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Public Procurement of Innovation in the Context of a Transitional Economy.

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The thesis looks at the role financing has in relation to Public Procurement of Innovation for a transitional economy. Traditionally there has been a focus on how to utilize public funds in the most optimal way for creating innovations, but Latvia does not fit into this. Financing public procurement projects is something that has been overlooked, and the thesis looks at the possibilities and difficulties that are associated with this.

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1. Introduction

Public Procurement has become a widely used tool for creating jobs and spurring on Innovation in both the European Union and America. Accounting for around 16% of total EU-GDP (European Commission, 2005) the attention on using the Procurement policy tool to spur innovation has so far been vastly ignored by policymakers. Recently the European Policymakers have tried to focus a bit more on this issue, with the introduction of the "Barcelona target" (Aho et al,. 2006), which means that 3% of EU-GDP has to be allocated to R&D purposes. However, there has been a tendency for both policymakers and within academia to look at Innovation through Public Procurement as being a problem of how to utilize public expenditure in the best possible fashion. This means that companies can innovate, and the public gets the best possible deal as well, and a neglecting of how to finance such activities. There has been an increase in the way academia treat public procurement and the strategies that are connected to this.
Uyarra & Flanagan (2010) highlighted this, where they found that there were currently three deficiencies:

1. The varied nature of Public Procurement is downplayed, and the different aspects are largely ignored.
2. The nature of the innovative nature is also downplayed.
3. It downplays the multiple innovation effects of public procurement.

Another important aspects has been that almost all innovation policies have relied on promoting supply-side measures, where tax incentives, financial aid and networking have been the primary choice for policymakers. However, according to Edler & Georghiou (2007) public procurement can also be used to create a powerful demand side measure, which can create lead markets for companies and protecting these from market failures thus creating a safety net for the companies at the same time.
There is almost no attention as to how public procurement is actually financed. The act of a public purchase normally entitles that a vast amount of sums are needed in order to facilitate the desired procurement. An interesting point is that almost all academia has focused on Public Procurement of Innovation from a western standpoint, which means

strong financial systems and strong economies with well funded public systems in general. This does however not coincide with how the European Union looks anymore. Since the enlargement of 2004, where the former east bloc soviet countries entered; Poland, Estonia, Latvia, Lithuania among others, the economic performances and outlooks for the Union as a whole, but especially for these countries have changed rapidly. These countries entered the Union with economies and administrative capacities well below what their western counterparts had at the time, and especially now as well (Europa.eu, 2004).

The focus of the thesis will be on that of Latvia, a country situated between Estonia to the north, Lithuania and Belarus to the south and the Russian Federation to the east.

Latvia has since it gained independence in 1991, done a wide array of political things to gain political integration with the rest of the western world, where NATO and especially joined the European Union are highlighted politically as triumphant places in history. Recently Latvia has also adopted the EURO in accordance with their EU membership status, and their integration with the European system is beginning to become more and more fundamental for the whole country. The transitional period from 1991 until 2004 and indeed until now have not been without problems (Worldbank, 1993). The problems have been numerous where macro economical problems had to be solved through very hard and strict political reforms of the whole country, as well as creating a totally new financial system, replacing the Latvian Ruble with the Latvian Lat, and now with Euro. Privatizations of public companies and reorganizing the public administration have also been a focus point for years. All this happened very fast, almost from one day to another which meant that the whole eastern bloc effectively has to find out how good their industrial potential was and also how to manage public funding, social systems and other things very rapidly. Until 2008 however, Latvia incurred some of the highest growth rates in the whole Union, however they still accumulated more and more public debt as well where the switching governments decided to support growth in GDP instead of sound fiscal policies (Eurostat, 2014). These issues have put Latvia in an almost unique position. Switching governments, an unstable financial system together with their transitional economy and interaction with Russian are unlike what most academia on public procurement have touched upon, and this will be the start point of the thesis.

1.2. Problem Statement

Since the fall of the Soviet Union and Latvia's independence in August 1991, the country have been going through a transition period from a planning economy into a market economy. The transition has not been easy with shifting governments sometimes taking the hard choices, but more than often took the popular choice instead. Also, the crisis of 2008 hit Latvia extremely hard, unemployment grew exponentially, and there is no social security in place to protect people against anything and also demographical tensions between the Latvian/western Latvia, against the more Russian speaking and poor part in the east.

These facts have put the Latvia economy under strain, with an IMF financial help package in 2008, IMF (2008), the problems as to how to actually finance new public procurement has become more and more problematic. Traditionally the Government would issue bonds to support large projects, or take funding from funds if the required amount was already present. However, Russia, through Gazprom, have also proclaimed their support to some key projects which will be highlighted in the thesis, in where a different source of financing can be attained.

The thesis aims to provide an understanding of how a government can finance large public procurements for innovation through different channels. The financing of these projects will be unlike how a traditional western economy would traditionally structure it, but some aspects can be argued to be applicable to other eastern countries in the EU, as well as some countries in Africa as well.

Therefore the Thesis will look at the following problem statement:

"*Does Latvia face any kind of issues and challenges because of their transitional economy in relation to Public Procurement of Innovation?*"

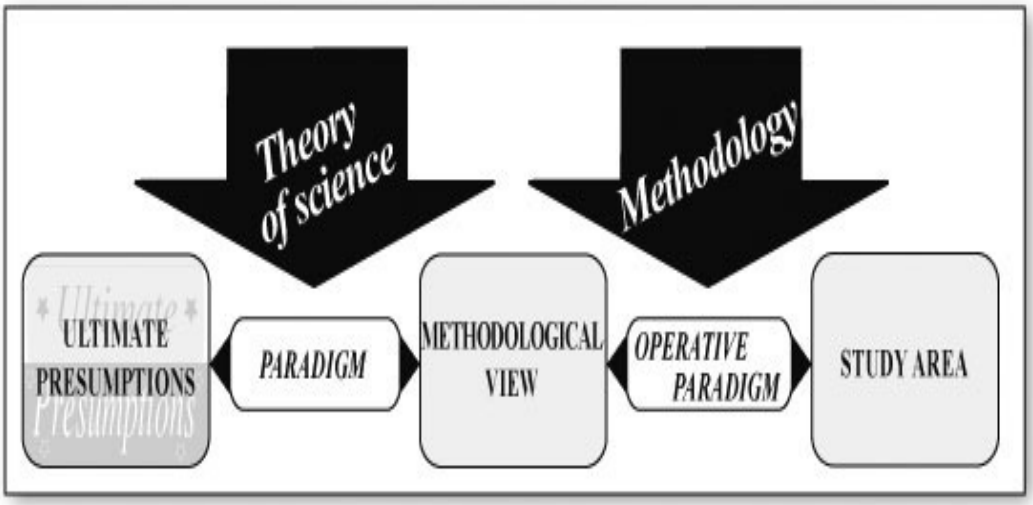
1.3 Delimitation

The Thesis is set to look at the case of Latvia and the way Public Procurement of Innovation can be financed, and the effects it can have on its implementation.
Latvia retains its position as a major oil and gas hub between Russian and Europe, as well as countries further away, and this position is something that the Latvian Government has plans to further develop, and as such other Baltic state except projects where Latvia are projected to be a part of it, will not be looked upon.
Externalities, which can affect the procurement process from the public side, and the tender process for these specifically, will not the highlighted as well.

2. Methodology

Performing research while looking for the answer to the proclaimed problem statement, there are different considerations to be made and also explained in relation to as to how the study was conducted. Arbnor & Bjerke (2009) proposes theory for this, which can be seen in figure 1. The theory takes its foundation from the Ultimate Presumptions of the researcher, and links it all the way to the study area, linking everything in between. The reasoning behind this is that the reader of the thesis can fully understand and be explained how the study in question was actually done, making the transparency and reasoning behind the study apparent to all. In the following all the linkages and their explanations are taken from Arbnor & Bjerke (2009) Methodology for Creating Business Knowledge.

Figure 1: Theory of Science and Methodology



Source: Arbnor & Bjerke, Methodology for Creating Business Knowledge

2.1 Ultimate Presumptions

Ultimate presumptions derive from the researcher of group of researchers conducting the study. Therefore these vary from every study, and are both individual and highly subjectical in their nature. The thesis in this case sees the world as linear where future decisions are to a large extent based on past experiences and the rising learning curve, which is created from this.

2.2 Paradigm

Paradigms can be understood as a wide understanding in academia about how to understand research issues. Kuhn (1962) defined it as being: "A Universally recognized scientific achievement that, for a time, provide a model for problems and solutions for a community of researchers".

According to Arbnor & Bjerke (2009) it also consists of numerous parts; conception of reality and science, Ethical and scientific ideal and aesthetical aspects.

2.3 Methodological Views

Choosing the methodological view of the thesis is of fundamental importance. Arbnor & Bjerke (2009) proposes three different views that can be undertaken by the researcher:

1. Actors view, 2. Analytical view, 3. Systems view.

Each view affects data handling and understanding of the results in its own way, and as such a researcher needs to fully understand each, and what their strengths and weaknesses are in relation to what the researcher wants to find out, and show with the research conducted.

2.3.1 Actors view

This view represents the most indebt understanding of all research, but it is also the most time consuming, and can easily also be the most knowledge intensive and hard to control.

The view effectively provides the researcher with a way of utilizing a "fly on the wall" type of understanding, where every single individual in an organization has to be incorporated and their perspective taken into account about the research topic. Therefore it can potentially give the most complete and rounded answer of all, but it is also at the risk of getting too complicated and time consuming for the researcher. An important aspects is also that each researcher will get a different result seeing as the social context of the given time is of incredible importance as well, as each organization and its participants reacts differently form individual to individual.

2.3.2 Analytical view

The analytical view seeks to look at the results that have been found, but to not question the results, and find out *why* they are the way they are. However, the analytical view also fully understand that the results found, but not looked more indebt cannot be the whole understanding as well, and that by using this view the researcher limits itself to only seeing a part of the whole. The strong point is that replication and as such reliability is very high, seeing as it depends not on the researcher but on that of the data. Since data that is primarily used in this view are statistical data, any researcher can using the same tools and data can recreate the results and confirm the results is need be.

2.3.3 Systems view

The systems view can be argued as being between the analytical and the actors view. Like the analytical view it looks at individual parts, and also recognizes that there are many parts to the whole, but it also seeks to understand the connection between the different parts, and as such if there are linkages between the different

data that has been gathered. This way the researcher can find data sets and the later see if there is a relationship between them, and if there is, what the relationship is. Doing this gives the researcher the ability to look beyond the single data sets, and link them together to form a better perspective of the whole in its entirety, without limiting itself like the analytical view, and not being overloaded with data and complexity as in the actors view.

For the thesis the systems view has been chosen to answer the problem statement: "*What kind of issues and challenges does Latvia's transitional economy face in relation to Public Procurement of Innovation?*"
The focus are is set at the interaction between different funding activities, in relation to specific cases in Latvia, has in relation to Public Procurement of Innovation.
The analytical view was disregarded because it offered no deep understanding of what the data and cases gives of data, and as such would provide the thesis with a too limited scope of things influencing the financing.
The actors approach could also have given a good understanding, however given the amount of needed data and the limit on time and availability of people willing to discuss the procurement efforts it was deemed not worth pursuing. Also it had the potential to make the thesis very complex because of the social aspects involved, and the different opinions on that would have been expressed by multiple organizations.

2.4 Operative Paradigm

Lastly the operative paradigm will be introduced. Arbnor & Bjerke (2009) diviedes the operative paradigm into two parts: 1. Methodics and 2. Methodical Procedures. Accordingly the methodical procedures show the choices the researcher has made when developing their theory when dealing with their approach, or if they have deemed it a requirement to create a new one entirely.

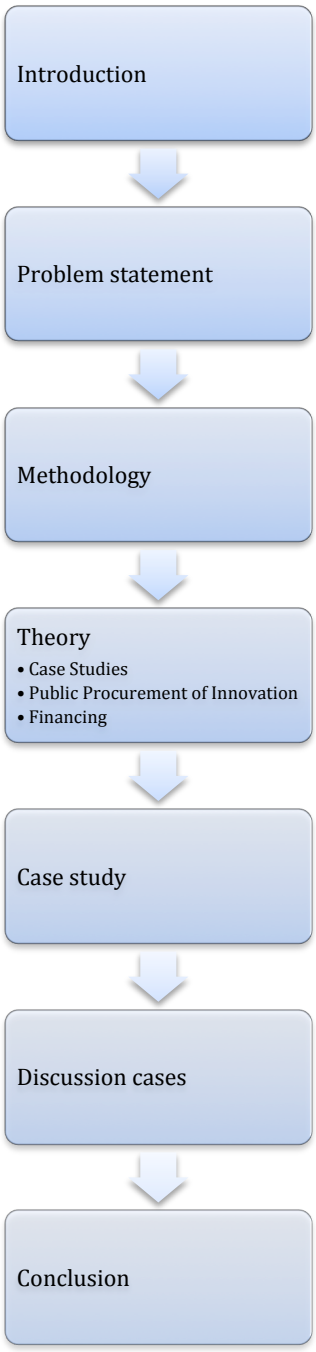
The methodics means the way the researcher is actually planning to go about their research, and also how they are actually doing it and planning to do it later on as well. There are numerous ways of going about handling the operative paradigm, some researchers prepare everything in advance, while others only know it how it was exactly done after they finish. For this thesis it will be a very iterative process

Creating the operative paradigm can be done and concluded in different timespans. It can range from being fully developed before hand, up to being done right before the project is done. This is entirely up to the view in usage, and can be seen as being a very iterative process where each part is handle and finished before moving on to the next part of the thesis. The methodical procedure that has been selected for the thesis can be seen in figure 2.

The methodics for the project is divided into three parts:

1. Case studies, 2. Public Procurement, 3. Funding

Figure 2: Methodical Procedure



Source: Arbner & Bjerke (2009) and own volition

3. Case Studies

Doing case studies is a great way of acquiring specific information about a certain subject, however a researcher cannot just take everything presented in a case for face value. There is a wide array of different matters, which the researcher or reader, has to be aware of, and take into consideration before the full extent and understanding of a case can be used in the thesis. To understand and express these issues, the different points will be drawn from Stake (1995) "The Art of Case Study Research", Thomas (1996) "The Organizational Behavioral Casebook" and Yin (1994) "Case Study Research: Design and methods.

There are, according to Stake (1995), three primary ways to perform case study research, and implementing them in a project. These are known as:

- Instrumental
- Collective
- Intrinsic

Each kind has its own specific weaknesses and strengths due to the way they are constructed to handle each case study, or amount of cases at the same time. Therefore it is vital to select an approach, which suits the amount of cases, the researcher has, and not going after what the researcher is biased towards.

3.1 Instrumental

The Instrumental approach is one where a researcher seeks to attain knowledge about something specific which can be found out from a certain case they wish to look at. The goal of doing this is to gain knowledge about a specific topic or a generalization, which is already a part of the general academia in the field. This way is also sometimes used to find and showcase complementary aspects surrounding the issues the researcher is looking into. This provides a birds eye perspective to the researcher and reader if done correctly, giving more knowledge that would otherwise not have been made available by the initial research.

3.2 Collective

The collective approach is, as the name implies, a way of using multiple case studies for the same research topic. According to Yin (1994) however, the cases must not be connected too strongly, but a relation between them is what should be sought after. By doing this, it is possible for the researcher to prove a pattern that has been found is applicable in the wider scale, and not just single standout incident. A typical application would be to test a pattern found in an organization or in statistical data, and see if these are isolated incidents or if it is something that can be found in another organization, which operates under different circumstances and social tendencies all together.

3.3 Intrinsic

Lastly there is the intrinsic case study.

This is normally not a case study that researchers do, seeing as it is not associated with good research standards for academia. The study focuses on that of a single case, which can then have been influenced either lightly or heavily to being of a descriptive nature. Performing a case study like that, limits how much knowledge can be gathered apart from the initial phase, since a further deepening into what is really going on is never performed, and as such only the surface is scratched.

Therefore any patterns cannot be found, statistical anomalies are looked over, and in general the output of the case is almost none existent.

3.4 Case studies: Selection and analysis

Selecting which case study approach to use is, according to Yin (1994) entirely up to the researcher. The goals of study that is being performed to be the main focus, and the case study approach, which fits into, to this, should be the one the researcher chooses. Therefore the researcher needs to make it clear before starting, what is really the end goal for this study and usage of the case or cases. Is it to show something purely descriptive like the intrinsic, or is the goal to show patterns or see if a found pattern is general applicable or if it is unique in its nature.

Depending on what the researcher wants, the gathering of cases and data should begin, but not before. It can be done later on and adapted, but the optimal workflow is to plan ahead, and the following through. If things are not done that way, the validity can come into question where things such as bias towards finding a certain number of cases has gone before the quality and connection between them – which by all manners is what should always be thing any researcher should aim to avoid, so questions to the cases reliability cannot be questioned.

For the thesis the Collective case study Yin (1994) has been selected, as there will be multiple cases, which will be linked as to the way, they have been financed under their public procurement status.

3.5 Validity in the case study

A central thing has always been that f the validity in research, and as such also in that of case studies. However, according to Yin (1994) there has existed an assumption within academia that an author of a case study will always to a certain extent be biased towards certain aspect, tendency or problem. Yin (1994) argued against this notion, if the reader considered three approaches to the cases presented to them.

1 Multiple sources of evidence
2 Chain of evidence
3 Draft case reviewed by key informants

The problem with these approaches are that they require direct interaction with the author in questions, which in itself limits the readers potential for interaction and knowledge on which to form trust in the cases on. Yin (1994) acknowledged the problems for this, and argued that the only way to guard against this issue, was to select cases from known and trusted authors, and not trust unknown cases or authors unless specific knowledge was know from the readers point of view on the case.

3.6 The Framework of case studies

After selecting which case study methods to use, the process of making a good case study beings. Thomas (1996) proposes his view on how to perform a case study, based on his guidelines that he formulated in his book. The guidelines are by no means a fixed path, but can be used all together, or in different parts. Thomas (1996) accepted that the complexity involved in case studies, and especially in the process of creating the framework for them could be difficult to manage, and to streamline the way things are done, the guidelines he proposed are listed below.

1. Performing the initial reading of the case.
2. Making questions that need to be answered by the case.
3. Highlight important words and sentences that can be found in the case.
4. Finding connections between important parts in each case.
5. The Researcher should then look for the concepts, problems and linking them to the theories.
6. Presenting what has been found to the public, usually though graphs, tables power points and so forth.

These steps form the basis for a framework that can be used. However, as mentioned it is not required to go from 1-6, it depends on what the researcher needs and wants to do.

3.7 Problems with case study analysis.

Using case studies can be very helpful to gain knowledge, but it is also as mentioned before a source of risk that is important to understand (Stake, 1995).
Thomas (1996) highlights these risks as “Environmental Influences” which are unknown to the reader. Environmental Influences can completely corrupt a reader, case and researcher or other people how uses the cases. These influences the cases and theories which are normally connectable, cannot suddenly come together in unison because of unknown influences coming externally.
The only way for the reader to counteract this, is to have specific knowledge about the case at hand. However this is a rarity, and especially given that performing the case study

means to gain knowledge, and therefore the researcher and reader commonly does not have any prior knowledge before hand.
This can completely corrupt the cases and conclusions that are made using these cases, and as such it is very important to have trust to the author, and be critical regardless to the case at hand.

3.8 Utilization of the data collection

A framework has been presented that can be used in the thesis as a summary, comparing findings in the cases with the theory at hand. It is important to note the settings of the cases again, as these extremes can make fluctuations between what the theory says will happen, and what is actually happening in the real world. However, is can be turned around to show that there is indeed a difference between what academia and theory says should happen under the given parameters.

3.9 Interview

Making interviews are a good way of getting valid and informational data and knowledge from. However, before sitting down and performing an interview, there a certain amount of factors the interviewer should consider before. These factors include: 1. Structure; Open interview, Semi structured or structured. 2. What design is needed for the interview, e.g. who to interview. 3. Record, Transcription or something else. Table 1 gives an overview of how the different interview techniques are made, and what can be expected to be gained from them.

Table 1: Interview Structures	
Open Interview	Fluid in the sense that there is no structure, and as such, the interview can go anywhere. Not an optimal solution.
Semi-Structured	Leaves room for the interview to go explore different points, all while securing that the overall questions and goals are still achieved.
Structured	Can lock the interview, and provide "Yes" or "No" questions. Does not encourage diving into subjects at all.

Source: Yin (1994)

In regards to the thesis, interview will be done with persons whom have a relevant understanding and experience in the procurement process in Latvia, from small scale to the bigger projects as well. The interviews will be done in the semi structured way. The goal is to have specific questions that are relevant for the thesis to be answered, but at the same time, a dialog and exploration for new subjects around the financing aspect of Public Procurement is highly sought as well. It is necessary to make the interview questions before hand, and then send them out to the interviewees. By doing this, they have time to prepare their answers in an ordinary fashion, and thus improve the gain from the interview. The persons selected represent private companies competing for a tender call, as well as the Ministry of Economics of Latvia as well.

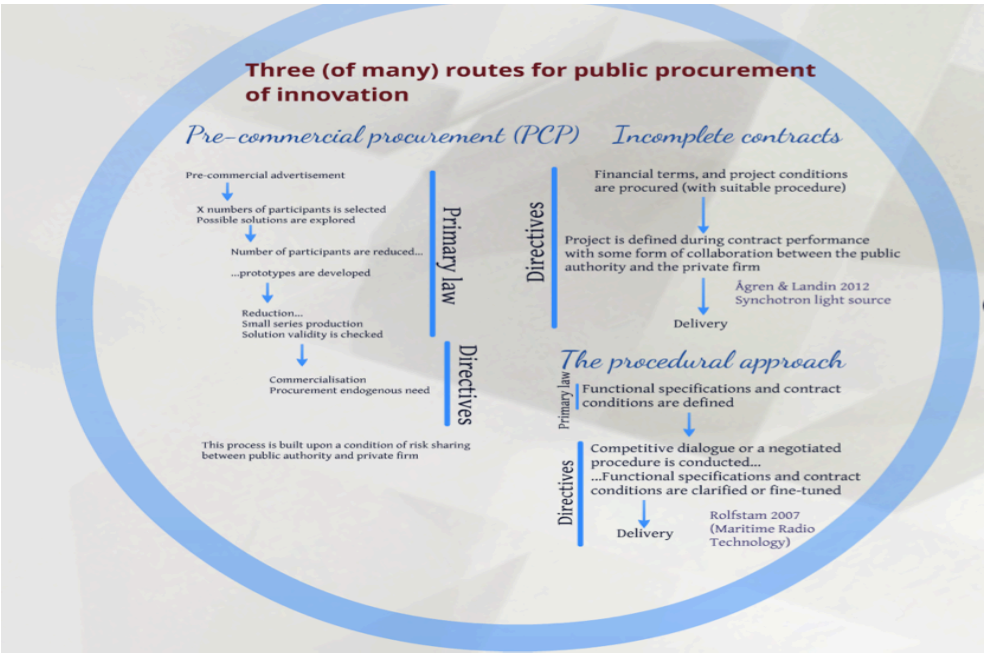
4. Public Procurement of Innovation

In the following will be an explanation on how the theory of Public Procurement of Innovation is. Highlights of different aspects are looked upon to give an understanding of what public procurement is, and what aspects can be used as tools to give an innovation friendly environment for companies. When discussing public procurement, both for innovation and for other aspects, a public institution cannot procure and select a reward procedure, which can be beneficial to some companies, domestic or international. Latvia, being a part of the European Union, is unable to make their own legislation on Public Procurement when doing big procurement projects at a national level. All legislation comes from two directives:

- The classical directive (2004/18/EC)
- The utilities directive (2004/17/EC) (Konkurrencestyrelsen, 2014)

These directives provides the framework as to how procurements should be handle in term of timeframes, selecting a tender winner, how the contract between the parties involved should be structured but also very importantly how much information should be made available to each interested tender. However, there are many ways to effectively making public procurement friendlier for innovative properties. According to Ågren (2013) there are various ways of doing the procurement procedure so that is accommodates innovation better, an example is shown in picture 1.

Picture 1: Routes of Public Procurement of Innovation



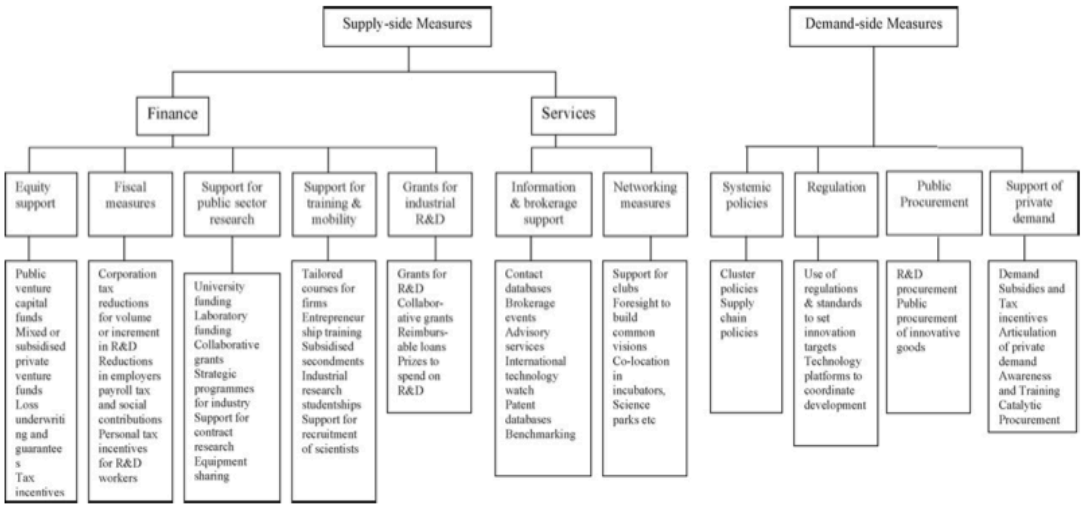
Source: Ågren, (2013)

As it is shown on the picture, there are many ways in which a public procurement can be made for promoting innovation. According to Ågren (2013) there are three ways of procuring: 1. Pre-commercial Procurement, 2. Incomplete Contracts, 3. The Procedural Approach. The procedural approach is the option that the Latvian Ministry of Economics are currently thinking about using in the procurement process, and combining it with the use of the competitive dialog in combination with a functional specification for the projects at hand. The Latvian Ministry of Economics have a clear idea as to what they want from the procurement process, and also what they need to get as well. This opens for a rigid framework as to what is needed and expected from the tenders making suggestions, but at the same time, creating a new innovative design, use of resources and so on, can be taken into consideration and negotiated within the framework. This will promote the best solution for all parts in the process – effectively giving the public the best options while giving the companies in the procurement good foundations for making innovations.

As mentioned before, public procurement account for a large percentage of total EU-GDP, but it has often been used in such a way as it focused too much on a single aspects. Edler & Georghiou (2007) argued that Public Procurement could used much more effectively to foster innovation than it was today. They argued that the focus from policy makers had been too one sided, where the strong focus on a large and powerful supply side had been overshadowing the demand side. This aspects was not unique, and had been a common occurance across the European Union for many years.

They proposed a taxonomy over both the supply and demand side of public procurement, which can be seen in figure 3.

Chart 1: Taxonomy of Public Procurement of Innovation



Source: Edler & Georghiou (2007)

4.1 The Supply side

The left side of the taxonomy is dominated by what has been the favorite of policymakers for years on end. Finance & Services are located on this side. In the Finance part, more direct support measures are the primary aspects here, with support for R&D in innovative companies, support on Equity as well as other fiscal support for public sector research and training. In the Services part Information & Brokerage support and Networking aspects are located. Both Finance and Services have again and again been promoted on a national level, with conferences, tax cuts and other direct support measures e.g. R&D funding of Windmills in Denmark, have been spearheading the supply side. Edler &

Georghiou (2007) argues that the heavy focus has effectively twisted and created tunnel vision for policymakers for too long, and that the demand side has been neglected. They argue that the demand side holds a great potential for innovation performance, if used properly by the national governments and public institutions in general.

4.2 The Demand side

Looking at the right side of the taxonomy it is clear that the focus is not on direct financial approach to production, training or R&D in any way. Instead there are four tools listed: 1. Support of Private Demand, 2. Public Procurement, 3. Regulation, 4. Systemic policies.

These tools aim at providing a market, or access to a market, instead of directly interfering with what each company is doing. There are many ways at which supporting private demand can be done, tax deductions for new and greener buildings, heating, power generation and so on that makes the public consumer more willing to invest and buy new things. This is especially when they can deduct on their tax return, or get a refund from the government.

Regulations are a more effective way, but also a political hotspot, when changes are forced into a market. Making changes within how much energy can be consumed in a house, or petrol in public transport per kilometer, can force companies in that sector to innovate to keep having the procurement or risk loosing it if they do not keep up with the development in the market. Also the legal aspects of changing regulations can promote change in a market, and force companies and consumers to adopt new technology.

Systemic policies concentrate more on creating clusters for R&D, where high-tech companies can set up production and R&D facilities, and then cooperate between each other if they choose to, effectively making knowledge spillover between each other.

The cluster approach has been very successful in combination with universities, where academia and business connections means that both students and the professionals in the companies can benefit each other, creating new inventions together.

Finally the last aspect is that of Public Procurement.

Edler & Georghiou argue that the role of Public Procurement can be used to create new markets, which can protect new innovative companies.

The arguments lie in the monetary strength and power that the public normally has,

compared to that of the private and individual sector in a country. By using this, and demanding something new from a sector, new energy production facilities, CO_2 targets for public institutions and so on, can create such a strong market on its own that companies will not be worried about risks in regard to that of the uncertainty of selling enough of the product. Large green energy parks in the European Union are examples of this, where Bio fuel, wind power and new buildings for the public that are energy neutral have meant that the companies in the energy sector have been able to develop new products that they could sell without risks. The effects of this can be traced far, as things like product-life cycles can be radically changed. Companies will seek to continually improve their products if they know they can sell it to the market. From the public point of view it also creates a strong power base, when they are able to create a market they will also be able to control it. However, forcing radical innovations on the market all the time is not a good idea either, which means that the public needs to have the administrative capacity and knowledge to determine when to do something to the requirements, and when to let it run its normal course within itself (Lee *et al,* 2010). An important note to Edler & Georghiou is that the power of the public procurement and the market they discuss are actually viable. Creating a market with public finances is not an easy task, and the amount of financial commitments on the public side is not to be disregarded.

A more direct approach is to formulate an innovation strategy. There are many ways to do this, however Geroski (1990) formulated what he called an “Industrial Policy”. The policy was not limited to any kind of company, and could range from single person, small medium enterprises (SME) all the way to big high-tech companies all the same. Table 2 shows what the policy compromises, and what each part covers.

Table 2: Industrial Policy for Innovation	
Public Procurement	Public demand for new products and/or processes.
Government Regulation	Regulates the sale of goods and services, but also the conditions for production.
Subsidy	Provides incentment for creating new knowledge and development through subsidy or financial support.
Investments in Infrastructure	Uses the economy to create new innovations and inventions through the means of education and government R&D.

Source: Geroski (1990)

In terms of the public procurement, Geroski argued that there were indeed a great potential to use the strength to create innovations, but that at the same time, procurers and policymakers should also be warned that there exists weaknesses as well. In regards to Public Procurement, Geroski made four generalizations:

1. Government purchasing power can create safety for products and companies.
2. Quality is regards higher than that of price – provides companies with incentive to make the best product or process, not the cheapest.
3. Public Procurement can stimulate innovation, but only if the public dictates clear goals and needs that has to be covered.
4. Can make rapid knowledge diffusion between rival companies possible, if not voluntarily then forcedly.

It is worth noting that although many policymakers realize these points, they are often neglected when the projected procurement is being formulated and negotiated later on (Massa & Tassa, 2008). This has the potential to damage the usage of the procurement, where the effective results and outcomes can be improved to an extent, if certain aspects where to be considered.

According to Geroski (1990) three aspects had to be taken into consideration:

1. The public must accepts a long term commitment to the contracts that are on offer, and not exit prematurely or after a few years.
2. The constructions of contracts are too strict and narrow, which limits the potential to think out of the box for companies.
3. Offers are too restricted in being either functional specification or design oriented, again limiting the solutions companies can develop.

In summary Geroski argues that the public is not utilizing the contracts to the best of their ability. The contracts are too narrow which limits the product solutions that companies can create to win a procurement tender call. A public authority should also be willing to engage in long term commitments with the procurement winners, creating security for companies products and financial risks that they have in this regard. Securing the financial aspect will enable incremental innovations at the same time, again since the financial risks and uncertainties for selling a product is eliminated. Again it has to be noted that although these highlights are important in their nature for a successful innovation policy, the reliance on public finances are immense. Creating a safety market and then supporting this through a number of years requires financial security and control that a transitional economy may find difficult to achieve and control in a sustainable way.

Contract management and commitment to sustaining a new market are ways of protecting firm competing for public contracts. However, as Geroski notes, the public should be warned about the term "Buying the flag" – a term widely associated with protectionism (Geroski, 1990). The term covers that a public procurer selects domestic companies over that of foreign, and only because of the national aspects involved, and not because they offer a better solution to the tender call. Geroski argues that the public need always have to take priority and the best solution that are made, should always be the one that gets selected as well.

When using public procurement to generate innovation, no matter what kind of innovation the public is looking for, there are different kinds of public procurement that

directly affects what the outcome of the procurement process and how the tender calls actually work and can be used in connection.
According to Uyarra & Flanagan (2010) the different procurements range from almost a scenario where there is none innovation requirements from the tender callers, and all the way to a heavy demand for innovation because of the difficulties of the procurement targets.
According to Uyarra & Flanagan argued that there existed two kinds of procurements:

1. Normal & Regular procurement.
2. Technological Procurement

Each requires a different approach in order to be successfully procured, and their end outcome is very different.

Regular & Normal procurement is a process that does not require any innovation, or almost none at least. The normal products acquired in this way are readymade items, and these are typically purchased in large quantities as well. As it lacks innovation potential and it is normally used to purchase standardized items, it is not an approach that fits in with the case studies for Latvia.

Public Technology procurement is more suitable for creating innovation. This approach fits in line with the arguments from Geroski (1990), where the public can drive innovation in private companies, by providing a financial security through a public driven market. However, it is worth noting that there are some restrictions on this as well.
The procurement creates a tender call for something that is not yet in existence, but at the same time the estimated timeframe for this innovation has to be within a reasonable amount of time. As such it cannot be used to create something that has a very long timeframe, because this would make the procured item possibly too expensive in the end of its life cycle, or even in the start, and it could also cause the companies which won the procurement to become dormant and just rely on the revenue stream from the public.
The developments can be put into three parts (Cabral et al., 2006). Each indirectly affecting the innovations coming from the public procurements listed in table 3.

Table 3: Affecting innovation	
Enlarging the market	The public protects against market failures, and absorbs the innovations for a specific procurement.
Facilitating adoption	Forces innovations by making new standards, and by this, controlling the direction of R&D in a way that the public wants.
Changing the market structure	Intervening in the current market, making it more willing to adopt new innovations (Making new Dynamic effects)

Source: Cabral et al. (2006)

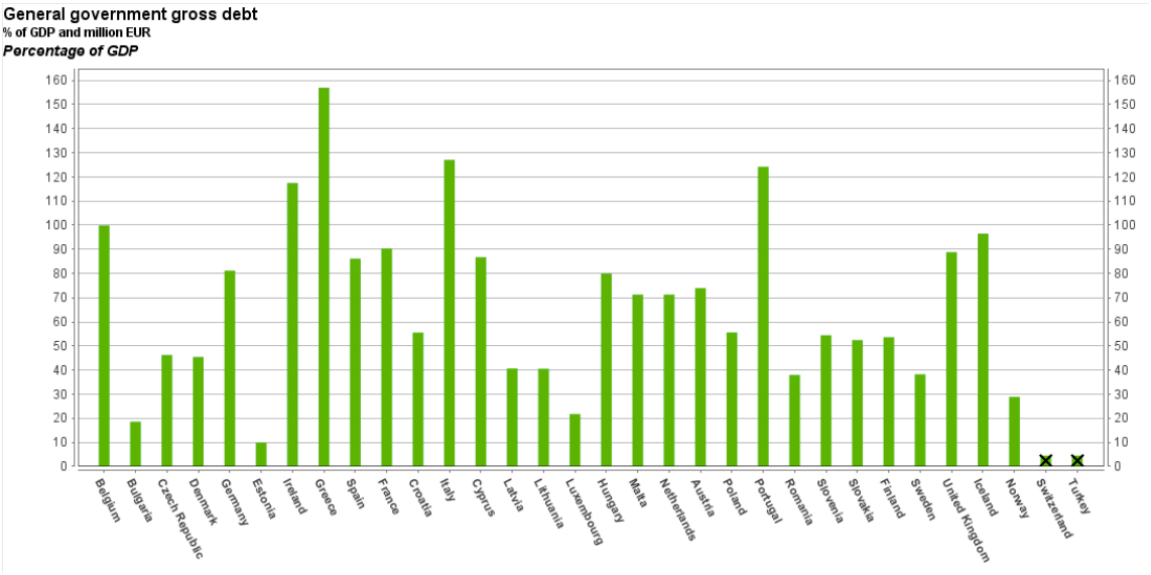
Latvia has for some years tried to stimulate their innovative capacities with giving subsidies for R&D. Rothwell & Zergvel (1981) argues against such an approach in general, as they found that using procurement is much more effective compared to that of using subsidies. Dalpé (1994) also found that public procurement would also have an innovative impact, although it could be either positive or negative.
Equist et al. (2000) found that procurement innovations could also be divided into categories to describe their nature.
He called these Adaptive and Developmental, where the adaptive innovation was not new to the world, but at least new to that country. The developmental represented entirely new innovations, which was new to the world.

Part summary
This section has showed theories about public procurement of innovation, however it has also briefly mentioned the role of financing the procurement process. It is however a very brief mentioning, and in the next part various important aspects for financing, and problematic solutions and decisions will be highlighted.

5. Financing of Public Procurement

In recent years, the role of financing has become a topic in the media and at the various government levels and also at the European Union level. Mainly the discussion has been twofold; either the focus has been on bad consulting or a failure in repaying debts. Taking a wider scope, Europe has been a highlight of bad examples of bad financial systems and governmental neglect, where the cases of Greece, Italy, Portugal and Ireland are among the prime examples since 2008 (Bloomberg, 2014). This strain on public finances can be seen in the amount of debt that the EU membership countries have accumulated over the years, see graph 1.

Graph 1: External Public Debt of European Union member states



Source: Eurostat

The graph shows that all European countries have accumulated a high amount of debt over the course of the financial crisis, since 2008. There are of course many influences on why the debt has accumulated so rapidly; high unemployment, low productivity and high government spending over the course of many years, have effectively crippled the financial flexibility in the entire union. However, all the Baltic States have accumulated a comparatively low public debt, where Latvia's figure sits at around 40% of GDP.
It is important to note that just because Sovereign states have a low public debt, dose not mean that financing public procurement projects are easier to attain. A good example is

that of Japan and the US. The USA have a high debt approaching 100% of GDP, but still maintain a high mobility on the financial markets – although recent political discussions and deadlocks have damaged this to an extent (Reuters, 2013). Japan is the extreme case, with a very high public debt approaching 300% of GDP, and a Bank of Japan that continues to focus on devaluating the Japanese Yen to protect their exporting industry. This underlines that external debt is not the sole indicator for investors, but instead there are a variety of different indicators, which will be discussed in the following.

Financing of large projects, both in the public and in the private sector, depends on range of factors, with the most important organized in table 4.

Table 4: Overview of investment indicators.

Credit Rating	Credit ratings are a guideline, and an indicator towards the interest rate level.
Company Structure	Organizing the company for the procurement, SME, and so on, affects the investor willingness
Capital Demands	How will the capital demands be covered, and how big is the total requirement.
Risk accession	Important aspect. Is the procurement at risk of failing. Governmental stability and willingness to pay back is something goes wrong.
Timeframe evaluation	What is the timeframe on the repayments, and are they realistic.

Source: Jyske Invest, 2014

5.1 Credit Ratings & Company Structure

Credit ratings are managed by three large American ratings bureau, Standard & Poor's, Fitch & Moody's, with a Chinese counterpart, Dagong Global Credit Ratings, which is also providing ratings, however these are primarily used within China and to some extent Asia and not in Europe and North America (CFR.org). Each bureau used different symbols to express their valuations, however they are normally summarized across the board as follows in picture 2. These ratings are seen as an indicator as too how good a bond is and how good the debt is rated. The higher the ratings, AAA is maximum, the lower the interest rate, as those Sovereign bonds are seen as the safest and therefore they also yield the lowest interest rate of all. Opposite is D, or Junk, a bond that is defaulting or very close at least – Greece and Ireland are examples here (Reuters, 2014). This means the interest rates are very high again because of the very high risk of defaulting.

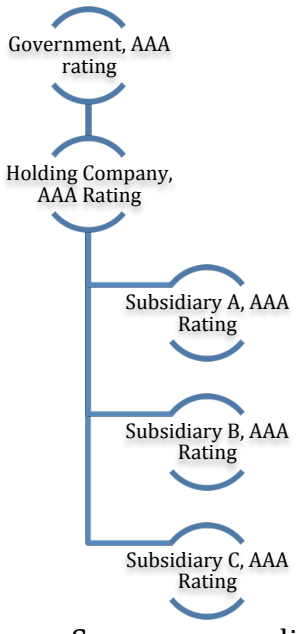
Picture 2: Credit ratings

	Moody's	S&P	Fitch	Meaning
Investment Grade	Aaa	AAA	AAA	Prime
	Aa1	AA+	AA+	High Grade
	Aa2	AA	AA	
	Aa3	AA-	AA-	
	A1	A+	A+	Upper Medium Grade
	A2	A	A	
	A3	A-	A-	
	Baa1	BBB+	BBB+	Lower Medium Grade
	Baa2	BBB	BBB	
	Baa3	BBB-	BBB-	
Junk	Ba1	BB+	BB+	Non Investment Grade Speculative
	Ba2	BB	BB	
	Ba3	BB-	BB-	
	B1	B+	B+	Highly Speculative
	B2	B	B	
	B3	B-	B-	
	Caa1	CCC+	CCC+	Substantial Risks
	Caa2	CCC	CCC	Extremely Speculative
	Caa3	CCC-	CCC-	In Default w/ Little Prospect for Recovery
	Ca	CC	CC+	
		C	CC	In Default
			CC-	
	D	D	DDD	

Source: Bloomberg, 2014

This is important when it comes to financing public procurement in any regard. A common way to structure a large public construction project, is to construct a new company that is solely owned by the public, typically relocated to that of the relevant ministry, a typical model can be seen in the model.

Model 3: Company construction



Source: own volition

The model shows a normal construction, where there can be a number of subsidiaries connected to the main holding company. In this example everything has

the best rating possible, AAA, and as such will have the best outlook for attaining inexpensive financing on the international and domestic capital markets.
It is important to notice that a company in a country can never have a higher rating than that of the country it is situated in. In that regards, a company in Latvia that is created for a procurement project, can never have a better rating than that of the one Latvia has. This means that the resulting financing and interest baring bonds or stock payoffs will have to be higher than it would have been had the company had a AAA rating.

5.2 Capital Demands, Risks, Timeframe & Repayment

With the establishment of credit ratings, investors have a starting point for their future investment programs. However credit ratings only provide a general assessment of bonds issued in either local or foreign currency, but there are more aspects that investors look for when making a decision to buy bonds and stocks. These are known as; Capital Demands, Risks and the Timeframe (Christensen, 2014).

5.2.1 Capital Demands

The amount of capital that is required for a procurement of innovation varies of course with the size and expectations that has been set up and formulated. Projects like these can cost millions, or even billions of DKK or Euro. Depending on this, the demands that are set be covered by either the internal domestic bond market, or if it is deemed that the internal market cannot support such a demand, then it can be expanded and proposed for the international market as well. There are however a number of issues that are important for both the bond issuer, and that of the investors in such a project in question.

5.2.2 Risks

A risk is always something that is present when dealing with any kind of financial transaction, being it a stock, bond or a depository. However, there is a difference in how big a risk is and it has different indicators depending on the financial instrument. Bonds are classified according to the above-mentioned Credit Rating system, and stocks are indicated with its **β** value, where the following assumptions are:

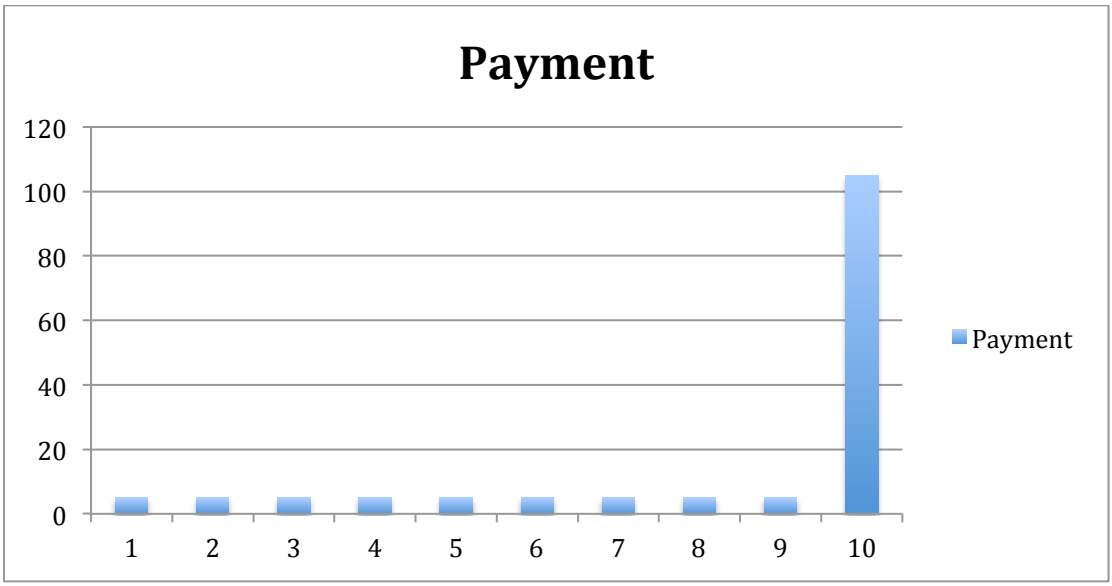
β =1: Same risk as the market
β = ≥ 0,8: Risk is lower than the market
β = ≤ 1,3: Risk is higher than the market (Shareholders.dk, 2014)

However, a beta value is normally calculated over a time series in which it is looked upon the value of the stock at a given time, and then making a linear analysis – and this means that depending on the time series it can vary and therefore it is normally just used together with other fundamentals when judging the volatility of a stock (Andersen & Sørensen, 2002).

5.2.3 Timeframe & Repayment

There exists a variety of different repayment systems that are different in their repayment structure, depending on if the loan taker is a private or a public institution. Public institutions almost solely rely on what is known as Bullet loans, an example can be seen in chart 2 These loans are characterized by having no kind of payments except of interest repayment, and instead they payback the whole mortgage at once. This means that the exact year on year payments for a big procurement project can be kept at an absolute minimum, and then when the time frame has come to an end, it can either be paid out in full, or refinanced again (Independent Banker, 2013).

Chart 2: Example of a Bullet Loan



Source: Andersen & Sørensen, 2002

5.3 Summary

Financing of Public Procurement of Innovation carries a lot of difficult aspects that the procurement administration needs to take into consideration before opting for a particular kind of financing. The financial stability and reputation of the country in question, where the credit ratings from the bureaus give a first indication as to the cost of making a private or a private financing option for a particular project. However, the financing structure with a bullet loan construction together with a potential high capital demand can be a serious risk for a countries budgets, if the countries' economy and debt sustainability cannot handle a potential strain coming from a failed refinancing in the future. The option of creating a company, which then owns the procurement project, but having the backing and endorsement of the sovereign state is a scenario that is widely used in Scandinavia and to some extent the rest of Europe as well – where both the Great Belt Fixed Link and the "Øresundsbroen" are owned by the same company, and guaranteed and owned by the Danish state, giving it a AAA rating.

6. Latvia – a case study

Situated in the middle of the Baltic States, Latvia has experienced a turmoil period since gaining independence from the Soviet Union back in 1991. The transition from a planning economy to a market economy has been happening rapidly since. However it has also not been without problems. As with many of the pre-soviet states, rapid liberalizations twisted the economy, however this was not done like it was done in the Russian Federation, instead a more controlled approach was adopted (BBC, 2014).
The Latvian economy has, and to some extent still is, highly exposed to that of the Russian Federation. There is still a vast connection between Latvia, and the Baltic States in general and the Russian Federation. However, the ties are more economical than they are political. This is clear when looking at the Latvia's biggest export markets, where Russian still accounts for 11% of the total exports, and 9% of the total imports as well. Politically Latvia is much closer to the European Union and NATO, than they are to Russia – a fact best seen as the EURO was formally adopted as the currency on the 1st of January 2014. This has lead to a political and economical climate that is unheard of in Western Europe (Cepilovs, 2013).

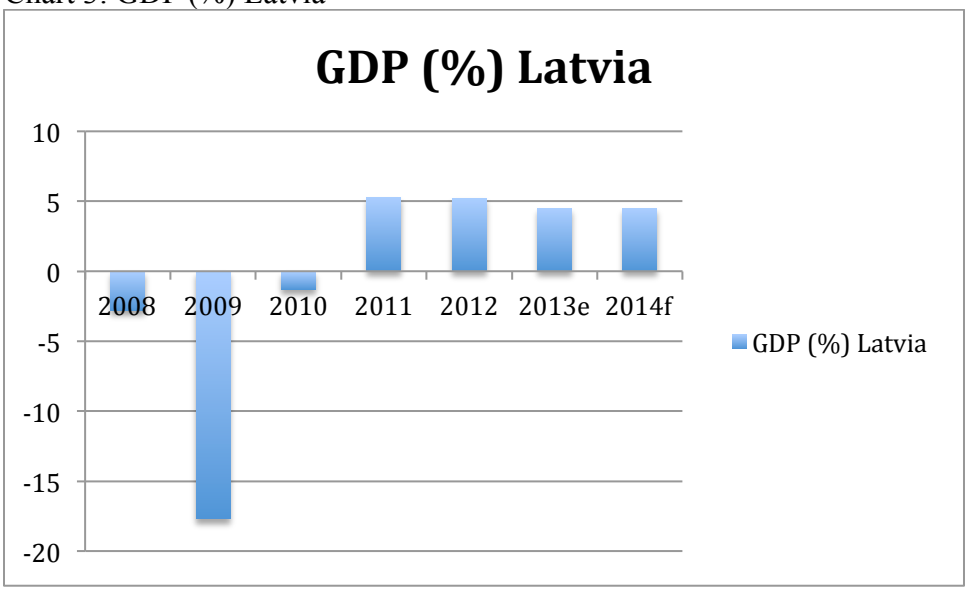
6.0.1 Latvian Political and Economical situation

The ethnic groups that are predominant in Latvia dominate the Latvian political scene. The Russian population is estimated at being around 25% of the total population, and citizens who only speak Russian account for nearly 37% (Forbes, 2013). This distribution is a direct consequence of the Soviet adoption process, where ethnic Russians were encouraged to move to the Baltic States in order to make assimilation smoother. These facts have lead to smaller and major demonstrations against various Latvian Governments through the years, with the demonstration in Riga in 2009 being the latest, BBC (2009). This has lead to a political climate where the different Latvian governments are not fond of having to formally recognize the Russians wishes, but at the same time they cannot ignore them as well. This tension has declined somewhat over the years, and corporation with both the European Union and Russia are still in effect today, although trade with Russian has been on a steady decline over the recent years. With this, Russia's

direct influence over the Latvian political scene, and that of the Baltic States in general have been on rapid decline, and more is being done from the Governments in the Baltics to further reduce the interactions with Russia. This fact has made Russia rethink its position in Latvia, and instead it has opted to utilize it large mainly state owned company Gazprom to instigate Moscow's ideas and requirements for the country. Gazprom still retains an important part of the Latvian economy and infrastructure, and attempts to buy the facilities have so far been futile, as Gazprom are not willing to relinquish control of these assets (Latvian Ministry of Economics, 2014).

Since gaining independence the Latvian economy has been one of the most volatile in the whole European Union. The economy has been hit by two major crises already, the first in 1997 with the financial crisis in Russia transporting itself into the Latvian economy that at the time was heavily linked to the Russian. The second was the crisis starting in 2008. The impacts of the crisis are still severe for Latvia, as can be seen in model 3.

Chart 3: GDP (%) Latvia

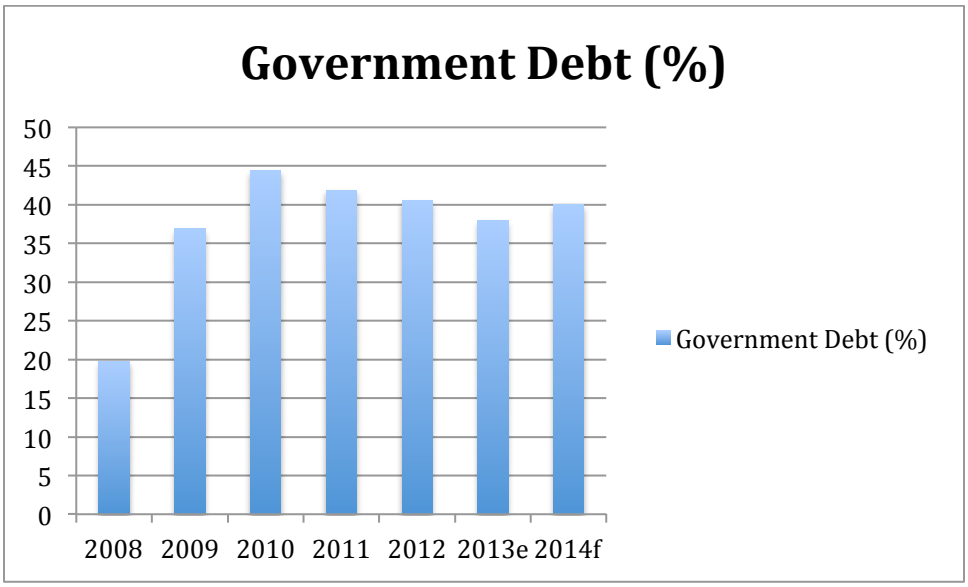


Source: Ministry of Economics: Economic Development of Latvia Report, 2013

It is clear that the economy took substantial blows during the initial crisis years from 2008 – 2010, where the Latvian economy almost stopped all production, and unemployment rose rapidly. Estimations from the Ministry of Economics reports that up to 25% of GDP were lost in those years and the outlook of gaining back the production

are a considerable amount of time away (Ministry of Economics, 2013). Countries in recession are prone to attain more public debt in order to protect its citizens and economy from collapse. As it can be seen in model 4, this was also the case for Latvia.

Chart 4: Government Debt (%) of GDP



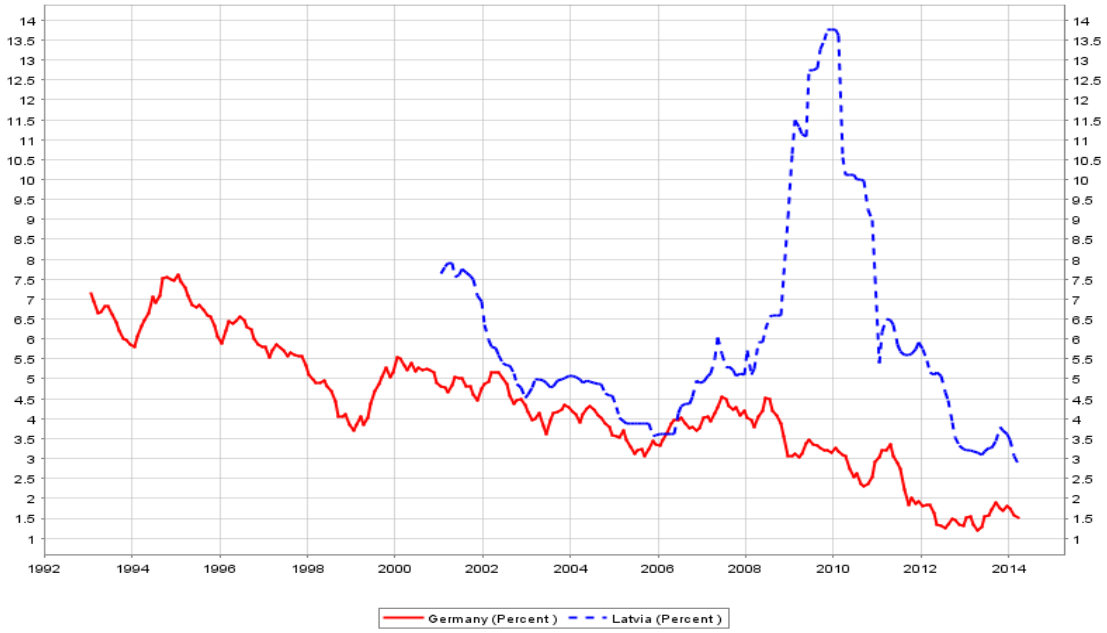
Source: Ministry of Economics: Economic Development of Latvia, Report, 2013

As it can be expected, debt values have increased substantially since 2008, where the level was very low at around 20% of GDP. What can be seen today, is that the Ministry of Economics still forecast that debt levels would be twice that of 2008 coming into 2014. The Maastricht Criteria (Europa.eu, 2014) requires that a membership country cannot exceed 60% of GDP debt, and in this instance Latvia is still well below this requirement. In general terms. Overall the outlook for the Latvian economy cannot be expressed as being overly positive. The expected GDP growth is high for a European country, but the falls in the period from 2008 – 2010 means that the economic performance of pre-crisis Latvia is still somewhat far away.

This is also exemplified when looking at the credit rating for The Republic of Latvia, where Standard & Poors' rate Latvia as having a BBB+ on Local Currencies, and a BBB+ for Foreign currencies as well. Going back to Picture 2, this defines the Bonds issued from Latvia as being Low Medium Grade, which means that the bonds are considered a risky investment, requiring a higher interest rate in order to facilitate interest

both domestically and internationally. However it is hard to estimate the consequences from these credit ratings, as some of them are almost totally negated by the market because of internal riches that can be taxed in unforeseen scenarios, and other countries have nothing that they can rely on, but still they maintain a good rating, but without a safety net. In financial terms, Germany has always been the reference point for any comparison between EURO countries in any aspect. Germany has the largest economy and the most stable governmental situation of all the Eurozone members, and has also been the driver of EU GDP growth for many years, effectively driving the rest of the Eurozone's weak economies forward. Therefore it is valid to compare the German interest baring bonds, 10 years, with that of Latvia, see Graph 2.

Graph 2: Comparison between Germany & Latvia, 10y interest bonds



Source: Eurostat

Looking at the model it is clear what effect the crisis had on Germany and Latvia, and how the investors reacted to each countries situation during and before the crisis. In terms of stability Germany have through the years had a stable decline, with minimal increases during the period 2008-2010. Latvia is however, a different story. The economy and governmental instability can be clearly seen in terms of the interest markets for 10 year

bonds, where the Latvian interest rate in, excepts in 2008 where it intertwined with Germany's. However, since 2008, the Latvian interest rate exploded rapidly, and almost reached 14% before the country reached an agreement with the European Union and the IMF (IMF, 2009). This fact is a direct contributor to the difficulties for an emerging economy. Latvia has been pursuing economical growth at the cost of high inflation and loose financial control (Shatrevich & Zvanitajs, 2012). By doing this, the Government had over the years neglected to save and invest surpluses that could have been generated, and instead disregarded this because of the outlook for growth. When the crisis of 2008 then accelerates as rapidly as it did, the financial institutions inside of Latvia cannot protect themselves, and the government has to intervene, but without access to cheap external financing, everything collapsed. This fact still remains a factor in the present day, however mediating circumstances are in place for Latvia. Since the crisis of 2008, Latvia has formally joined the EURO partnership, and as such has fulfilled its obligation to strict inflationary control as well as deficit control. This is a positive for interest rates, which can also be seen when looking at the interest rate graph in Graph 2.

6.0.2 International Obligations for Innovation

Being a European Union member state, Latvia has international obligations they have agreed upon following. In relation to innovation, the Barcelona objective, Cordis (2003), as well as the Europe 2020 Europa.eu (2014) are the obligations Latvia have agreed to. Europe 2020 contains a wide array of targets in regards to energy, employment and allocation of GDP towards Research and Development, where the limit is set at 3% of Euro GDP had to be achieved by 2020. This target has already been met by a number of European countries, however in the case of Latvia, the figure is much lower. According to the Ministry of Education and Science of the Republic of Latvia, this figure was in 2010: 0,70% of GDP (IZM, 2014). The Europe 2020 targets have since then been changed by the Ministry in light of the economic development. Since then, the targets have now been set at being 1,5% in 2020 as the economic strength in the country is not deemed viable as other targets in the economy are deemed more important than that of R&D and innovation overall.

Looking closer at the distribution of the R&D financing shows an interesting distribution of the distributions, see table 5

Table 5: Distribution of R&D allocations	
Business Sector	0,18%, 24,7M Lats or €35,074M
Foreign Investors + EU funds	0,35%, 50,7M Lats or €71,994M
Latvian Government	0,17%, 24M Lats or €34,08M

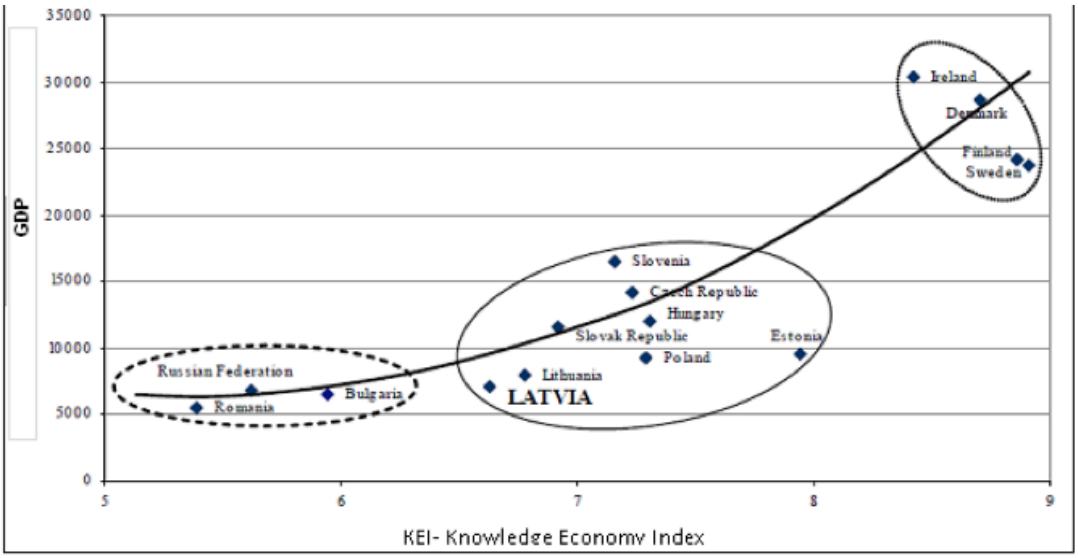
Source: Ministry of Education and Science of the Republic of Latvia

Looking at the distributions, it is clear that innovations are not a prime target for the Latvian government, and that the outlook for improving this in line with the Europe 2020 does not look attainable as well. Also the importance of external capital financing the innovation process is apparent, with over 50% coming from foreign investments and European Union funds.

It is apparent that Latvia cannot afford large-scale innovation projects on its own. Being a transitional economy the Latvian economy is not very strong, and has a heavy dependency on specific sectors in order to drive its growth. Looking at the figures, it is debatable if Latvia will ever have any kind of innovations, through Public Procurement or through other means.

The World Bank has also looked upon the lack of innovation potential in the Latvian economy and society, where they derived chart 5.

Chart 5: KE Index in Latvia and Selected European Countries, 2000



Source: World Bank, 2000

Looking at the model, it is clear that Latvia is lacking behind in the index, only staying clear of Romania and Bulgaria of the European countries, but lacking very far behind the Scandinavian countries, but also their neighbors in Estonia by quite the margin.

This means that the Latvian innovative and entrepreneurial climate is low, even compared to their northern neighbors of Estonia. This further emphasizes the need for creating an innovation friendly climate in even the most general of terms, all the way for the smallest of the SME's up until that of the largest of the High-tech industries with pharmaceuticals that are located in Latvia (Cepilovs, 2013).

However, there are large-scale procurement projects in line. These range from transportation of citizens to transportation of oil and gas. These will form the basis for the case studies in the thesis.

The cases that have been selected are the following:

1. Rail Baltica
2. Nuclear Power plant in Lithuania
3. Liquefied Natural Gas terminal & Inculkalns Gas Storage

6.1 Rail Baltica

The Rail Baltica is one of the prime projects in both Latvia, but also the Baltic states as a whole. The overall goal of the procurement is to link Tallinn all the way to Berlin, as can be seen in picture 2.

Picture 3: Map of the Rail Baltica

Source: rail-baltica.net, 2007

The first draws for the project were made back in 2001, September 20th-21st where the Ministers of the Baltic Sea officially included it in the "Spatial development action program for Baltic Sea Region" report (European Commission, 2014). Since then the procurement project attained its formality within Europe, with the adaptation in the European Council 1st October 2003. Since then, the procurement project has been met by a number of problems in the following planning phase.

The Rail Baltica signifies much more to the Baltic States and to Latvia as well, than just being a new and improved railway connection. Until now, there is not a direct way of traveling by train to and from the Baltic States (RBGC.EU, 2014). The infrastructure in these countries are very obsolete, with a strict limit on how big a velocity the tracks can handle, as well as what kind of speeds the trains can actually travel at as well as maintain over a longer distance.
However, a more important aspect for many citizens and politicians, is that the railway tracks are 1.520mm which are the Russian standards or indeed the Soviet standards that were employed before, and not the 1.435mm that are commonly used in the European Union or at least in the western part of the Union (Financial

Times, 2012). However, the project has encountered a fair share of problems since its formal induction, which will be looked upon as well.

6.1.1 Location of Rail Baltica

Placing the railway has been a widely discussed topic since 2001. The overall connection plan has always been to create a linkage from Helsinki in the north, through the Baltics, Tallinn, Riga & Kaunas before going through Warsaw and ending up in Berlin (RBGC.eu, 2014). In Latvia's case the railway has been projected to go through the border with Estonia, just south of Pärnu, but the debate has been where the railway should go through Latvia. Two suggestions were made, where one highlighted linking the second largest city of Daugavpils and the other opted to use the shortest route through the country – which gaining the most support and also is what is shown in picture 1.

6.1.2 Rail Baltica Timeline

The first mentioning of constructing a railway connecting Tallinn with Warsaw was first discussed shortly after the dissolution of the Soviet Union in 1992. The primary drivers were the ministers of the three Baltic countries, Estonia, Latvia and Lithuania. As stated before, the remnants of the Soviet era has been linked with hardships and to do this day, it also defines political and social agendas – although the impact in the countries vary substantially. The willingness to go through with the project was further exemplified by the creation of the "Vision and Strategies around the Baltic sea 2010" group, which among other things were to further investigate the possibility of the railway. A report on this was finalized two years later, but the conclusions of the report were never debated further.

Since then, the project has been approved as a project by the European Commissions, but the timeline for the project since then has been none existent almost. The original timeframe was set as (Ministry of Transport, 2011):

i) Warsaw – Kaunas (2010)
ii) Kaunas – Riga (2014)
iii) Riga – Tallinn (2016)

These deadlines have been crossed already; with the only country to have even broken ground is Estonia (Baltictimes.com, 2013). The most positive outlooks for the project are to have the environmental studies finished by 2015, and starting construction by 2017 (Response from the Ministry of Economics, 2014).
There are various reasons why the project has been delayed for so long, where the predominant reasons are said to be that of shifting governments and that of the financial hardships that the region has incurred for years, but also there has been a debate about if the railway would even be feasible in terms of passenger and freight transport between the countries. Stephen Archer, chief executive of Baltic Rail was quoted as saying: "Everyone who talks about Rail Baltica is talking about a passenger service [but] Baltic railways are essentially a freight-based network. I'm not convinced the passenger needs are there and I am not convinced the demographics of the region are there: there are not very many big cities." This sentiment is also carried into the political sphere. The financial situation with a high interest baring bonds, shifting governments who are undermining each other's project at a given chance, means that the construction of the railway depends heavily on what kinds of financing are available for the railway to ever being constructed.

6.1.3 Financing options

The Rail Baltica is one of the largest public procurement projects in the Baltic States, and as such also one of the projects that can foster the innovation capacity of the reason, by utilizing the need for new ways of using the transport system for both freight and passengers. When it comes down to financing the projects, the innovative potential takes a step back, and other things become more important.

Rail Baltica has an estimated €3,07 billion construction cost for the parts that run through each Baltic state. The cost will be divided according to earlier proposals by 33% for each country, landing the costs at around €1,03 billion. However theses costs vary according to which report that is studied – also an important note is that these costs only concern building the railway tracks, new trains, station and so on, are not part of the costs. Because the financial situation in the Baltics is as severe it is, these costs are already higher than what the austerity hit government can finance. Therefore external-financing options needs to be looked upon by these governments. There are a number of options available, e.g. The European Investment Bank, the Nordic Investment Bank and the Structural and Cohesion Funds of the European Union - or other ways would be to get then fully financed by companies operating in Latvia and the Baltics as such.

According to the Feasibility Study, COWI (2007) the financing options as a whole are very limited, and the railway constriction is very unlikely to be financed in any kind of way for the next foreseeable future (Andersen & Sørensen, 2002).

6.1.4 Part Summary

Rail Baltica is the oldest public procurement project in the Baltic States, having been introduced back in 1993. However, since then shifting political and economical realities have come and gone. It is now clear that the Baltic States cannot afford to construct the railway by themselves, and as such needs external financing in order to complete it. However there is now the problem that the lack of financial stability and strength in the Latvian economy will not be able to handle the procurement project any time soon, and as such creating the project and creating the opportunity to make an innovation friendly environment for Latvian companies seems to many years, or even decades away.

6.2 Visaginas Nuclear Power Plant

The Visaginas procurement project has been a topic of discussion for decades in the Baltic States. Nuclear power is seen as a cheap and relative clean way of creating power for the growing economies, and at the same time limiting the reliance on foreign oil and gas from Russia (Europa.eu, 2014).

Picture 3: Visaginas Plant

Source: Latvia's Ministry of Economics

The power plant is proposed to be collaboration between Lithuania, Latvia, Estonia and also Poland to an extent. The location has been chosen to be where Lithuania currently is closing down their old Ignalina Nuclear Power Plant, see picture 2:

The original power plant at the location, Ignalina, was originally one of the primary power generators of Lithuania. Despite being of an old design, the Lithuanian government continued to use it to generate power, because it provided cheap power to the domestic population and also gave the potential of selling excess power to Lithuania's neighbors. Since joining the European Union back in 2004, the European Union set as requirement that the old nuclear power plant had to be shut down in order to gain membership. This created a massive disruption in the Lithuanian power generation. From having the potential to export power if need be, Lithuania had to start important.

Additionally up to 60% of the countries power now needs to be imported, where 90% of all gas imports coming from Russia and 80% of the total energy imports as well.

As mentioned in the first case, the Baltic States seeks to gain more independence from Russian on oil and gas imports. In the case of Lithuania, Russia has also been selling gas at a higher rate than what it does to other countries, which has created a desire both politically and within the population to construct a new power plant.

6.2.1 Baltic Procurement of Innovation

The nuclear power plant is a prime opportunity to create new innovations to the Baltic energy production facilities as well as distribution network. Construction a power plant of this scale and linking to to other countries provide the security and financial stability for companies bidding on the procurement, which can be done by warding against the market failures that these companies can face with their new products. The Visaginas power plant is set to follow the plan set by the BEMIP (Baltic Energy Market Interconnection Plan), which is set to further integrate the Baltic area into Europe, particularly Poland, Sweden and Finland. Following the plan of the BEMIP there are many possibilities for innovation procurement, however there has also been various problems associated with the plan. Problems cannot be avoided when dealing with procurement projects, however since all three baltic states can see the potential in the procurement, all three governments have started arguing about where the plant should be located - despite agreeing on this at an earlier date.

So far the distribution for the Power plant has been proposed as being:

1. Hitachi (20%)
2. Lietuvos Energija (38%)
3. Latvenergo (20%)
4. Eesti Energia (22%) (Ministry of Economics, 2014)

The three Baltic countries are projected at supplying 80% of the procurement capital, with the Hitachi companies aimed at providing the last 20% as a strategic investor. It is also clear that Lithuania has, through its desired and willingness to have the nuclear plant located within its borders will provide and own a much larger part of the project than its neighbors. For Latvia and Estonia the main gain is to be able to acquire cheap power from the plant in exchange for their investment.

6.2.2 Financing of the Ignalina Plant

Constructing nuclear power plants are among the most expensive and controversial public procurement project a country, in Western Europe especially, which can be undertaken. As shown before, the Ignalina power plant is to be constructed to protect the

Baltic States from oil and gas politics from Russia. However, it was also clear that Lithuania cannot afford to construct it alone, and as such both Estonia and Latvia have opted to look further into the development plan for the plant. In regards to the power plant Latvia and the other participants face a bigger investment requirement than that of the Rail Baltica, but because the procurement is for energy and linkage into Europe, financing options are more available than what was seen for the Rail Baltica.
Energy policies have been the focus for many European policy makers for years, and this has created various institutions, which both governments and institutions can formally apply to, and then be granted loans on specific terms. Formally there are many ways for the project to apply for funding, either by applying for R&D funding, energy revitalizing and environmental improvements, and also in regards to the Europe 2020 plan – although it focuses on renewable energy, constructing the plant will create new jobs, promote R&D as well as cleaner emissions compared to the CO_2 footprint that are left behind by oil and gas. The estimated costs so far is set at €4,92 billion, which given the ownership of the joint company would give an estimated cost of:

1. Estonia – €1,08 billion
2. Latvia – €0,98 billion
3. Lithuania – €1,87 billion
4. Hitachi –€0,98 billion

Looking at the total distributed figures the numbers becomes more sustainable. The prices are nearing what was seen for the Rail Baltica, although there were optional extra payments involved in that aspect as well.
Overall it is clear that the Baltic countries need to renew it energy policies, and by dividing out the total load, it seems that they would be able to achieve this.
Accessing the European Unions funds and banks are among the primary sources of financing, together with state backing the power plant company to protect its bond interest rate. However the corporation and sharing of risks between the countries is somewhat uncommon if it will be financed and planned in the proposed way, which is also something that is becoming more and more of topic in both Estonia and Latvia, albeit because of different reasons entirely.

6.2.3 Part summary

Looking at the procurement, there is a clear incentive as to the direction of it, and also a governmental willingness from each to go on ahead with the projects initial phase. The project can also alleviate some of the energy issues the Baltic states are still having to deal with, especially their need for oil and gas, a topic that domestically is very important, and has also become official political objectives. However there is also in this case a direct need for additional support from the European Union. The costs exceed what the countries can currently afford still and the need for a part financing is very much the same as in Rail Baltica.

6.3 Liquefied Natural Gas Terminal & Inčukalns

Since gaining independence, Latvia has been entirely reliant on Russia for its oil and gas consumption, which is supplied by Gazprom (BBC, 2014). Much of the infrastructure in relation to this is also still owned and operated by the company, even though this has not been a favorable or desirable position for Latvia. This issue has gained further momentum since the various incidents involving the Ukraine and the pipelines running to the former republics of Yugoslavia, where Russia have been known to cut of gas supplies in order to force through their geopolitical agendas (BBC, 2014). Therefore there is a desire to promote the construction of a new gas terminal somewhere in the Baltic area. Building the terminal would provide the possibility of breaking free of Gazprom is opened up, but also the possibility at the same time of storing cheap gas and selling it onwards to Estonia, Lithuania and Finland. However, the location of the liquid gas terminal has proven close to impossible to reach an agreement upon. Lithuania and Latvia argues that the terminal should be placed in Latvia, while Estonia and Finland argues that the terminal should be build in their own countries. The issue is strengthened by the fact that the European Union has opted to be neutral in the placement, and instead encouraged the countries to seek a diplomatic solution that would suit all the countries. In this aspect there is also the matter of the Inčukalns gas storage facility. The facility is the largest gas storage facility in the Baltic area managing peak loads during the winter and storage during the summer. It is seen as a vital tool in connection with the liquid gas terminal, but the problem arrises for the Latvian government when ownership of the facility is maintained by Gazprom, and with them refusing to sell it back to Latvia (Ministry of Economics, 2014).

6.3.1 Location and Benefits to Latvia

The liquid natural gas terminal and the connecting Inčukalns storage facility highlights what Latvia feel is their main competence, seeing as they already have the storage facility, and have constructed similar facilities before as well. Despite this there has not been made an agreement about the placement at all. Estonia and Finland are making effort as to promote their own two locations; one in Finland near the coast line and

Estonia is promoting a site located outside Tallinn. Lithuania has already started construction on a smaller gas terminal already, supported by EU funding, and this terminal is designed to be expanded in capacity if the need is there. These issues have made it impossible to formalize on finding a location for the terminal, and all the countries are now contemplating on launching their own procurement projects entirely. Latvia's suggestion has however gained a little momentum in the form of Lithuanian support. This is because of the closer geographical proximity and because the feel that the Latvian knowhow will make the construction fast and innovative in its design as well.

6.3.2 A need for change

Nothing in the Baltic States exemplifies the needs for change, as the energy infrastructure. The control is still very much in the hands of Russia through Gazprom, owning Incukalns and providing all the gas, has become both a economical, social and political necessity to change for Latvia. So far, Latvias Gaze has signed a formal deal with Gazprom running until 2030 because there are no alternatives in the area. Building the new terminal would give the option to instead buy gas from other markets, and also at the same time linking the Baltic market to the rest of the European Union's gas market.

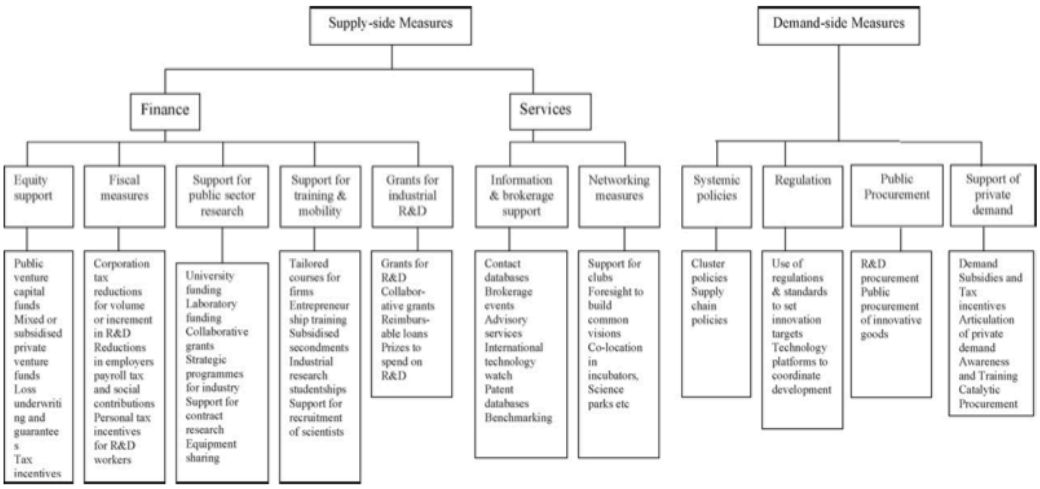
6.3.3 Financing of the Liquid Gas Terminal and a new Gas Storing

These projects are among the most important public procurement projects for Latvia since its independence in 1991. Therefore it is important to look at what kind of hurdles these projects can face in attaining the final financing. Being a public procurement for innovation targeting energy generation, a liquid gas terminal and a subsequent new gas storage facility is eligible for financing from the European Union Structural Funds. Because of this, financing such a project will be made easier for Latvia as a whole, where a maximum of 50% will be financed by the funds, and the rest by the coalition of countries involved in the project.

Discussion

Public procurement of innovation has been one of the most debated topics in the European union for many years. Currently the amount spent on public procurement amount to about 16% of EU-27 GDP, and as such the potential is there to make it focus more on innovation than what it is doing right now. The theoretical background on the issue is becoming vaster, as more and more researchers are starting to look into this area. The focus at the moment on, how to actively use public procurement there are different ways in which to promote private sector innovations through various means, a supply and demand side respectively. Edler & Georghiou (2007) proposed a taxonomy (see below) in which they highlighted what they believed were the important aspects of each side.

Chart 6: Taxonomy of Public Procurement of Innovation



Source: Edler & Georghiou (2007)

The taxonomy highlights both what is called supply side initiatives and demand side initiatives. Both sides have the same end goal and is deemed the same in all regards, to promote innovations within an economy. It is however clear that the benefits are very different in their structure and design. The supply side focuses only on tariffs, tax incentives and indirect support for companies involved in innovative research and solutions. The demand side focuses more on providing the need and support for innovation in companies. This is done by expanding and creating a new market that is large enough and willing to effectively shield the companies involved in the procurement process from market failures entirely. It is important to note that there is not a golden way

of going in the taxonomy, and that some things are proving to be more effective than others. It is however a notion that the demand side of the taxonomy so far has been almost totally neglected from the side of the policymakers and that of the academic research circles. There are emerging new tendencies in these regards where new and very vast procurement projects are set to provide for innovative solutions; Kriegers flak (Energinet.dk, 2014), Stockholm hospital (Skanska, 2014) and so on. The project does not indicate a shift, or even a balance in how initiatives for innovation are being promoted. Supply side measures are still predominant in the public sphere, as they are also easier to explain to the opinion makers, voters, what the money is being spent on, instead of having to explain that to promote innovations the public is creating a protective barrier around a project, and then obligates itself to maintaining this for a foreseeable future as well. It is important to note that the thesis is looking at the example of Latvia, and as such there are specific restrictions that are affecting both sides of the taxonomy. However, delving deeper into the actual managing of a innovation policy, Geroski (1990) provided an example of a solution. He created a tool called Industrial policy, in which he focused on four parts: 1. Procurement, 2. Government regulation, 3. Subsidy, 4. Investments in infrastructure. Each part was a specialization of how it could be optimized in the best possible way, and by this making the innovative potential greater.

Table 6. Industrial Policy

Procurement	Demand for new products or processes
Government regulations	Alters the sale of goods and services and the conditions associated with this
Subsidy	New developments through generation of new knowledge created through subsidy or indirect financial support
Investments in infrastructure	Looks at improving the economies capability to generate new inventions and innovations through education and/or government sponsored R&D.

Source: Geroski (1990)

This overview is very minimalistic in their writing, and as such there is a much deeper understanding in each of them. However, the procurement part is what is interesting in relations to the cases that have been presented, but first it is necessary to look more at what Geroski argued about the Procurement part. According to Geroski the procurement operates under the assumption of some generalizations, these are:

Table 7. Overview of generalizations
1: PP can be used to stimulate innovation, if there is a clear consistent set of needs.
2: Quality is more important than price, which makes companies more excited to develop new things
3: Government purchase provides safety in the market for products
4: Can make a rapid diffusion by forcing companies to share knowledge

Source: Geroski (1990)

He also highlighted other factors such as making long term contract binding the public entity to keep on buying and creating the safety net for a prolonged period of time, but also stressing the part that contracts for public procurement normally are too strictly defined, and therefore does not leave enough space in the writing for companies to come up with different solutions, instead promoting what is already available. Lastly the risks of "Buying the flag" or protectionism in the public procurement of innovation angel at least, is a terminology that should be avoided as much as possible. Buying the flag is a situation where a company is almost monopolized in the aspect that it is always awarded the contract, no matter if their bid for the tender is the best or not. These aspects are important to have in mind when delving deeper into the cases presented, these theoretical aspects will be applied and compared to the aspects presented in the cases.
An important aspect is that Geroski, Edler & Georghiou and other researchers has so far not focused on the role of public finances in the relation to their effect on the procurement process, results and how they shape the decisions that are taken by the public procurement agency.

Taking a look at Latvia, it has been shown that the country's economy is in hardship, high unemployment, very low focus on innovation as a whole, and the country is also in line of failing the R&D targets set forth by the European Unions Europe 2020 plan, a plan which Latvia as agreed upon and signed as well. What is interesting is how this situation has affected Latvia and its procurement projects that it has scheduled and where the focus has been set on the Rail Baltica, Visaginas Nuclear Power Plant and lastly the Liquid Natural Gas Terminal in connection with a construction of a new gas storage (Inčukalns). Normally it is assumed that the public agency that procures something which is eligible for sustaining an innovative purpose has the means of financing the project on its own. These assumptions is something that are widely known and acknowledged in academia, but the argument is that Latvia, as well as the rest of Eastern Europe cannot be argued to fulfill these assumptions, because of their history both economically and politically.

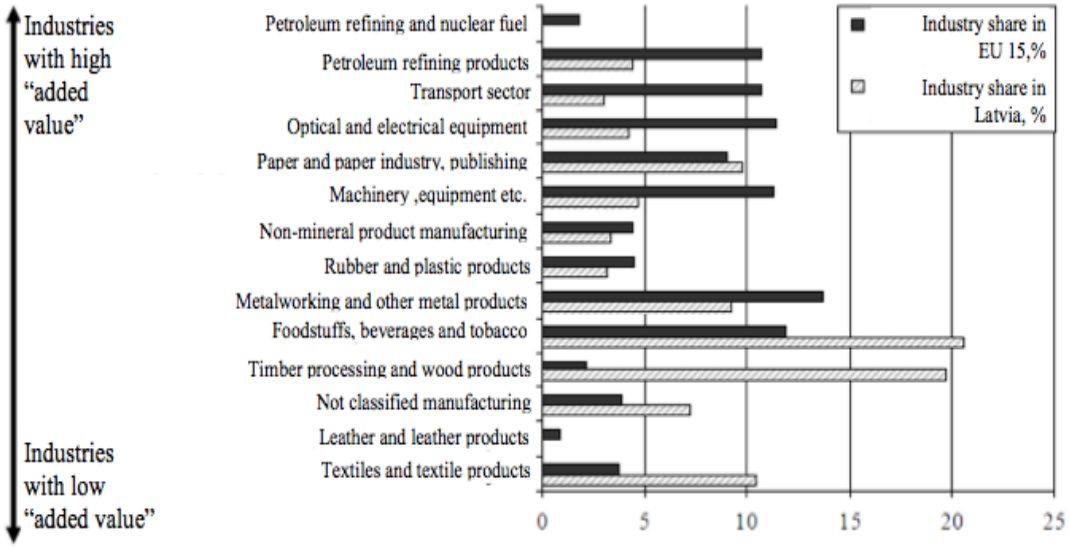
The Baltic States area, Estonia, Latvia and Lithuania have not progressed far enough economically since gaining independence (Cepilovs, 2013). They still rely on manufacturing of cheap goods in accordance with their low wages. The overall structure of the Latvian economy is still heavily based on industries that are low value added, a terminology indicating the focus on processing natural gas and using cheap labor forces. Looking at the role of high tech industries in the economy, they only constitute 3-4% of the total economy, and exports are as low as 6%, compared to a average value of around 30% for the developed economies (CSB, 2010). Adding to this, the total workforce in the high tech industry is as low as 4,4%, while the average in the European Union is around 11% (CSB, 2010). As such, there is a the potential in the economy to drive the innovation potential and also employment up, potentially through the use of the public procurement tool. However, as it will be discussed this has not been the case for many years, and the reasons correlate with the cases that have been presented before.

As presented before the Latvian funding of R&D is among the lowest in the European Union, and the Europe 2020 targets for innovation investments are also now projected to fail, with only 1,5% of GDP being aimed at ending up financing new R&D projects. Shatrevich & Zvanitajs (2010) argued that Latvia is facing many obstacles in order to

turn things around. They highlight that overall policymaking in Latvia has been unfocused for many years since gaining independence in 1991. There is no real government funding available for R&D purposes, and the funding that is available, they argue are being distributed wrongly into the economy (see below). The inefficiency in the distribution of financial aid is also a critical point as the Latvian governmental system and ministries are not good enough, either knowledge wise or personnel, to be able to distribute external funding from the European Union Structural funds. (Shatrevich & Zvanitajs, 2010)

The situation cannot just be put on the inability of the Latvian governments lack of innovative support and lack of creative personnel, the problem is more widely spread, and cannot be seen as localized to just that. Taking a look at the innovative investment incentive performed by the different companies located in Latvia, pre-crisis levels (2006-2008) were still very low; 19,5% according to the Central Statistics Bureau and Eurostat (CSB & Eurostat, 2010).

Chart 7: Distribution of Industries



Source: Shatrevich & Zvanitajs, 2010

The chart shows the distribution of the enterprises in Latvia, compared to that of the rest of the EU 15, meaning Latvia is compared to the Union before the inclusion of the eastern European countries in 2004.

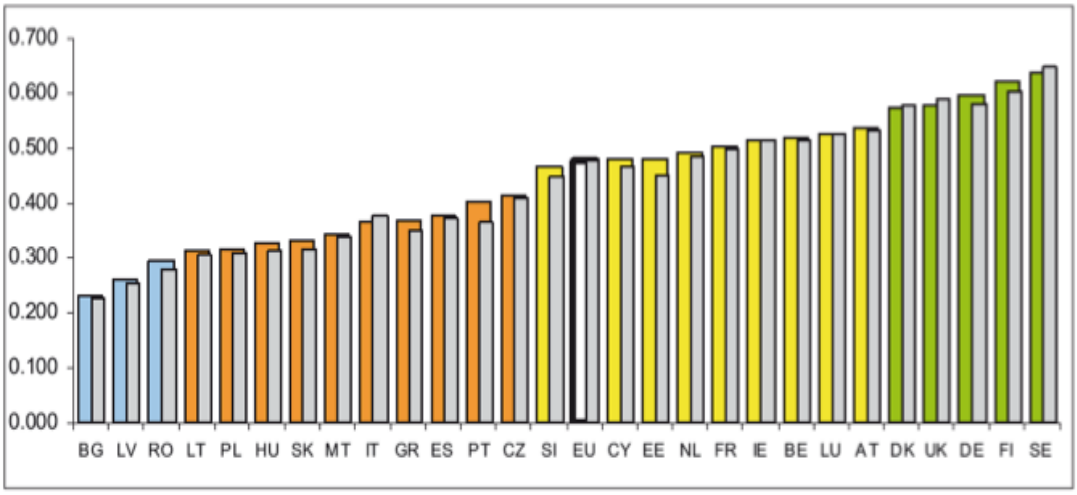
It is clear that Latvia relies heavily on certain industries, mainly timber processing and food processing, which are far beyond the distribution seen in the EU15. Overall there is a very screwed representation in the economy, and the distribution is mainly in the industries with low added values, instead of having an even representation across the board. According to the Ministry of Economics, manufacturing in Latvia is making a smaller and smaller impact on the economic growth in contrast to that of services. The amount of services in total amounted, in 2006 to 74,8%, which is in sharp contrast to that of 1990, where it was as low as 38,6% of GDP. Again, the problem arises in the distribution of these enterprises, with almost all of them belonging to the low added value segment.

The development has been under government scrutiny over many years, and two programs were initiated between 2004 and 2006. First the legislative changes known as "Entrepreneurship & Innovation" as well as the "National Program of Innovation" (Ministry of Science, 2010) were approved by The Cabinet of Ministers of Latvia. These programs were funded in part of the European Union Structural Funds, and the end result was the joining of these programs into what was known as the "Program of Competitiveness and Innovation 2007 – 2013". The aim with this was to reduce the administrative barriers located in the public governance, as well as speeding up the procedures in which the ministries operate under, making it more attractive for companies to apply for R&D support, and also easier for the ministries to give faster responses (Cepilovs, 2013). The Latvian politics on the terms of Innovation have been very fluid, where each new government have adapted their own policy for dealing with the problems, and neglecting the old agreement. This has created regional difference within Latvia as a whole, where Riga is the main driver, and the rest of the country have been neglected almost entirely. There are a lot of proclaimed goals for each government, but they are never achieved, and instead they are used as political arguments to the public, highlighting the failures of the last government. Ultimately this has lead to a situation where the economy is lacking potential, innovation potential is also very low

and there is no immediate answer as to how things can be turned around within a foreseeable future if nothing is done. In accordance with Latvia being a part of the European Union, the goals set in the Europe 2020 have made an impact in the policy making.

Before the Europe 2020 goals and directions Latvia's economic development was founded on what is known as reacting to consummation issues and adapt to new economic realities and commonalities. Creating a formulation and vision for the economy and policies instead of reacting to things. An economy should encourage and define new innovations, and become a leader in a specific area of industries. Therefore there has been a call in the policy developers and academia in Latvia for a much more sustainable development policy that can help the knowledge in Latvian businesses, helping Latvia in attracting new high tech enterprises.

Chart 8: Innovation Index of the European Union



Source: Europa.eu

Long-term goals are starting to become a part of the policy debate, but more importantly there is also a focus on how to distribute financing and creating procurement projects in such a way, as they can help the development in Latvia. Among these projects are the cases that were shown before, 1. Rail Baltica, 2. Visaginas Nuclear Power Plant and 3. Liquid Natural Gas Terminal and the Inčukalns gas storage facility. The projects have the potential at least to create what is needed for Latvia, but there is also a wide array of problems located within the projects as well. One of the primary problems in relation to

any public procurement is the need and ability to create the project. Latvia has a great need for all the projects showed in the cases, however there is always the fear, especially in Latvia, if there is enough people in the country to actually sustain and use the project enough to make it sustainable and viable for the public authorities.

The costs for constructing 1 kilometer of the Rail Baltica are almost the same in Latvia, as it would have been in Denmark. There are differences in the wage level, but operation and maintenance costs are similar. This makes it vital then to look at if there is expected to be enough passengers and freight traffic upon its conclusion, and opinions on this are widely spread.

When it comes to financing these procurement projects for innovation, Latvia along with Estonia and Lithuania are in unique situations.

Looking at the Latvian economy and the statistics for the country large-scale procurement projects are understandably hard to attain financing to. The population of Latvia is around 2 million citizens, with low incomes to a large proportion and as such a low revenue stream for the public authority. The innovative potential in Latvia is almost completely unused, which is a direct consequence of the complete lack of R&D funding. It has been argued that the use of public procurement can be a strong enforcer and also create the space for innovative companies. These companies run a vast amount of risk when making new and innovative products and the theoretical framework suggests solutions to this. However the theoretical framework has always been utilized in a context relating to the western part of the world. This is a contrast to what the academia normally have been looking at and operating around, seeing as in the western part of the world the focus has been on utilizing the already existing public finances in the best possible fashion for R&D, and not on what role the weak public finances in eastern Europe and Latvia have on their public procurement of innovation. All the cases that have been found and described, all present an opportunity for innovation, corporation between Latvia, Estonia and Lithuania, but various issues are seemingly preventing them from moving on from the initial stage. Also, there will be two examples showing how the Latvian Government in 1992 used a Public – Private procurement in both the telecommunications area (Lattelecom), and oil and gas (Latviajas Gaze).

Rail Baltica

The Rail Baltica was proposed as being the backbone of the new and improved Baltic States railway network. There have been multiple proposals about where the railway should go, where the Tallinn – Riga – Kaunas option have been the one that has gained the most support from both Estonia, Latvia and the European Union. Similar projects have been discussed before in each of the countries, but the financing of these activities has always been the topic that has stranded the projects all the time. Infrastructure projects are very expensive to procure, and in Latvia's case the whole railway infrastructure has to be replaced, as the rail Baltica will introduce a new kind of track that makes the trains already in operation, obsolete (Ministry of Economics, a , 2014).

The current state of the railway infrastructure in Latvia is very poor. Train speeds are limited to 80 Km/H on most parts of the network, and the trains are large, loud and in general not up to what are to be expected from a European country. There has also recently developed a new problem in terms of the tracks future. The original proposal centered on the railway going through Kaunas, and not Vilnius, but the new Lithuanian government, together with a large part of the population, finds this absurd (WSJ.com, 2014). The argument is that the railway should connect all the capitols in the states, and not two and the second largest city in Lithuania only because it was the cheapest option. Many of these problems arises because that the Baltic states needs to cooperate and co-finance the railway in order to be able to afford it altogether but also so that they can be able to get funding from the European union. Recently the European Union has created the EUBSR "European Union Strategy for the Baltic Sea Region" (EUBSR, 2014).
The strategy evolves around providing funding for idea generation and planning. It has in part financed some of the planning aspects of the Rail Baltica, but it is limited only to the planning phase, and the EUBSR does not provide actual financing for construction work anywhere in the strategy area.
This leaves the options of financing the railway either individually or in a combination of factors, but first the other cases will be discussed.

Visaginas Nuclear Power Plant

This public procurement project is very interesting, and provides one of the largest incentives for Baltic State companies for creating new innovations. Energy policies are among the top policy topics in the European Union, in conjunction with the Europe 2020 targets (Europe 2020, 2014)

Constructing a nuclear power plant are among the most expensive single procurement projects that can be made. As such it is estimated at costing €4,92 billion, and can provide the Baltic States with a strong alternative to Oil and Gas, which is directly imported from Russia. The need for the power plant is by all measures there, and the innovative potential in energy is also very vast.

In terms of planning, feasibility studies have indicated that Lithuania already have the location and energy infrastructure ready to be able to handle the power distribution. However there are various political and energy network initiatives that are set to potentially halt the construction of the plant altogether.

Estonia are currently opting, with European Union funds, to integrate further into the Finnish and later on Swedish energy network, see below.

Picture 4: Estlink 1 & Estlink 2

Source: Elering.ee (http://estlink2.elering.ee/estlink-1-vs-estlink-2/)

These connections, and the development of more with higher capacity, have cooled the Estonian interest in constructing a new and very expensive power plant, which is not even located in Estonia. The possibility of connecting to the Finnish network, and the Swedish later on, countries that are stable politically and financially, seems much more attractive, than beginning to heavily invest in Nuclear Power (NIB.int, 2014).
Latvia is more optimistic on having the nuclear power plant constructed, however their interest is more that the plant will be located in Lithuania, and not in Latvia (FT.com, 2013). The main problem is that the worry is that all construction benefits will go into the Lithuania economy, as well as Lithuanian companies will profit from the lead market that is created, leaving the Latvian companies fighting for the leftovers (Financial Times, 2013). These reasons mean that the nuclear power plant is unlikely to be constructed at all, however if the governments decides to go on with the project, the financial aspects will still be looked upon.

Liquid Natural Gas Terminal & Inčukalns Gas Storage

Dependency on oil and gas from Russia is highlighted as the primary political and security risks in the Latvia, where Gazprom operates and owns all the distribution facilities in the country. This has created a powerful monopoly on the distribution network, where there are no alternatives to Gazprom, and as such there is no market value price on the gas, and instead it is argued that the price is kept artificially high (Reuters, 2014). To break this monopoly talks have been ongoing for years on constructing a Liquid Natural Gas Terminal, which effectively means that large gas transporting ships can deposit gas from other countries, opening up the market and breaking Gazprom's grasp. Lithuania is actively spearheading the project so far, seeing as the country has been experiencing the realities of the Russian monopoly, with Gazprom charging approximately 30% over the rates they sell gas to Germany, despite the geographical proximity to Russia is much smaller (Reuters, 2014). This has been a direct consequence of Lithuania moving politically to disperse Gazprom's monopoly in the country (Ministry of Economics, a, 2014).
Looking at the energy net in the Baltic States, they are often considered Islands in Europe, as they have no connection so far with the rest of the European Union countries,

except 1 energy connection with Finland. The countries are surrounded by water to the west, Russian to the east and Belarus and Kaliningrad, with only a small border crossing with Poland offering a connection with the rest of Europe.

As stated before, the European Union sees it is a primary objective to create a fully integrated European Union energy and gas network (Europa.eu, 2013). Because of this, the various EU funds have been made available for co-financing of the terminal, but the location of the terminal is still something that is being debated.

Latvia has proposed building the new terminal in Riga, because of the close proximity to the Inčukalns gas storage facility, and also because they are located somewhat in the middle of the states and Finland as well. This plan is being supported in part by Lithuania, but has been rejected by Estonia altogether. Estonia is not willing to explore the Latvian location study anymore, seeing as Gazprom dominates the ownership structure of the gas storage. As it stands at the moment, Gazprom has secured operation rights to the storage until 2017, but beyond that, Gazprom also owns a controlling stake in Latvijas Gaze, 34% as well as ITERA owning 16% (Latvijas Gaze, 2008). Latvijas Gaze is the main operator and distributor of the purchased gas from Gazprom, and they have a contract with the Latvian State for Inčukalns until 2030.

Gazprom's ownership stakes in the Baltic energy companies can be seen below.

Table 8. Gazprom ownership stakes (%)	
Latvia (Latvijas Gaze)	34%
Estonia (Eesti Gaas)	37,03%
Lithuania (Lietuvos Dujos)	37,1%
Finland (Gasum)	25%

Sources: Latvijas Gaze, 2014; Eesti Gaas, 2014; Lietuvos Dujos, 2014; Gasum, 2014

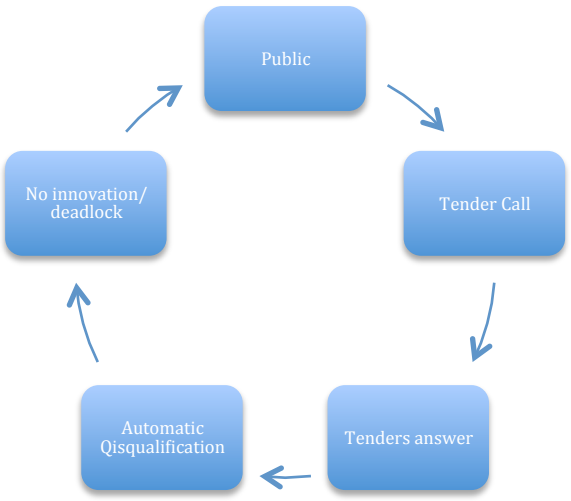
These ownership stakes are very problematic when looking at the potential for using Public Procurement as a source of Innovation at all. Looking at the context of the LNG and the Inčukalns facility, there is the potential of Gazprom looking to block all attempts on creating new innovation, and opening up the market that they already control. The main argument will be that the infrastructure is already available and operating satisfactory, and therefore there is no need for seeking new and improved ways of

handling and storing gas. These facts makes it hard for the Latvian government to attain any kind of support from the EU or Estonia and Finland, however Lithuania is backing it to a certain point, based on the fact that Gazprom or any of its subsidiaries are not chosen to construct the terminal.

Innovation deadlock

This political decision regarding Gazprom is above all else, very interesting. Doing this, effectively disqualifying everything with connection to them, can be argued to be against the procurement and tender call rules that are in force in the European Union. According to the European Union, discriminatory actions are illegal (Europa, 2014). This is however interesting in terms of Geroski (1990) who argued against buying the flag. In this sense it would possibly not be considered buying the flag, since the companies that would answer the tender call would be Russian owned, but the threat of lack of innovation would still very much be the same. According to Ågren (2012) competitive dialogues are a good way of promoting innovation and making knowledge spillovers, by forcing each interested tender to come up and share their ideas together. This argument fails albeit if all the companies that are interested are in some way or another owned by the same company. These create an interesting deadlock, see below.

Chart 9: Innovation Deadlock



Source: own volition

The model shows how such a political standpoint could affect public procurement for the LNG terminal. If the Baltics would disregard the anti discriminatory action from the EU, then Gazprom could effectively, through their Latvian subsidiaries halt all kinds of innovative platforms. This would normally not occur because public procurements needs to be advertised to a special website for procurements in the European Union. According to the Interview with Janis Aprans (2014), this website is not utilized as it should be. The website is designed to make tender calls available across the union, however in the case of Latvia, the calls are made initially with an introduction and headline in English, and then leads to the domestic version with the technical aspects in Latvian, effectively lowering the attractiveness for foreign companies. It is however interesting that small economies, especially transitional economies like Latvia can be locked in tight in some economic areas by a single big company, and that the company effectively can do this with the backing of the European Unions foundation principles.

All three cases show that the need for radical innovations, and a stable platform for doing so are needed in Latvia. However, all the big public procurement projects so far are all stuck in the planning phase, or even only on the discussion phase. All the cases rely on Regional Corporation between Lithuania, Estonia and Latvia. The next part will look at the role of attaining financing for these projects, what problems arise in this aspect as well what a limit to public finances can have all together on Latvia's way of using public procurement for innovation.

Financing

The role of public procurement in the Latvian economy is quite significant, standing at 10,3% in 2008 (ERAPRISM, 2010) and therefore it is still a very widely used part of the Latvian policy making. However, even though the proportion is still quite large, the estimated funds used are not that high and accumulated in 2008 a total of €1,4 billion. This amount accounts for all the expenditure in the Latvian economy, and is not limited to just a part of a specific procurement.

Compared to the cases presented this figure stands some what short of what is required in order to finance the projects with what is already available in the public space. This is not a single localized occurrence in the world of financing, as almost all western countries needs to finance large infrastructure projects on the capital markets.

Credit Ratings & Impact

Sovereign credit ratings give indications for investors in the capital markets about how the ratings companies sees the economic outlook for a financial item. It is directly measurable as to how much risk is presumed to be associated with a sovereign bond, and therefore also how big an interest rate investors want for risking their money in the bond being offered.

Below is listed the credit ratings as of May, 2014 for all the Baltic States.

Table 9. Sovereign Credit Ratings

Estonia	AA-
Latvia	BBB+
Lithuania	A-

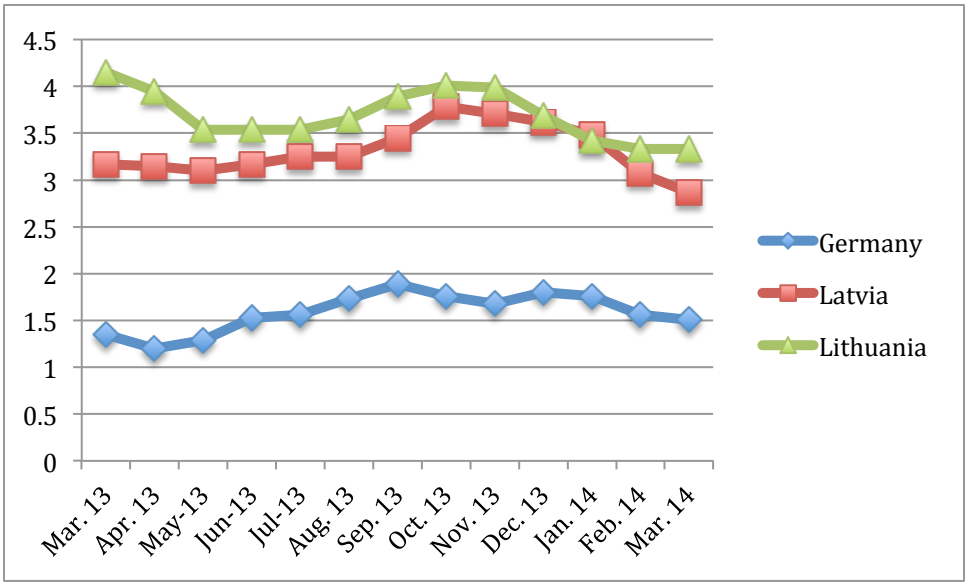
Source: Standard & Poor's

It is clear that Latvia has the worst overall economic outlook, judged on their credit ratings by Standard & Poor's. As such, the impact on financing options for the country is already expected to be reasonably high, making infrastructure projects more expensive for both the state who owns the projects, and the actors who are deemed to be using it after completion – both public and private consumers.

Generally all the Euro zone countries are compared to that of Germany. This gives a good indication as to how the financial markets and analysts see each economy and how willing they are to invest, or lend money comparing to the perspective, and these interest rates can wary quite profoundly.

Below are the long term interest rates for Lithuania and Latvia, which have been compared to that of Germany – Estonia does not have bonds which are comparable to the rest of the European Union (ECB.eu, 2014)

Chart 10: Long Term Interest Rates (LV, LT, D)



Source: ECB.eu

The graph shows that 10-year Latvian bonds are were sold at around 3% in March 2014, which is normally considered a very low interest rate to pay. It is important to note in this regard that it is still twice the rate on the German rate, indicating that investors are not viewing the Latvian economy as a safe investment target. Still the interest rates on this account is still very low, but it is important to remember that large procurement projects are normally financed over 30+ years, in separate companies that has the backing of the state they are placed in, in this case Latvia.

Taking a look at the scale of the projects proposed, the costs of the total procurements are well beyond the yearly available funds in the Latvian economy, and also for a foreseeable

future. An important note is that the interest rates currently show the condition of the European continent as a whole. Inflation in the region is very low, nearing deflation, and the large economies are struggling to regain momentum. Therefore the European Central Bank has initiated quantitative easing, which have effectively made interest rates fall sharply in hopes of restarting production (Bloomberg, 2014). This means that currently it is very cheap to fund economic adventures, such as the cases shown, but caution has to be shown as the future is projected as to only accelerate the global and European economies again at some point, and certainly within 10 years. With an economic acceleration happening at some point, ECB will eventually ease and halt its assistance, and market economies will start to produce again. This will drive up inflation and with it also the interest rates for the Latvian economy, an economy that has been very cyclical, although this will be more under control seeing as their monetary instruments are no longer effective having joined the Euro January 1st 2014. These facts together with the fact that the Latvian public debt has reached 40% of GDP in 2014 and also the IMF bailout has limited the willingness and ability for Latvia to effectively fund large Public Procurement projects on its own.

European Union Funds

The European union has a variety of different funds in which it allocates funds to each year. These funds are aimed at providing funding for membership states, and provide different levels of funding according to the type of project that is being made. In regards to the financing of these projects there are two funds, which are interesting;

1. European Regional Development Fund (ERDF)
2. Cohesion Fund (EU, 2014).

These funds provide funding through the use of grants directly to the procurement agency in question. According to EU legislation (EUa, 2014) the fund can finance up to 75% of the public authorities total expenditure, and up to 85% if the country is eligible for Cohesion Fund financing as well (Janis, 2014). The allocation however is regulated after a number of objectives that the applicant country has to fulfill in order to be eligible. To be eligible for ERDF funding the country or region have to have a GDP per capita below 75% of the European average, as well as being a NUTS II country. Cohesion funds are

dependent on a GNI under 90% of the European average (Ministry of Economics, a, 2014).

NUTS II is categorized below.

Table 10. NUTS levels in the European Union		
Level	Minimum Population	Maximum Population
NUTS I	3 million	7 million
NUTS II	800.000	3 million
NUTS III	150.000	800.000

Source: Europe.eu (Legislation)

Latvia is in this case a NUTS II, and they fulfill the other requirements for the GNI and GDP, and therefore they can apply for ERDF and Cohesion Fund financing. The funds operate in a different manner than what can be expected or compared to that of a normal bank loan, venture capitalist or similar, in that the funds hand out grants which under normal circumstances is not required to be paid back by the receiving country, there are exemptions which will be discussed later on. The ERDF and the Cohesion is by al means a very powerful and vital ally for Latvia and the economically weak eastern part of the European Union, but it should be made clear that although the funds contains billions of euro, they are also limited over a six year period, currently from 2014 – 2020 (Europa.eu, 2014). The distributions in these funds are very different. The cohesion fund has allocated 4,51 billion Euros for the coming six years. The amount is not evenly distributed, meaning that eligible projects from Latvia can expend the amount before the six-year period (Europa.eu, 2014). The individual projects that Latvia can apply for financial support too, was before 2014, organized in such a way that the funds came under scrutiny if they were used accordingly and was well managed. As such it was the European Commission that set up the initial guidelines in a program for what the funds should be used for, but further control was not required before hand. The only sanctioning from the Commission could be if funding had not been used according to the application that had been submitted. In that case a country could be either fined until the fulfilled the contract altogether, or be demanded to fully repay the full grant.

This meant that Public procurement and the funding the attained were not always used in accordance as to create incentives to make innovative solutions. The European

Commission has since changed the dispersion of the funds for the current period (2014 – 2020). The structure in place now is that each membership states has to select four "Thematic Objectives" from a list of a total of eleven objectives, see appendix 3.
This is a way of relocating the funds into specific areas in each member state, where Latvia for example has chosen to promote; 3. Enhancing competitiveness of small and medium-sized enterprises. 6. Protecting the environment and promoting resource efficiency. 7. Promoting sustainable transport and removing bottlenecks in key network infrastructures. 8. Promoting employment and supporting labor mobility.
Even with these new guidelines, the funds impact on the Latvian potential for financing is till very profound. The allocation of yearly extra procurement incentives is close to 75% extra compared to the Latvian level in 2008, making large investment project possible if chosen so.

These funds would all make the three cases shown possible. But if doing this, it would also effectively drain almost all the funding available for public procurement in Latvia for the foreseeable future. This would mean that nothing would be able to be procured, even normal procurements for roads, schools even tables would be severely affected. It is therefore logical that these big public procurement projects that can really provide the innovative incentive and provide workspaces as well, are still not being conducted at any rate.

Past experiences in Latvia

As previously discussed transitional economies like the Latvian, have limited financing. This was also the case after their independence in 1991, but Latvia acknowledged that an upgrade in their telecommunications and energy supply was needed in order to gain competitiveness with their regional neighbors and the rest of Europe. Edler & Georghiou (2007) stipulates that such a thing can be done through public procurement among other initiatives, but given the political and economical situation at the time, this was not deemed viable in that instance.
This lead to the Latvian government creating two state owned and monopolized companies in each aspects; Lattelecom and Latvijas Gaze.

Lattelecom

The company is Latvia's largest telecommunications company, and was established in 1992 on behalf of the Cabinet of Ministers in Latvia (Lattelecom, 2014). The company was given monopoly rights on the market until 2003, in an effort to promote and protect the company. However, as there was no access to funding, the Latvian government decided to sell 49% of the total shares to external companies to raise direct funds from the sale, and the financial strength and knowhow of the buyers. This was eventually achieved with TeliaSonara AB acquiring the listed stocks, and the foundation, also according to the theory, was now in place. The financial strength meant that Lattelecom was now a lead market generator for large investments in ICT equipment, and the development of the networks around Latvia began to evolve at high speeds. This solution was deemed a success in the mind of policymakers, as Lattelecom was creating surpluses and developing the ICT market in a positive manner. This immediately changed when the monopoly was dissolved in 2003. Opening the market has also created a more fundamental view on that of creating profits and scaling down activities all around the company. The company however is still renowned as the best ICT operator in Latvia, and also still maintains the largest customer base by many lengths. Overall the sale of Lattelecom has in many ways been a success. The company attained the finance it needed without the need for public finances, the ICT market was developed according to the functional specification the public had made with Lattelecom and its owners, and even after the monopoly was dissolved the company is still very successful in the Latvian state.

Latvijas Gaze

As mentioned in the Liquefied Gas Terminal case, Latvijas Gaze is the sole provider of gas in Latvia. As with Lattelecom the company was also established in 1991 and it also needed financing in order to connect the Latvian market and network with the rest of the European Union. As such a privatization began and the Latvian Government released control at an early stage, see below.

Table 11. Ownership of Latvijas Gaze	
E.ON Ruhrgas International GmbH	47,20%
Gazprom AAS	34,00%
Itera Latvija SIA	16,00%

Source: Latvijas Gaze (http://www.lg.lv/index.php?id=189&lang=eng)

Unlike the instance of Lattelecom, the Latvian Government has had no control over how Latvijas Gaze has acted at all. As such the hopes of promoting an innovative development in the energy system has not occurred, as the company has opted to rent the infrastructure made available by Gazprom instead (Grigas, 2012). Tender calls have rarely been made, and those that have been made have not been of large-scale project, but more of a minor and local kind instead.

These examples highlight a different way of making public procurement of innovation by offering state controlled companies for sale, giving these companies special privileges and then making contracts with the buyers to perform in certain way. The tool has the potential to potentially make innovations a perquisite for a foreign acquisition, and at the same time the Government can actively control what way the innovation activities should go, and then oversee that it is actually done. However it is also a procurement method that is hazardous in its nature. Creating monopoly status in a part of the economy can create competitive and innovative backdrops essentially creating a situation similar to that which Geroski (1990) describes as “buying the flag” where a company does not need or want to innovate, because they have either a monopoly or very close to it, and therefore does not need to improve or provide new ways of doing business or creating products. It cannot however be ignored that it is, in the short term at least, a very tempting way for a government stricken of financial muscles and knowledge, to use this as a way out of the problems. It should above all else be done with a caution, as a public authority and a private company rarely sees things the same way.

Summary

A transitional economy that is also small, as in the case of Latvia, can be argued to fit outside the academic framework that already exists. There can be no doubt that innovative progress is needed in the Latvian economy if they seek to attain a stable and renewable growth, and go away from a labor-intensive production economy. Edler & Georghiou (2007) as well as Geroski (1990) all highlight the potential in using the financial strength in the economy usefully through the means of public procurement for making innovation. What creates a division is that the frameworks in place originate from a western and rich part of the world, originally UK, and as such financing of public procurement and public finances in general are deemed much more vast than the context Latvia and the whole of the Baltic States are in at the moment. The economic pressure on the economy in Latvia has been under pressure for many years, and in term has also been very cyclical and volatile at the same time. The has lead to a vulnerability in terms of accessing the financial markets and finance deficits and large public projects, which was shown at its worst when the IMF bailed out the Latvian state in 2008, and prevented a default.

Regardless of this public procurement is still a very large part of the total GDP in Latvia, amassing around 10,3% although this figure is below the European Union average at 16,3%. Lacking financial strength has lead to some interesting issues in terms of how Latvia has to finance and do its procurement and general innovation projects. Credit ratings are not optimal, although they have been described as improving, which again has lead to an increase in 10-year interest baring bonds at about 3-4,5%, over 100% that of Germany. This has effectively barred the financing options located in the private market for the Latvian government, as even a state backed procurement firm for a large procurement would find it hard to be financial viable with these interest rates. Counteracting this is the European Union funds, specifically the Cohesion and European Regional Development Fund. These operate on a 6-year program orchestrated by the European Commission highlighting eleven topics, in which each membership state has to select four it will focus on and use the allocated funding for. It is however not an unlimited source of extra funding the Latvia, as there is only allocated an estimated 4 billion Euro for the six-year period. It is of course a sizable amount compared to the that

which Latvia currently can utilize on their own as of now, but if compared to the construction costs of Rail Baltica, Visaginas Nuclear Power Plant and the Liquid Natural Gas Terminal, then the amount is suddenly not that vast.

Interestingly it has often been discussed to perform procurement projects through the means of contracts with a company that in terms obligates itself to perform and maintain a facility in return for financial support and a long time obligation by the public authority. This approach was indeed tried by the Latvian Government in 1992, when they opened up the telecommunication and Gas networks for foreign investments. Effectively it can be argued that the telecommunications initiative has been largely successful with Latvia having rapidly developed an extensive telecommunications industry, although it was monopolized until 2003. It is of course a powerful incentive and a massive promotion for a specific area is a state monopoly can be guaranteed for a ten-year period, but it is also a dangerous path. Latvijas Gaze is a prime example of this, seeing as innovations, radical or even incremental as well, have been virtually none existent (Grigas, 2014). The same angel of attack was done in relation to Latvijas Gaze as it was with Lattelecom, also in the aspect of monopoly on the market. However, the difference in the cases can be seen in that ownership structure. Latvia still owns 51% of Lattelecom, and therefore can influence the path the company is pursuing, where in the case of Latvijas Gaze it opted for selling almost all its shares to very large gas companies, Ruhrgas, Gazprom and a subsidiary of another Gas giant Rosneft, Itera-Latvija SIA. Loosing influence created a stagnation, as these companies through their monopoly and gas and oil distribution networks already in place, has no reason to develop new technologies. From a business point it is understandable, as new technologies in oil and gas effectively means less consumption or the creation of subsidized energy products that leads to declines in consumption. It is interesting to see what trouble weak finances are having on the innovative potential in Latvia. Very low expenditure in R&D is often correlated with low amounts of innovations in an economy and this has also been the case in Latvia up until now. The cases shown all represented areas in which Latvia and its Baltic states neighbors could benefit from constructing these procurements, but unlike what is normally the case, a single state is not currently able to construct these projects on their own. Corporation between states are required for these projects to be successful and be

financial viable, but still the element of competition exceeds this and instead of promoting industries the status quo is preferred instead (Grigas, 2014).

Even with European Union support from both the Cohesion and the EFDR the amounts available are still very low in comparison to western European countries.

8. Conclusion

Through the thesis, it has been clear that Latvia faces a wide range of problems in connection to its public procurement and also in terms of its innovation funding. The austerity imposed by the government in response to the crisis of 2008 is still dragging its effects everywhere in the economy to this day. It has been shown that the Europe 2020 targets, a long with the Barcelona targets for R&D is projected to fail, amassing only 1,5% of GDP, instead of the 3% that was intended. These facts have direct consequences for the companies that operate in Latvia, where the financial flexibility is hard to come by. Resources are scarce at best, and the competition for funds is fierce.

Regardless there are still public procurement projects in the planning phase, and three have been looked upon in the thesis. Each represent a good opportunity for innovations in the economy and the companies taking part, but so far they have all failed to be launched. A unique situation is that each Baltic state, Estonia, Latvia and Lithuania cannot finance these projects on their own, and as such they need to corporate with each other. This would in normal regards to acceptable since this would mean less stress on the public finances as well as lowering the amount of Euro that has to be injected into the project from each country. It is clear however that this fact, has lead to the failures all together. Competition among the countries is so predominant that all attempts have failed, seeing as no matter where a project is projected to be, the other countries immediately find faults and errors, and thereby refuse to participate. This is clear in the case of the Rail Baltica, where Lithuania rejects it based on the route it takes. Visignias is stranded because Latvia feels that only Lithuanian companies will benefit, and Estonia favors a connection with Finland and Sweden more. And finally the LNG Terminal because Gazprom has tight control over gas distribution in Latvia, and as such Estonia and Finland will not engage in anything, and Lithuania to some extent as well, with anything that Gazprom can be related to.

The role of the European Union in terms of the Latvian ability to make procurements and innovations is not to be disregarded. Latvia qualifies for both

Cohesion and ERDF fund support, making funding easier, as these are given as grants. However the structure of the financing has changed in the new period from 2014 – 2020, where each country has to select four targets in which to receive financial help to. Also the funds operate under a set of maximum allowances in which there is a certain amount located to a country, and if this is used before 2020, then there is no more funding available. This means that Latvia has to be very conscious about what to use the funds for, and as such it will be hard to justify spending a large portion on one of the cases. A unique feature in Latvia is the role of large corporations and their hold on entire parts of infrastructures. Shifting governments and legislation on the issue is also something that is not a common thing for the theory. A normal framework entails long commitments to protect companies, but in the Latvian case, shifting governments have changed policies on the area every time and by doing this, companies that wants to participate has had no opportunity to get involved in projects, let alone start to research and develop new products for the projects at hand.

The case of Lattelecom and Latvijas Gaze showed how the need for innovation and investments came before that responsible maintenance and consideration from the public authorities. This has normally been highlighted as being a good way for the public to save money and get what they want, seeing as the company involved would strive to keep the project up to date and working all the time. However in Latvia it was done using the power of monopolies, and also relinquishing control fully of Latvijas Gaze, and 49% of Lattelecom. This worked well in 1992 when it was done, because it eliminated the volatility concerns for the companies interested. This backfired as it was shown, and now the public authorities have to construct a whole new infrastructure for oil and gas if they wish to fulfill their wish with breaking Gazprom's monopoly. It is clear that Latvia does not follow what traditional public procurement of Innovation theory specifies. This can to a large extent to explained because of the weak public finances in the country, which effectively puts limits as to how much the country can afford to spend. Another constraint is the ability of the public to manage these projects effectively, but more so is if they actually want to actively participate in this at all.

Overall it can be argued that traditional theory does not apply to a transitional economy, seeing as their financial capabilities are not developed enough, compared to that of the western countries. The reliance on externalities, countries, companies and the European Union is unlike what is normal in the theory, where the focus is always on that of a single authority, which decides and follows through on its own.

9. Litterature

- *Aho et al, (2006): Creating an Innovative Europe*
- *Andersen, M.V., Sørensen T,. (2002): Kompendium Investering og Finansiering (2nd ed.). Complet*
- *Arbnor I., Bjerke B. (2009): Methodology for creating business knowledge. (3rd ed.) London, UK : Sage publications Ltd*
- *Baltictimes.com, 2013, Rail Baltica J-V agreed, (http://www.baltictimes.com/news/articles/33252/#.U0-FPOaSyII), Last accessed 17th of April 2014*
- BBC.com, (2014),Anti-government rioting hits Riga, (http://news.bbc.co.uk/2/hi/europe/7827708.stm) - Last accessed 8th of April, 2004
- *Bloomberg, (2014), Portugal to Emulate Ireland in Exit From Bailout Program, (http://www.bloomberg.com/news/2014-05-04/portugal-to-emulate-ireland-in-exit-from-bailout-program.html) - Last accessed 2nd of May, 2014*
- *Bloomberg, (2014), ECB Gets Mixed Inflation Signals as Draghi Considers QE, (http://www.bloomberg.com/news/2014-04-30/euro-area-april-inflation-quickens-less-than-estimated.html) - Last accessed 27th of May, 2014*
- *Cepilovs, A, (2013), Public Procurement for Innovation in Small States. The Case of Latvia, Rivista Di Politica Economica IV – VI.*
- *Community Research and Development Information Service, (2003), Working Towards the Barcelona target, (http://cordis.europa.eu/news/rcn/20876_en.html), last accessed 15th of Apil, 2014*
- *Centralais Statistikas Birojs (CSB), (2010), (http://data.csb.gov.lv/Dialog/varvel.asp?ma=03), last accessed 30th of April, 2014*
- *Christensen, M. (2014), Aktieinvestering – Teori og Praktisk anvendelse.*
- *Council on Foreign Relations, (2014), The Credit Rating Controversy, (http://www.bloomberg.com/news/2014-05-04/portugal-to-emulate-ireland-in-exit-from-bailout-program.html) - Last accessed 2nd of May, 2014*
- *Dalpé, R. (1994), Effects of Government procurement on industrial innovation*
- *Edler, J., Georghiou, L,. (2007): Public Procurement - Resurrecting the demand*

side.

- *Edquist, C., Zabala-Iturriagagoitia, J, M, Z,. (2012): Public Procurement for Innovation as mission-oriented innovation policy.*
- *Energinet.dk, (2014), Kriegers Flak Offcshore Wind Farm, (https://www.energinet.dk/EN/ANLAEG-OG-PROJEKTER/Anlaegsprojekter-el/Havbaseret-elnet-paa-Kriegers-Flak/Sider/default.aspx) - Last accessed 27th of May, 2014*
- *European Commission, (2014), Treaty of Maastricht on European Union, (http://europa.eu/legislation_summaries/institutional_affairs/treaties/treaties_maastricht_en.htm) - Last accessed 2nd of May, 2014*
- *European Commission (2010), Europe 2020 Initiative – Energy 2020 (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0639:FIN:DA:HTML), Last accessed 5th of June, 2013*
- *European Commission, (2014), Cohesion Policy 2014 – 2020, (http://ec.europa.eu/regional_policy/what/future/eligibility/index_en.cfm) - Last accessed 9th of May, 2014*
- *European Commission, (2014), European Regional Development Fund, (http://ec.europa.eu/regional_policy/thefunds/regional/index_en.cfm) - Last accessed 9th of May, 2014*
- *European Commission, (2014), Energy challenges and policy, (http://ec.europa.eu/europe2020/pdf/energy2_en.pdf) - Last accessed 27th of May, 2014*
- *European Commission, (2014), Report from the Commission to the European Parliament, the Council, The European Economic and Social Committee and the Committee of the Regions, (http://ec.europa.eu/regional_policy/cooperate/macro_region_strategy/pdf/gov_macro_strat_en.pdf) - Last accessed 2nd of May, 2014*
- *European Commission,(2014),Financing Innovation, (http://ec.europa.eu/digital-agenda/en/financing-innovation), Last accessed 2nd of May, 2014*
- *European Commission, (2014), Europe 2020 Targets, (http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/targets/index_en.htm),*

Last accessed 15th of April, 2014

- *EU Strategy for the Baltic Sea Region, 2014, (http://www.balticsea-region-strategy.eu/) - Last accessed 27th of May, 2014*
- *European Union, (2014), Equality and non-discrimination in an enlarged European Union, (http://europa.eu/legislation_summaries/other/l14157_en.htm) - Last accessed 27th of May, 2014*
- *Financial Times, (2012), Waiting for a Train, (http://www.ft.com/cms/s/0/b52628ea-4515-11e2-838f-00144feabdc0.html#axzz2z7whF0oe), Last accessed 17th of April - 2014*
- *Financial Times, (2013), Baltic Power plan meets resistance, (http://www.ft.com/intl/cms/s/0/92bd62f4-5dca-11e3-95bd-00144feabdc0.html#axzz32ucKtR22) - Last accessed 27th of May, 2014*
- *Forbes, (2013), The Baltic Demographic Disaster: Since 1992 The Region Has Lost More Than 20% of Its Population, (http://www.forbes.com/sites/markadomanis/2013/07/19/the-baltic-demographic-disaster-since-1992-the-region-has-lost-more-than-20-of-its-population/) - Last accessed 2nd of May, 2014*
- *Grigas,A, (2014), Legacies, Coercion and Soft Power: Russian Influence in the Baltic States, (http://www.chathamhouse.org/sites/default/files/public/Research/Russia%20and%20Eurasia/0812bp_grigas.pdf) – Last accessed 27th of May, 2014*
- *Independent Banker, (2013), Dodging the Basel Bullet, (http://independentbanker.org/2013/09/dodging-the-basel-bullet/) - Last accessed 2nd of May, 2014*
- *International Monetary Fund, (2009), Stand-by Arrangement –Interim Review Under the Emergency Financing Mechanism, (https://www.imf.org/external/pubs/ft/scr/2009/cr09125.pdf) - Last accessed 15th of April, 2014*
- International Monetary Fund, Outlook for Latvia, 2012, PDF, (https://www.imf.org/external/pubs/ft/survey/so/2012/int020712a.htm) – Last visited 5th of March, 2014

- *Janis Aprans, (2014), Interview*
- *Jyske Invest, (2014), Investering VAMOS – Sådan vælger vi vores aktier, (http://www.bloomberg.com/news/2014-05-04/portugal-to-emulate-ireland-in-exit-from-bailout-program.html) - Last accessed 2nd of May, 2014*
- *Konkurrence- og Forbrugerstyrelsen, (2013), Udbudsregler, (http://www.kfst.dk), Last accessed 6th of June 2013*
- *Lattelecom, 2014, History of Lattelecom, (http://lattelecom.lv/en/about-lattelecom/about-us/history) - Last accessed 27th of May, 2014*
- *Lee, J, Veloso, F.M, Hounshell, D. A, Rubin, E.S, (2010), Forcing Technological change: A case of automobile emissions control technology development in the US.*
- *Massa, S., Testa, S. (2008), Innovation and SME's: Misaligned perspectives and goals among entrepreneurs, academics, and policy makers.*
- *Ministry of Economics, (2014), Response regarding Rail Baltica, Inculkalns and the LNG Terminal - PDF*
- *Ministry of Economics, a, (2014), E-mail response from mr. Jansons, Appendix 4*
- *Ministry of Education and Science of the Republic of Latvia, (2014), Science in Figures, (http://izm.izm.gov.lv/science.html), Last accessed 15th of April 2014*
- *Ministry of Science, 2010, Science in Latvia National Research Programs, (http://izm.izm.gov.lv/upload_file/Zinatne/vpp/Zinatne_Latvija_EN.pdf) - Last accessed 27th of May, 2014*
- *Ministry of Transport, 2011, Rail Baltica Final Report Executive Summary, (http://www.sam.gov.lv/images/modules/items/PDF/item_3195_Rail_Baltica_Final_Report_Executive_Summary_31_05_11_FINAL_v2.pdf) - Last accessed 17th of April 2014*
- *Nordic Investment Bank, 2014, Estlink-2 to tie Baltic power producers closer to the Nordic Markets, (http://www.nib.int/news_publications/cases_and_feature_stories/221/estlink-2_to_tie_baltic_power_producers_closer_to_the_nordic_markets) - Last accessed 27th of May, 2014*
- *RBGC.eu, (2014), Recent Study: The New Rail Baltica Route is Possible,*

(http://www.rbgc.eu/news/recent-study-the-new-rail-baltica-route-is-possible.html) - Last accessed 2nd of May, 2014

- *Regional Policy, (2014), Cohesion policy 2014-2020, (http://ec.europa.eu/regional_policy/what/future/index_en.cfm) - Last accessed 27th of May, 2014*
- *Reuters, (2013), Deadlocked Congress takes U.S. government to brink of shutdown, (http://www.bloomberg.com/news/2014-05-04/portugal-to-emulate-ireland-in-exit-from-bailout-program.html) - Last accessed 2nd of May, 2014*
- *Reuters, (2014), UPDATE 1-Lithuanian utility to seek arbitration against Gazprom, (http://uk.reuters.com/article/2014/01/30/lithuania-gazprom-idUKL5N0L41J020140130) - Last accessed 27th of May, 2014*
- *Rothwell, R. & Zegweld, W (1981), Government regulations and innovation – industrial innovation and public policy*
- *Shareholders.dk, (2014), Aktionærense Ordbog, (http://www.shareholders.dk/videnominvestering/aktieskole/ordbog/index.aspx?letter=) - Last accessed 2nd of May, 2014*
- *Shatrevich, V. Zvanitajs, J, (2012), Innovation Implementation Problems in Latvia*
- *SKANSKA, 2014, New Karolinska Solna University Hospital, (http://www.group.skanska.com/en/campaigns/125/new-karolinska-solna-university-hospital/) - Last accessed 27th of May, 2014*
- *Uyarra, E., Flanagan, K., (2010): Understanding the Innovation Impacts of Public Procurement*
- *Stake, R, E. (1995), The Art of Case Study Research.*
- *Thomas A. (1996): The Organizational Behaviour Casebook. (1st ed.) Boston, USA : International Thomson Business Press. 1-9*
- Wall Street Journal, 2014, Lithuanian "Fools" Risk Delaying Rail Baltic, Says Estonian Minister, (http://blogs.wsj.com/brussels/2014/01/17/lithuanian-idiots-risk-delaying-rail-baltic-says-estonian-minister/) - Last accessed 27th of May, 2014

- Worldbank, Latvia The Transition to a Market Economy, 1993, PDF, (http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/1993/03/01/000009265_3970128103809/Rendered/PDF/multi_page.pdf) – Last visited 5th of March, 2014

- *Yin, R. (1994): Case study research: Design and methods. (2nd ed.) Beverly Hills, CA: Sage Publishing*

10. Appendix

Appendix 1 – Standard & Poor's Ratings

RATINGS DEFINITIONS

The general meaning of our credit rating opinions is summarized below.

Investment Grade	**'AAA'**	Extremely strong capacity to meet financial commitments. Highest Rating.
	'AA'	Very strong capacity to meet financial commitments.
	'A'	Strong capacity to meet financial commitments but somewhat susceptible to adverse economic conditions and changes in circumstances.
	'BBB'	Adequate capacity to meet financial commitments, but more subject to adverse economic conditions.
	'BBB-'	Considered lowest investment grade by market participants.
Speculative Grade	**'BB+'**	Considered highest speculative grade by market participants.
	'BB'	Less vulnerable in the near-term but faces major ongoing uncertainties to adverse business, financial and economic conditions.
	'B'	More vulnerable to adverse business, financial and economic conditions but currently has the capacity to meet financial commitments.
	'CCC'	Currently vulnerable and dependent on favorable business, financial and economic conditions to meet financial commitments.
	'CC'	Currently highly vulnerable.
	'C'	A bankruptcy petition has been filed or similar action taken, but payments of financial commitments are continued.
	'D'	Payment default on financial commitments.

Note: Ratings from 'AA' to 'CCC' may be modified by the addition of a plus (+) or minus (-) sign to show relative standing within the major rating categories.

Appendix 2 – Interview questions

1. A look at the innovation policies show that the focus has been on creating new SME projects which have been predominant, do you agree with this?
2. What role does Public Procurement or Innovation have in the political sphere in these years?
3. Has the Latvian innovation policy been evaluated yet? – If so, which parts have been found to have been successful and which have been deemed a failure?
4. In your view, what is the best way of creating innovation in Latvia? – Should Public Procurement play a role in this, and how should it be financed?
5. Which industries and sectors have been the most supported, and in what way has this been done? Do you think that creating a market through Public Procurement would be better suited?
6. Given Latvia's economic situation after 2008, do you think that a wide scale Public Procurement for Innovation development is possible in the near future, and what about with a timespan of 5 years?
7. Do you think that the way of financing of Public Procurement of innovation is important? Or is the end product and ownerships more important?
8. Both the Barcelona target and Europe 2020 aims to focus at least 3% of GDP into R&D. How do you see Latvia doing this in the best possible fashion? Through Demand or Supply means, and which do you prefer? – and is it even feasible for Latvia to do this by 2020?

Appendix 3 – Overview of EU funds selections

Smart Growth

(1) strengthening research, technological development and innovation;

(2) enhancing access to, and use and quality of, information and communication technologies;

(3) enhancing the competitiveness of small and medium-sized enterprises, the agricultural sector (for the EAFRD) and the fisheries and aquaculture sector (for the EMFF);

Sustainable Growth

(4) supporting the shift towards a low-carbon economy in all sectors;

(5) promoting climate change adaptation, risk prevention and management;

(6) protecting the environment and promoting resource efficiency;

(7) promoting sustainable transport and removing bottlenecks in key network infrastructures;

Inclusive Growth

(8) promoting employment and supporting labour mobility;

(9) promoting social inclusion and combating poverty;

(10) investing in education, skills and lifelong learning;

(11) enhancing institutional capacity and an efficient public administration.

Source: Estonia & Latvia Program (http://www.estlat.eu/2014/thematic-objectives/)

Appendix 4 – E-mail from the Ministry of Economics

Dear Mr. Jorgensen,

With regard to your Master's Thesis, The Ministry of Economics of the Republic of Latvia (thereafter - The Ministry) provides you with the following information on prospective Latvian liquefied natural gas (LNG) terminal project and expansion of Inčukalns underground natural gas storage (UGS) facility.

Under the BEMIP (The Baltic Energy Market Interconnection Plan) and the Projects of Common Interest (PCI) scope, the regional and national LNG terminal project studies have been carried out in the Baltic States and Finland between 2008 and 2012. In particular, every of above mentioned states, including Latvia, were analyzed as a potential location of EC co-financed regional LNG import terminal.

Main objectives in studying the Latvian case was a fact that Latvia has well developed natural gas transportation infrastructure with a technical reserve up to 40%, and the system itself is designed both for assuring sufficient domestic supplies and serve multi directional transit natural gas flows. Also, Latvia plays a crucial role in the security of natural gas supplies in the Baltic, guaranteeing sufficient gas deliveries to the Latvian, Estonian and Russian customers during the winter season.

A possible location and technical characteristic for the Latvian LNG terminal project has been different. Focusing only on the regional LNG terminal project in the Latvian geographical context, the following terminal locations had been reviewed: Riga and Ventspils. When talking about possibility to develop a national LNG terminal project, Skulte and Riga were reviewed as prospective locations. For regional LNG project realization in Latvia, an onshore LNG import facility construction was foreseen, but for national LNG project – a floating LNG import unit technically close to the Klaipeda LNG project in Lithuania.

In case of realization of the national LNG project, the most likely technical solution would placement of Floating Regasification Unit and floating storage unit in an aquatory of a chosen sea port, from where the terminal is linked to an on ground gas interconnection point and to the high pressure transport grid. Advantages this type of LNG import terminal offers are possibility to activate and deactivate import loads very quickly, rent or sell the entire technical complex if its exploitation is not needed anymore for certain economical or other reasons. The realization of the Latvian national LNG terminal project would increase regional natural gas security of supply level and would benefit to the diversification of the natural gas import sources and routs. Also, it could serve as a base for creation of the Eastern Baltic natural gas hub trading platform.
The construction of this terminal type is flexible and cost effective solution. Prospective investors would rent terminal's floating elements for 95 million EUR/year with a lease agreement of 10 years and possibility to buy a facility after the lease period is over.

However national LNG terminal projects cannot qualify for receiving EC co-financing. The prospective period of time for construction of terminal (including enhancement of on

ground infrastructure and gas grid connections) – 24 months, with an annual natural gas import capacity of 1 BCM.There are unique geological conditions for creation of a system of natural underground gas storages (UGSs) in Latvia with a total natural gas storage potential up to 50 billion m3 (BCM; the volume that is similar to the volume of underground gas storages used in the rest of European Union (EU) countries together).

Inčukalns UGS, the only functioning UGS in the Baltic States, which ensures the stability of seasonal regional natural gas supplies.
The construction of Inčukalns UGS began on May 26, 1966 and was completed on August 9, 1968. Next summer the first 92 million m3 of natural gas, which was received from the Ukraine, was injected into the storage. UGS's role increased considerably in 1972, when construction of a pipeline that links Latvia and Western Siberia was completed.
Today, during the summer season, when the consumption of natural gas is many times lower than during the colder months, natural gas is injected into the storage, so that it can be supplied, during the heating season, to customers in Latvia, Estonia, northwestern Russia, and (in smaller amounts) Lithuania.

Current capacity of the Inčukalns UGS facility is 4.47 billion m^3, of which 2.32 billion m^3 is active or regularly extracted natural gas.
A seasonal daily natural gas withdrawal capacity from Inčukalns UGS is 24 million m3, half of which is allocated to consumers in Latvia, while Russia and Estonia each get 6 million m3 daily. According to study "Future Development of the Energy Gas Market in the Baltic Sea Region" carried out in 2009 by "Ramboll", importance of Inčukalns UGS in the future will only increase, therefore, the storage needs further modernization and gradual expansion. It would boost security of supply in the entire East-Baltic region, and also improve efficiency of the regional LNG terminal and Klaipeda LNG terminal by offering opportunity to store gas reserves and freely use them in case of uneven supply. Security of gas supply for Finland also would rise because gas reserves of this country would also be kept here after the Baltic – Finnish natural gas interconnector Balticconnector is built.

Inčuklans UGS expansion project is on PCI list developed by the European Commission (EC) and it is located in a cluster of complimentary projects of the Intra - Baltic natural gas connections. It is planned that modernization of Inčukalns UGS with a capacity increase up to 3.2 billion m3 will be realized in three stages till 2020.

Yours Sincerely,

Leo Jansons

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