how cleantech was talked about in Helsingin Sanomat as well as some important themes were explained. In this chapter, I delve into five specific discourses that can be found in the research material of Helsingin Sanomat articles from 2012 to 2016. The four first discourses identified form two pairs of opposing discourses. The fifth and final discourse could not be identified with a strong counterforce but there was some dissonance within this discourse which is explained. Valtonen (1998: 102-103) argues that different discourses are contending for hegemony in the media. Also Rose (2001: 155) notes that any dissonances in and between discourses are important for discourse analysis. It is important to study not only what is said but by who it is said and how (Foucalt 1972 in Väliverronen 1998: 25). Below is the findings of my discourse analysis.

5.1 Discourse of cleantech being the export hope of Finland

In Helsingin Sanomat articles throughout the years it is visible that cleantech is believed to have the potential of becoming a big export for Finland. There are several long articles detailing delegation visits around the world. Recurring idea in these articles is that Finland still has a lot of potential to export its products, especially cleantech, into areas in which there is not so much activity at the moment but that have huge future potential. This discourse is created by political actors, both Finnish and foreign, by the ministers leading the delegations and by those receiving them, and by the corporate agents participating.

First one of these is from 2014 detailing Finnish cleantech in Brazil. Ville Niinistö, Minister of the Environment at the time, led a delegation of Finnish companies into the country. Niinistö argues that because the economic growth of Brazil has topped, they are interested in investing into technologies that would enable them to keep doing what they are doing only better. This offers possibilities to Finnish companies especially in the mining and waste processing sectors. According to one of the CEOs participating in the delegation, Timo Suistio from BMH Technologies, it is pivotal that there is a minister when trying to get into business in Brazil because of the country’s bureaucratic way of leadership. The big lines are drawn by the government there. (Helsingin Sanomat
8.4.2014.) Interconnected to this trip is the news that The Finnish Olympic Committee agreed with Ministry of Economic Affairs and Employment on promoting Finnish cleantech. Cleanteach Finland became one of the three biggest partners for the committee with a contract that lasted until 2016. What the contract basically meant was that the companies that were part of the network Cleantech Finland could easily use the network of the Olympic Committee in order to promote themselves. The words Finland and cleantech wanted to be made to group together in people’s minds as cleantech was to be promoted as the cusp of Finnish nation brand. (Helsingin Sanomat 25.9.2014.) Another example is an article from 2015 introducing trade in Iran. Iran is portrayed as a young and educated market area of 80 million people who are in demand of Finland’s clean technologies. Iran is the future and doing business there is not even that difficult, you just need to know how to pitch yourself, the article argues. The Minister for Foreign Trade and Development at the time Lenita Toivakka led into Teheran what was said to be one of the largest ever trade missions sent from Finland. The article states that Iran is interested in Finnish cleantech but does not go into specifics. (Helsingin Sanomat 9.12.2015.) Another article on Iran details the Iranian return call to Finland in May 2016. Simo Karetie form the Confederation of Finnish Industries, a leading expert in trade policy and internationalism, says that the possibilities in Iran are almost limitless. There is however a humanitarian problem with doing business in Iran: Iran uses the death penalty diligently and the state of democracy in the country is questionable. Foreign minister at the time, Timo Soini, pushes the responsibility of choosing business partners on the shoulders of the companies themselves. (Helsingin Sanomat 31.5.2016.) One more country which has huge potential is India. In an article from 2016 it is argued that it would be important to tap into the market in India because it is up to the now fastest growing economies whether or not it will be possible to keep climate change within safe limits. Finnish technological knowhow is stressed in the article and India’s need and want for it pronounced. The Minister of State with Independent Charge for Power, Coal, New & Renewable Energy and Mines in the Government of India Piyush Goyal says that because India is so big, they can invest thousands of billions of dollars and it still would not be enough. For example Fortum is already providing cleaner energy in India, and according to the article they plan to increase their investment in the country up to 400 million euros. All in all Finpro has evaluated that the cleantech exports to India could grow from the current 400 million to 4 billion euros. Goyal clearly states the types of cleantech he is most interested in use of waste for energy and intelligent power
solutions. Also solar power and water purification have huge markets in India. (Helsingin Sanomat 16.11.2016.) In the article it is not brought up that Finland cannot actually be considered to be at the forefront of the types of cleantech that Goyal states India needs.

Also Egypt is framed as a lucrative potential export opportunity for Finnich cleantech. An article from 2016 details the visit of Alaa Ezz, Secretary General, Confederation of Egyptian European Business Associations "CEEBA", and Federation of Egyptian Chambers to Helsinki. Ezz envisions that Finnish companies could bring their knowhow and unfinished products into Egypt and the final assembly would be done there. This would benefit the industries in both countries and Egypt would not only become a 90 million people market for Finnish exports but also act as a gateway into other African and Middle Eastern countries. In the article Ezz talks very openly about the difficulties Egypt is currently having with their government and getting a loan from the International Monetary Fund that would hopefully boost the business in the country. In spite of this the bottom line in the article is that Egypt is a market worth going to. (Helsingin Sanomat 10.9.2016.)

Interestingly the story about promoting Finnish cleantech in China is the most negative of all these future success stories. Cleantech Finland’s Beautiful Beijing project coordinator Eero Siitonen argues that it is difficult to get into the market in China even though those who know of Finland identify it with its clean nature. Getting import deals into China demands knowledge of China and Chinese culture as well as long-term work. (Helsingin Sanomat 12.12.2015.) China is the only country in which Cleantech Finland has a big long-term project ongoing. The article detailing this in Helsingin Sanomat is also the only one of these articles mapping out Finnish cleantech companies possible futures that also acknowledges the issues of promoting Finnish cleantech abroad. The Beautiful Beijing project has been ongoing since 2013 but by 2015 only a few companies of the dozens of participants had managed to make deals (Helsingin Sanomat 12.12.2015). However China does have a large potential for cleantech. In 2015 China invested 103 billion euros into cleantech which according to Helsingin Sanomat is about as much as Europe, the United States and India all put together. The cleantech sector in China is growing at a pace of 15-20%. Beijing Capital Investment (BCI) is a Chinese government owned fund that invests in cleantech companies around the world. The chief executive officer for BCI, Wang Shaojun, explains that the fund does not invest in countries but into best technologies. Therefore if Finland has the best technologies, it
will also get the investments. Wang does not explicitly say whether or not he considers Finland to have the best technologies or not. (Helsingin Sanomat 5.9.2016.) Another aspect of promoting Finnish cleantech is tying it with development cooperation. As cleantech is already a win-win between business and being environmentally friendly, why not also make it a win-win between developed and less developed countries? Finnfund is a financing entity specialized in financing risky investments in Russia and developing countries. It gets government money as part of Finland's development cooperation, and in 2015 the sum was around 130 million euros. The minister for Foreign Trade and Development at the time Lenita Toivakka said that this money should be spend for promoting cleantech in developing countries and that Finnfund should act as a bank financing cleantech companies. Toivakka sees this as a prime opportunity for Finnish companies to become part of the development cooperation but also seek growth from countries that would normally have too big a risk from the business perspective. (Helsingin Sanomat 15.8.2015.)

It is notable that all of these article detailing Finnish cleantech being exported abroad, the countries into which exports are planned to are all still developing countries, and countries which do not track high on the Finnish exports table apart from China which actually was the fourth biggest trade partner for Finland in 2016 (Tilastokeskus 2017). Countries that Finland have a strong trade partnership such as Germany and Sweden already have a lot of cleantech production themselves. Also, even if Finland does export large amounts of cleantech products into an established partner in trade, maybe it is simply not newsworthy. In all these articles, the discourse identified Finland strongly with cleantech: Finnish politicians and companies are going abroad in delegations to promote Finland and to promote cleantech into these countries that are potentially going to invest into new solutions. The win-win-win of creating value for nature, for business, for the rich, and for the less fortunate crystallized in cleantech is pivotal. In this discourse cleantech becomes something so important that exporting it is not only beneficial for the companies and for the Finnish industry but for the whole world.

5.2 Difficulties with commercialization

This discourse states that Finland has all the necessary knowhow and technical skill to create the best technologies in the whole world but utterly lacks the ability to market these technologies. All parties in Finland, the public sector both nationwide and in
municipalities, regular consumers and companies should all work together to put Finnish cleantech on the map. Finland on its own is too small of a market for all the cleantech innovations done here to reach their full potential but Finland must however be an adequate take-off platform as without this home market a lot of the innovations will never be developed any further. This discourse is created by the agents building the nation brand is a job for, by Sitra, and by the Confederation of Finnish industries. It is also created by professors of higher education institutes and by CEOs of cleantech companies.

An article from 27.11.2014 argues that Finland has not been able to monetize its cleantech know-how partially because the home market is non-existent (Helsingin Sanomat 27.11.2014). Also Finnish Innovation Fund Sitra’s director Mari Pantsar-Kallio argues that Finland is lacking the needed home market even though cleantech innovations are made in Finland (Helsingin Sanomat 25.9.2014). The editorial in Helsingin Sanomat from 16.9.2014 sees the sale of Vacon, a company that produces frequency converters to save energy on electric motors, as further proof that Finland lacks the needed know-how for commercializing cleantech innovations. Vacon was sold to a Danish company. Denmark is at the forefront of the cleantech market without being known as an engineering nation, but they do know how to market themselves. (Helsingin Sanomat 16.9.2014.)

An article published 3.5.2015 argues that in Finland the problem with cleantech is the same as with all other exports: Finland has the knowhow to develop products that have potential but lacks the people to market them and actually start building the export network. In Finland cleantech is about the products whereas in the rest of the world it is more about the services and solutions for the user. However Finland was ranked number two in the Global Cleantech Innovation Index for 2014 that charts how good of a platform it creates for cleantech companies. The actual experience of the cleantech companies and especially investors is more negative though. The article however reminds that the whole exports industry in Finland has had issues, and that they are not confined to the cleantech sector. Also, the outlook of people working in cleantech companies is more positive than the outlook of those who work in exports but not in the field of cleantech. (Helsingin Sanomat 3.5.2015.)

Anne Jalkala, a professor at Lappeenranta University of Technology, argues that even though public spending on cleantech research and development amount to worldwide
records, commercialization of cleantech lags behind putting Finland only at the tenth place in this (Helsingin Sanomat 14.4.2014). The return on investment is thus not very attractive, rather, cleantech can be seen as a bad investment. She also states that 80% of the Finnish cleantech revenue is made by the tenth biggest cleantech companies. Jalkala stresses the importance of getting cleantech solutions out into the open so that potential buyers could familiarize themselves with them. This would help with commercialization and make the cleantech industry grow. (Helsingin Sanomat 14.4.2014.) In their editorial members of the Cleantech Climate Council (CLC), an association created by the Finnish Innovation Fund Sitra and comprising of CEOs of prominent Finnish cleantech companies such as Kone, Neste Oil ja Outotec argue that the metropolitan area should become this kind of a display window into Finnish cleantech solutions where potential investors and trade partners could be taken to in order for them to see what they would get for their money. (Helsingin Sanomat 2.4.2014.)

Also Tellervo Kylä-Harakka-Ruonala and Tuuli Mäkelä from the Confederation of Finnish Industries demand more daring experiments into cleantech. These experiments might result in happy reference customers whose positive experiences would help to export more and more cleantech services. They also argue that Finland itself is too small of a market. The government should promote pilot projects and make sure that the Finnish knowhow to solve world-class problems of increased demand of clean energy and sustainable infrastructure. Kylä-Harakka-Ruonala and Mäkelä argue that the expectations that have been directed towards cleantech are not the problem, that they are not too high, but there are still actions to be taken in order for those expectations to be met. They say that Finland has advantages in many regards when it comes to the cleantech market. The nature of these advantages is not stated but the reason for cleantech’s importance is framed by tying it with urbanization and the needs to growing middle class as well as fulfilling the basic needs such as clean water for the people in the poorest countries. (Helsingin Sanomat 10.5.2015.)

Team Finland is a network meant to help Finnish companies go abroad and to get foreign direct investment into Finland. It receives criticism in Helsingin Sanomat editorial 6.7.2015. A study made by the Federation of Finnish Enterprises noted that 97% of small and mid-sized companies do not know of Team Finland and its services well enough; 83% was not even aware of Team Finland and its concept at all. Under 15% of Finland’s exports is made by small and mid-sized businesses which are seen to have the largest growth potential. This growth potential is meant to be achieved in large part with the
help from the Team Finland network. The government has put a lot of hope into this network but failed at its marketing. (Helsingin Sanomat 6.7.2015.) If companies that are meant to get help from the network do not even know of its existence it is quite clear that it is not doing its job well enough. Small Finnish companies are seen as having the largest growth potential and cleantech companies are seen as having the largest growth potential among all companies but in reality 80 percent of cleantech revenue is made by the ten biggest companies in the industry (Helsingin Sanomat 14.4.2014).

In this discourse the main idea is that Finland has all the needed knowhow, and that that knowhow is in fact needed, but that there are still barriers or difficulties companies have to face and overcome in order for the demand to be met by the products they are supplying. It is not questioned that Finland has all the needed cleantech products and it is not questioned that there would be demand for these products. Only the companies’ possibilities to export and the government’s ability to help companies export are questioned. The assumption is that if only Finland would get its technologies further developed through investment, showcased and out of the country, success would be guaranteed. In that way this discourse is not contradictory to the first discourse but more focuses on why the exports have not already been realized and gives reasons why it may not be even if the future.

5.3 Strict environmental regulations as promotive factors for cleantech

There are two opposing discourses found within the Helsingin Sanomat articles, one of which advocates for strict environmental regulation as a way to create a market for cleantech, and the other which argues that cleantech should be promoted but strict environmental regulation still avoided at the same time.

According to the first discourse it is pivotal that climate agreements will be put into place and that the stricter these regulations are, the better. Also, even if these agreements are not worldwide but only regulate a smaller part of the world such as the EU, Finland should embrace them with open arms since they are bound to spread to a wider area and early adaptation of more environmentally sustainable politics and policies will only help Finland and Finnish cleantech in the future.
The discourse that embraces environmental regulation is mostly created by professors. The article types range from news articles to opinion pieces. On the timeline this discourse ranges from 2013 to 2016 so it encompasses the whole study period. The discourse also features voices of the companies in the form of the Climate Leadership Council which was founded by the Finnish Innovation Fund Sitra in 2014. This discourse is also strengthened by the voices of non-governmental organizations such as Greenpeace.

Jyri Seppälä, a professor and leader of Finnish Environment Institute (Helsingin Sanomat 11.4.2013) argues that if Finland really wants to be a leader in clean technology, it should advocate for binding agreements for a cleaner future. In his writing it is evident that cleantech is seen as the solution but that it is a solution that requires full adoption, not just partial conviction. If being the lead in the cleantech field really is something to strive for, then the whole mindset needs to be changed from seeing being environmentally friendly as the cherry on top, as something that can be taken into account when everything else already works, into what actually makes everything else work. He argues that if there were some strict and binding climate conventions, these would create the demand for clean technologies (Helsingin Sanomat 11.4.2013).

Professors Ilkka Savolainen and Mikko Alestalo (Helsingin Sanomat 1.12.2014) write that together with a change in habits of consumption, cleantech has the potential to help mitigate climate change. In addition to this, it also has the potential to create new economic activities to boost well-being further. The professors demand more regulations to boost cleantech. International climate agreements create the base on which to build the growth of cleantech. These regulations must however be based on good quality research because otherwise the decisions may create strategies that do not have a solid foundation and may not lead to desired results. (Helsingin Sanomat 1.12.2014.)

Nine NGOs having operations in Finland including Greenpeace and WWF created a target list for the climate panel in Lima in 2014. It stated that the use of fossil fuels must end completely by 2050 if a climate catastrophe wants to be avoided. They argue that Finland should take an active role in showing how to mitigate negative climate impacts. Kaisa Kosonen from Greenpeace stresses that businesses and consumers do not need to see renewable energy as haggling on welfare. With cleantech the energy problems can be solved and comfort level people are used to kept but not at the expense of the environment. The article refers to Intergovernmental Panel on Climate Change’s (IPCC)
study according to which it will not be only the environment but also people and the global economy that suffer if climate change is not controlled. (Helsingin Sanomat 27.11.2014.)

Kaisa Kosonen from Greenpeace also wrote a separate letter to the opinions section arguing that coping with environmental regulations should not be seen as a burden for businesses when those regulations should rather be seen as a positive nudge pushing business in the right direction for all stakeholders considered. She also demands a better home market for Finnish cleantech because in the field of cleantech best success has always been for those also successful in their own home market. (Helsingin Sanomat 26.10.2014.)

The Paris climate agreement should provide cleantech companies with a big potential for growth. A professor in environmental economics Marko Ollikainen argues that the cheap steel prices will creep up due to Paris climate accord and this will help Finnish companies because previously they have lost in the cost competition. Further the Finnish cleantech companies will win thanks to the accord as the demand for cleaner technologies grows. Ollikainen argues: “We have the opportunity to tap into that market and respond to the demand on a number of fronts, provided that we’re skilled, effective and clever” (Helsingin Sanomat 15.12.2015). Jyri Seppälä who is a professor at the Finnish Environment Institute (SYKE) argues that the Paris climate accord took everyone by surprise because of its ambitious goals. However, this surprise could be turned into positive market development if fast actions are taken. Seppälä sees growth potential especially in electric cars and energy efficient houses. (Helsingin Sanomat 15.12.2015.)

Jorma Turunen, the CEO of Teknologiateollisuus Oy, and Risto Sulkava who is the director of Suomen Luonnonsuojeluliitto, demand smart regulations, wider distribution of information and economic incentives to create a working home market for cleantech in Finland. With a strong home market Finnish companies would have better possibilities to grow and expand abroad. They further call for universities and other education centers, their researchers, public sector as well as companies to all work together to achieve cleaner growth. (Helsingin Sanomat 26.10.2015.)
Climate Leadership Council (CLC) demands that Finland become the first country to announce end for the use of coal by 2025. Pertti Korhonen, the CEO of mining technology company Outotec at the time, says that public spending in Finland is done very shortsightedly only based on the lowest price without giving any regard to sustainability. One of the reasons for establishing CLC was to promote cleantech, as even though Finland is at the top in creating cleantech innovations, the marketing has been problematic. CLC hopes to make the metropolitan area into “a carbon neutral reference region” where businesses could showcase their cleantech innovations. (Helsingin Sanomat 25.9.2014.) Strict environmental regulations will feed cleantech sector’s growth at a fast pace is also argued by CLC’s executive director Jouni Keronen and professor at the University of Helsinki Markku Kulmala in 2016. They argue that to mitigate climate change, actions must be taken straight away. They however see this as a positive thing since it would mean not only the growth of Finnish cleantech on the industry level but also enunciate Finnish cleantech research’s importance. (Helsingin Sanomat 25.4.2016).

Sanni Grahn-Laasonen, the Minister for the Environment at the time, argues that Finland needs to undergo a climate awakening to boost investment and the exports of cleantech. According to her also municipalities need to start thinking about investing in cleantech. (Helsingin Sanomat 28.11.2014.) Grahn-Laasonen wishes to see climate change as an opportunity (Helsingin Sanomat 27.11.2014). Also Prime Minister at the time, Alexander Stubb, argues that cleantech is a big opportunity for Finland as long as politicians are smart enough to promote it and able to create an international market for it. (Helsingin Sanomat 14.11.2014.)

Within this discourse environmental regulations are seen as a potential boost for cleantech industry in Finland. They would put pressure on the industry itself to develop even better technologies, they would create demand for cleantech both inside Finland and abroad and while creating this demand, they would positively affect the development of a home market in Finland for cleantech solutions which would in turn boost cleantech exports further. Also, environmental regulations should not be viewed as something that will put an end to economic well-being, rather, without environmental regulations the time will come that environmental degradation will affect the economy in such a way that the living standards people in developed countries are used to can no longer be sustained.
With cleantech this economic well-being can be achieved more cleanly and more sustainably.

5.4 Strict environmental regulations as prohibitive factors for cleantech

A rival discourse does not see environmental regulations as something that would help the emergence of cleantech. This discourse belittles the necessity of environmental considerations in Finland and the EU as there are countries that are producing much bigger carbon emissions and thus creating a much bigger impact on the globe’s climate without taking part in global climate agreements. At the core of this discourse is the idea that countries are rivals in the global economy and that governments are meant to ensure the success of the nations they govern. Cleantech is not seen as being a big enough market opportunity to ensure this but strict environmental regulations are seen as large enough sanctions to set back the economy. It is argued that companies will move their production into countries where environmental protection is not so strict in order to create maximum profits.

Interestingly this discourse is mostly created by politicians, ministers to be more specific. The discourse ranges from 2013 into 2016 so it has been fully present at the same time as the discourse demanding stricter environmental regulation.

Jyri Häkämies, the Minister of Economic Affairs at the time, wrote an editorial in which he takes for a fact that emissions trade is the best, in fact the only way to fairly solve the world energy need. Without emissions trade Europe cannot compete in the global market as production will without fail move to countries that are outside of any environment and climate pacts. Further he argues that the world needs a climate convention that would bind all countries worldwide and that this would be the only way to ensure that Europe and Finland would have the same opportunities as the rest of the world to develop further. He argues that the European Union will destroy its future development if it creates binding climate agreements just for its member states leaving the rest of the world out and able to pollute. In the last paragraph he pulls out cleantech as the possibility for Finland to make itself a name in solving global energy and environmental challenges. He argues that even though Finland’s own emissions are so small they do not make any difference in the global scale, Finland could be at the forefront of cleantech because of the knowhow possessed. (Helsingin Sanomat 6.4.2013.)
Alexander Stubb wrote in his editorial (Helsingin Sanomat 22.10.2014) that climate change is one of the biggest problems of the humankind and that the EU needs to be at the forefront of battling it without putting itself in an unfavorable position in regards to other, more polluting regions. He demanded “järkivyhreitä ratkaisuja”, “smartly green choices”. He argues that jobs and industry must not be put into danger even though the environment needs to be protected. He reminds that Europe only creates 10% of the world carbon dioxide emissions. Stubb also argues that cleantech could be a huge possibility for Finland if Finland would succeed in creating a global market for it. He however sees environmental laws and regulations not as creating this market, but only leading to the current, polluting market, moving into those countries without similar regulations.

Jari Lindström, the Minister of Justice and Employment at the time, argued that any climate actions must be made in such a way that the costs to Finnish industry do not grow. He says that ensuring jobs is the most important thing to him and the government. (Helsingin Sanomat 19.11.2016.) Right after the country specific targets for the Paris climate accord targets were disclosed by the European Commission, the Confederation of Finnish industries demanded for “a more fair solution” for Finland. The Minister of the Environment at the time Kimmo Tiilikainen wished for an adjustment in the Commission’s count that would take into account the Finnish forest industry’s impact as a carbon sink. (Helsingin Sanomat 23.7.2016.) These two examples show how the discourse is negative towards environmental regulation even when it is large scale and could potentially lead to a vast market for cleaner solutions. At the forefront of the minds of the people creating this discourse is the current situation in which Finnish industry and the jobs it creates are the most important things and the distant possibility of creating more jobs in the future in cleaner technologies worldwide is not taken into account.

5.5 Discourse of everyone working together to achieve growth in cleantech and a greener future

The fifth and final identified discourse centers on how cleantech has the potential to bring new growth to Finland but only if everyone works together for it. The citizens, municipalities, the government, higher education and corporations all need to work together to achieve the best potential growth for Finland. This discourse is advocated
by politicians and professors. There is also some criticism found, not about the potential of cleantech but about the cuts from education. Also, it has been shown in recent studies that young people are no longer as interested in science and mathematics as before (Helsingin Sanomat 26.4.2016). How can Finland be a cleantech superpower if technology no longer interests people? Everyone working together gets a new meaning: citizens are not only needed as consumers but Finland’s future also needs a steady supply of engineers. This discourse is also advocated by all, no one agent can be held up as the creator of this discourse.

The Leftist party politician Silvia Modig writes that one percent of all public spending shall go into cleantech. She writes that to really achieve a change in energy politics, the municipalities, companies and the state must all work together. (Helsingin Sanomat 28.11.2015.) Many municipalities in Finland have already taken steps to become carbon neutral. Carbon neutral municipalities (HINKU) is a program launched by Finnish Environment Institute (Syke). The reasoning goes so that with simple solutions municipalities can achieve cost savings and become more environmentally sustainable. Not using oil with its increasing prices for heating but instead using for example wood pellets or changing light bulbs into LED lights are examples that both help conserve the environment and save money. (Helsingin Sanomat 10.11.2015.) Vaasa wants to be carbon neutral in 2035, Turku by 2040 and Helsinki by 2050 (Helsingin Sanomat 25.4.2016).

A professor of environmental economics in the University of Helsinki Markku Ollikainen demands that consumers think about their choices more carefully and notes that even small choices can make a difference (Helsingin Sanomat 15.12.2015). It is argued that the Paris climate accord will undoubtedly lead to heat and electricity being produced more efficiently in Finland (Helsingin Sanomat 15.12.2015). This will give more business opportunities for Finnish cleantech companies. But these opportunities must be seized, so the companies must succeed in selling their services and the municipalities and government in charge of public spending must want to invest in Finnish technologies and Finnish companies.

On the political arena, The Greens chairman Ville Niinistö judges the cabinet on not realizing the potential of cleantech well enough. He argues that the presidents of big
companies such as St1, Neste Oil and Outotec realize the benefits of cleantech better than the Finnish government. He accuses Juha Sipilä’s cabinet for talking about cleantech but not having enough actions to promote it. (Helsingin Sanomat 21.5.2016.) The strong underlying assumption here is that companies are meant to create economic success for stockholders, and they are realizing the benefits cleantech provides, but the cabinet whose responsibility is to create common good for the people, does not. Also Peter Lund, a professor at the Aalto University, argues that the government is not using suitable measures to promote cleantech in Finland. Investing in cleantech does not necessarily bring growth for cleantech, instead he suggests more competition, educating consumers and quotas for green energy. Further, he calls for a new type of thinking in which energy, climate, employment, innovations and economic growth are more intertwined in politics. (Helsingin Sanomat 29.8.2016.)

From many of the articles in 2016 it feels like Finland as an innovative country with large export industry and knowhow in cleantech is taken for granted. Talking about Baltic Sea preservation, Helena Poutanen from the Ministry of the Environment comments that it is a matter of “Finland’s reputation as cleantech advocate” (Helsingin Sanomat 4.3.2016). Here the underlying assumption is that Finland indeed has this kind of a reputation. Jouni Keronen, the leader for Cleantech Climate Council, and Markku Kulmala, a professor at the University of Helsinki, argue that cleantech will create lots of new business in the near future and Finnish companies should quickly and bravely react to the change. They argue that the 3,000 companies working on cleantech related areas and the over a million euros put into research and product development on “clean solutions” could lead to significant growth in Finland. It is also written that Finland would benefit on EU and other big markets tightening their emission goals at a fast pace. The assumption here is that Finland has everything it takes to become a prominent figure on the arena of cleantech internationally. (Helsingin Sanomat 25.4.2016.)

An article from 1.11.2016 argues that even though global actions to curb climate change are moving forward slowly, there are still important actions being taken. It is stressed that companies are taking cleantech as a part of their strategy and that cities are declaring themselves carbon neutral. Also regular people are making their own climate pacts. The article quoted Nicholas Stern’s report on climate change from 2006 in which he stated that making the change into carbon neutrality will be expensive but that it will be much more costly not to make that change. This editorial demands more and faster actions from everyone in order for people to be able to fight climate change. The current actions
are not enough, and are too little focused on creating new solutions for cleantech that actually will have a huge market in the future and that might actually help with getting an upper hand on climate change. (Helsingin Sanomat 1.11.2016.)

There is also a discord to be found in articles focusing on the recent cutbacks from education as well as the decline of interest for sciences and mathematics. Raimo Saïlas, a now retired long-term Secretary of State writes about the contradiction between the national strategy valuing cleantech, digitalization and the bio economy and the declining interest of mathematics and science among young people (Helsingin Sanomat 26.4.2016). The header in Helsingin Sanomat 6.10.2015 gives strong criticism to the government of that time. Cutting funds from universities up to 500 million euros goes strictly against the notion of Finland's future being at the hands of supreme technologies and knowhow. If Finland wants to be at the forefront of clean technology production, cutting money from research is not a smart way to go. Economic theory argues that growth will be achieved by investing in education and research. Even though government money will be given to current cleantech projects, taking money from universities will effectively cut into the future of Finland as then all will be put upon the shoulders of current innovations and not into the future ones. It is arrogant to assume that the best has already been discovered. (Helsingin Sanomat 6.10.2015.) Matti Alahuhta, the chairman of Confederation of Finnish Industries, also argues that education is not where funds should be cut from. However, he thinks that the university scene in Finland could be made better by defragmentation and consolidation but mostly by competitive tendering. (Helsingin Sanomat 8.8.2015.)
6 DISCUSSION

One of the theoretical frameworks for this thesis was nation branding which on its own is discourse aimed at creating a brand for a nation. According to Widler (2007: 147) nation branding is meant to ensure that all nations have something special about them that the branding process is supposed to bring out and enunciate. In Finland one of the main objectives for nation branding has been promoting Finnish products and services abroad and getting foreign direct investment into Finland (Tehtävä Suomelle 2010: 23).

In a report written by a commission created by the Foreign Minister at the time, Aleksander Stubb, Finland is argued that have the technological know-how to solve global problems such as climate change. Finnish companies are urged to take upon themselves to solve these global problems and at the same time make money. (Tehtävä Suomelle 2010: 61.)

Branding cleantech as the export hope of Finland is part of nation branding. In order for cleantech to be a successful export, the nation branding activities should have been successful. Fan (2006: 11) notes that a strong brand achieved by marketing is not enough for a nation but that there must be some substance behind the brand as well. The second identified discourse focusing on how difficult it has been to commercialize cleantech is interconnected with this: according to this discourse Finland truly has the best technologies so the substance is not the issue but commercialization of these superior technologies has not been successful. The opposing discourse of cleantech being the export hope of Finland argues, by showing all the different countries Finland has been promoting cleantech in, that Finland has a strong stance on the international cleantech market.

What is interesting about the discourse focusing about exporting Finnish cleantech abroad, is that none of these articles creating this discourse are about trade to developed countries. Is it not newsworthy to discuss trading cleantech into already developed countries? Is it more radical that Finland can export cleantech products into developing countries? Or is it just that the market potential of these less developed countries is simply so vast that the opportunity for Finland and for Finnish cleantech industry is so newsworthy? Be the reason what it may, it is important to note that when exporting cleantech into countries where Finland does not already have an established position, there is a huge opportunity for nation branding: in these countries Finland truly can be
equated with cleantech which may make marketing it there and in their neighboring countries a lot easier. In China, Finland is already known for its cleanliness which has also helped market Finland as a tourism destination to Chinese people (Helsingin Sanomat 12.12.2015). In countries where Finland is already more known, rebranding it as a cleantech superpower is more difficult. First impressions and stereotypes stick and are hard to erase.

Because citizens have an important role in sustaining a nation brand, the discourse of cleantech as an export hope for Finland is something that it is important for regular people to believe in. The articles focusing on the trade delegations are full of hope for future cooperation and feature politicians quoted saying positive things for Finland’s future. The opposing discourse focusing on the difficulties of commercialization calls for a better home market for cleantech products. If Finland and Finnish cities would become flagships for clean technologies this would help with marketing cleantech abroad as it could be shown in action how certain technologies work. This would also be a major part in Finnish nation branding as the whole of Finland or at least some chosen areas within Finland would become a display window into clean technologies. This way the nation brand of Finland would strengthen considerably, Finnish cleantech would be better marketed and cleantech truly could become an export hope of Finland as the first identified discourse suggests.

The animosity between the discourses of environmental regulation being a prohibitive or promoting factor for cleantech is at the core of the concept of cleantech: is it about the environment or is it about the business. The discourse that focuses on environmental regulation helping cleantech emerge is at the core of cleantech being a win-win situation for the environment and for the companies. By saving the environment companies could actually be making more money by both resource efficiency and by taking over new areas of business. Being green is argued to give companies a competitive advantage (Ambec & Lanoie 2008: 54). However, if environmental regulation becomes very strict everywhere in the world, all companies must become cleantech companies simply to keep doing business. Then the competitive advantage would disappear. Naturally the idea that all countries in the world would all of a sudden enforce strict environmental regulations does not seem feasible. Given that, the question is more about if it would be beneficial for countries like Finland to enforce strict environmental regulations beforehand, before it is an absolute necessity, if that would boost or diminish the competitiveness of Finnish cleantech internationally. Based on the analysis the Finnish politicians do not necessarily
believe that enforcing strict environmental regulations would benefit Finland in the long run.

On one hand it could be argued that if Finland had very strict environmental regulations, the home market for cleantech solutions would get a boost and the whole of Finland would become a display window into cleantech as explained above. This would be a huge building block for the Finnish nation brand if trying to build up the image of Finland as a pioneer in cleantech and potentially become a tonic for the commercialization of Finnish cleantech. The opposing argument is that since there are countries that pollute so much more than Finland it does not make sense to regulate the already languishing market with more regulation. The boost cleantech business would get from strict environmental regulation is not seen as large enough to take the risk of putting Finnish companies in an unfavorable position when comparing with companies from countries where regulations are not so strict. Basically this duality reflects the concept of cleantech itself: if it is more about the environment or about business profits. Renaming greentech into cleantech does beg the question if the environment really is a consideration with cleantech anymore. Georgerson, Caprotti & Bailey (2014: 224) however do maintain that cleantech does include true environmental considerations, that it is an integral part of the concept. In the conflict between these two discourses we can however see that the environmental and economic win-win situation is not as clear to politicians as studies into cleantech might suppose.

The media has a lot of power to define how things are talked about. Media itself may follow other institutions like the government and large corporations to see what is current and create news about those issues but it is still the media’s choice to give certain concerns more attention and some less. In my analysis it became evident that politicians in Finland are very interested in cleantech, that it is a buzzword they like to throw around and that they also notice that it is a hot topic. My analysis does not ascertain who made it so in the first place although that would be something of interest. The first article that I found in Helsingin Sanomat about cleantech was from 2012, and these first articles featured the voices of female politicians from the political party The Greens but also the president of Kone Corporation at the time Matti Alahuhta and the president for Finnish Innovation Fund Sitra Mikko Kosonen. All of these articles are either editorials or opinions pieces, not news articles. In these articles cleantech is not quite established yet and needs positive voices to speak on behalf of it and to argue for its rationale.
As the years pass, the articles about cleantech expand to almost all the sections of Helsingin Sanomat. It is however notable how many of the articles touch politics and politicians, almost 30% of all the articles. Also, the fact that so many of the articles are published as domestic news seems to suggest both that cleantech is important for Finland nationally but also that it is not that visible abroad. For media, politics is important and what politicians do and say make for news. Some argue that media exists to point out differences in the ranks of those who decide the direction a country is heading towards. Media has power affecting how the public views this debate and where it stands on the topic of it (Robinson 2001: 535-536).

The discourse that shows media’s power most is the last identified discourse of everyone needing to work together to achieve growth and a greener future. Media can have the power to influence people’s opinions and actions (Seppänen & Väliverronen 2014: 170-171). This discourse tries to do just that: if the whole country, municipalities and regular people all make their own climate pacts, the market for cleantech will grow and so will the sector bringing Finland growth in GDP and exports. Companies and the government need to work transform cleantech from a small section into trans-sectional success story. Educational institutes need to inspire people to study science and mathematics and act as launching pads for more cleantech innovations. The more stories like this media would publish, the more people would start to believe in them. Media and the symbolic reality it creates has the potential to create self-fulfilling prophecies, at least to some extent. If the media would urge people to believe in cleantech, there is reason to believe it would.

The change from “environmental business” to cleantech is interesting. The first used environmental business is much more descriptive, it really says what it means. The term cleantech is not so clear, but once media started to always only talk about cleantech, it became part of the Finnish language without even being Finnish actually. Of course cleantech is not the only loan word that is used in the Finnish language but these types of words do hold the danger of becoming part of everyday language without people really understanding what is meant by them. For cleantech this may actually have been beneficial, as it has also led to it not needing to be so precisely defined. It would be interesting to ask people on the street what they perceive is cleantech. Is it anything that is cleaner than the alternative technology? Or is it anything that has to do with renewable energies? Or is it perhaps something else? How many people would, with being faced with that question, start to think about it and not be able to come up with an answer? When words become part of the common vocabulary, it often seems that people stop
thinking about what that word actually means. Media has a huge power here also, because when it stops explaining words in separate info boxes or by writing them out, both of which happened in Helsingin Sanomat on cleantech at some point, it mediates the idea that the concept has become a word that is in common use.

The last discourse, cleantech as a means for growth if everyone works together shares a lot of features with the concept of green economy as introduced by Alfred Marcus, Paul Shrivastava, Sanjay Sharma and Stefano Pogutz (2011). People want to keep the standard of living they are used to and not let being sustainable get in the way of that. Corporations want to keep making money and not have being environmentally conscious diminish their returns. Cleantech is framed as an answer to both of these problems. But in order for cleantech to succeed, there must be new innovations still made, there must be political agenda to push cleantech forward, to invest in it both the municipal and the national level and there must be companies that are truly motivated to produce cleantech solutions.
7 CONCLUSIONS

The Finnish cleantech discourse as seen in the largest newspaper in Finland, Helsingin Sanomat, clearly shows that cleantech is considered as something important for Finland and for Finland's future. The exports industry is essential for Finland's gross domestic product and since the decline of both the forest industry and Finland's biggest technology company Nokia, new direction has been in demand. Cleantech has been mandated this mission but the road has not been straightforward. Politicians have been advocating for cleantech regardless or the party they represent but what has been lacking has been the understanding how deeply the thought needs to be changed from viewing being environmentally sustainable as an extra cost to seeing it as something that can in fact create business and help maintain the level of comfort people in developed countries are used to. Professors in higher education institutions and CEOs of large corporations call for this understanding.

There are contradictory voices as some are calling for stricter environmental regulations and others demanding that no more binding regulations would be enforced on the already less polluting developed nations. Whose voice is the loudest will be something only future and future research can tell. Both sides have convincing arguments and it will be up to the public and the parliaments of the European Union and of individual countries to decide how to move forward. In the global world all economies affect one another and if the EU would enforce strict environmental regulations it would be bound to have a larger effect. Mass media also has a role to play as it affects how regular people view issues and which aspects become of consequence for them can be up- or downplayed by the media.

Based on the discourse, cleantech is framed as something that could be a true win-win-win between the environment and the business, and between the developed countries and the still developing ones. Whether or not cleantech can claim these promises remains to be seen. Given the analysis, it can be argued that for cleantech to fulfill its potential, political action and a change in the public opinion is needed. Cleantech must change from being a buzzword that gets thrown around into something that the whole society is focused around. This would create a true green economy and sustainable growth.


APPENDICES

Originals of the translated Helsingin Sanomat excerpts

18.1.2013
"Cleantech tarkoittaa teknologioita, jotka vähentävät kielteisiä ympäristövaikutuksia ja edistävät energiatehokkuutta."

29.5.2015
"Nokiansa kadottanut Suomi on etsinyt uutta rahasampoa. Tilalle on tarjottu muun muassa pelialaa ja cleantechia."

15.7.2015
"--Suomessa on jo yli 3 000 yritystä, jotka tarjoavat ratkaisuja ilmastonmuutoksen torjuntaan. Lisäksi parituhatta yritystä harkitsee aloittavansa liiketoimintaa cleantechissä eli puhtaassa teknologiassa."