Master Thesis

Competitiveness in the European Union

An evaluative study of the Lisbon Strategy

Name: Maaike Platenburg

Student Number: 266482

Study: International Public Policy & Management

Faculty of Social Sciences

Erasmus University Rotterdam

Coach: Dr. F.K.M. van Nispen

Co-reader: Prof. Dr. C.W.A.M. van Paridon

Date: 7 August 2007

Preface

The final report has been written for the master in International Public Policy and Management at the department of Public Administration of the Erasmus University. The research has been partly undertaken as part of an internship at ECORYS (Appendix A). My interest in the subject stems from the fact that it is a good combination of two studies which I have done. For my master in International Business Administration I have already extensively studied competitiveness and believed it was an interesting subject. During my current master in International Public Policy, my interest in the European Union has grown. Combined with an internship at ECORYS this has been great opportunity to learn more about the subject and to analyse whether the European Union's policies in this field are effective.

During the process of writing my thesis I had the help of a number of people which I would like to thank. First of all, my coach, Frans van Nispen, who not only helped me with my thesis but also with all other types of questions which I had during my studies in public administration. I would also like to thank Koen Berden who helped me especially with the chapter on models of competitiveness and was my supervisor during my internship. Furthermore, I would like to thank Kees van Paridon for being my co-reader, and finally my family and friends for supporting me along the way.

Maaike Platenburg

Executive Summary

Problem analysis and Methodology

The central question which will be answered in this research is 'how can EU policy on competitiveness be improved?'. Several sub questions were formulated to reach to the central question:

1. *What is the European policy on competitiveness?*
2. *What are the policies on innovation, R&D and ICT in the Netherlands, Sweden and Spain?*
3. *What is the relevance of the Lisbon strategy and the policies on innovation, R&D and ICT in the Netherlands, Sweden and Spain?*
4. *What is the economy of the policies on innovation, R&D and ICT in the Netherlands, Sweden and Spain?*
5. *What is the effectiveness of the policies on innovation, R&D and ICT in the Netherlands, Sweden and Spain?*
6. *Which recommendations can be made for policies on innovation, R&D and ICT in the Netherlands, Sweden and Spain?*

This research is an evaluative research which will analyse the Lisbon strategy based on three criteria; relevance, economy and effectiveness. Three case studies will be conducted, one in the Netherlands, in Sweden and in Spain.

Theoretical Background – Policy, policy analysis and policy evaluation

Policies can be seen in different ways; as actions, plans or a combination of both. Policy analysis is also described in various ways. Different types of policy analysis are for instance prescriptive and descriptive analysis, retrospective and prospective analysis and analysis for and of policy. The policy process is made up of several elements of which evaluation is an important one. Different types of evaluations are, for instance, summative and formative evaluation and ex ante and ex post evaluations. Different criteria can be used to evaluate public policy; effectiveness, efficiency, relevance and coherence are amongst these criteria. Unfortunately, also problems can occur with evaluations, for instance due to policy issues, time issues or methodological issues.

Theoretical Background – competitiveness

A literature survey on competitiveness shows that different types of competitiveness exist; regional, macro-economic, micro-economic and industry competitiveness. Several economic, but also other types of theories explain the notion of competitiveness. Measures of competitiveness which are mentioned are for instance GDP per capita, FDI and trade, productivity, employment rate, earnings, market share, environment and social justice. Drivers of competitiveness which are mentioned in several articles are for instance infrastructure, cost competitiveness, education, institutions, innovation, cooperation, competition and coordination. Furthermore, the role of policies in

strengthening competitiveness is discussed. Which level of government should deal with this issues and what policies should be implemented are among the issues which are dealt with.

EU policy on competitiveness – the Lisbon Strategy

The Lisbon strategy was first formulated in 2000 by the European Council. After five years a High Level Group was installed to evaluate the Lisbon Strategy and came to the conclusion that a renewed Lisbon strategy should be formulated. This strategy was focused on three pillars: 1) Making Europe a more attractive place to invest and work; 2) Knowledge and innovation for growth; and 3) Creating more and better jobs. The Lisbon strategy has to be implemented by involving as many stakeholders as possible to create a sense of ownership. For the European Community, the Lisbon Community Plan was developed and the Member states had to formulate National Reform Programmes, which had to include a number of integrated guidelines. Considering the relevance of the policies of the Lisbon strategy it could be concluded that a large amount of the theories came back in the policies. There are still a number of aspects which the European Union did not include in its policies and might consider. These are using trade and FDI as measures of competitiveness and cooperation between companies as drivers of competitiveness, having different policies for different regions and including different levels of policy making. Aspects which should be kept in mind when analysing the policies, is that policies always have negative effects on certain people and indicators do not always show a complete picture.

Innovation, R&D and ICT in three countries

In the national reform programmes of the Netherlands, Sweden and Spain, the objectives, inputs and planned activities are shown. In the progress reports the outputs and the results are shown. The European statistical database shows even more information on the quantitative results of the Lisbon strategy.

Table 1: Evaluation of the policies

Guideline		**NL**	**SV**	**ES**
R&D	Relevance	+++	++	+++
	Focus	+++	+++	+++
	Operational effectiveness	++	++	++
	Specific effectiveness	n/a	n/a	n/a
Innovation	Relevance	++	+	++
	Focus	++	+	++
	Operational effectiveness	++	++	++
	Specific effectiveness	n/a	n/a	n/a
ICT	Relevance	+	++	+++
	Focus	++	++	++
	Operational effectiveness	+	+	+++
	Specific effectiveness	+++	n/a	++

In table 1 an overview is given of the evaluation of the three countries. Analysis of the relevance of the National Reform Programmes showed that for all countries, guideline number 7 on R&D promotion was most important. Sweden put the least emphasis on guideline number 8 and Spain put the least emphasis on guideline number 9. However, Spain does put a lot of emphasis on making ICT available in households, SMEs and government and ensuring a broadband network. No country looks at the public procurement of innovative products and services and the promotion of a strong European Industrial presence in key segments of ICT. The economy and effectiveness of the National Reform Programmes of the three countries is analysed as well. Of all the countries Spain had the highest level of operational effectiveness. Moreover, this country mentioned all different policy measures and is therefore clearest in its formulation. Spain and Sweden added a lot of new policy measures in their progress reports. Specific effectiveness was difficult to analyse due to a lack of data.

Conclusions

The central question which was raised in this research was: 'How can EU policies on competitiveness be improved?'. Several recommendations can be formulated both for the EU and the three different countries, which are shown in the table 2.

Tabel 2: Recommendations

Lisbon strategy	**The Netherlands**	**Sweden**	**Spain**
Using trade as a measure of competitiveness	Emphasizing increasing youth educational attainment	Consider the recommendations of the OECD	Working on synergies between regional innovation systems
Using FDI as a measure of competitiveness	Increasing R&D expenditure	Focusing more on area oriented policy	Public procurement of innovative products and services
Emphasizing regional policies	Modernising management of universities and research institutions	Focus more on innovation and technology transfer (national and international)	Attracting more students into scientific, technical and engineering disciplines
Stressing cooperation between companies	Focusing more on PPP's	Improving reporting	Intellectual property rights enforcement
Emphasizing cooperation between governmental levels	Improving reporting		Ensuring security of networks and information
Promotion of a strong European industrial presence			Enhancing the mobility of researchers and development

			personnel
			Focus more on policies for improving ICT
			Considering area-oriented policies

Limitations of this research were the number of countries, guidelines and criteria. After reflecting on the research it became clear that the data, timing and interpretation could be improved. Recommendations were including more countries in the analysis and interviewing policy makers.

Table of Contents

Figures

Tables

List with abbreviations

EC	European Commission
ES	Spain
EU	European Union
EZ	Ministry of Economic Affairs, the Netherlands
FDI	Foreign Direct investment
GDP	Gross Domestic Product
HLG	High Level group
ICT	Information and communication technology
IT	Information technology
LNV	Ministry of agriculture, nature and food quality, the Netherlands
NL	The Netherlands
NRP	National Reform Programme
OCW	Ministry of Education, Culture and Science, the Netherlands
OECD	Organisation for economic cooperation and development
PPP	Public Private Partnership
PR	Progress report
R&D	Research and Development
SEK	Swedish krona
SME	Small and medium-sized enterprises
SV	Sweden
US	United States
VROM	Ministry of Housing Spatial development and the Environment, the Netherlands
VWS	Ministry of Health, welfare and sport, the Netherlands

1 Problem Analysis and Methodology

1.1 Introduction

In this chapter the research context will be discussed firstly. This will be followed by the research objective and the research questions. The research framework will be explained fourthly after which the research design will be elaborated on. Furthermore, an explanation of the choice of case studies will be shown and finally the structure of this thesis will be given.

1.2 Research Context

In 2000 the leaders of European Union set the Lisbon Agenda. It set a commitment for the European Union to become the most competitive and dynamic knowledge based economy in the world in 2010. The Lisbon strategy is based on three pillars; the social, economic and environmental pillar. In 2005 the Lisbon strategy was revised due to unclear objectives and unconvincing results (http://europa.eu/scadplus/glossary/lisbon_strategy_en.htm). The revised Lisbon strategy focuses on key actions on three main areas:

- Knowledge and Innovation for growth
- Making Europe a more attracting place to invest and to work
- Creating more and better jobs

(Commission of the European Communities, 2005)

Competitiveness is an important part of the Lisbon Strategy. However what exactly is competitiveness? What are the factors underlying competitiveness and what does the European Union do to enhance the competitiveness of its countries and regions? This study will look at these questions and furthermore evaluate policies on innovation, R&D and ICT in the Netherlands, Sweden and Spain. It will look at the National Reform Programmes and Progress reports of three countries and determine the relevance, economy and effectiveness of policy.

1.3 Research Objective

In this research an evaluation of EU policy in the field of competitiveness will be made. The research objective can be formulated as follows:

To analyse the meaning of competitiveness, give an overview of competitiveness policy in the European Union and evaluate the relevance, economy and effectiveness of policies on R&D, innovation and ICT in the Netherlands, Sweden and Spain.

1.3.1 Academic Objective

Public administration studies the workings and organisation of the government and has two bridging functions according to Hakvoort (1995). First of all, a bridging function exists between different disciplines. Knowledge on the government from economics, sociology, law and political science are brought together. A number of sub-disciplines are also brought together in

public administration such as policy analysis, human resource management and communication science. Secondly, a bridge is made between practice and theory. In this research knowledge from the economic discipline will be used, as well as from the discipline of policy analysis. Theory on evaluation is used to evaluate policy of the European Union on competitiveness. This research will result in better insight in the Lisbon Strategy of the European Union and the follow-up activities in three nations.

1.3.2 Practical Objective

The practical objective of this project lies in various aspects. First of all, ECORYS will be able to use the information on competitiveness and on the current EU policies on competitiveness. Secondly, the practical objective will lie in the recommendations on improvements of EU policy on competitiveness. This could be useful for various governmental agencies such as the EU, the ministry of foreign affairs and the ministry of economic affairs of the three countries, but also for employers in the EU.

1.4 Research Questions

1.4.1 Central Question

This central question will be answered after first answering the sub-questions. This general questions can be answered in many different ways, but in this case it will be answered based on an evaluation of the relevance of the Lisbon strategy as a whole and an evaluation of the relevance, economy and effectiveness of policies on innovation, R&D and ICT in three countries. This corresponds with guidelines 7,8 and 9 of the National Reform Programmes (NRP).

How can policies on competitiveness be improved?

1.4.2 Sub Questions

Several sub-questions have been formulated in order to be able to answer the central question of this research.

1. *What is the European policy on competitiveness?*

The European Union deals with competitiveness through the Lisbon strategy. Its elements will be described in order to be able to answer this question.

2. *What are the policies on innovation, R&D and ICT in the Netherlands, Sweden and Spain?*

In the National Reform Programmes, the three countries describe the policy plans for innovation, R&D and ICT. An overview will be given of the objectives, inputs, activities, outputs and results of the policies.

3. *What is the relevance of the policies on innovation, R&D and ICT in the Netherlands, Sweden and Spain?*

The relevance of the policies implies to what extent the programme's objectives are pertinent in relation to the evolving needs and priorities at both national and EU level (EC, 2004). An analysis will be made of the Lisbon strategy in light of the theories of competitiveness. Furthermore, the national policies will be analysed for their relevance, both in relation to the current situation in the country and with respect to the formulated integrated guidelines.

4. *What is the economy of the policies on innovation, R&D and ICT in the Netherlands, Sweden and Spain?*

To answer this question, an analysis will be conducted of the inputs of the policies. How much are the countries planning to spend on policies and how much have they spend on these policies will be considered.

5. *What is the effectiveness of the policies on innovation, R&D and ICT in the Netherlands, Sweden and Spain?*

Within the EU effectiveness is described as the extent to which objectives set are achieved (Evaluating EU Expenditure Programmes, 1997). In the national reform programmes a description is made of the planned activities. The question is whether they have actually been undertaken and if the indicators are positively influenced by these activities.

6. *Which recommendations can be made for policies on innovation, R&D and ICT in the Netherlands, Sweden and Spain?*

Based on the answers to the questions 3 to 5 recommendations can be formulated for the policies on innovation, R&D and ICT in the three countries. What can they do to improve their policies in this field.

1.5 Research model

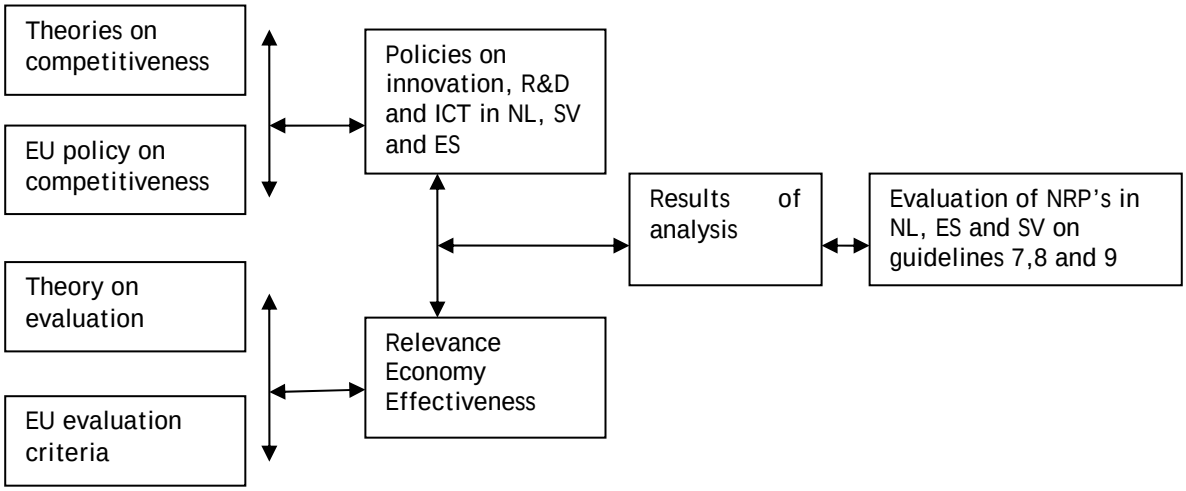


Figure 1: Research model

After describing the EU policy on competitiveness a specific focus will be put on the policies dealing with Innovation, R&D and ICT in the Netherlands, Sweden and Spain. These have been formulated to lead to an attainment the Lisbon goals and are formulated in the national reform programmes of the countries. On the other hand, theories on evaluation and the EU evaluation criteria will be used to develop a number of criteria which will be used to evaluate the policies. The evaluation will look at the relevance of the Lisbon strategy as a whole and the relevance, economy and effectiveness of the policies in the three countries. The results in the Netherlands, Sweden and Spain will also be compared with each other.

1.6 Research Design

This research is made up of several steps, which can also be seen in the steps of policy evaluation of Bressers and Hoogerwerf (1995). This research will mainly focus on the first three aspects due to time and information constraints.

1. **Preparation:** The preparation phase of the research is this chapter, a subject is chosen and the criteria for evaluation are selected.
2. **Systematically describing policy and the policy field**: The policies on innovation, R&D and ICT which will be evaluated, are part of the broader EU policies on competitiveness; the Lisbon Strategy. This policy field is described in chapter four on EU policy on competitiveness. In chapter five an overview will be given of these policies in the Netherlands, Sweden and Spain. These will be structures according to those formulated in the EU expenditure Programme (1997): Objectives, inputs, activities, outputs and results. Outcomes will not be dealt with since this information is not yet available.
3. **Determine to what extent the criteria or indicators are being met:** In this research an analysis will be made of three criteria; relevance, economy and effectiveness. A choice was made to base the criteria on the documents of the EU, since it are EU policies. As can be seen in chapter two, page 18, the EU uses a number of criteria for interim evaluations. A restriction was made to analyse three criteria for interim evaluations; relevance, economy and effectiveness. The time frame and scope of this research were too limited to find all the information necessary to be able to conduct a full interim evaluation. Furthermore, the policies were only implemented a year ago, which makes it very difficult to analyse the impact of the policies. The information will be based on data received from the European Statistical database (Eurostat), policy documents of the countries (the National reform programmes and the progress reports) and policy documents of the European Union.

This research is an evaluative research. This is a practice-oriented research which is oriented towards the last step in the intervention cycle; evaluation (Verschuren en Doorewaard, 1999). This research can be described as a case study research based on qualitative and quantitative

data. Several types of knowledge are used in this research. Descriptive knowledge is used to describe the current EU policy on competitiveness, theories on competitiveness and to describe the national reform programmes of the Netherlands, Sweden and Spain (Research questions 1, and 2). Evaluative knowledge is used to answer questions 3 to 6.

The evaluative research is done using a number of criteria, which are product-oriented, and based on the literature on policy evaluation by the European Union. It can be described as a formal policy evaluation, since the criteria and the objectives which are used to evaluate the policy are set up by the policy makers themselves; the European Union. This research will be a retrospective outcome evaluation since no control can be exerted over policy inputs and processes. The research will have summative and formative elements, since both the outcomes and how these outcomes came into place are looked at.

1.6.1 Evaluation of the Relevance of policy

The EU describes relevance as "The extent to which an intervention's objectives are pertinent to needs problems and issues to be addressed" (EC, 2004). The analysis of the relevance of policy will be done at three different levels:

- The situation in the European Union will be compared with the situation in Japan and the United States to analyse whether it is necessary for the Union to have such policies in place.
- The policies put forward in the Lisbon strategy will be tested on the theories on competitiveness. Several types of competitiveness will be explained in chapter three. Chapter four will show which types of competitiveness are of importance for the Lisbon strategy. Furthermore, several articles mention a number of measures of competitiveness and drivers of competitiveness. An evaluation of the Lisbon strategy will be conducted to see to what extend these measures and drivers are included in the Lisbon strategy and how the Lisbon strategy can be improved in this respect. A further focus will be made on the policies on innovation, R&D and ICT to see whether the integrated guidelines include all possible aspects.
- In chapter five, the relevance of the National reform programmes will be analysed. First of all, an analysis will be made of to what extent the policies in the fields of innovation, R&D and ICT are necessary for the country. Secondly, an analysis will be done to what extent the national reform plans focus on certain policies. By combining these two aspects it will become visible whether the policies which are put forward in the National Reform programmes are actually relevant.

1.6.2 Evaluation of the economy of policy

Analysing the economy of policy is dealing with "the extent to which resources are available in due time, in appropriate quantity and quality and the best price" (EC, 2004). It will not be

possible to answer this question fully, due to insufficient data. However, a description of the finances which are allocated to the policies will be given as well as a description of what was actually spent on the programmes in 2006.

1.6.3 Evaluation of the effectiveness of policy

Effectiveness is the other evaluation criteria which is analysed in this research. The EU describes effectiveness as "extent to which objectives set are achieved". This can therefore also be formulated as the level of goal attainment of the policies. This can be divided into two parts, namely the operational effectiveness, which means how many policies have actually been implemented and the specific effectiveness, looking at whether the countries now score better on the indicators. In the progress reports of 2006 the results of the NRPs are shown after one year. By comparing the progress reports with the National Reform Programmes, operational effectiveness can be analysed. The results of the three evaluations in the three countries will be compared to each other.

1.6.4 Data collection

Several methods of data collection will be used. First of all, literature will be used as a knowledge source to explain the concept of competitiveness. Literature will also be used to learn more on how to conduct an evaluative research. Secondly, policy documents will be used to review the current EU policy on competitiveness. Furthermore, the statistical databases of the EU will be used to gather information on the several objectives of the EU Lisbon agenda.

1.7 Case studies

The advantages of case study research are flexibility and the possibility of gaining an overall picture. Yin (2003) states that there are three conditions which favour the application of a case study; 1) the use of a why or how question, 2) no control over behavioural events and 3) a focus on contemporary events. In this case, no control can be exerted over the events, a how question is being asked and the focus lies on a contemporary event, which justifies the use of the case study method.

After analysing the Lisbon strategy as formulated by the European Union, three case studies will be conducted. The National Reform Programmes of the Netherlands, Sweden and Spain will be studied in more detail, specifically regarding guidelines 7, 8 and 9. The choice for looking at guidelines number 7 to 9 was made because of personal interest and because of the fact that innovation, education and ICT are mentioned many times by many scholars as being important, or even the most important, drivers of competitiveness. The choice was made for these three countries because they are very different from each other when looking at the initial situation. Sweden is performing very well; the goals for the structural indicators of the EU have already been met by this country. It has a high employment rate, level of R&D investments, educational attainment and low long-term unemployment rate. Spain is a country which still has to do a lot

to achieve the goals of the European Union; its employment rate is below 70%, the educational attainment is slightly below EU average and expenditure on R&D has to improve considerably. The Netherlands can be placed somewhere between these two countries; it's employment rate is above 70%, but youth educational attainment is below EU average and expenditures on R&D need to be improved. On the other hand, long-term unemployment is low as is the dispersion of regional employment rates (eurostat). Furthermore the choice of these three countries is made on a personal basis since my home country is the Netherlands, and I have studied in Sweden for half a year.

1.8 Conceptual Model

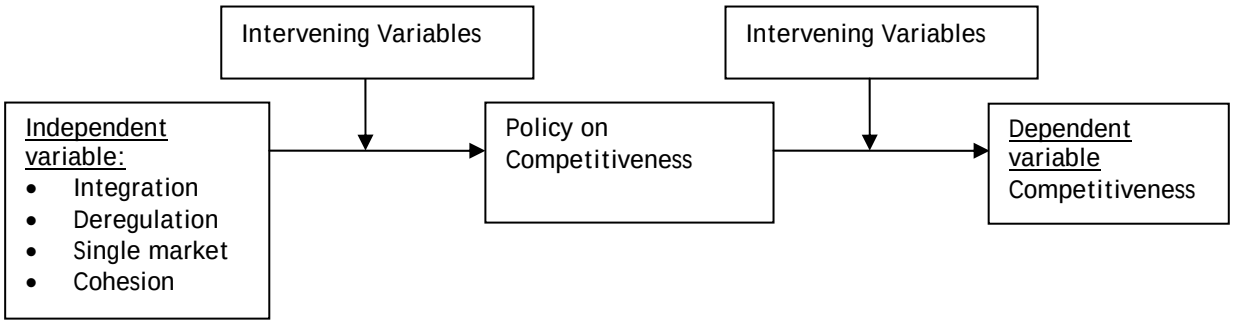


Figure 2: Conceptual model

The European Commission strives for deeper integration in the countries of the European Union and makes this concrete by having policies on competitiveness. Several variables intervene in this relationship. One could think of the political situation in the country, the current economic situation or cultural aspects which influence these relationships.

1.9 Quality of research design

1.9.1 Construct validity

According to Yin (2005) construct validity deals with establishing the correct operational measures for the concepts being studied. The operational measures which are used in this study have been defined by the European Union, therefore, no influence have been placed on them. However, the measures could be interpreted differently.

1.9.2 Internal validity

Internal validity is described as "establishing a causal relationship, whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships" (Yin, 2005). Another way of saying this is by making sure that you are actually measuring what you want to measure. I believe that the internal validity is quite high in this research, because of the use of policy documents. However, it could also be the case that not all information is presented in the policy documents which could make the internal validity lower.

1.9.3 External validity

External validity deals with establishing the domain to which a study's findings can be generalised (Yin, 2005). The generalisability of this research is relatively low; the three case studies are completely different and it is difficult to make generalisation for other countries. However, an effort will be made to do so. Benchmarking can be used to show best practices in countries which can be used by other countries as well.

1.9.4 Reliability

According to Yin (2005), reliability of research refers to "demonstrating that the operations of a study – such as the data collection procedures - can be repeated with the same results". The use of policy documents is clear, therefore, if the research would be conducted again it would be on the basis of the same data. However, interpretation differences could occur which makes it less likely that the research could be repeated with the same results.

1.10 Structure of the thesis

Chapter 1: Problem Analysis and Methodology

This chapter provides the research context of this study. The research objective, the research questions and the research framework will be discussed. Furthermore, the research design will be explained in this chapter. The research methods used in this study will also be provided as well as a contextual framework.

Chapter 2: Theoretical framework - Policies, policy analysis and policy evaluation

In this chapter an overview of the literature on policies, policy analysis and policy evaluation will be given. Subjects which will be dealt with are what the different elements of policy analysis are, how the policy process looks like, but also an explanation of evaluations and its elements. Finally, criticism or problems with evaluations will also be elaborated on.

Chapter 3: Models of Competitiveness

The issue of competitiveness will be discussed in chapter three. The different perspectives of competitiveness, the theories behind competitiveness and measures and drivers of competitiveness will be explained. Furthermore, an explanation of the policy implications of competitiveness will be given.

Chapter 4: EU policy on competitiveness – The Lisbon strategy

An overview on EU policies on competitiveness will be shown in this chapter. It will start with an explanation of the Lisbon strategy as formulated in 2000. Furthermore the renewed Lisbon strategy will be elaborated on and the various stakeholders will be mentioned. Finally, in this chapter an evaluation of the relevance of the Lisbon strategy as a whole will be conducted.

Chapter 5: R&D, innovation and ICT in the Netherlands, Sweden and Spain

This chapter will give an overview of the Lisbon strategy in the Netherlands, Sweden and Spain and will especially focus on guidelines 7 to 9. The chapter will explain the national reform programmes and will show the progress reports. The objectives, inputs, activities, outputs and results of the policies of national reform programmes of the three countries will be shown.
Several criteria will be used to evaluate the policies of R&D, innovation and ICT in the Netherlands, Sweden and Spain. Firstly, the relevance of the policies is looked at, followed by the economy of the policies. Furthermore the operational and specific effectiveness of the policies is shown. The results of the evaluations of the three countries will be compared to each other in this chapter as well.

Chapter 6: Conclusions

The main results of this research will be summarized and presented in this chapter. The research questions will be answered, limitations of this research will be discussed and finally, a reflection will also be part of the final chapter.

1.11 Summary

The Lisbon Agenda has become an important policy goal of the European Union; it states that the EU should become the most competitive and dynamic knowledge economy in the world. The competitiveness of the European Union is very important in achieving this.

The research objective was stated as follows in this chapter:
'To analyse the meaning of competitiveness, give an overview of competitiveness policy in the European Union and evaluate the relevance, economy and effectiveness of policies on R&D, innovation and ICT in the Netherlands, Sweden and Spain.'

Several research questions have been mentioned as well as the academic and practical objective. Furthermore, in this chapter a description of the research design was given. This research will be a case study research based on qualitative data. Descriptive, evaluative and prescriptive knowledge is used and several criteria are used to evaluate EU policy on competitiveness. Literature, policy documents, and statistical information will be used to gather information.

2 Theoretical framework – Policies, policy analysis and policy evaluation

2.1 Introduction

In this chapter, policies, policy analysis and policy evaluation will be discussed. First of all, the meaning of policies and policy analysis will be given, several types of policy analysis will be discussed, as well as the elements of policy analysis. In the following section of this chapter policy evaluation will be explained starting with definitions, followed by types of policy evaluation, elements of policy evaluation and an explanation on how to conduct evaluations. Finally problems or obstacles with evaluations will be explained and a short summary will be given at the end of the chapter. This chapter will serve as the theoretical framework for evaluating the Lisbon strategy in chapters four and five.

2.2 Policies

A lot has been written on the subject of policies and policy analysis. Scholars have different opinions on what policy exactly is. The definitions can include a plan, actions or both (Van Nispen, 1993; Hoogerwerf, 2003). For example, Kuypers (1980) describes policy as a system of chosen elements, of which each relates to one or more of the others as a goal to a means or as a mean to a goal. Another example is the definition of Hoogerwerf (2003) who states that policy can be described as striving for the attainment of certain goals with certain means and certain choices related to time. Wildavsky (1987) states that policy is both a product as a process and that policies are used to solve problems, but are also its own cause of problems.

Policies can be divided into several aspects. Hoogerwerf (2003) makes a distinction between goals, means and choices concerning time. Dunn (2004) makes a division of policy aspects as well; he states that policies can be divided into four aspects namely policy outcomes, policy actions, policy inputs and policy processes. Policy outcomes can then be divided into policy outputs, which are goods, services or resources received by target groups and beneficiaries and policy impacts, which can be described as actual changes in behaviour or attitudes that result from policy outputs (Dunn, 2004). The EU states that policies can be divided into several aspects as well. The key issues are needs, objectives, inputs, actions, outputs, results and outcomes. Objectives of an expenditure program could be expressed in outputs or impacts. Output is what the programme produces, impacts are the effects the programme induces. Impacts can be further divided in results, which is described as the initial impact of the programme, and outcome, which identifies the long-term impact of the programme (EC, 2004). Several aspects can be of influence on policy instruments such as the environment, the actors and the relationships (Hoogerwerf, 2003).

2.3 Policy analysis

2.3.1 Definitions

Various definitions are used by scholars to describe policy analysis, some of which will be shown in this section. Policy analysis is described by Wildavsky (1987) as "an activity creating problems which can be solved". Dunn (2004) describes a policy problem as "an unrealized value or opportunity for improvement which, however identifies, may be attained through public action". The same author states that "policy analysis is a process of multidisciplinary inquiry designed to create, critically assess and communicate information that is useful in understanding and improving policies" (Dunn, 2004;p2). Hoogerwerf (2003) believes that policy science deals with the study of the content, process and effects of policy in their political and social environment. Kuypers (1980) has another definition stating that policy analysis deals with studying the contents, structure, development and realization of policy. Finally, public policy analysis is described quite differently by Nagel (2002), he believes that policy analysis deals with "determining which of various alternative public or governmental policies will best achieve a given set of goals in the light of the relations between policies and goals".

2.3.2 Types of policy analysis

Policy analysis is looked at from different perspectives, which will be discussed in this section.

- Prospective and retrospective: Retrospective policy analysis is conducted by establishing a view of the past and prospective policy analysis by seeking rewards in the future (Wildavsky, 1987). Another way of describing this is the difference between ex ante and ex post policy analysis (Dunn, 2004).
- For and of policy: Policy analysis can be conducted for policy by analyzing what should be included in the policy. It can also be conducted of policy looking at what the policy looked like, what the processes and effects were (Gordon, Lewis & Young , 1977, in Van Nispen, 1993).
- Prescriptive and descriptive: Descriptive about what has been done and prescriptive on what should be done in the future (Wildavsky, 1987)
- Subjective and objective: A subjective choice is made for which problems need to be worked in and an objective choice is made by getting people to agree on the consequences of a variety of alternatives (Wildavsky, 1987).
- Descriptive and normative analysis: Descriptive policy evaluation deals with explaining, understanding and predicting policies by identifying patterns of causality. Normative policy analysis "refers to a set of logically consistent propositions that evaluate or prescribe action" (Dunn, 2004).
- Problem finding and problem solving: When dealing with problem finding one tries to discover the elements that go into the definition of a problem whereas problem solving has to do with finding solutions to problems (Dunn, 2004).

- Monitoring, forecasting, evaluation and recommendation: Monitoring is used to produce information about observed outcomes of policies, this is descriptive information. Forecasting is used to produce information about expected outcomes of policy, which is predictive in nature. Evaluation produces information about the value or worth of served and expected outcomes, in other words appraisal of a policy. Recommendation produces information about preferred policies, which is prescriptive information (Dunn, 2004). An overview of these types of policy analysis is shown in figure 3.

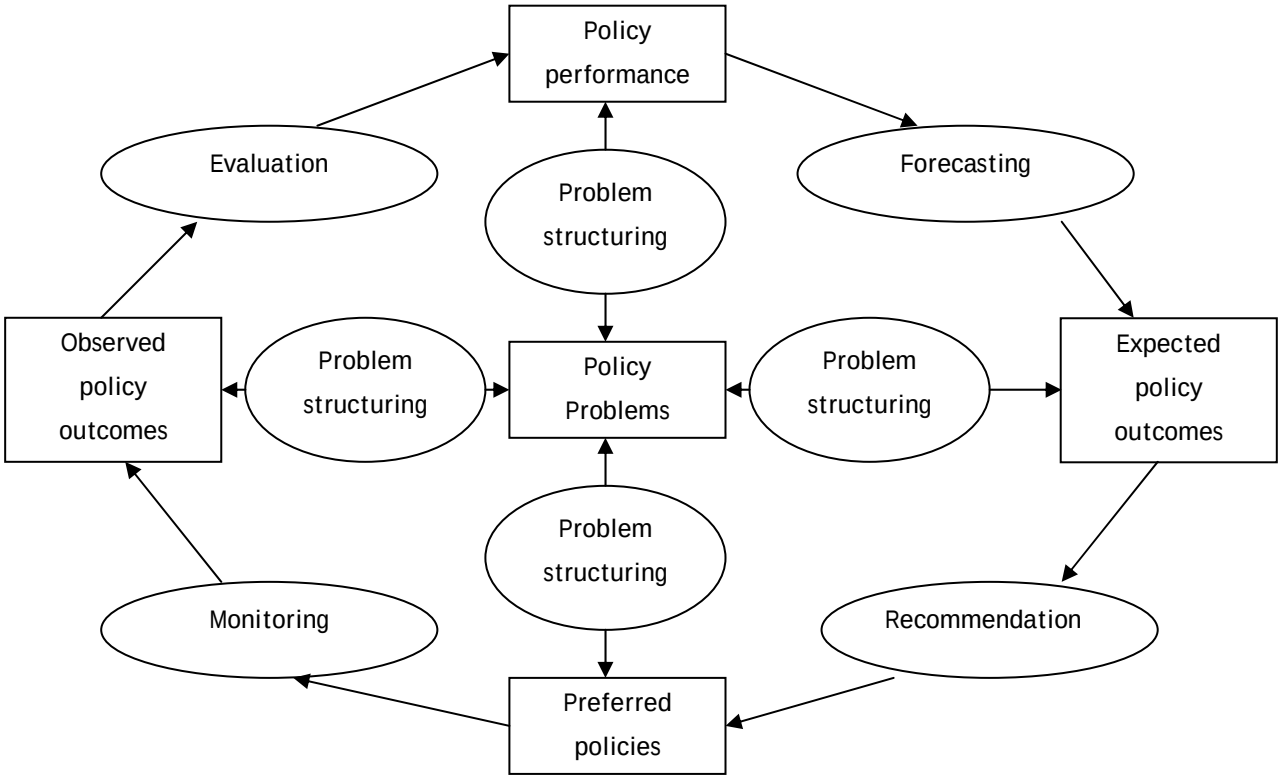


Figure 3: Process of integrated policy analysis (Dunn, 2004; p4)

2.3.3 Policy process

The policy process can be characterized by several aspects (Hoogerwerf, 2003). It is a dynamic process, a mutual influence between factors and actors in the process exist, it is characterized by a sequence of happenings with a recognizable course.

The policy process is made up of several elements. However, not all scholars agree on which elements are part of this process. This is illustrated in the table below showing the ideas of three scholars.

Table 3: Policy Process

Dunn (2004)	Hoogerwerf (2003)	Hakvoort (1995)
• Agenda setting	• Agenda setting	• Problem identification
	• Policy preparation	• Problem analysis
		• Diagnosis
• Policy formulation	• Policy formulation	• Advice
• Policy adoption		
• Policy implementation	• Policy implementation	• Action
	• Policy preservation	
• Policy assessment	• Policy evaluation	• Evaluation
• Policy adaptation		
• Policy succession		

All scholars mention the fact that policy feedback loops are present, it is an iterative process. Not all stages of the process are equally long, and some stages might even be skipped. Furthermore, it could be the case that some stages are not completed or that the entire process is stopped before it is finished and that the process starts all over again. Even though the policy cycle is looked at differently in these three cases, all mention an evaluation or assessment as part of the policy cycle, this will be dealt with into more detail in the next section.

2.4 Policy Evaluation

2.4.1 Definitions

Evaluation can be defined as: "The process of determining the merit, worth or value of something or the product of that process" (Scriven, 1991). Policy outcomes have value when they contribute to goals and objectives (Dunn, 2004). Evaluation has a number of characteristics, namely that it has a value focus, that it deals with fact-value interdependence, it has a past and present orientation, and value duality. According to Dunn (2004) evaluation has several functions:

- Providing reliable and valid information about policy performance
- Contributing to the clarification and critique of values that underlie the selection of goals and objectives
- Contribution to the application of other policy-analytic methods, including problem structuring and recommendation.

Bressers and Hoogerwerf (1995) use a different definition of policy evaluation; they state that policy evaluation is the evaluation of the content, processes or the effects of a policy based on a number of criteria. According to the paper on Evaluating EU Activities (2004) an evaluation can be defined as "judgement of interventions according to their results, impacts and needs they aim to justify".

2.4.2 Purposes and use of policy evaluation

Evaluation is being used for policy development, project or programme evaluation, accountability, self-governance of institutions, impact or outcome assessments and so on (European Evaluation society, 2006). Batterbury (2006) identifies a number of purposes of evaluation:

- Accountability and legitimacy
- Improved quality and performance
- Better planning and programme design
- Enhanced capacity
- Policy an organizational learning
- Increased ownership of the programme and/or the evaluation
- Empowerment of the stakeholders.

According to the EU (2004) the evaluations should be analytical, systematic, reliable, issue-oriented and user driven and main purposes of an evaluation are:

- To contribute to the design of interventions, including providing input for setting political priorities
- To assist in an efficient allocation of resources
- To improve the quality of the intervention
- To report on the achievements of the intervention (i.e. accountability)

Evaluations are used by governments increasingly often (Sanderson, 2002, European Evaluation society, 2006, Baslé, 2006). They are turning to evidence of performance for legitimacy purposes says Sanderson (2002), because it is no longer solely guaranteed by political processes. Pawson and Tilley (1997) state that policies can be made better by understanding how the mechanisms bring about change in social systems to achieve desired outcomes. Evaluation should eventually show "what works for whom in what circumstance" (Pawson and Tilley, 2002).

Even though it is acknowledged that the results of policy evaluations should be incorporated into new policy making, this is often not the case (Bressers and Hoogerwerf, 1995). The scholars state that this is caused by a number of factors, for instance the fundamental gap between research results and recommendation, the question whether the recommendations will actually

lead to improvements and the fact that necessary improvements are not always sufficient to lead to better results.

2.4.3 Types of policy evaluation

Different types of policy evaluation are described by scholars in this field. In this section a number of types will be discussed. These distinctions between types of evaluations have been made by several authors in the field and therefore some overlap may exist.

Ex ante (prospective) and ex post (retrospective) evaluation

Evaluation can be divided into ex ante evaluation, which is an evaluation conducted before the policy has been implemented, and ex-post evaluation, which is conducted after the implementation of the policy (Hakvoort, 1995). Interim evaluations can also be conducted; this is while a policy is being implemented (EU expenditure programs, 2004).

Goal free evaluation and goal based evaluation

According to Hakvoort (1995) goal based research analyses the relationship between the goal and the current situation. This author makes a division between situational research and goal attainment research. The first describes the starting and current situation and does not look at other potential explaining factors except for that policy (Hakvoort, 1995). The second also looks at other explaining factors of goal attainment. If goals have been met, it does not mean that this is a result of a policy. It is important to analyse the context as well and to research whether other policies might have been responsible for the goal attainment. Goals free evaluation looks at the actual effects or outcomes of a certain policy, programme or project (Scriven, 1972), without knowing what the intended goals are. Goals free evaluation is conducted when an interest has arisen on all the effects and consequences of a policy.

Summative and formative evaluation

Summative and formative evaluation is another distinction which can be made (Scriven, 1996). Summative evaluation deals with the effects of a policy. What impact does the policy or programme have in terms of the outputs. It involves an effort to monitor the accomplishment of formal goals and objectives after a policy or programme has been in place for some period of time (Dunn, 2004). Formative evaluation, or in other words process evaluation, asks how why and under what conditions does a policy intervention work or not work (Davies, 2003). This type of evaluation looks at the contextual factors of an evaluation. It involves "efforts to continuously monitor the accomplishment of formal goals and objectives" (Dunn, 2004).

Internal and external evaluation

Internal evaluation is conducted by the organization which implements the new policies and is found to be less objective than external evaluation which is conducted by someone outside the

organization. This could be in order of the organization itself or for instance in the form of a dissertation (Wildavsky, 1987).

Pseudo, formal and decision-theoretic evaluation

Dunn (2004) describes a different approach to evaluation, which is a division into:

- Pseudo-evaluation: this type of evaluation uses descriptive methods to produce reliable and valid information about policy outcomes.
- Formal evaluation: this approach to evaluation also uses descriptive methods to produce reliable and valid information about policy outcomes. The difference with pseudo-evaluation is that these policy outcomes are valued according to objectives which have been formally announced by policy makers.
    - Developmental evaluation: to serve the day-to-day activities of the program staff
    - Retrospective process evaluation: monitoring and evaluation of programs after they have been in place for some time
    - Experimental evaluation: monitoring and evaluation of outcomes under conditions of direct controls over policy inputs and processes.
    - Retrospective outcome evaluation: monitoring and evaluation of outcomes under no control over policy inputs and processes.
- Decision-theoretic evaluation: This method uses policy outcomes that are explicitly valued by multiple stakeholders and also uses descriptive methods to produce reliable and valid information about this.

Experimental, quasi-experimental and non-experimental evaluations

An experimental design of evaluation provides evidence about the relative effectiveness of a policy intervention compared with other policy interventions, or doing nothing at all (Davies, 2003). The best method for conducting experimental evaluation research is by using randomised control trial, this method multiple groups of people and test the effects of certain policies as well as not having any policies at all (Davies, 2003; Schmidt, 2001). Important for experimental design is therefore the theory of causation (Pawson & Tilley, 1997).

2.4.4 Criteria of policy evaluation

Within the field of policy evaluation different criteria are used to evaluate the performance of policy. The figure below shows which criteria are mentioned by the European Union in combination with when these criteria should be used (EC, 2004).

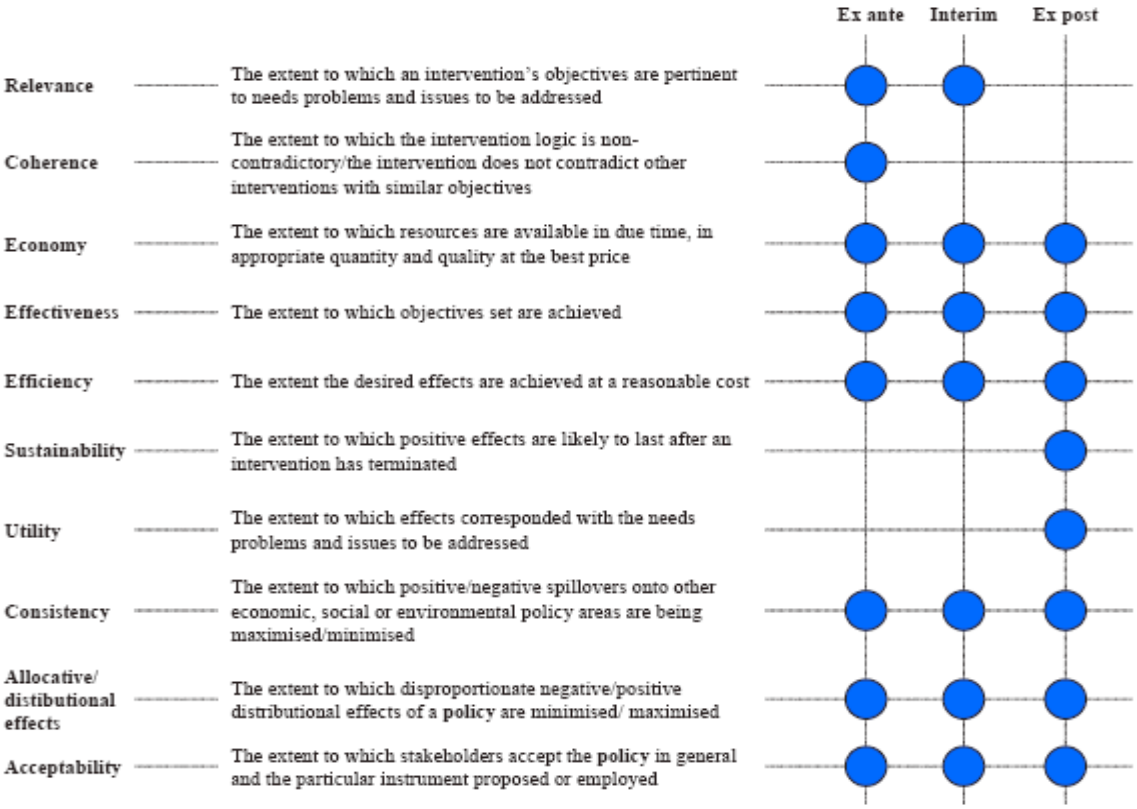


Figure 4: Evaluating EU activities (EC, 2004)

The relationship between a number of the above mentioned criteria can be illustrated by the figure below which was developed by the European Union.

Figure 2.1. Key evaluation issues

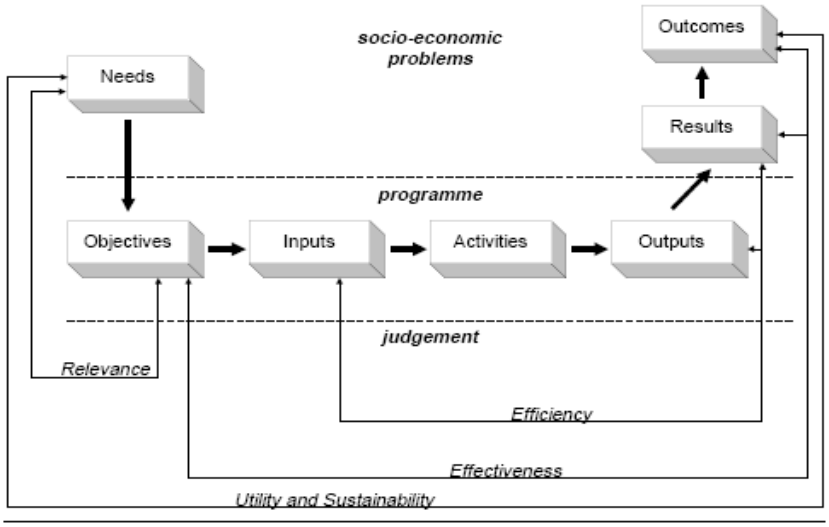


Figure 5: Key Evaluation issues (EC, 1997)

Besides the criteria which are mentioned by the EU, several other criteria are mentioned by different scholars. Examples are adequacy, allocative/distributional effects, appropriateness, opportunity costs, equity and responsiveness. In this research an interim evaluation will be conducted using the following criteria; relevance, economy and effectiveness. These three criteria were chosen because this research is an interim evaluation and the criteria are part of

an interim evaluation. The limited scope of this research led to the decision not to analyse the other four criteria of an interim evaluation. Furthermore, the data which would be necessary for answering the remaining questions was not available.

2.4.5 How to conduct an evaluation

Bressers and Hoogerwerf (1995) developed a plan for conducting policy evaluations which will be explained in this section and has been used in this research as well.

1. Preparation: this phase of the policy evaluation deals with finding a subject and choosing the evaluation criteria which will be used. Another decision is related to whether the evaluation will look at the processes, the effects or the content of the policy. A plan should be made as to how the research will be set up and which research methods will be used.
2. Systematically describing policy and the policy field. Explaining how the policy content related to the policy field is also part of this step. Furthermore, a policy theory can be developed which shows on which assumptions the policy is based
3. Determine to what extent the criteria or indicators are being met, in other words the goal attainment of the policy. This depends on the measurability of the data and also on the quality of the data.
4. Determine the effectiveness of the policy. This can be done by having a before/after comparison, by using the experimental design of evaluation and by using a time scale in which evaluations are conducted at several points in time. Triangulation should be used to determine the effectiveness of the policy.
5. Explain the policy effectiveness, which can be done by doing empirical research and by conducting instrumental research.
6. Finishing-up phase in which a rapport is made of the results of the research. This depends for instance on the potential user of the information and the context of the research. The contents of the information should be relevant, understandable and supporting. The information should furthermore be valid and reliable (Nagel, 2002).

2.4.6 Difficulties with policy evaluations

Several authors have mentioned difficulties which can occur when conducting an evaluative research. These will now be discussed shortly an should be kept in mind when conducting an evaluation, as is the case in this research.

Policy issues

Ringeling (2004) identifies a number of difficulties or even methodological problems of which policy issues are one. He states that policy measures often do not stand alone; they are influenced and influence other policies, which make them difficult to measure. This is also related to the fact that some goals of policy are vague and multiple which makes measurement

even more complicated (Wildavsky, 1987, Ringeling, 2004; Nagel 2002). Another difficulty is the fact that policies and policy objectives might change over time (Wildavsky, 1987). Many policies are intended to produce qualitative changes and can therefore not be measured by using quantitative data. Finally, another problem is that policy objectives are not always explicit and do not provide clear criteria for analysis. The criteria are often limited and narrow and simplify the environment (Turok, 1991).

Time

Time is another issue which is mentioned by Ringeling (2004) as a methodological problem to evaluations. An evaluation is often conducted too soon after implementation and therefore no useful conclusions can be drawn. It can take a lot of time before policies are completely implemented and manifested, which increases the difficulty of evaluation. The long-term effects of the policy then do not become clear. Politicians and policy makers are eager to receive the results of evaluation and will want evaluations before the long term effects are clear, which may result in a risk of choosing the wrong policies (Sanderson, 2002).

Context

For the workings of policies, the context is very important and should be held into consideration (Scriven, 1996, Pawson & Tilly, 1997). It is for example the case that not only the government makes policy, but also many other types of organisations (Ringeling, 2004). The context of the policy is also believed to be very important by Pawson and Tilley. They have developed a guideline to realistic evaluation which asks the question "What works for whom in which circumstances?". Underlying this statement is the belief that measures will vary depending on the conditions in which they are introduced. The context could influence the outcomes significantly and could lead to the fact that policies which are successful in one place and context are not successful in the other (Pawson & Tilley, 1997). Different levels of context can be identified, such as the social, political and economic context, but also the cultural context (Bezzi, 2006). The fact that the context also varies over time, makes the evaluation even more complicated (Sanderson, 2002). Within the EU the additionality issue is another problem of evaluations. Policies of the EU are in addition to national or local policies, making the evaluation process more complicated (Baslé, 2006).

Methods of evaluations

Ringeling (2004) mentions the fact that often no good distinction is made between causal variables and other variables which are influenced by policy makers. Furthermore, he describes a number of difficulties with the criteria with which the research is conducted. Missing information can form another obstacle for conducting a good policy analysis (Nagel, 2002; Baslé, 2006). Not having enough qualitative or quantitative data from monitoring results in a problem for evaluations (Batterbury, 2006). Having good monitoring systems in place is

therefore of utmost importance. Furthermore, low response rates might lead to unjustified generalization (Baslé, 2006).

Actors

Another problem or difficulty with policy evaluations is the fact that policy makers do not always do the same as what they have said. A problem with the evaluator is for instance that he or she needs to realize the influence of its own values on the evaluation (Ringeling, 2004; Turok, 1991). An evaluator always has certain values, perceptions and interprets situations differently. An evaluation should be independent and should not be conducted by a person who is involved in the formulation and execution of the policy. If this is the case, biases could become present in the evaluation. Furthermore, when conducting an evaluation as an assignment from an organization one should be aware of the fact that there are many more stakeholders, than only the organization. The views of different stakeholders should be taken into consideration and not only the view of the organization (Hanberger, 2004). Knox & McAlistar (1995) emphasize the importance of involving users and gaining feedback from them. Without this, a policy evaluation will lack legitimacy. The same scholars also suggest the use of a user evaluator framework for the conditions in which user involvement is methodologically sound and practically useful. Evaluators must explain which viewpoint they are taking while also mentioning the existence of other stakeholders. House (2006) states that for democratic evaluations, three principles are necessary: 1) inclusion of all relevant stakeholder views, values and interests; 2) extensive dialogue between and among evaluators and stakeholders so they understand one another thoroughly and 3) deliberation with and by all parties to reach conclusions.

2.5 Summary

In this chapter, firstly policies were discussed; they can be seen as actions, plans or a combination of both. Secondly, policy analysis was explained. Different types of policy analysis are for instance prescriptive and descriptive analysis, retrospective and prospective analysis and analysis for and of policy. The text showed that scholars view the policy process differently. Then, evaluations were discussed. Different types of evaluations are, for instance, summative and formative evaluation and ex ante and ex post evaluations. Different criteria can be used to evaluate public policy; effectiveness, efficiency and relevance are amongst these criteria. Finally problems with evaluations were shown. Examples of such issues are problems with the policies, methodology and the timing of evaluations, these need to be kept in mind when conducting an evaluation. This theoretical framework will be used in chapter 5 and 6 to evaluate the policies of the Lisbon strategy in three countries. An interim evaluation will be conducted using relevance, economy and effectiveness as evaluation criteria.

3 Models of Competitiveness

3.1 Introduction

Competitiveness has become a hot topic amongst academics during the last couple of years. How to measure competitiveness and identifying the drivers of competitiveness are among the topics which scholars have been trying to analyse. But not only scholars have been struggling with this issue, policy makers have done so too. What strategy should be implemented to make a nation, region, city or industry highly competitive? How to ensure an improvement of economic well-being and quality-of-life? No clear-cut answers exist to these questions.

This chapter will give an overview of the recent literature on competitiveness. The following topics will be discussed; 1) the different perspectives on competitiveness, 2) theories of competitiveness, 3) measurement of competitiveness, 4) drivers of competitiveness, and 5) policy making and competitiveness. The information given in this chapter will be used to evaluate the relevance of the Lisbon strategy in chapter four.

3.2 Perspectives on competitiveness

Competitiveness is looked at from several perspectives in the literature. The macroeconomic and microeconomic, regional, urban and industrial perspective are discussed.

3.2.1 Macroeconomic perspective

No clear understanding of macroeconomic competitiveness exists nor can a commonly accepted definition of macroeconomic competitiveness be found in the literature. Some different definitions which have been found are:

- "Competitiveness of a nation is the ability to (i) sell enough products and services (to fulfil an external constraint); (ii) at factor incomes in line with the (current and exchanging) aspiration level of the country; and (iii) at macro-conditions of the economy" (Aiginger, 1998)
- "Competitiveness of nations is a field of economic theory, which analyses the facts and policies that shape the ability of a nation to create and maintain an environment that sustains more value creation for its enterprises and more prosperity for its people" (www.imd.ch)

Different scholars and organizations address macro-economic competitiveness differently. However, a consensus can be found with respect to a number of aspects. Elements of the consensus view of macro-economic competitiveness are 1) that a nation's performance does not need to be at the expense of another nation and 2) that one of the most important measures of competitiveness is productivity (ECORYS-NEI et al., 2003).

Criticism has been expressed towards a concept of macro-economic competitiveness, for example because of the fact that no clear definition can be found (ECORYS-NEI et al., 2003). Furthermore, scholars question whether it is even sensible to talk about a country's macro-economic competitiveness and to base policy making on this concept. Another line of criticism is from Krugman (1994), who goes so far as to describe the concept of national competitiveness as a dangerous obsession. He raises three points of opposition(ECORYS-NEI et al., 2003):

1. It is misleading and incorrect to make an analogy between a nation and a firm; there is no 'bottom-line' for a nation.
2. Whereas firms can be seen to compete for market share and one firm's success will be at the expense of another's, trade between nations is well known not to be a 'zero-sum game'.
3. If competitiveness has any meaning then it is simply another way of saying productivity; growth in national living standards is essentially determined by the growth rate of productivity.

3.2.2 Regional perspective

Regional competitiveness is a type of competitiveness which has been discussed more often in the literature during the last couple of years (Haughton & Counsell, 2004). According to the OECD (2005) places compete in the same way as firms do and that firm competitiveness can therefore be extended to a regional level. On the other hand, regional competitiveness can be viewed as a disaggregation from the macro-economic perspective of competitiveness (ECORYS-NEI et al., 2003). Different definitions stated for regional competitiveness are:

- "The capability of a sub-national economy to attract and maintain firms with stable or rising market shares in an activity, while maintaining stable or increasing standards of living for those who participate in it" (Storper, 1997)
- "A region's standard of living (wealth) is determined by the productivity with which it uses its human, capital and natural resources. The appropriate definition of competitiveness is productivity" (Porter, 2002)

The proponents of regional competitiveness state that regions may play an important role in the innovation process, cluster formation and network linkages (Martin et al. 2004). These proponents state that regional policy has become increasingly important within the European Union, but also within countries (Stajano, 2006, OECD, 2005). Critics of regional competitiveness state that regional policy is thin developed and narrow conceptions of how regions compete and grow in economic terms exist (Bristow, 2006). The same author believes that an overstatement of the influence of regional policy is the case. Not only having productive firms is of importance, but also economic, social, cultural and political factors are of importance. Moreover, it does not look at local and national firms enough and in stead of that focuses on multinational ones (Bristow, 2006). Lovering (1999) has similar critiques towards

regional competitiveness. This author states that 'the story' is based on carefully selected regions, and that theory is resulting from policy and not the other way around. Moreover, Lovering (1998) states that regionalism is more a policy bias than it is a new theory.

The urban perspective is an emerging perspective which emphasizes the importance of the cities or city-regions and is very much related to regional competitiveness (Budd &Hirmis, 2004). City-regions are described by Green et al. (2007) as follows: "a functionally inter-related geographic city area comprising a central city with a hinterland of smaller urban centres and rural areas, which are socially and economically interdependent". According to this view "cities contain unique resources that make firms in the knowledge economy more internationally competitive" (Turok, 2004). Certain policies should therefore be devolved to the city or city-regional level to ensure an efficient targeting. City-regions have become of growing interest during the last couple of years and have according to some scholars even taken over the role of regions (Harrison, 2007). However some of the same criticism that exist for the regional perspective also exist for the urban perspective, for instance on what exactly is a city-region? What is the geographic scope of it?

3.2.3 Microeconomic perspective

The firm level literature on competitiveness is the most developed of all perspectives (Lawson, 1999), a reasonably clear and straightforward understanding of the notion of competitiveness on the micro-economic or firm perspective is based on the capacity of firms to compete, to grow, and to be profitable (Bristow, 2005). A sustained competitive advantage can be created when a firm implements a value-creating strategy (Hitt et al. 2001). By doing this it can achieve above average returns. This all depends on both the internal and external environment of the firm. The internal environment is made up of, for instance, management style, internal processes of innovation, product development and marketing (OECD, 2005). The value chain shows all the activities in a company, made up of the primary and support activities. Primary activities are service, marketing and sales, outbound logistics, operation and inbound logistics. Support activities are firm infrastructure, Human resource management, technological development and procurement (Hitt et al. 2001). The external environment of a firm can also be divided into several aspects (Hitt et al. 2001): the general external environment, the industry and the competitor environment. The more competitive a firm is relative to its rivals the greater will be its ability to gain market share, to have higher profits and to have the ability to export (Siggel, 2006). Conversely, uncompetitive firms will find their market share decline, and ultimately an uncompetitive firm will go out of business (ECORYS-NEI et al., 2003).

3.2.4 Industry perspective

The industry perspective is a completely other way of looking at competitiveness, but is included because of the fact that many scholars look into this type of competitiveness as well.

The European Commission (2004) has defined this concept as follows: "Competitiveness is defined as the ability of an industrial sector to defend and/or gain market share in open, international markets by relying on price and/or quality of goods". O'Mahony and van Ark (2006) state that it is important to look at competitiveness from an industry level to be able to compare different industries in different regions or countries with each other. It can help give an understanding of underlying competitiveness and it is important due to the differences in technological implications between industries. Many researches have been conducted which analyse the competitiveness of a certain industry in a country or within the European Union (O'Mahony & van Ark, 2006; DTI, 2004). Malmberg and Maskell (2002) and Turok (2004) believe that it is important for regions to specialize industrially to gain competitiveness and prosperity. Advantages of this spatial clustering are a shared cost of infrastructure, a skilled labour force, transaction efficiency and knowledge spill-overs (Malmberg and Maskell, 2002). However, it could also lead to an increase in the cost of land and labour. Focusing merely on industry competitiveness has received some criticism as well. Industrial leadership may be due to the national or regional environment in which a firm operates as well as due to institutions that are specific to an industry Kohler (2006).

3.3 Theories of competitiveness

Many theories have been used to describe certain elements of competitiveness, in this section a number of theories will be elaborated on. The implications of these theories for the notion of competitiveness will be discussed. Even though the concept of competitiveness is not always discussed in these theories, economic growth often is and this has a clear link to competitiveness (Hämäläinen, 2003). The theories have been divided into macro-economic, regional or urban level, industry level and firm level theories, but can also be applicable to various types of competitiveness.

3.3.1 Macro-economic perspective

Classical theory

Classical theory was first developed by Adam Smith, who focused on the division of labour. This provides economies of scale and differences in productivity across nations. According to Adam Smith (1976) trade results from an absolute advantage of a nation. David Ricardo (1817), on the other hand, introduced the notion of comparative advantage. Even though one country could produce both goods more productively, countries will still have to trade. The most productive country should produce the good in which it is relatively more productive and import the other good (ECORYS-NEI et al., 2003).

Neo-classical theory

The Heckscher-Ohlin model is the basis for neo-classical theory. The theory is placed in a world of perfect competition in which technologies are identical across countries. The model assumes that comparative advantage can be drawn from the fact that there is a difference in abundance

of production factors across different countries (ECORYS-NEI et al., 2003). Neo-classical theory eventually presumes that with increasing integration low productivity regions will catch up with high productivity regions (Gardiner et al 2004).

New trade theory

New trade theory does not focus on the differences in technology or factor endowments between countries. Many developed countries have similar production structures and therefore should not engage in trade according to classical or neoclassical theory. New trade theory focuses on scale economies, product differentiation, level of technology, a skilled labour force and imperfect competition as explanations of the occurrence of trade between developed countries. This suggests that a comparative advantage can be acquired in stead of simply being natural or endowed (ECORYS-NEI et al., 2003).

Keynesian theory

Keynesian theory differs from the above mentioned theories especially in the functioning of markets (Keynes, 1936). Keynes believed that output is determined by demand and that prices are sticky. Furthermore, Keynesian theory states that capital and labour are complementary. Demand lies behind cyclical fluctuations and governments can use different policies to ensure employment and demand (ECORYS-NEI et al., 2003)

Development economics

Development economics deals with the developmental process of developing countries. An important author in this field of study is Rostow. This scholar developed the stage theory of development in which societies are classified into five different stages: traditional, transitional, take-off, maturity and high mass consumption. Each stage of development has its own characteristics and specific conditions have to be met before an economy can reach a higher stage (ECORYS-NEI et al., 2003).

3.3.2 Regional / urban perspective

Endogenous growth theory

Endogenous growth theory suggests that technological progress is endogenous is stead of exogenous as assumed by other theories. Knowledge is an important source of competitiveness and should be acquired. This knowledge can create increasing returns, companies and markets therefore have an incentive to keep knowledge to themselves. They will want to do so in order to keep investments profitable and to ensure a competitive advantage. Because of the importance of knowledge and the link to human capital it is important to invest in education and training (ECORYS-NEI et al., 2003).

Evolutionary Economics / Schumpeterian theory

Evolutionary theory states that regional development is path dependent and therefore based on the history of the region (Hanush et al. 2006). Evolutionary theories also stress the importance of the dynamic nature of regional development and competitiveness. "The way a region moves along a trajectory affects its competences, institutions and learning" (Boschma, 2004). Evolutionary notions such as routines, competences and lock-ins are believed to influence the competitiveness of regions (Boschma, 2004).

Schumpeterian theory is very much related to evolutionary economics. Schumpeter (1911) argued that innovation and entrepreneurship are very important in gaining competitive advantage and that it evolves in a evolutionary way. Firms and entrepreneurs have an incentive to engage in innovative activity because this will eventually lead to profits. Imitative activity will lead to other firms using the same technology and consequently entrepreneurs will engage in new innovative activity.

Institutional economics

Institutional economics first was developed by Williamson and is based on the notion of transaction costs. This theory states that transaction costs explain the success of firms. Transaction costs are costs of communication, coordination and decision making (ECORYS-NEI et al., 2003). Institutions, defined as the informal behaviour constraints and incentives, formal rules and their enforcement shape the political the political economic and social interaction of economic actors (Hämäläinen, 2003). By having good institutions in place, transaction costs will decrease and consequently competitiveness will increase. Institutional thickness, the range and common orientation of local institutions, is very important in for competitiveness according to this theory (Martin, 2005).

Cultural theory

According to Florida (2002) cultural diversity and openness are important for competitiveness in the sense that it helps a regions or city in attracting and cultivating a creative class. This creative class is a key driver of economic success. Cultural amenities and infrastructure will enhance the quality-of-life of people that life in the regions or city and will have a positive reaction on the attractiveness of the city. Quality of life is also related to social justice and the environment, which have also become more important in the literature on competitiveness. Competitiveness should not be achieved at the cost of the environment and social justice, it stead sustainable competitiveness should be the focus.

Economic sociology

Economic sociology is of the opinion that economic behaviour is embedded in networks of interpersonal relationships (Amin, 1999). Economic outcomes are influenced factors such as trust and cooperation. According to this theory "a firm's competitiveness depends not only on its own efforts, skills and resources, but also in important ways, on the performance of other

firms and organizations and on the nature of the relationships, both direct and indirect, it has with them" (Wilkinson et al., 2000). Jacobs (1969) developed urban growth theory which is related to economic sociology. It states that cities are arenas of wealth creation and accumulation. Cities are able to create this knowledge due to exchange of knowledge between economic actors in the city.

Economic Geography

Economic geography presumes that location is important for competitiveness; it effects the economic processes (Turok, 1994). It looks at the geographical location of firms and for instance at geographical concentration, which can have positive and negative effects (Hämäläinen, 2003). Porter's cluster theory and Krugman's model are part of economic geography. Krugman's new economic geography models look at the effect of external economies of market size arising from the presence of large, and not necessarily industrially specialised, urban agglomerations (Krugman, 1996). Porter has developed the cluster theory of competitiveness. It is a regional theory in which industry clustering is important. A cluster is "a geographically proximate group of interconnected companies, suppliers, service providers and associated institutions in a particular field, linked by externalities of various types" (Porter, 2004). Industry clustering has become more important as a basic feature of regional and national economies (Porter, 2004). His argument is that the existence of geographical clusters encourages the creation of regionally-based relational assets which can create a competitive advantage. This clustering is the result of the interaction in the diamond model. The diamond model of competitiveness includes four aspects: factor conditions, demand condition, related and supporting conditions, and firm strategy, structure and rivalry.

3.3.3 Micro-economic perspective

Resource based theory

This theory assumes that firms have different, unique resources and capabilities which it can use to gain a competitive advantage. These capabilities are emerging and should be managed correctly. Moreover, the firm should invest in gaining new and better resources and capabilities which it needs to remain competitive. Resources and capabilities which are valuable, rare and difficult to imitate are especially of importance to the firm. The internal organization of the firm is therefore more important than the external organization of the firm (Hitt et al. 2001). Studies by for instance Prahalad and Hamel (1990) have focused on core competencies which are important for the performance of the firm.

Industrial organization model

The industrial organization model explains the influence of an industry on the firm's performance. It has four assumptions; 1) the external environment imposes pressures and constraints which determine strategy, 2) competing firms have similar access to resources and strategies, 3) resources used to implement strategies are highly mobile and 4) organizational

decision makers are rational. This model indicates that "above-average returns are earned when firms implement the strategy dictated by the characteristics of the general, industry, and competitor environment"(Hitt et al, 2001).

3.3.4 Industry perspective

Five forces model

Porter's five forces model shows an industry's profit potential by looking at five competitive forces. These forces are: the threat of new entrants, bargaining power of supplies, bargaining power of buyers, threat of substitute products, and rivalry among competing firms. The model therefore analyses the competitiveness of an industry (Porter, 1998).

SWOT analysis

A SWOT (Strengths, weaknesses, opportunities and threats) analysis can be used to analyse the competitiveness of an industry. This method has been further elaborated on by ECORYS-NEI et al. (2007). The model is made up of a vertical and a horizontal dimension. The vertical dimension of the model shows the strengths and weaknesses resulting from the internal dynamics of the sector. This includes the strategies of individual companies and business models. The vertical dimension can be further specialized, by looking at inputs, structure, processes and outcomes. These factors are all very much influenced by strategies and business models. The horizontal dimension includes regulatory, other framework conditions and exogenous conditions which can be influenced by policy. They shape the opportunities and threats of an industry. By using the competitiveness grid an analysis can be made of the competitiveness drivers affected by a particular framework condition.

3.4 Measurement of competitiveness

GDP per capita

Aiginger (2006) states that competitiveness is the ability to create welfare. The author then says that GDP per capita is primarily correlated with welfare and therefore serves as an important measure of competitiveness. Other authors such as Huggins (2003) and Grilo and Koopman (2006) agree with this statement. However Grilo and Koopman (2003) also add criticism to using this measure since it only gives an average measure of income and does not include any distributional effects. Next to GDP per capita, growth levels of GDP per capita are also an important measure of competitiveness says Hawkins (2006). Furthermore, the OECD (2006) mentions that GDP per capita is a measure of economic growth, but is not equal to welfare. Variables such as happiness and leisure could then be included.

Trade and FDI

Trade and FDI are also of importance for competitiveness, by trading with other countries one can analyse the competitiveness of a nation (Turok, 2004). If a country is competitive it will be

able to sell more of its products abroad. Governments can encourage trade by having an open economy and ensuring free entrance to the market and by not allowing monopolies. External price competitiveness is related to this subject. If rivals of a firm charge lower prices for their products it will lead to less sales and consequently, less profits (Camagni, 2000, Hawkins, 2006). According to the OECD (2006), FDI is important for competitiveness, since companies which enter the countries also bring knowledge and skills, which can spill-over to other companies.

Productivity

Krugman (1994) states that productivity is the best and only way to measure competitiveness. This view is supported by Porter (2002) who stated that "A region's standard of living (wealth) is determined by the productivity with which it uses its human, capital and natural resources". Furthermore, Gardiner (2004) believes that productivity is important in influencing the comparative advantage of all the industries present in a region.

Employment rate

Employment rate is mentioned as a measure of competitiveness by many scholars, and even found to be a factor explaining the income gap between Europe and the US (Aiginger, 2006, Gardiner, 2004). Productivity and employment rate combined with each other is named 'revealed competitiveness' and is mentioned by many different scholars as the best way of measuring competitiveness. An example of this is the article by Grilo and Koopman (2006), in which they state that "competitiveness is ultimately dependent to employ a large share of its workforce in a productive manner". The OECD (2005) states that for increasing the competitiveness of a country or region it is very important to increase the labour participation. A country should stimulate elderly and women to work more. Especially due to an ageing population it is of great importance that people work more. Working hours could be increased and the age of retirement should be higher.

Earnings

Ultimately the micro-economic competitiveness is measured by profits. If a firm does not earn any profits it will not be able to stay in business. Comparing the competitiveness of firms is easy in this sense, by comparing the level of profits one can see which firm is performing better (Hitt et al. 2001).

Market share

Market share is another way of looking at competitiveness. If the market share of a firm is very high it means that it sells many products and that it is therefore competitive. However, this approach does not say anything about the internal organization of the firm. The firm may be able to sell a lot of products, if its costs are very high it will be out of business very soon (Hitt et al. 2001).

Environment

Productivity can be high at the cost of environmental deprivation (Aiginger, 2006). This is why some authors also focus on measuring competitiveness in combination with biodiversity and environmental aspects (Aiginger, 2006; Dobson, 2003). Environmental goals have become increasingly important and can not be ignored anymore (Aiginger, 2006). An example of a type of environmental goal is the level of pollution.

Social Justice

Competitiveness can also be at the cost of social systems. For the sustainability of a region or city, social reproduction is important according to Krueger and Savage (2007). This includes strategies such as conserving open-space, reducing commute times, delivering public transport, providing affordable housing and improving services (Krueger and Savage, 2007). Other examples are the level of crime and mortality rates.

3.5 Drivers of competitiveness

Infrastructure

Infrastructure is an important hard driving factor of innovation. Malmberg and Maskell (2002) state that infrastructure is important, they give a number of examples of important types of infrastructure; having a good road, rail and airline network and having IT connectivity (Greene et al., 2007). The OECD (2005) also states that infrastructure is made up of transport networks, telecommunications and electricity and sees infrastructure as being an important part of the enabling environment.

Technological progress

Freeman (2004) and Morgan (2004) state that technological infrastructure is of importance for international competitiveness. The OECD (2006) states that "New technologies, related mainly to computer and other information and technologies hold great potential". Clark et al (2004) believe that competitiveness is achieved through endogenous technological change. Before technological change can be successful it should be organized via local networks of information and exchange. Technological progress is visible is different types and can be divided into process and product innovation (Hämäläinen, 2003).

Cost competitiveness

A large group of scholars believes that cost of production factors can make a country, region, city or industry more competitive. However, this can also evaporate if the costs of production become the same everywhere (Martin et al., 2004, Turok, 2004). No clear consensus exists on how to measure cost competitiveness (Neary, 2006) and whether it is a driver or a measure of competitiveness (Zanakis, 2003, Aiginger, 2006). Different types of competitiveness can be identified, it can result from cheap labour, land and capital (Aiginger 2006). In the long run this cost competitiveness is only important for low value-added homogenous products.

Knowledge and Skills

Knowledge is described as an important driver of competitiveness in many different papers (Martin et al., 2004, Boschma, 2004, Pinch et al., 2003, Keep, 2006). Skills are another very important driver for competitiveness according to Cantwell (2005), even stating that it is essential. Knowledge can be divided into tacit knowledge and codified knowledge (Gertler, 2003). Both are very dispersed between different networks of knowledge, people and materials (Pinch et al, 2003). Tacit knowledge defines and is defined by social context; it is therefore difficult to travel tacit knowledge among large distances (Gertler, 2003, Howell, 2002). Because of the fact that tacit knowledge travels difficultly it is said to be dependent on spatial proximity. However, some scholars state that it is also dependent on institutional proximity; shared norms and values for instance (Howells, 2004).

Education

The former topic on knowledge and skills is off course also very much related to education. Sahlberg (2006) states that both primary and secondary education significantly contribute to economic development and growth. This is supported by Aiginger (2006) and the OECD (2005). "Better quality education increases average earnings and productivity and reduces the likelihood of social problems that, in turn, are harmful for economic development. Education reforms are beginning to encourage clustering of schools and communities" (Sahlberg, 2006). Education can be measured in many different ways such as educational attainment and enrolment percentages (Greene et al., 2007). Educational attainment at different levels should be analysed to see where improvements can be made (OECD 2006).

Institutions

Good institutions and institutional embeddedness are often discussed to be important drivers of competitiveness and can provide a competitive advantage (de Bruijn & Lagendijk, 2005). Institutions can be described as "sets of common habits, routines, established practices, rules or laws that regulate the relations and interactions between individuals and group" (Martin et al., 2004). They can influence competitiveness and growth by shaping individual and organizational incentives (Hämäläinen, 2003). By having good institutions, cooperation and coordination is made possible, which is explained in the next section. Institutions in higher education and science and in financial systems are especially of importance according to Cantwell (2005). Boschma (2004) believes that a competitive advantage due to good institutions can evaporate due to copying.

Innovation and R&D

Innovation is another soft driving factor for competitiveness and very much related to technological change. It provides a long term basis for competitive advantage and is very important according to many different scholars (Cantwel, 2005, OECD 2006). According to de Bruijn and Lagendijk, innovation is even the most important driver behind sustainable economic

development. Camagni (2000) emphasizes the importance of radical and incremental innovation and the innovative milieu in which the company should be situated. Zanakis & Becerra-Fernandez (2004) found a statistical relationship between higher R&D expenditures and patents and a nation's competitiveness. Innovation can be measured in many different ways, for instance by looking at R&D expenditures in universities, businesses and government, R&D employment and the number of patents (Greene et al., 2007). However, all of these measures also have a negative side. A high level of expenditure on R&D does not say anything about the outcome and whether this amount of money is used efficiently. The number of patents does not show whether these patents are also being commercially exploited and could be influenced heavily by patent law.

Cooperation, Competition and Coordination

Networks and contacts between firms in a region or city are important. However, according to Turok (2004), "city-regions need to be understood as part of wider economic systems, networks, and resource flows rather than self-contained units". Coordination and cooperation between these firms and other actors is of great importance according to for instance Cantwell (2005) and Gardiner (2004) and has been made easier due to the emergence of ICT. Cooperation and coupling is also important between education systems, scientific institution, R&D facilities, public administration and production markets (Freeman, 2004; OECD, 2005 Camagni 2000)). Competition is another necessity according to Fothergill (2004) and Camagni (2000). By having competition, firms will be stimulated to engage in innovative activities. Business density, knowledge based business and economic participation are therefore seen as important input factors for competitiveness according to Huggins (2003).

Adaptive capacity

According to Martin (2005) a regions adaptive capacity is very important for competitiveness. The definition of adaptive capacity is "the capacity to respond to exogenous factors and the capacity to create new paths of economic development from within" (Martin, 2005; p4). A region should be able to create, acquire and absorb knowledge, innovation, R&D and technological upgrading. Amin (1999) also states that it is very important to adapt to a constantly changing and dynamic environment. It is of importance not to become locked-in to a certain situation (Amin, 1999). Another term related to adaptive capacity is absorptive capacity; this term is used in relation to the ability to absorb tacit knowledge.

3.6 How should policy deal with competitiveness?

Governments interest in competitiveness is growing (Martin, 2005), and therefore many articles state what governments should do in order to be competitive. Disagreement exists on what strategies to pursue, but also on the appropriate spatial scale of intervention (Martin, 2005).

3.6.1 Policies

Many different types of policies are mentioned by the large number of scholars dealing with this subject as was shown in the previous section. The only agreement that does exist over policies on competitiveness is the fact that no single best policy exists. Every country or region is different and should be dealt with in a different way. As Martin (2005) states; "policies almost never travel well". Contrary to the view that policies are necessary for enhancing competitiveness in regions is the view of Wilkinson et al. (1999) who state that governments should only play a limited role, since they can not respond to technological change quickly and because policies of more than one government are of importance. Many scholars agree about the fact that soft factors of competitiveness, such as innovation, education, knowledge, are more important than hard factors in developed countries. The OECD (2005) believes that it is of importance to exploit proximity and linkages in order to be able to generate information. Constructing proximity can be done for instance by creating science parks and technopoles. Building relational assets is important and can be achieved by using cluster polices. Furthermore, linking education, research and business is of importance for enhancing competitiveness as well. Other initiatives which can be taken in order to enhance cooperation between different economic actors in a geographical space is by creating competitiveness councils and competitiveness institutes in which different economic actors can work together (Ketels, 2006). Furthermore, the OECD (2007) states that comprehensive and transparent explanations of the policy choices should be given. All stakeholders should be aware of the policies and must understand why they are put into place.

During recent years, sustainable development has become increasingly important. Governments should not only focus on GDP or productivity rates, but also the environment and social issues. (Haughton & Counsell, 2004). According to Haughton & Counsell (2004) sustainability can be understood in a variety of different ways and also how policy formulation is dealt with is in many ways contestable. Many areas are related to sustainable development, such as economic development, poverty and social exclusion, ageing society, public health, climate change and energy, production and consumption patters, management of natural resources, transport, good governance and global partnership (Ledoux et al., 2005).

3.6.2 Levels of policy making

Because of the fact that lower levels of governments have become more powerful in the last couple of years, authority has devolved to different levels and local and regional governments are now able to develop more policies themselves. As a result, it has become increasingly important to have a good coordination and cooperation between the different levels of government OECD (2005). Even though authors do not always agree on the amount of responsibilities of a certain level of government, they believe that regional policy should be linked to local strategies as well as to national policies (Boschma, 2004; Porter, 2004). Porter

(2004) believes that national policies are necessary, but certainly not sufficient to deal with competitiveness; regional policies are needed as well. Amin (1999) also states that regionalism has to be supported by macro-economic policies, if this is not the case it will not be successful. This coordination can be done in various different ways according to the OECD (2005), for instance by using transfers, contracting practices and incentives. Several authors, however, have different ideas on which level of government should deal with which part of policy.

3.6.3 Stages of development

Different aspects may be important at different stages of development (Aiginger, 2006). In an early stage of development natural resources and a growing population may be specifically important when it comes to increasing welfare. At an intermediate stage of development, incomes are closely relates to physical infrastructure, and for higher incomes, the innovation system, knowledge creation and diffusion, life-long training as well as intangible infrastructure will define the competitiveness of a region. The World Economic Forum has also developed a table in which can be seen which strategies are important in which stage of development. It is therefore important for a country or region to analyse the stage in which it is in and after that analyse what it should do in order to enhance competitiveness.

3.7 Summary

In this chapter an overview has been given of the recent literature on competitiveness. Different perspectives on competitiveness were first explained; micro-economic, regional and urban, macro-economic and industry competitiveness. All have been studied by different scholars and have been criticised by different scholars as well. The next section tried to give an overview of the various theories underlying the different types of competitiveness. The following section dealt with the measures of competitiveness. Competitiveness is measured in different ways, for instance, by looking at productivity, GDP per capita, earnings and employment rate. Currently the environment and social justice are becoming more important subjects which are discussed in combination with the economic terms. The drivers of competitiveness were discussed as well, examples are infrastructure, innovation, education and knowledge. Finally, policy implications were shown; what became clear in this chapter is that no single right policy exists, it differs per region and stage of development. Furthermore, no consensus exists on which level of government should deal with competitiveness. However, what has been emphasized is that cooperation and coordination between different levels is of utmost importance.

The information which was given in this chapter will be used in the chapters 4 to evaluate the Lisbon strategy and the integrated guidelines on R&D, innovation and ICT.

4 EU policy on competitiveness: the Lisbon Strategy

4.1 Introduction

In this chapter the policy issues around competitiveness will be discussed. Competitiveness is such a broad issue which is linked to many other issues that it is difficult to set the boundaries. In this research an approach is taken to focus on the Lisbon Strategy and the goals related to this strategy.

In the year 2000 the leaders of the European Union decided on a new strategic goal, the Lisbon Goal: *"To become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion" (*European Council, 2000)
Several actions needed to be undertaken by Member states as well as by the Community to reach this goal. In 2005 the High Level group on the Lisbon Strategy evaluated the performance of the European Union so far and concluded that some aspects needed to change. The revised Lisbon Strategy now includes concrete actions and is said to include better coordination between the involved actors.

This chapter is structured as follows; the original Lisbon strategy will be discussed firstly and the renewed Lisbon Strategy of 2005 will be discussed after that. Furthermore, the actors in which are involved in the Lisbon strategy will be discussed. Before ending the chapter with a short summary, the relevance of the Lisbon strategy as a whole will be discussed.

4.2 Lisbon Strategy: 2000

In March 2000 the European Council came together in Lisbon and launched a 'far-reaching agenda for reform' (European Council, 2000). The European Council acknowledged the fact that the EU is confronted with globalization and challenges of a new knowledge-driven economy and analysed the strengths and weaknesses of the European Union. Strengths were the introduction of the Euro, the internal market and the enlargement. Identified weaknesses were the high unemployment rate, and insufficient labour participation of women and older workers. Regional unemployment imbalances were also considered to be big problems. Furthermore, the services sector was undeveloped and a widening skills gap existed. It concluded that a radical change was necessary for the European economy and therefore developed a new strategic goal:

"To become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion" (European Council, 2000)

The overall strategy was made up of several elements (European Council, 2000):

- Preparing the transition to a knowledge-based economy and society
- Modernising the European Social model
- Sustaining the healthy economic outlook and favourable growth prospects

In the conclusions of the presidency of the Lisbon European Council is stated that the existing Broad Economic Policy Guidelines should be used to achieve the goals. Furthermore, the Open Method of Coordination was developed to ensure a more coherent strategic direction and effective monitoring of progress. This method includes benchmarking, best-practice, and target setting (Dinan, 2005). It was developed because the Lisbon agenda covers a number of areas in which the EU did not have any competences. "Member states agree to voluntarily cooperate in areas of national competence and to make use of best-practice from other member states which could be customized to suit their particular national circumstances" (High Level Group, 2004). The European Council has a strong guiding and coordinating role in this.

4.2.1 Preparing the transition to a knowledge-based economy and society

The first element of the Lisbon Strategy of 2000 is made up of several aspects, which are explained below. For a complete overview of these action points see appendix B.

The first aspect is that an information society should be created. A "shift to a digital, knowledge-based economy, prompted by new goods and services, will be a powerful engine for growth, competitiveness and jobs" (European Council, 2000). Using information technologies for urban and regional development and environmentally sound technologies should be promoted. The second aspect is establishing a European Area of Research and Innovation. Research and Development can generate economic growth, employment and social cohesion, according to the European Council. Coordination and integration of research activities at national and EU level is necessary to be innovation and efficient. Creating a friendly environment for starting up and developing innovative business, especially SME's is the third action point. According to the European Council "competitiveness and dynamism of businesses are directly dependent on a regulatory climate conducive to investment, innovation and entrepreneurship" (European Council, 2000). Lowering the cost of doing business and removing red tape are elements of importance. Other aspects of importance for preparing for the transition to a knowledge based society are economic reforms for a complete and fully operational internal market. Although many steps have already been taken for the creation of the internal market, it is important to complete the internal market. This should certainly be done in certain specific sectors. Furthermore, efficient and integrated financial markets are necessary to reach the Lisbon goal. Better allocation of capital and reducing the costs of capital are important in this respect as is having efficient risk capital markets. New technologies should be used and the potential of the Euro should be exploited. A final aspect of the first element of the Lisbon strategy is

coordinating macro-economic policies. Fiscal consolidation, quality and sustainability of public finances are all part of this aspect.

4.2.2 Modernising the European social model

The European Council stated that people are Europe's main assets and therefore investment in people is important for creating a knowledge based economy. Several actions should be taken which are explained in this section.

Education and training for living and working in the knowledge society is one aspect. These should be adapted to "the demands of the knowledge society and the need for an improved level and quality of employment" (European Council, 2000). Local learning centres should be provided, promotion of new basic skills is necessary and an increase in transparency of qualifications should be accomplished. An active employment policy is also crucial for reaching the Lisbon goal. By having more concrete targets, establishing a link with other policy areas and by having more effective procedures for involving actors this goal should be achieved. Hereby working with the social actors is of great importance. According to the European Council (2000) social protection should be modernised, it should ensure that work pays, and secure long-term sustainability, promote social inclusion, gender equality and quality health services. Promoting social inclusion is mentioned separately as well, stating that social exclusion and people living under the poverty line is not acceptable.

4.2.3 Göteborg, 2001

In 2001 the European Commission came together in Göteborg and decided to include sustainable development in the Lisbon Goals. As is stated in the Presidency conclusions of the Göteborg European Council (2001) the Member States: "agreed on a strategy for sustainable development and added an environmental dimension to the Lisbon process for employment, economic reform and social cohesion". Sustainable development in this sense means to meet the needs of the present generation without compromising those of future generations. It stresses the importance of combining economic, social and environmental policies. The European Council (2001) also states that clear and stable objectives for sustainable development will even present economic opportunities in the way of technological innovation and investment. Member States have to draw up their own national sustainable development strategies and should consult with all relevant stakeholders.

4.2.4 Evaluation Lisbon 2000

According to the High Level Group (2004), by 2004 signals were mixed and certainly not all targets were met. For aspects such as the employment rate, spread of ICT and Internet use, results were positive. However, for job creation and R&D results were less positive and also on the environment no completely positive picture can be shown. The Commission of the European

Communities (2005c) even stated that "the EU economy is in several respects further away from its goal of becoming the world's most competitive economy than was the case in March 2000".
The Lisbon strategy as developed in 2000 was said to have too many priorities and was too complex. Another problem was that the national governments did not set up clear objectives which they wanted to achieve. They did not have a large enough sense of ownership towards the Lisbon strategy. Furthermore, the implementation deficit was a big problem, some even say the largest problem for the original Lisbon programme (High Level Group, 2004).

4.3 Renewed Lisbon strategy: 2005

In 2004 the High Level Group chaired by Wim Kok was established with the goal of evaluating the results of the Lisbon strategy which was set up in 2000. The consensus was that Europe is far from achieving the potential for change that the Lisbon strategy offers. The renewed Lisbon strategy focuses on delivering stronger, lasting growth and creating more and better jobs. Several policies are necessary for achieving more growth and jobs, which will be discussed in this section. The Lisbon action programme is central to the proposed partnership for growth and jobs and is divided into three main areas (Commission of the European Communities, 2005a):

- Making Europe a more attractive place to invest and work
- Knowledge and innovation for growth
- Creating more and better jobs

These three main areas are also made up of several action points, which will be described in this chapter. A number of indicators have been identified to monitor the Lisbon Strategy, it is maintained by Eurostat. It includes a short list of key indicators (Appendix C) and a long list of background indicators. The commission has recommended that all member states should fix two sets of targets: a national R&D expenditure target and a national employment rate target (Commission of the European Communities, 2005a). The target for R&D expenditure has been set at 3% of GDP and the target for employment is 70%.

4.3.1 Making Europe a more attractive place to invest and work

Small and medium enterprises constitute a large group of enterprises and employment and therefore action should be focused towards this group. Entrepreneurial activity should be stimulated in the European Union and the balance between risk and reward should be reviewed. Several action points are geared towards this:

Extending and Deepening the Single Market

The completion of the Internal Market is of great importance to the European Union. This should be done especially in services, regulated professions, energy, transport, public procurement and financial services. Increased competition resulting from new opportunities for market entrants will spur investment and innovation, according to the High Level Group. National administrations have a central role in achieving this goal. They should ensure the role

of national administrations in providing the right market conditions (Commission of the European Communities, 2005a).

Ensure open and competitive markets inside and outside Europe

Competition is essential and therefore also competition policy is important for competitiveness. Barriers to competition should be identified. Having open international markets is furthermore of great important, competition should be fair and with clear rules (Commission of the European Communities, 2005a). The WTO Doha development round is also of great importance in this respect as well as other bilateral and regional trade agreements (Commission of the European Communities, 2005b).

Improve European and national regulation

Having the right regulatory frameworks in place, cutting unnecessary costs and removing obstacles will create better conditions for economic and productivity growth. It has therefore been identified as a top priority for the European Community (Commission of the European Communities, 2005b). A new initiative was introduced including better assessment of the effects of new legislative and policy proposals on competitiveness, drawing on outside expertise to advise on the quality and methodology of how to carry out the assessments and launching sectoral reviews to identify growth and innovation obstacles. SME's will be on the focus of attention (Commission of the European Communities, 2005c).

Expand and improve European Infrastructure

Modern infrastructure is essential for enterprises; it affects the economic and social attractiveness of a location. According to the Commission of the European Communities (2005a), good infrastructure will lead to growth and convergence in economic, social and environmental terms. Moreover, for the Single Market to work effectively, adequate and sustainable infrastructure is necessary. Not only transport infrastructure, such as road, railways and airports are necessary, but also communications infrastructure and sufficient and good energy infrastructure are of importance (Commission of the European Communities, 2005a).

4.3.2 Knowledge and innovation for growth

Innovation, education and R&D are important drivers for productivity according to the Commission of the European Communities (2005a). The main responsibility of encouraging investments in R&D lies with the member states, however the community will stimulate, organise and exploit all forms of EU-level cooperation in research, innovation and education. The Commission proposed two programmes with the goal to increase innovation and R&D, namely the Seventh Framework Programme for Research, Technological development and Demonstration activities and the Competitiveness and Innovation Framework Programme (Commission of the European Communities, 2005c).

Increase and improve investment in Research and Development

The gap in R&D investment compared to the US should be closed. The target within the EU is set at 3% of GDP for R&D expenditure. This is in the hands of the national governments. Another aspect is to improve the tax environment for R&D in order to encourage businesses to spend more on R&D. The environment and energy have become important topics within the Lisbon Strategy. For instance the Commission of the European Communities (2005a) states that there is significant economic, environmental and employment potential in environmental energy-efficient and renewable energy technologies. The Commission will promote the development of environmental technologies and eco-innovations through the Environmental Technologies Action Plan (ETAP).

Facilitate innovation, the uptake of ICT and the sustainable use of resources

Universities are very important in creating and disseminating knowledge. Their potential and quality should be increased as well as the link with industry. Furthermore, investment in facilities for research and innovation are necessary. For instance, Innovation Poles should be established to bring together high technology small and medium sized enterprises universities and necessary business and financial support. Finally, in order to achieve a higher level of innovation, using new technologies should be stimulated (Commission of the European Communities, 2005a).

Contribute to a strong European industrial base

The European Council states that "in order to enhance and sustain an economic and technological leadership Europe must have a strong industrial capacity, particularly by exploiting fully its technological potential" (Commission of the European Communities, 2005a). Furthermore, the European Commission (2005a) states that industrial competitiveness can be supported by creating European technology initiatives. Public private partnerships should be encouraged and especially environmentally friendly technologies should be developed.

4.3.3 Creating more and better jobs

Creating more and better jobs is crucial to reduce social exclusion and ensuring prosperity. Especially in the context of an ageing society it is absolutely necessary to create jobs (Commission of the European Communities, 2005a). For this subject the main responsibilities also lies with the member states, however the community will complement the efforts of the member states. Social partners also have an important role within this part of the Lisbon Programme (Commission of the European Communities, 2005c).

Attract more people into employment and modernise social protection systems.

Active labour market policies and appropriate incentives should be used to attract more people into employment. Modernisation of social protection systems such as pensions and health care systems, and the elimination of the gender pay gap are also of importance. Furthermore, the

number of drops outs should decrease and child care should be facilitated. In order to achieve these goals social partners need to be included in the process (Commission of the European Communities, 2005a).

Increase the adaptability of workers and enterprises and the flexibility of labour markets.

Barriers to labour mobility should decrease and legislation should be changed to achieve this. A European Quality Framework needs to be adopted and promotion of equal opportunities is also of great importance. Recognition of qualifications and competences will lead to transparency and trust which will, in time, result in higher labour mobility (Commission of the European Communities, 2005b).

Investing more in human capital through better education and skills

A highly skilled and adaptable workforce is needed to ensure greater labour market participation and productivity growth. An emphasis is placed on life-long learning and knowledge, which will result in an advanced educational attainment and skills. This will furthermore lead to higher social cohesion. Modernising and reform in the education and training systems should be done by the member states. However, life-long learning programme will be set up by the EU (Commission of the European Communities, 2005a). Furthermore the EC will set out a European Youth Pact integrating young people by focusing on efforts in human capital, education and vocational training. Another action of the European Commission is the Education and Training 2010 Programme, which complements the Bologna process (Commission of the European Communities, 2005c).

4.4 Partnership

Both the member states and the European Community have to carry out the objectives set out by this strategy with the involvement of the social partners. In order for this to be successful all stakeholders have to have a sense of ownership towards this strategy. The stakeholders who have been identified by the High Level Group are: Member States, European citizens, parliaments, social partners, civil society and all Community institutions.

The renewed Lisbon agenda identifies responsibilities, sets deadlines and measures progress. Moreover, a clear distinction is made between Member states and European Union level actions. It is of crucial importance that all actors dealing with the Lisbon Programme work together and have clear responsibilities (Commission of the European Communities, 2005a). This is also one of the things which went wrong during the original Lisbon period. The National Governments have to develop and live up to the National Reform Programmes and the European Community has to reach the goals of the Community Lisbon Programme. In this document is stated that the actions presented in the Community Lisbon Plan have to have a clear value added of doing it at a supranational level (Commission of the European Communities, 2005c).

Factors of importance which have been identified by the European Commission for reaching the Lisbon Goal are (Commission of the European Communities, 2005a):

- Setting up a single national action programme for growth and jobs; adopted by national governments after discussion with all involved actors to ensure a sense of ownership.
- Appointing a Mr. or Ms. Lisbon in every national government; he or she has to ensure coordination between the various levels.
- National Lisbon Programmes; which is used as reporting tool on economic and employment measures in the context of the Lisbon strategy.
- Setting up priorities for action at the Union level.
- Integration in a single package the existing treaty based economic and employment coordination mechanisms.

4.4.1 Member States

The actions of the member states are very important for reaching the Lisbon Goal. Therefore, a commitment from the side of the Member States is absolutely necessary. They have to set up a national action programme and stick to the proposed actions. The European Commission (2005) developed a number of guidelines which have to be followed by the nation states when drawing up their National Reform Programmes. "Europe must focus its policies further on growth and employment to achieve the Lisbon goals, against a sound macroeconomic policy background and within a framework aimed at social cohesion and environmental sustainability, which are vital pillars of the Lisbon strategy" (Council of the European union, 2005). This programme has to be set up in cooperation with all involved actors, in order to create a sense of ownership (Commission of the European Communities, 2005a)

The National Reform Programme was first developed in 2005 with a three year time span. The National Reform Programmes should draw on a the Open Methods of Coordination and should also include a section on the use of the structural and cohesion funds in support of the Lisbon Agenda. The programme should focus on policy priorities in three parts: macro-economic, micro-economic and employment priorities, which are shown below. An extensive view of all the goals can be found in the Appendix D (EC, 2005b).

Macroeconomic guidelines

1. To secure economic stability.
2. To safeguard economic and fiscal sustainability.
3. To promote a growth- and employment-orientated and efficient allocation of resources.
4. To secure economic stability for sustainable growth.
5. To ensure that wage developments contribute to macroeconomic stability and growth.
6. To contribute to a dynamic and well-functioning EMU.

Microeconomic guidelines

Knowledge and Innovation

7. To increase and improve investment in R&D, in particular by private business.
8. To facilitate all forms of innovation.
9. To facilitate the spread and effective use of ICT and build a fully inclusive information society.

Making Europe a more attractive place to invest and work

10. To strengthen the competitive advantages of its industrial base.
11. To encourage the sustainable use of resources and strengthen the synergies between environmental protection and growth.
12. To extend and deepen the internal market.
13. To ensure open and competitive markets inside and outside Europe and to reap the benefits of globalisation.
14. To create a more competitive business environment and encourage private initiative through better regulation.
15. To promote a more entrepreneurial culture and create a supportive environment for SMEs.
16. To expand, improve and link up European infrastructure and complete priority crossborder projects

Employment guidelines

17. Implement employment policies aiming at achieving full employment, improving quality and productivity at work, and strengthening social and territorial cohesion.
18. Promote a life-cycle approach to work.
19. Ensure inclusive labour markets, enhance work attractiveness, and make work pay for job-seekers, including disadvantaged people, and the inactive.
20. Improve matching of labour market needs.
21. Promote flexibility combined with employment security and reduce labour market segmentation, having due regard to the role of the social partners.
22. Ensure employment-friendly labour cost developments and wage-setting mechanisms.
23. Expand and improve investment in human capital.
24. Adapt education and training systems in response to new competence requirements.

As can be seen, the integrated guidelines include policies on a macro-economic, micro-economic and employment level. These bring together the broad economic policy guidelines (BEPGs) and employment guidelines into one single document (Commission of the European Communities, 4-2005). As is stated by the European Community "Within the Integrated Guidelines, the Broad Economic Policy Guidelines provide guidance on macroeconomic and microeconomic policies in the member states and the Communities in the areas offering the greatest potential for improving growth and employment"

(http://ec.europa.eu/economy_finance/publications/european_economy/broadeconomypolicyguidelines2005_en.htm). By linking the broad economic guidelines to the integrated guidelines, the European Community wanted to put new life into the Lisbon strategy. The BEPG were already widely accepted among the European and could serve as a vehicle to promote the Lisbon strategy.

4.4.2 EU Bodies

The actions which have to undertaken by the EU bodies have been extensively described in the Community Lisbon Plan. The concrete action points can be seen in Appendix E. The different bodies of the EU bodies have different responsibilities which are explained in this section.

Competitiveness Council

The EU competitiveness council was established in 2002 and is made up of three strands of activity: Internal Market, Industry and Research. The Economic affairs Ministers, Industry Ministers and Research Ministers discuss these issues about five or six times each year. The Council makes the most important policy decisions in the European Union (Bomberg & Stubb, 2005). The council "assumes a horizontal role in ensuring an integrated approach to the enhancement of competitiveness and growth in Europe"(www.consilium.europa.eu). Horizontal and sectoral issues are both dealt with as well as how competitiveness should be taken into account in all policy initiatives.

Internal Market: The Internal Market is one of the European Union's most important and continuing priorities as it aims to create an area where persons and goods can move freely. To this end, the Competitiveness Council covers a large number of matters: public procurement, free provision of services and establishment, free movement of goods, intellectual and industrial property rights, competition and company law (www.consilium.europa.eu).

Industry: Issues related to industrial policy are still mainly the competence area of the Member States. Actions undertaken under the European Community Treaty must be guided by the necessity of ensuring the necessary conditions for the competitiveness of the Community's industry, through close cooperation between the Community and its Member States. Industry policy is mainly focused on SMEs and stresses the importance of creating a favourable business environment (www.consilium.europa.eu)

Research: Scientific Research and Technological Development (RTD) is playing increasingly large role in economic development. The European Community Treaty sets out the objectives, rules and procedures for the implementation of RTD activities. "The main aim of Community activities is the strengthening of the scientific and technological bases of European industry and of its international competitiveness, by combining research resources in certain key areas and priority technologies"(www.consilium.europa.eu).

European Commission

The Commission has a number of important tasks within the European Union namely:

- To initiate policies and represent the general interest of the European Union
- To act as guardian of the treaties and ensure the correct application of EU legislation
- To manage and negotiate international trade and cooperation agreements.

(Bomberg & Stubb, 2005)

In the specific context of the Lisbon Strategy, the European Commission has a role in supporting the member states in drawing up the Lisbon programme. Furthermore, the Commission has to evaluate the targets and measures of the member states and ensure that the commitments of the member states are kept. The Commission also has to report to the European Council each year. Finally, the Commission has to keep track of what the member states and bodies of the EU are doing and have to coordinate these actions (www.consilium.europa.eu).

European Council

In the European Council the heads of state of the countries of the European Council come together, this happens approximately three to four times a year. It is the political leadership of the European Union (Bomberg & Stubb, 2005). In the context of the Lisbon Strategy, the European Council has an overall responsibility for guiding the process. The member states have to report their progress on the Lisbon Strategy to the European Council which makes guidance from their side possible (Commission of the European Communities, 2005a).

In March 2005 the European Council decided on the re-launch of the Lisbon Agenda. A refocus on priorities in jobs and growth coherent with the sustainable development strategy was made and to be implemented by both the national governments and the community (European Council, 2006). Two main drivers exist for structural reforms, namely an ageing population and the ambition to reap the full benefits of globalisation. Moreover, it stressed the fact that it is of utmost importance to involve the European citizens in the process of the Lisbon strategy. In March 2006 the European Council came together and defined four priorities for action: investment in knowledge and innovation, employment of priority categories, business potential especially of SMEs and the definition of an energy policy for Europe. These action points are made up of several elements which can be viewed in appendix F.

European Parliament

The European Parliament is the only directly elected body of the EU. The power of the European Parliament can be found in supervisory issues, legislative issues and budgetary issues. However, the extent of these powers differs between subjects dealt with (Bomberg & STubb, 2005). When dealing with the Lisbon Strategy, the European Parliament is in the position to give an opinion to the Strategic Annual Report, which has to be taken into account by the Council. The commission has to inform the parliament on the progress made by the member states.

4.4.3 Social Partners

The social partners have to be involved in the policy making process for it to be legitimate and for all actors to feel a sense of ownership. This is especially of importance for labour market policies, life-long learning and restructuring (Commission of the European Communities, 2005a). Examples of social partners are unions and other types of organisations which represent a part of civil society.

4.5 Relevance of the Lisbon strategy

4.5.1 Relevance of the Lisbon Strategy in general

First of all, it is important to look at whether it is necessary to define a Lisbon Strategy and to see whether the situation in the European Union is actually as bad as is suggested. By comparing the situation in the European Union to that of the United States and Japan an idea can be given. This data is from 2006, unless stated otherwise.

Table 4: structural indicators EU, US and Japan (eurostat)

Structural indicator	European Union (25)	United States	Japan
GDP per capita in PPS	100	147,9	108,3
Labour productivity per person employed	100	134	
Employment rate *	64,7	72	70
Employment rate of older workers*	43,6	61,8	64,7
Youth educational attainment (20-24) *	77,7		
Gross Domestic expenditure on R&D	1,88 (2003)	2,67 (2003)	3,2 (2003)
Comparative price levels	100 (2003)	101,3 (2003)	137,1 (2003)
Business investment	17,4 (2005)		
At-risk-of-poverty rate after social transfers *	16 (2005)		
Long-term unemployment rate *	3,6	0,5	1,4
Dispersion of regional employment rates *	11,9 (2005)		
Greenhouse gas emissions	92,7 (2004)	115,8 (2004)	106,5 (2004)
Energy intensity of the economy	204,89 (2004)	308,59 (2004)	121,07 (2004)
Volume of freight transport relative to GDP	98,9 (2003)	115,8 (2004)	100,4 (2003)

As can be seen in table 4, the EU is performing worse on many different structural indicators in comparison with the United States and Japan. GDP per capita is lower, as is labour productivity, expenditure on R&D and the employment rate. This has been the case for a number of years looking at table 5. For Labour productivity, the performance of the EU has been set at 100, which has as a consequence that the growth of labour productivity is not visible.

Table 5: historical perspective (eurostat)

	European Union (25)				**United States**				**Japan**			
	1997	*2000*	*2003*	*2006*	*1997*	*2000*	*2003*	*2006*	*1997*	*2000*	*2003*	*2006*
GDP per capita in constant 1995 prices and exchange rates (x €1000)	16.2	17.7	18.3	19.4	22.5	24.5	24.9	26.6	33.2	33.2	33.6	36
Labour productivity	100	100	100	100	131.6	132.4	132.3	133.5				
GDE on R&D	1.8	1.87	1.88		2.56	2.72	2.67		2.89	3.05	3.2	
Employment rate	60.6	62.4	62.9	64.7	73.5	74.1	71.2	72	70	68.9	68.4	70

This is also the case for a number of social cohesion indicators and business investments. The EU is performing well on environmental indicators. Greenhouse emissions are lower than in the US and Japan, the energy intensity of the economy is lower than that of the US and the volume of freight transport relative to GDP is also lower. Some of the data is from a number of years ago, therefore one should keep in mind that the situation could have changed. Furthermore, it is important to keep in mind that such indicators do not show the entire situation. For instance, a high level of GDP per capita does not necessarily have to go hand in hand with higher welfare, since for instance the amount of leisure is not accounted for. The OECD (2006) has put an effort into measuring welfare, for instance by analysing reported happiness and social outcomes. However, the organisation states that all these measures have drawbacks as well.

It is often the case that when policies are implemented they have positive effects on a certain indicator, but on the other hand have negative effects for another (Wildavsky, 1987). As is stated in the OECD publication 'Economic policy reforms: going for growth' (2005), "different areas of government may give differing weights to the respective importance of wealth and income maximization on the one hand and broader equity issues on the other". Therefore, when designing policies one should keep that certain other aspects could be affected negatively. Furthermore, it is important to keep in mind that certain groups of people will be able to benefit more from certain policies than others. Analysing these aspects would be interesting, but is beyond the scope of this research.

I believe it is a good case that the European Union is focusing on competitiveness, since I believe that it will have a positive effect on economic growth and that economic growth is essential for the Union, eventually for maximising welfare as was also illustrated in chapter 3 on models of competitiveness. The European Union should however not strive to be the same as the United States or Japan and should maintain its own values. Economic growth should be achieved while keeping social cohesion and the environment in mind. Furthermore, the EU should always be alert for negative externalities.

4.5.2 Relevance of the Lisbon strategy in light of theories on competitiveness

Perspectives on competitiveness

In chapter three different perspectives on competitiveness were discussed; the macro-economic perspective, micro-economic perspective, industry perspective and regional perspective. The Lisbon Strategy also looks at different types of competitiveness. As a large region made up of several nations, the EU has defined its goal to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable growth with more and better jobs and greater social cohesion. Industry competitiveness is also mentioned by the Lisbon strategy, with an explicit focus on SMEs. Cluster formation and innovation poles could be used to increase industry competitiveness.

Measuring competitiveness

The European Union has defined a short set of key indicators (Appendix B) and a long list of background indicators which are used to measure competitiveness. All the different ways of measuring competitiveness mentioned in chapter three are also used by the EU except for Trade and FDI, earnings and market share. The last two measurements of competitiveness are not used due to the fact that these are micro-economic measures of competitiveness, and as was indicated in the previous section, this type of competitiveness is not used in the Lisbon strategy. Trade and FDI could be used by the European Union as indicators of competitiveness, to see how well countries are doing compared to other nations or regions. The EU stresses the importance of having competitive internal and external market, however it does not use any measurements for this. Therefore, the European Union could considered these indicators for measuring competitiveness.

Drivers of competitiveness

The drivers of competitiveness which were mentioned in the chapter on the theoretical background of competitiveness are infrastructure, technological progress, cost competitiveness, knowledge and skills, education, institutions, innovation, cooperation, competition and coordination and adaptive capacity. Of these drivers, a number are also mentioned in the Lisbon strategy. Under the heading ‘making Europe a more attractive place to invest and work, the single market, competitive markets, regulation and infrastructure are mentioned as drivers of competitiveness. Knowledge and innovation for growth, stresses the importance of R&D, innovation and a strong industrial base. Finally ‘creating more and better jobs’ includes the importance of employment, education and skills. At first sight, cost competitiveness, cooperation, coordination and adaptive capacity are not mentioned in the Lisbon strategy. I believe that the European Union should also not focus too much on cost competitiveness, since this will be more important in for instance Asian countries. They are able to produce at a lower cost than Europe. It is of more importance to have a good balance between quality and cost competitiveness, therefore focusing on R&D and innovation is of critical importance.

Cooperation and coordination are mentioned by the EU as influencing the competitiveness of regions, when the Lisbon strategy is looked into more closely. It is done by bringing different companies, universities and industry together. The promotion of clusters of industries is also mentioned in this respect, however the cooperation between different companies could be stressed more.

Policy making

In the chapter on policy making dealing with competitiveness a number of aspects appear and will be analysed in view of the Lisbon strategy. The literature states that competitiveness policies should be different for each region, since different aspects are necessary for each region. Within the Lisbon strategy the countries had to formulate National Reform Programmes, which deal with the competitiveness of a certain nation. However, within the nation, different regions might need a different approach. This is especially the case in the larger European countries. However, it is not clear whether this distinction is being made. In the National Reform Programmes of the three countries which were analysed, this did not always come forward. The Netherlands had a clear area-oriented policy, while the others did not. The Lisbon strategy does say that coordination and cooperation is necessary between different levels of governments, and the National Reform Programmes of the Netherlands and Sweden also state that this is the case. However, it is not clear which level of government has which responsibilities, this may have a negative effect on the implementation of policies.

Both soft and hard factors of importance in the European Union, however, I believe that a difference should be made between different countries. For instance, countries which have just joined the European Union might have to focus more on improving their infrastructure, than Western European countries. This also relates to the different stages of development of the country. Therefore, it is good that the member states all have to develop their own national reform programmes, and target their policies towards their own situation. Clusters are mentioned as important ways to enhance competitiveness and they also stimulate the use of codified knowledge, for companies being located together. Linkages are mentioned by the Lisbon strategy as well. It is important to bring together different actors of the economic arena. Businesses, government, research institutes and universities are stimulated to form groups with the goal of increasing innovative activity.

Sustainable development is another aspect which is mentioned by the Lisbon strategy as being very important. This is also mentioned by theories a lot, however it is no evidence whether policy influences theory in this respect or the other way around.

Relevance of policies on innovation, ICT and R&D

As is stated in the previous section, policies on innovation, ICT and R&D are mentioned by scholars as contributing to an increase in the competitiveness of a country. The OECD (2006)

even states that innovation is one of the main engines of long-run growth. Governments can do many different things to stimulate innovation and R&D. The OECD (2006) mentions a list of aspects:

- education and skills
- financial market policies
- policies affecting product market competition and intellectual property rights
- openness and regulations on FDI
- Labour market regulations and institutions
- Innovation specific policies
- Public research
- Industry science linkages
- Governance of public research
- Financial support to private R&D

When comparing this list with what the EU has incorporated in the Lisbon Strategy (Appendix D) a large amount of overlap becomes visible. All aspects are mentioned, except for labour market regulations and institutions, but these are mentioned in the chapter on employment.

The EU uses several indicators to measure innovation, R&D and ICT:

- Spending on Human Resources
- Gross domestic expenditure on R&D
- Level of internet access – households
- Science and technology graduates
- Patent application to the European Patent Office (EPO)
- Patents granted by the United States Patent and Trademark Office
- Venture capital investments – early stage
- Venture capital investments – expansion and replacement
- ICT expenditure – IT
- ICT expenditure – telecommunication
- E-commerce via Internet
- Youth attainment level
- E-government on-line availability
- E-government usage by individuals
- E-government usage by enterprises
- Broadband penetration rate
- High tech exports

However, it is important to be careful with these measures of innovation and R&D. They often merely indicate a spending on R&D or a number of patents. It does not say anything about the effectiveness of this spending or whether something is actually being done with the patents (OECD, 2006). Furthermore, the level of R&D and innovation could be influenced by the composition of the industries. The OECD (2006) has shown a picture of expenditure on R&D corrected for industry composition, but approximately the same results are visible for the three countries. Therefore, a critical view should be maintained towards the outcomes of the indicators in the different countries.

4.6 Summary

In this chapter the Lisbon Strategy was discussed. In 2000 the European leaders came together and formulated the Lisbon Goal:
"To become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion"

In the first part of this chapter the original Lisbon strategy was discussed. Following the goals and objectives of Lisbon, the inclusion of the Göteborg strategy on environment and sustainable development was elaborated on. Finally, the results of the research of the High Level Group of 2004, which evaluated the progress of the Lisbon Strategy, were shown. The Lisbon Strategy was not completely successful and something had to change.

In 2005 the European Council decided to relaunch the Lisbon strategy, the three overarching issues became: 1)Making Europe a more attractive place to invest and work; 2) Knowledge and innovation for growth; and 3) Creating more and better jobs. Several action points for both the member states and the community were identified and are described in the following part of this chapter.

Several actors are involved in the Lisbon Strategy. The Member States have a large amount of responsibility in making this strategy work. Furthermore, the different bodies of the European Union all have a specific role. These actors are the European Parliament, Commission, Council and competitiveness Council. Finally the Social Partners have an important role in creating a sense of ownership towards the strategy.

The chapter ended with an evaluation of the relevance of the Lisbon strategy in general and the R&D, innovation and ICT policies specifically. A large amount of the theories came back in the policies. However, there are still a number of aspects which the European Union did not include in its policies and might consider. These are using trade and FDI as measures of competitiveness, using adaptive capacity and cooperation between companies as drivers of competitiveness, having different policies for different regions and including different governmental levels of policy making.

This chapter has laid the foundation for the next chapter in which policies concerning R&D, innovation and ICT as part of the Lisbon strategy in three countries will be discussed into more detail, in order for them to be evaluated.

5 Innovation, R&D and ICT in three countries

5.1 Introduction

In this chapter the Lisbon strategy in the field of knowledge and innovation will be looked at in three countries. All the countries in the European Union had to formulate National Reform Programmes by the end of 2005. At the end of 2006 all countries developed their first progress report. The objectives, inputs, activities, outputs and results of policy making in the Netherlands, Sweden and Spain will be discussed in this chapter. A specific focus will be made towards the R&D, innovation and ICT objectives in the National Reform Programmes (Guidelines 7, 8 and 9). Furthermore, in this chapter an evaluation of the Lisbon strategy will be conducted. The policies of the three different countries will be evaluated based on the criteria relevance, economy and effectiveness. Finally, the three countries will be compared to each other.

The initial situation of each country is different as is shown in table 7. The Netherlands scores high on the general economic indicators, whereas Sweden scores high on the indicators concerning R&D and innovation. This research will therefore analyse the improvements which are made in each country. One should keep in mind that the national situation in each country is different, for instance, different actors are of importance and the economic situation differs as well. Actors which have to be dealt with are for instance employers and employees. They are effected differently by the policies of the Lisbon strategy. However, it is beyond the scope of this research to analyse the effects of every policy on each actor.

Table 6: initial situation in three countries (eurostat)

	the Netherlands			**Sweden**			**Spain**		
	1997	*2000*	*2005*	*1997*	*2000*	*2005*	*1997*	*2000*	*2005*
GDP per capita in PPS (EU 25 = 100)	121.9	123.9	125.4	115.2	118.7	114.6	87.4	92.0	99.4
GDP per capita in constant 1995 prices and exchange rates (x €1000)	22.1	24.5	25.4	22.5	25.3	27.9	12.3	13.9	15.1
Labour productivity (EU 25 = 100)	105.2	105.3	109.4	105.9	106.9	105	101.0	97.8	97
Gross domestic expenditure on R&D (%)	1.99	1.82	1.78 (2004)	3.51	3,94	3.86	0.8	1.91	1.12
Youth attainment level (%)		72.9	75.6	88.1	87.5	86.5	59.0	64.6	61.8

5.2 Netherlands

5.2.1 Elements of policy

Objectives

In the National Reform Programme of the Netherlands (2005) is stated that the European Commission identified two main challenges for this country, namely and increase in the labour supply and an increase in the capacity to innovate. With respect to R&D, innovation and ICT, a number of points of concern were identified in the National Reform Programme, which are:

- The relatively high number of premature school-leavers, the (short) time people participate in education, the average educational level of the Dutch workforce, and the relatively small number of graduates in science and technology.
- Adequate translation of knowledge into new products and services and the relatively low private investments in R&D.
- Improving public-private relationships and the synergy between education and research.

The overall goal for Research and development is that 3% of GDP should be allocated to it. Of this eventually two-thirds should be privately financed and one-third should be publicly financed. Furthermore, by 2007, 65% of government services will be available through the internet. Other aims of the Netherlands are a European Top 5 position in the following areas by 2010:

- R&D spending by companies as a percentage of GDP and reaching the EU average level in 2007.
- Turnover share of new or improved products and services as a percentage of total turnover
- European patents applied for per million members of the workforce
- Share of Core Human Resources in Science & Technology in total employment
- Share of innovative companies with joint ventures

Inputs

Departmental budgets in € million

Table 7: Finances, the Netherlands (NRP, 2005 & PR, 2006)

	Guide-lines		**'04**	**'05**	**'06**	**'07**	**'08**	**'09**	**'10**
NRP	**7 and 8**	R&D, knowledge workers and innovation	113	141	202	254	238		
	OCW	Knowledge and innovation	530	404	426	432	427		
	EZ	Knowledge and innovation	253	245	244	245	242		
	LNV	Larger cities: G30 (knowledge) economy		20	20	20	20		
	GSB	Total	896	810	892	951	917		

PR	**7 and 8** OCW EZ LNV GSB	R&D, knowledge workers and innovation Knowledge and innovation Knowledge and innovation Larger cities: G30 (knowledge) economy Total		165 369 254 6 794	267 684 249 11 1211	313 485 248 23 1069	286 421 239 31 977	299 417 242 27 985	245 442 241 928
NRP	**9** BZK EZ LNV	Electronic government Electronic motorways/ICTAL Promotion of sustainable chains; Transparency and ICT Total	PM 34 0 34	PM 36 1 37	PM 26 3 29	PM 23 1 24	PM 22 1 23		
PR	**9** BZK EZ LNV	Electronic government Electronic motorways/ICTAL Promotion of sustainable chains; Transparency and ICT Total		22 38 1 59	47 37 3 87	58 29 1 88	55 28 1 84	53 28 81	52 28 80

Apart from the data in the table, budgetary settlement from tax measures are important:

- The tax credit scheme for R&D (WBSO) is 352 million euros in 2004. In 2005, this will increase to 389 million euros and in subsequent years to 425 million euros
- The measures concerning the capital tax and the corporate income tax amount to € 271 million in 2006 and € 267 million in 2007

Next to the above mentioned budget, FES funds have been distributed to achieve the goals of the Lisbon strategy as well.

Table 8: FES funds, the Netherlands (PR, 2006)

(x EUR 1000)	**Dep.**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**Total**
Classrooms for practicals	OCW		163,5	136,5				300
Vocational column/ pre-school and early learning education	OCW		90,5	9,5				100
Large-scale research infrastructure	OCW		29,472	30,642	22,822	10,162	3,902	97
Innovation Vouchers/IPCs	EZ		21	23	16			60
Top-Research innovation programmes								
• **Facilities for nanotechnology**	OCW		17					17
• **Holst center**	EZ		6	14	20			40
• **Technostarters**	EZ		5	4	3			12
• **Transgenic crops**	VROM		200	1,615	2,4	2,8	2,1	208,915
• **Plant research**	LNV		1,025	1,945	2,395	2,035	1,6	9
• **TNO Automotive**	OCW		10,8					10,8
• **Social Sectors and ICT**	EZ		4,026	16,106	20,132			40,264

• **Pharma Top institute**	VWS	1	17,198	32,198	32,198	32,198	16	130,792
• **Transition cooperation Universities of technology**	OCW		10,066	10,066	10,066	10,066	10,066	50,33
• **Innovation Programmes and top research**			28,386	28,386	28,386	27,186	23,297	135,641
• **Innovation programmes/key areas**	EZ		5,111	8,778	10,222	10,222	5,667	40
Total		1	609,084	316,736	167,621	94,669	62,632	1251,742

Activities and Outputs

The National Reform Programmes identified a number of planned activities, these have been put in a table in appendix G. The policies which have been implemented are shown in the progress report of the Netherlands, and are also visible in appendix G. By putting these two in the same table the policies can easily be compared to each other. The Netherlands divided its policies for guidelines 7 to 9 into several headings: 1) Strengthening the innovation climate, 2) More innovating companies, 3) Focus and mass in strategic areas of innovation, 4) Social innovation, 5) innovation policy mix, 6) Area oriented policy, 7) Better utilization of ICT, 8) Strengthening the ICT base, and 9) International cooperation.

Results

Before something can be said about the results of the policy, the initial situation should be looked at. This can then be compared with the situation at the end of the evaluation period.

Initial situation:

The Netherlands has a high GDP per capita when comparing it with the average in the EU. In 2005, when the renewed Lisbon strategy was formulated, employment rate was on average 73.2%, educational attainment was 75.6% and gross domestic expenditure on R&D was 1.78% (2004). Furthermore, comparative price levels were slightly higher than EU average. Business investments were 16.1, long term unemployment rate was low in comparison with EU average as was the dispersion of regional employment rates. Two aspects on which the Netherlands scored lower than EU average were youth educational attainment and gross domestic expenditure on R&D. This shows that it is of great importance for the Netherlands to increase this number. The level of internet access is relatively high at 78 %. The number of science and technology graduates is quite low in the Netherlands. The country does have a high ICT expenditure compared to the EU average. E-government on line availability is low, whereas e-government usage is high in comparison with the EU average. Finally the broadband penetration rate is higher in the Netherlands than in the majority of countries in the EU. For a complete overview of all the indicators of the Lisbon strategy, see appendix H.

Current Situation:

No information was available on the current gross domestic expenditure on R&D by the Industry and the government in the Netherlands, which is actually the most important indicator. The Level of internet access increased slightly, but the youth attainment level remains a problem. The level of youth attainment for females as well as for males actually decreased. E-government availability increased to 53 %. Furthermore, e-government usage by individuals and enterprises rose. Finally, broadband penetration rate increased considerably to 29 %. A complete overview can be found in appendix G.

5.2.2 Evaluation

Relevance

The relevance of the policies of the Netherlands is looked at by analysing which parts of the integrated guidelines are incorporated in the National reform programmes and whether these are adequate for the situation in which the Netherlands now finds itself.

Table 9: Focus, the Netherlands

7 To increase and improve investment in R&D, in particular by private business	**7.1**	increasing the tax scheme for R&D (WBSO) lowering the corporate income tax Abolishing the capital tax Reducing the number of access points Reduction in the preparation costs and administrative burden
	7.2	strengthening R&D cooperation
	7.3	strengthening R&D cooperation use subsidies in thematic and regional strategic areas of innovation and promoting long-term excellent research (ICES-KIS) and combining the supply and demand of ICT
	7.4	performance funding
	7.5	
	7.6	experiments with selecting students and with differentiating tuition fees for certain courses Making science and technology programmes more attractive training courses with extra challenges for ambitious and talented student New doctoral system, for example by extending the grants for research masters with one year simplifying and streamlining administrative procedures for access to the Dutch labour market for knowledge immigrants increase network of Dutch offices that support education abroad and international centres of excellence in higher education scholarships for talented foreign students

8. To facilitate all forms of innovation	**8.1**	
	8.2	strengthening R&D cooperation innovation performance contracts Area oriented policy Consider the available options for supporting social innovation on a local level supporting knowledge transfer to SMEs through knowledge centres (Syntens and target-oriented subsidies (vouchers, SBIR)
	8.3	Stimulate Dutch participation in international knowledge products(KP7, ERA, networks of excellence) and links with international knowledge clusters
	8.4	
	8.5	making risk capital available (technopartner programme)
	8.6	stimulate spin-offs in universities; effective use of patents will also be stimulated to encourage the exchange of knowledge between universities and the business sector
9. To facilitate the spread and effective use of ICT and build a fully inclusive information society	**9.1**	Development of electronic basic facilities for government; One consumer contact point and a mandatory independent settlement of disputes Increased use of innovative ICT applications and services to help solve problems with traffic, education, safety and health care
	9.2	Technical agreements with respect to interoperability and communication infrastructure (eNorm)
	9.3	
	9.4	
	9.5	Focus on interoperability, safety and trust, ICT in the public sector, broadband and effective utilisation of R&D funds. The Opt-in regime will also apply to business users Establishment of a standardisation council and forum
	9.6	Provision of faster internet connections; 'Connecting the Dots' for innovative broadband networks and ICT services

The main conclusion considering the table above is that the Netherlands has a quite broad range of policies in place, which cover a large amount of the guidelines. When looking at the structural indicators of the Netherlands, it becomes clear that improving youth educational attainment and the level of R&D expenditure should be improved. In the NRP of the Netherlands, stimulating private R&D investments has been emphasized as the largest problem, however, this does not become clear from looking at this table. The Netherlands could focus more on developing public-private partnerships and developing and making better use of incentives to leverage private R&D. Modernising management of research institutions and universities does not come forward in the National Reform Programme of the Netherlands, however, no conclusions can be drawn as to why this is the case. The fact that youth educational attainment is low in the Netherlands, does come forward in the policies. It puts a

large focus on making studies more interesting and accessible for students. The OECD (2006) also states that it is important for the Netherlands to improve graduation rates from tertiary education. Furthermore the OECD (2006) mentions that entry of foreign knowledge workers should be facilitated, this is also mentioned in the NRP. Even though the performance of the Netherlands is quite well in the field of ICT, a number of measures will be taken to improve it even more, which is positive anyhow. But the Netherlands does not specifically focus on encouraging the development of strong ICT and content industries, and well-functioning markets. Finally, the Netherlands also puts an emphasis on area-oriented policies, which indicates that different policy measures are applicable for different regions. As the chapter on theories of competitiveness already indicated, it is good to have different policies for different regions.

Economy

Expenditure on the Lisbon strategy increased in comparison with the National Reform Programme. In 2005 expenditure on the Lisbon strategy was actually slightly less than planned; €794 million compared to the planned € 810 million. But in 2006 expenditures were much higher; €1211 million compared to €892. In 2006 the planned expenditure and actual expenditure were approximately equal. In the progress report the FES funds were also specified more, showing that in 2006 an extra €409 million is allocated to the Lisbon strategy.

Effectiveness

What becomes clear when reading the progress report of the Netherlands is that not all policy measures are mentioned which are stated in the National Reform Programmes. Furthermore, some extra policy measures are mentioned which were not in the NRP. In appendix G can exactly be seen which policies were planned and which were implemented.

For the first heading of 'strengthening the innovation climate', policy measures dealing with taxes, but also those dealing with making science and technology programmes more attractive, offering training courses, a new doctoral system, scholarships for students, networks of offices abroad and international centres of excellence are not mentioned in the progress reports. These measures were very important due to the fact that the Netherlands does not perform very well on the field of youth educational attainment. The level of youth educational attainment actually decreased, and should therefore be an important point of attention. On the other hand, extra policy measures have been developed to have individual learning entitlements, and different measures to change the financing and measurement of the performance of universities. Under the second heading of 'more innovating companies' and 'focus and mass in strategic areas of innovation', all aspects are dealt with, however it is not clear to what extend these aspects have been incorporated. With respect to the innovation policy mix an action plan setting out how the government would foster innovation in the private sector by strengthening its role as launching customer. However, it is not clear what is

incorporated in this action plan and whether the goals of reducing the number of access points and reducing the preparation costs and administrative burdens are also included. Area oriented policy is well used in the Netherlands, within the program 'peaks in the delta', innovation in a number of regions is stimulated. Policies, which are specifically geared towards a certain region, are drawn up. Data was not available to see whether the expenditures on R&D actually increased.

Within the policies dealing with ICT, not all measures were taken. For instance, nothing was mentioned with respect to international cooperation. Furthermore, technical agreements with respect to interoperability and communication infrastructure was not mentioned either. Establishing one consumer contact point and a standardisation council and forum were not achieved in 2006. On the other hand a large number of policies are undertaken which are set up to stimulate SMEs. Eventually the level of internet access in households increased in 2006 as did the e-government usage and the broadband penetration rate. The amount of government services which is available through internet increased to 55%, but has not yet reached the goal of 65%.

5.3 Sweden

5.3.1 Elements of Policy

Objectives

Sweden emphasizes the importance of good access to knowledge, product development, flexible and efficient organisation of work as well as efficient and environmentally production processes for the competitiveness of the country. Sweden scores the highest on R&D investment; however business investment is low in comparison with other European countries. Sweden recognizes the importance of a high level of knowledge and education, research and innovation. Furthermore it stresses the importance of involving industry, academy, social partners and the public sector into decision making. The strategy focuses on four areas: a knowledge base for innovation, an innovative private sector, an innovative public sector and innovative people. In the National Reform Programme of Sweden is stated that it wants to be "a leading knowledge and research nation characterized by scientific excellence and high capacity for product renewal". Targets for Sweden are investing 4% of GDP into R&D. The target for public resources to be spent to R&D is 1 % of GDP.

Inputs

For Sweden no specific and complete information on the inputs of the policies could be found.

Activities and Outputs

The National Reform Programmes identified a number of planned activities, these have been put in a table in appendix G. The policies which have been implemented are shown in the

Progress report of Sweden, these are also shown in appendix G. By putting these two in the same table the policies can easily be compared to each other. Sweden has divided their policies on R&D, innovation and ICT into several headings as well namely: 1) Research for a better life, 2)Technology transfer and increased commercialisation, 3) Measures to increase protection of intellectual property rights, 4) Quality of ICT, 5) Sustainable growth of ICT, an 6) Accessibility and security and confidence in ICT.

Results

Initial situation:

GDP per capita in PPS is also higher than EU average in Sweden. The country has a high employment rate, also for older workers and a low long term unemployment rate. Dispersion of regional employment slightly higher than in the Netherlands, but still considerably lower than EU average. Furthermore youth educational attainment is very high as is gross domestic expenditure on R&D. Business investment, on the other hand is low. Indicators for innovation and ICT show that internet access is high, as is the number of science and technology graduates, ICT expenditure, e-government availability and e-government usage. High technology exports, on the other hand are low. The overall picture is that Sweden is performing well in the field of innovation and ICT. Extensive information on the structural indicators for Sweden can be found in appendix G.

Current situation

For Sweden also, no information could be found on the level of gross domestic expenditure on R&D in 2006. The level of internet access for households increased with 4% in Sweden. Youth attainment level for females remained constant, whereas for males it slightly decreased. E-government availability remained constant as well, as did the E-government usage by enterprises. Broadband penetration rate is increasing steadily in Sweden.

5.3.2 Evaluation

Relevance

As in the previous section on the relevance of the Netherlands, the relevance of the policies of Sweden is looked at by analysing which parts of the integrated guidelines are incorporated in the National reform programmes and whether these are useful for the situation in which Sweden now finds itself.

Table 10: Focus, Sweden

7 To increase and improve investment in R&D, in particular by private business	**7.1**	A new trade act, which will reduce administrative burden on companies
	7.2	Promotion of public-private partnerships in sectors of special importance
	7.3	Funding for research and postgraduate education should be increased by SEK 2.34 billion for the period 2005-2008. Focus will be on reinforcing scientific quality and ensuring that the Swedish research system offers the best conditions for internationally competitive research. Promotion of cutting-edge research, strong research environments and centres of excellence that are internationally competitive in all scientific fields will be built up gradually to a level of SEK 300 million per year. Creating larger and more polytechnically oriented institutes
	7.4	VINNOVA will be allocated resources to improve the access of SMEs to R&D
	7.5	Renewal of the Swedish research community, resources will be available for higher education institutions, the Swedish research councils and the Agency for Innovation Systems (VINNOVA) Assigning universities and colleges which specialise in technology, medicine and science to develop action plans for commercialisation and technology transfer
	7.6	
8. To facilitate all forms of innovation	**8.1**	
	8.2	
	8.3	
	8.4	
	8.5	Strengthening of the Innovation Bride, to make seed capital available
	8.6	Monitoring the work of the Commission on patent litigation insurance Implementation of the Directive on the Enforcement of Intellectual Property Rights Establishment of a court system with exclusive jurisdiction in all civil and criminal intellectual property cases in order to create an even more effective and more specialised court system Encouraging inventors and innovators to protect their rights; implementation of the London Agreement Review on the financial aspects of patenting on the growth of companies, presentation of the findings at the end of 2005
9. To facilitate the spread and effective use of ICT	**9.1**	Development of service centres for deaf-blind and visually impaired persons Financial support to the development of IT skills in SMEs Increased resources for the Agency for Innovation Systems for research and postgraduate education for 2005-2009

and build a fully inclusive information society	**9.2**	The Swedish Consumer Agency will be tasked with implementing special information drives for consumer advisors on IT issues. Appointing a committee of inquiry to investigate and propose measures to make the decision-taking process more effective in accordance with the Electronic Communications Act.
	9.3	
	9.4	Increase the use of E-services and IT support in the health care sector with projects including a national patient overview and the aim of enabling the electronic communication of information between health authorities and different levels of health service The already established HLG for e-health and other care services has to present a national IT policy by the beginning of 2006
	9.5	New law on country code top-level domains aimed at ensuring secure and effective administration of country code top-level domains for Sweden and at facilitating State access to and supervision of the administration
	9.6	A committee of inquiry will be appointed to study the accessibility of the physical infrastructure

As was visible in the structural indicators of Sweden, the country performs well on all guidelines. However, the OECD (2006) has mentioned a number of recommendations for Sweden, namely that it should review the capital gains tax and reform the employment protection legislation. Furthermore, public-private partnerships should be strengthened and innovation based on publicly–funded research should be promoted. These aspects are not all mentioned in the NRP. Actually only public-private partnerships are, the Swedish government could therefore think about the other aspects.

Guidelines 8.1 to 8.4 are not mentioned at all, indicating that no efforts are made to make use of innovation and technology transfer (both national and international) through networks, and bringing together all types of actors. It might be useful for Sweden to include more measures to stimulate the cooperation between different actors, such as universities, businesses and government. Furthermore, public procurement of innovative products and services is not mentioned. Sweden does emphasize the importance of intellectual property rights, it has many policy suggestions for this. As for policies dealing with ICT, Sweden does not focus on promoting a strong European industrial presence in key segments of ICT and does not encourage the development of strong ICT and content industries and well functioning markets. Finally, Sweden does not have any policies which deal with attracting more students into scientific, technical and engineering disciplines and enhancing career development. This is probably due to the fact that Sweden already has a higher than EU average number of science and technology graduates. Finally, the country does not focus on area-oriented policies, which could be an area of improvement as well. The country is so large and it could be the case that the scarcely populated north needs other things than the capital for instance.

Economy

Since Sweden did not specify the inputs of the policies in its National Reform Programmes nothing can be said about the economy.

Effectiveness

As can be seen in Appendix G, the progress report of Sweden does not mention all aspects of the National Reform Programme as well. It is not clear whether these policy issues are not taking place at all, or only in a later stage. This refers to policies on the renewal of the Swedish research community, creating larger and more polytechnically oriented institutes and making seed capital available. On the other hand, extra policy measures in the field of R&D and innovation have taken place; an intention to eliminate VAT on external research grants, an intention to study the issue of a tax deduction for donations to research, joining two patent conventions and the development of two committees of inquiry. Nothing can be said about whether Sweden has reached its goals for R&D and innovation since this information was not available.

With respect to ICT measure, financial support to the development of IT skills in ICT is not implemented, as is the new law on country code top-level domains for a secure and effective administration. Furthermore, an investigation and proposition for measure to make the decision-making process more effective has not been conducted. What Sweden has labelled quality issues dealing with ICT, was not executed either. In stead of this the establishment of an organisation which will work on developing public administration and the establishment of an inquiry chair who will assess and propose improvements in the forms for coordination of the development of standard in the IT area have taken place. Finally, a number of additional measures have been made such as a programme to stimulate the use of e-identification. The data which is available for the indicators of Sweden show an improvement in broadband penetration rate as well as in the level of internet access.

5.4 Spain

5.4.1 Elements of policy

Objectives

The two main objectives for Spain are full convergence in per capita income with the European Union (EU-25) in 2010 and to reach a 66% employment rate in 2010. Targets with respect to innovation and R&D are mentioned to be necessary to reach the two main objectives. Spain wants to double R&D investment to 2% of GDP in 2010, an intermediate target is set at 1,6%. Convergence with Europe in the Information Society is also mentioned as a target. Spain wants to reach 7% in GDP in 2010 and 6,3% in 2008 in terms of the resources that the Spanish economy assigns to ITCs. In the National Reform Programme of Spain is stated that it lags behind on Europe when considering R&D investments and company involvement in this investment. The

country believes that it is important to focus on actions aimed at increasing public private collaboration in R&D and innovation. A lack of science and technology system in both public and private perspectives is visible. The INGENIO programme was set up. The programme has the following objectives;

- Increase the ratio of R&D investment as a percentage of GDP from 1,05% in 2003 to 1,6% in 2008 and 2% in 2010
- To raise the private sector's contribution to R&D investment from 48% in 2003 to 52,5 % in 2008 and 55% in 2010
- To reach the EU-15 average in the percentage of GDP devoted to ITCs, from 4,6% in 2004 to 6,4% in 2008 and 7% in 2010
- To increase budget items for civilian R & D and innovation by a minimum of 25% per annum until 2008; the states civil R&D and I budget increased by 27 % in 2005 and 32 % in 2006

Inputs

Table 11: Finances, Spain

Strategic line	Action	Budget (2005)	Progress report (2006)
Cenit Program	Cenit projects Fund of Funds	€ 1,000 million (4 years) € 200 million (2006)	€258 million
CONSOLIDER PROGRAMME	CONSOLIDER CIBER projects Programa I3 Instalaciones Singulares	€ 500 million (4 years) € 130 million (3 years) € 1,000 million (4 years)	€294 million
AVANZ plan	Innovation-related lines: Companies E-administration	€ 2,200 million approx. (5 years)	€ 1,197.50 million
Guideline 8			€85.4 million
Total			€ 1,834.9 million

Activities and Outputs

The National Reform Programmes identified a number of planned activities, these have been put in a table in appendix G. The outputs of the Policies are shown in the Progress report of Spain, these are also shown in appendix G. By putting these two in the same table the policies can easily be compared to each other. The following programmes are most important in the National reform programme and the progress report of Spain: CENIT, CONSOLIDER and AVANZ.

Results

Initial situation:

Spain has a GDP which is slightly lower than EU average, this is also the case for labour productivity. The employment rate in Spain is approximately equal to the average of the EU. Youth educational attainment is lower than EU average as is gross domestic R&D expenditure and are the price levels. On the other hand, business investments are quite high in relation to

the other countries of the EU. Long term unemployment rate is not a large problem of Spain, however, the dispersion of regional employment rates are considerably higher than in the Netherlands and in Sweden. When looking at the indicators for innovation and ICT, you can see that Spain scores lower than Sweden and the Netherlands on almost all aspects. The aspects which are especially of concern to Spain are the level of internet access by households, the level of ICT expenditure in IT and youth attainment level. High tech exports are also somewhat low in Spain. For a complete overview, see appendix G.

Current situation:
In Spain progress has been made for the level of internet access for households, but it is still far below EU average. The youth attainment level has slightly decreased, and e-government availability has remained constant. Spain only just started measuring E-government usage by individuals in 2006, so nothing can be said about progress in that field. E-government usage by enterprises, on the other hand, has increased as did the broadband penetration rate.

5.4.2 Evaluation

Relevance

As was the case for the Netherlands and Sweden. the relevance of the policies of Spain is looked at by analysing which parts of the integrated guidelines are incorporated in the National reform programmes and whether these are adequate for the current situation in Spain.

Table 12: Focus, Spain

7 To increase and improve investment in R&D, in particular by private business	**7.1**	Legislative reforms to promote R & D & i: the Public Contracting Act The Agencies Act, to foment R & D & i.
	7.2	CÉNIT public-private consortium Projects) Enhanced R & D & i Management and Evaluation. Integrated Monitoring and Evaluation System (SISE)
	7.3	CONSOLIDER Projects to create excellent research groups I3 to encourage, integrate and intensify research activity
	7.4	
	7.5	The Organic Universities Reform Act (LOU) to foment R & D & i.
	7.6	Torres-Quevedo Program to incorporate PHDs into companies Bonuses on social benefits for research personnel
8. To facilitate all forms of innovation	**8.1**	The CONSOLIDER program (Critical mass and research excellence). Fund for large scientific-technological facilities. Creation of the risk-capital Fund of Funds of the Centre for the Development of Industrial Technology (CDTI)
	8.2	CIBER Projects to create healthcare research networks Adoption of a program to stimulate entrepreneurial innovation in non-technology areas, including support for entrepreneurial clusters

	8.3	Enhanced system of technological transfer to companies, paying particular attention to the group of Technological Centres
	8.4	
	8.5	Enlargement of participative loan lines to innovative and technology-based companies Risk-capital Fund of Funds for technology companies
	8.6	
9. To facilitate the spread and effective use of ICT and build a fully inclusive information society	**9.1**	AVANZ@ Plan: homes AVANZ@ Plan: education AVANZ@ Plan: Homes AVANZ@ Plan: Education AVANZ@ Plan: companies AVANZ@ Plan: Connect (Digital Public Administration)
	9.2	
	9.3	
	9.4	
	9.5	
	9.6	The Government will deal with a Broad-Band extension plan to provide service to virtually all population by 2010.

The data on the structural indicators of Spain showed that improvements can be made in a lot of different fields. I can imagine that not aspects can be dealt with at the same time, but it is important that eventually improvements can be made in all three areas. The OECD (2006) also mentions a number of recommendations: 1) facilitating access to early-stage venture capital, 2) improving effectiveness of financial support for private R&D, 3) improving the quality of tertiary education and 4) improving synergies between regional innovation systems. Education is not mentioned in its plans for innovation, but is mentioned in a more general sense in another part of the NRP. Financial support is mentioned, but Spain could work on improving synergies between regional innovation systems.

The country does not focus on all aspects of innovation and R&D, and improvements can also be made in the field of ICT. For example, encouraging public procurement of innovative products and services and providing efficient and affordable means to enforce intellectual property rights are not mentioned at all. Within guideline number nine, a lot of effort is put into encouraging the widespread use of ICT in public services, SMEs and households. Furthermore, encouraging the deployment of broadband networks is also stimulated in Spain. However, all other aspects of guideline number nine, such as providing a strong European industrial presence in key segments of ICT and ensuring the security of networks and information, are not covered. More effort can also be put into attracting students into scientific, technical and engineering disciplines and enhancing mobility of researchers and development personnel, since the country

also scores slightly below average for these aspects. Finally, increasing the amount of R&D investments remains an important point of attention and area oriented policies could be an issue of improvement as well.

Economy

The policy measures of Spain were easy to compare with each other, whereas for the finances this is not so much the case. A lot more was spend on the AVANZ plan to encourage ICT and internet usage in SMEs, households and governments, less was spend on the CONSOLIDER programme and approximately the same amount was planned and spend on the CENIT programme.

Effectiveness

Spain has a clear reporting method, in which one can see easily which measures have been undertaken, which are in progress and which measures are new. All measures which were mentioned in the NRP are also mentioned in the progress report with some additions. However, it uses a different way of structuring according to their own pillars.

For the measures dealing with guidelines number 7 and 8, many were approved. The fund for large technological facilities is still in process, as is the agencies act, the organic reform act and the planned legislative reforms. The adoption of a programme to stimulate clusters and entrepreneurship is still in process and planned for 2007 as is the programme for bonuses on social benefits for research personnel. Extra policy measures were mentioned to make changes to the regulations under the general subsidies act, the innoepresa plan, studies and analyses regarding clusters, support for business groups to explore their technical needs, measures to strengthen the profit programme to support technological centres and the support for the creation of technological centres. For Spain, also no data was available on the R&D expenditures in 2006. Youth educational attainment remained stable and should be stimulated more. All projects were approved in the field of ICT. Which can also be said to have led to some results, the broadband penetration rate almost doubled in two years. Other indicators which increased a lot were e-commerce via internet and e-government usage by enterprises. The country is doing well on ICT measurements, but still has to increase the level of internet access in households.

5.5 Comparing the three countries

5.5.1 Comparing the relevance of Lisbon Agenda in the three countries

The three countries have different priorities to focus on and also have different policy measures which are of importance. The table shows in which country, which policies are of crucial importance.

Table 13: Focus of the policies in NL, SV and ES

Policy Guideline	NL	SV	ES	Policy Guideline	NL	SV	ES	Policy Guideline	NL	SV	ES
7.1	++	+	+	**8.1**	-	-	+	**9.1**	+	+	++
7.2	+	+	++	**8.2**	++	-	+	**9.2**	+	+	-
7.3	+	++	+	**8.3**	+	-	+	**9.3**	-	-	-
7.4	+	+	-	**8.4**	-	-	-	**9.4**	-	+	-
7.5	-	+	+	**8.5**	+	+	++	**9.5**	++	+	-
7.6	++	-	+	**8.6**	+	++	-	**9.6**	+	+	++

All countries place most importance on guideline number 7 which is on increasing and improving investment in R&D, in particular by private business. All three countries have one aspect on which they do not focus, albeit a different one. For all countries this is also the area which needs the most attention, so this is a good case. Sweden places the least importance on guideline number 8; facilitating all forms of innovation. This could be the case due to the fact that Sweden is already performing best of the three countries on this aspect. For guideline number 9 dealing with ICT, Spain places a lot of importance on the first and the last aspect but does not at all focus on the other aspects, while ICT is an important point for the country. For Spain it is quite difficult to decide on which aspect they should focus, since improvements are necessary in all fields. It think it is good first to focus on only some aspects, but they should keep in mind that improvements are also necessary in other fields. Sweden spreads its efforts among five aspects, whereas, the Netherlands especially places an emphasis on ensuring the security of networks and information. None of the countries focus on guideline 8.4 and 9.3 which deal with the public procurement of innovative products and services and the promotion of a strong European industrial presence in key segments of ICT. This seems striking due to the fact that industrial presence is very important for the future of the EU and its countries. The EU should consider formulating policies for achieving this goal at the EU level.

5.5.2 Comparing the effectiveness of the National reform Programmes in the three countries

Table 14: Effectiveness, NL, SV & ES

	Not mentioned	In process	Implemented	Extra	Total
NL	12 (33%)		24 (66%)	3 (8%)	39
SV	9 (39%)		14 (61%)	9 (39%)	32
Es		6(25%)	18 (75%)	8 (33%) (4 are in process)	32

As can be seen in the table above, only Spain mentions all measures in the progress report which were also stated in the National Reform Programme. Both the Netherlands and Sweden

do not even mention a lot of the policy measures which were stated in the NRP. For Sweden this is almost 40%. Since the NRP is for a period of three years and the progress report only looks at the progress after one year, it could be the case that these policy measures are only planned for the following two years. However, this could be indicated better. In none of the NRP's is stated when the reforms are going to take place. Sweden has the largest number of extra policy measures, followed closely by Spain. What can be concluded is that the NRP of Sweden is most different from the progress report. It is difficult to draw any conclusions on which country has performed best, since nothing is known about the completion of the implementation and the efficiency of it. Furthermore, it is not clear yet which policies lead to the best results, since the data on the indicators is mostly not available. With respect to the finances related to the Lisbon programme, the Netherlands was most clear.

Table 15: Indicators, NL, SV and ES

	Netherlands	Sweden	Spain
Level of internet access – households	**+ 3 %**	**+ 5 %**	**+ 8 %**
E-commerce via Internet			**+ 650 %**
Youth attainment level – total	**- 1 %**	**- 1 %**	**=**
Youth attainment level - females	**=**	**- 1 %**	**=**
Youth attainment level – males	**- 2 %**	**- 2 %**	**- 1 %**
E-government on-line availability		**=**	**=**
E-government usage by individuals – T	**+ 13 %**		
E-government usage by individuals – F	**+ 11 %**		
E-government usage by individuals – M	**+ 15 %**		
E-government usage by enterprises	**+ 23 %**	**=**	**+ 5 %**
Broadband penetration rate	**+ 34 %**	**+ 34 %**	**+ 32 %**

When looking at the improvements which are made for the indicators of R&D, innovation and ICT, one can see that the Netherlands is performing especially well in the area of ICT. The country could be seen as a benchmark in this field. It has used especially many different policies for stimulating e-government usage in SMEs. However, one should keep in mind, that indicators do not always show the complete pictures and that policies which work in one country might not in the other. E-commerce via internet has increased tremendously in Spain, however, no specific policies were used to attain this goal and Spain started at a very low level. All countries need to focus on the youth attainment level, since it is decreasing or remaining equal. This is most important for Spain, since this country has the lowest level of youth educational attainment. Nothing can be said about the indicators on R&D and innovation, since these were not yet available.

5.6 Summary

In this chapter, the policies in the field of R&D, innovation and ICT in three countries were discussed, notably in the Netherlands, Sweden and Spain. The objectives, inputs, planned activities, outputs and results of the policies in the three different countries were shown based on the national reform programmes and progress reports. Furthermore, in this chapter an evaluation was conducted on the Lisbon strategy. This evaluation was conducted on the basis of three evaluation criteria; relevance, economy and effectiveness.

Table 16: Summary of the evaluation

Guideline		**NL**	**SV**	**ES**
R&D	Relevance	+++	++	+++
	Focus	+++	+++	+++
	Operational effectiveness	++	++	++
	Specific effectiveness	n/a	n/a	n/a
Innovation	Relevance	++	+	++
	Focus	++	+	++
	Operational effectiveness	++	++	++
	Specific effectiveness	n/a	n/a	n/a
ICT	Relevance	+	+	+++
	Focus	++	++	++
	Operational effectiveness	+	+	+++
	Specific effectiveness	+++	n/a	++

In table 14 a summary is given of the results of the evaluation. The Netherlands and Spain have the largest necessity of focusing on improving R&D in the country, although all three countries have the largest focus on this guideline. All three countries are medium effective at an operational level and since no data is available on the indicators, nothing can be said about the specific effectiveness. Considering policies on innovation, Spain has to focus on this the most and also does so in its policies. All countries are more or less equally operationally effective and again nothing can be said about the specific effectiveness due to a lack of data. Finally, when looking at policies on ICT, it is again most important for Spain to improve the ICT in the country, although Sweden focuses most on it. All the planned policies of Spain are also implemented whereas this is not the case in the Netherlands and Sweden. The Netherlands is most effective considering the indicators.

Overall, Spain had the highest level of operational effectiveness, the Netherlands and Sweden should improve this. Moreover, this country mentioned all different policy measures and is therefore clearest in its formulation. Spain and Sweden added a lot of new policy measures in their progress reports.

6 Conclusion

6.1 Introduction

In this research I have tried to answer the following central question:

'How can EU policy on competitiveness be improved?'

Before answering this question I will discuss the answers to the sub-questions which were raised in chapter one. After that the limitation to this research will be discussed. The chapter and this thesis ends with a reflection on the research including recommendations for further research.

6.2 Answers to the sub-questions

6.2.1 What is the European policy on competitiveness?

European policy on competitiveness is described in the Lisbon strategy. This strategy was first formulated in 2000 and renewed in 2005. It states that the goal of the EU is "to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion". The Lisbon strategy is made up of three broad issues; 1) Making Europe a more attractive place to invest and work; 2) knowledge and innovation for growth, and 3) creating more and better jobs. The Lisbon strategy needs to be achieved with help of both the European community, but also of the member states. A Community Lisbon Plan has been formulated in which the action to be made by the community is specified. Furthermore, National Reform Programmes are formulated by the member states in which is stated what their plans are to reach the Lisbon Goal.

6.2.2 What are the policies on innovation, R&D and ICT in the Netherlands, Sweden and Spain?

In chapter five the National Reform programmes of the Netherlands, Sweden and Spain are discussed. It shows the goals which the countries have set up for themselves, the policy measures which the countries want to take and the financed which are involved in it. Several aspects of policies are discussed in this chapter; objectives, inputs, planned activities, outputs and results.

6.2.3 What is the relevance of the policies on innovation, R&D and ICT in the Netherlands, Sweden and Spain?

Three types of relevance were considered at for answering this question.

- When looking at the Lisbon strategy in general, questions can be raised to whether it is necessary to formulate such a goal for competitiveness. Indicators show that the EU is

lagging behind, and I believe that it is important to focus on this. Off course negative externalities and the restrictions of the indicator GDP per capita should be kept in mind.

- When comparing the Lisbon strategy with the theories on competitiveness it became clear that a lot of the aspects which are mentioned in the theoretical background on competitiveness are also mentioned by the Lisbon strategy. Especially regional and macro-economic competitiveness are dealt with in the Lisbon strategy, although industrial competitiveness is also very important, especially for SMEs. Measurements which are not included in the Lisbon strategy are trade, fdi, earnings and market share. The EU could use trade and FDI as indicators of competitiveness, since it shows the competitive position of the EU in relation to other countries and regions. Many drivers of competitiveness are mentioned in the Lisbon strategy such as infrastructure, regulation, R&D, innovation, employment and education. However some drivers are not mentioned and could be mentioned to improve the Lisbon agenda such as adaptive capacity. Different levels of decision making come forward only slightly in the NRPs. Furthermore, improvements could be made by looking at specific regions and adapting policy towards this. When looking specifically at policies for R&D, innovation and ICT, can be concluded that the measures mentioned in the Lisbon strategy are quite extensive. When looking at the indicators it is important to keep in mind, that these indicators do not show the entire picture.
- The relevance of the National Reform Programmes was also analysed in relation to the Lisbon strategy and integrated guidelines as developed by the EU. For all countries, guideline number 7 on R&D promotion was most important and also was focused on most by the countries. Sweden put the least emphasis on guideline number 8 and Spain put the least emphasis on guideline number 9, while this is important for the country, considering its performance. However, Spain does put a lot of emphasis on making ICT available in households, SMEs and government and ensuring a broadband network. No country looks at the public procurement of innovative products and services and the promotion of a strong European Industrial presence in key segments of ICT.

6.2.4 What is the economy of the policies on innovation, R&D and ICT in the Netherlands, Sweden and Spain?

The economy of the policies on innovation, R&D and ICT could only be analysed for the Netherlands and Spain, since Sweden did not give any information on the inputs for policies. For the Netherlands expenditure on the Lisbon strategy increased in comparison with the National Reform Programme. In 2005 expenditure on the Lisbon strategy were actually less than planned, but in 2006 expenditures were much higher. Spain spend a lot more on the AVANZ plan to encourage ICT and internet usage in SMEs, households and governments, less was spend on the CONSOLIDER programme and approximately the same amount was planned and spend on the CENIT programme.

6.2.5 What is the effectiveness of the policies on innovation, R&D and ICT in the Netherlands, Sweden and Spain?

The operational effectiveness of the National Reform Programmes of the three countries was analysed. Of all the country Spain had the highest level of goal attainment. Moreover, this country mentioned all different policy measures and is therefore clearest in its formulation. The Netherlands and Spain did not even mention a large number of policies in their progress reports. Spain and Sweden added a lot of new policy measures in their progress reports. With respect to the specific effectiveness of the policies, no clear conclusions could be drawn due to a lack of data. The Netherlands did improve many aspects concerning ICT and Spain showed the largest increase internet access of households. Spain also had a tremendous increase in commercial usage of internet. The indicators for Sweden remained more or less equal and especially the Netherlands and Spain need to focus on increasing youth educational attainment.

6.2.6 Which recommendations can be made for the Lisbon strategy and the policies on innovation, R&D and ICT in the Netherlands, Sweden and Spain?

Several recommendation could be made for both the Lisbon strategy as formulated by the European Community and policies in the field of R&D, innovation and ICT in the Netherlands, Sweden and Spain. These have been discussed when answering the previous three questions, and will now be summarised in a table. The issues which are mentioned could be considered by the European Community and the three countries If they want to improve their policies.

Table 17: Recommendations

Lisbon strategy	The Netherlands	Sweden	Spain
Using trade as a measure of competitiveness	Emphasizing increasing youth educational attainment	Consider the recommendations of the OECD	Working on synergies between regional innovation systems
Using FDI as a measure of competitiveness	Increasing R&D expenditure	Focusing more on area oriented policy	Public procurement of innovative products and services
Emphasizing regional policies	Modernising management of universities and research institutions	Focus more on innovation and technology transfer (national and international)	Attracting more students into scientific, technical and engineering disciplines
Stressing cooperation between companies	Focusing more on PPP's	Improving reporting	Intellectual property rights enforcement
Emphasizing cooperation between governmental levels	Improving reporting		Ensuring security of networks and information

Promotion of a strong European industrial presence			Enhancing the mobility of researchers and development personnel
			Focus more on policies for improving ICT
			Considering area-oriented policies

Spain has a lot more aspects which it could consider, however Spain is also the country which has to improve the most to reach EU average. Sweden already reached almost all of its goals and has to put less effort into it. This also becomes clear when looking at the expenditures, Spain spends the most money on these policies. Both the European Community as the three countries should keep in mind that policies have negative and positive effects, and that monitoring these effects is therefore very important.

The strong points of the different countries could be seen as best practices and be used as a benchmark. However, one should keep in mind that policies are developed specifically for a certain situation which does not mean they will automatically work in another country as well. Three aspects of policy which can be seen as a benchmark in the countries are:

- Area oriented policy of the Netherlands
- Promoting the use of ICT in the Netherlands
- Policies on intellectual property rights in Sweden
- Way of reporting in Spain

6.3 Answer to the central question

The central question which was raised in chapter one was *'How can EU policy on competitiveness be improved?'.* In the previous section the sub-questions were answered which would lead to an answer to this question. The Netherlands especially should focus on increasing R&D investments, Spain should focus on increasing R&D investments, but should also focus on increasing ICT usage and Sweden already performs well and should ensure that their performance does not weaken.

6.4 Limitations

As with every research, limitations were made to the research due to a lack of time and due to the limited scope of the research. First of all, this research was limited to three guidelines of the Lisbon strategy in three countries. It would be interesting to be able to compare more countries with each other and to analyse the performance of the countries on other guidelines as well. Furthermore, only three criteria were looked at while analysing other criteria might also give valuable information.

6.5 Reflection

As with every research, during this research, some difficulties were encountered. A decision was made to focus on three different evaluation criteria, but due to a lack of information it was difficult to answer some of these questions. The specific effectiveness, was especially difficult to analyse due to the fact that information on the indicators was often not available for 2006. It would therefore be interesting to learn more about this subject after a larger period of time has passed. The economy of the policies was also difficult to analyse due to the fact that the data in the National reform programmes and the progress report was difficult to compare. Furthermore, for Sweden no information was available on this subject at all.

Operational effectiveness and relevance was easier to analyse due to the availability of the National Reform programmes and the Progress reports. However, it could be the case that not all information is presented in these reports which would distort the analysis. This is already visible to a certain extend due to the fact that in the progress reports of the Netherlands and Sweden a lot of policies were mentioned which were stated in the National Reform Programmes. Furthermore, policy documents are always a process of intense discussion and consensus building, which may make them difficult to analyse.

Another difficulty with this research was that it could be the case that interpretation differences have arisen. The analysis of the National Reform Programmes and the Lisbon Strategy was based on policy documents. As is always the case when reading policy documents, interpretation mistakes can occur. What is meant by a certain programme is not always exactly the same as what is understood by the reader. By having interviews with people who are carrying out this programme, these difficulties could, more or less, be overcome.

After a longer period of time has passed by, it would be interesting to analyse other criteria as well, such as efficiency and distributional effects. Time was a restriction of this research as well due to the fact a certain starting up period for reforms could be necessary and that after this starting up period is over, reforms are implemented quicker and results are more visible.

Certain recommendations for further research can be formulated, which could be interesting to analyse more. First of all, more countries and more guidelines could be analysed. Secondly it would be interesting to do interviews with certain policy makers to see whether the policies have actually been implemented and to overcome any interpretation difficulties. If more time is available it would also be interesting to analyse a larger number of evaluation criteria. This is only possible if more time has past after the implementation of policies.

All in all, it was an interesting subject to learn more about, and through this evaluation more information could be obtained about the policies of the European community and the three different countries.

7 Literature

- Aiginger, K. (2006) "Revisiting an evasive concept: introduction to the special issue on competitiveness", *Journal of Industry, Competition and Trade,* Vol. 6, pp 63-66
- Aiginger, K. (2006) "Competitiveness: From a Dangerous Obsession to a Welfare Creating Ability with Positive Externalities", *Journal of Industry, Competition and Trade,* Vol. 6, pp 161-177
- Amin, A. (1999) "An institutionalist perspective on regional economic development*", Paper presented at the Economic Geography Research Group Seminar, 'Institutions and Governance',* July 3 1998
- Anderson, P. H. (2006), "Regional clusters in a global world: production relocation, innovation and industrial decline", *California Management Review,* Vol. 49, No. 1, pp 101-121
- Asheim, B. & Isaksen, A. (2002) "Regional Innovation systems: The integration of local sticky and global ubiquitous knowledge" *Journal of Technology Transfer,* Vol. 27, pp 77-86
- Bachtler, John and Michie, Rona , 'A New Era in EU Regional Policy Evaluation? The Appraisal of the Structural Funds', *Regional Studies*, 29:8, 745 – 751
- Baslé, Maurice (2006) , 'Strengths and weaknesses of European Union policy evaluation methods: Ex-post evaluation of objective 2, 1994-99', *Regional Studies*, 40:2, 225 – 235
- Bathelt, H. (2003) "Geographies of production: growth regimes in spatial perspective 1-innovation, institutions and social systems", *Progress in Human Geography,* Vol. 27, Iss. 6, pp 763-778
- Batterbury, Sarah C. E. (2006) , 'Principles and purposes of European Union Cohesion policy evaluation', *Regional Studies*, 40:2, 179 – 188
- Begg, I. (1999) "Cities and Competitiveness", *Urban Studies*, Vol 36, Nos5-6, pp 795-809
- Bezzi, C. 2006; "Evaluation Pragmatics", *Evaluation,* Vol. 12, No. 56
- Boschma, R.A. (2004), "Competitiveness of Regions from an Evolutionary Perspective", *Regional Studies,* Vol. 38, Iss. 9, pp 1001
- Bristow, G. (2005) "everyone's a winner: problematising the discourse of regional competitiveness", *Journal of Economic Geography*, Vol. 5, pp 285-304
- Budd, L. and Hirmis, A.K. (2004), "Conceptual framework for regional competitiveness", *Regional Studies,* Vol. 38, Iss. 9, pp 1015
- Camagni, R. (2002) "On the concept of territorial competitiveness: sound or misleading?", *Paper presented at the ERSA Conference, Dortmuns,* august 2002
- Causa, O. & Cohen, D. (2006), *The Ladder of Competitiveness, how to climb it*, OECD Publishing

- CIA world factbook, https://www.cia.gov/library/publications/the-world-factbook/index.html, June 2007
- Clark, G.L., Palaskas, T., Tracey, P. and Tsampra, M. (2004) "Globalization competitive strategy in Europe's vulnerable regions: firm, industry and country effects in labour-intensive industries", *Regional Studies,* Vol. 38, Iss. 9, pp 1085
- Commission of the European Communities (02-02-2005), *Working together for growth and jobs; a new start for the Lisbon Strategy*
- Commission of the European Communities (12-12-2006) *Implementing the renewed Lisbon Strategy for growth and jobs*
- Commission of the European Communities (14-11-2006), *Economic reforms and competitiveness: key messages from the European Competitiveness Report 2006*
- Commission of the European Communities (2005), *Common Actions for Growth and Employment: The Community Lisbon Programme,* Brussels
- Commission of the European Communities (20-7-2005), *Common Actions for Growth and Employment; the Community Lisbon Programme*
- Commission of the European Communities (21-5-2002), *Productivity: The key to Competitiveness of the European Economies and Enterprises*
- Commission of the European Communities (23-10-2006) *Community Lisbon Pogramme: Technical Implementation Report 2006*
- Commission of the European Communities (29-5-2005), *Working together for growth and jobs, Next steps in implementing the revised Lisbon strategy*
- Competitiveness Council, www. Consilium.europa.eu/showpage.asp?id=412&lang=en, june 2007
- Council of the European Union (19-2-2007), *Competitiveness (Internal Market, Industry and Research)*
- Council of the European Union (21 and 22 May, 2007), *Competitiveness (Internal Market, Industry and Research)*
- Davies, I.C. (1999), "Evaluation and performance management in Government", *Evaluation,* Vol. 5 Iss. 150
- Davies, P. (2003), "What is policy Evaluation", *Magenta Book*
- De Bruijn, P. & Lagendijk, A. (2005) "Regional innovation systems in the Lisbon strategy" *European Planning Studies,* Vol. 13, No. 8, pp 1153-1171
- De La Porte,C., Pochet, P. and Room, G.J. (2001), "Social benchmarking, policy making and new governance in the EU", *Journal of European Social Policy,* Vol. 11, pp. 291
- Department of trade and industry (2006), *UK productivity and competitiveness indicators,* DTI
- Departmment of trade and industry (2006), *Regional competitiveness and the state of the regions,* DTI

- Díaz garrido, E., Martín-Peña, M.L., & García-Muiña, F. "Structural and infrastructural practices as elements of content operations strategy. The effect on a firm's competitiveness", *International Journal of Production Research*, Vol. 45, No. 9, pp 2119-2140
- Dunn, W. N. (2004), *Public Policy Analysis - An Introduction*. New Jersey, Pearson Education.
- Durand, M., C. Madaschi and F. Terribile (1998), "Trends in OECD Countries' International Competitiveness: The Influence of Emerging Market Economies", OECD Economics Department Working Papers, No. 195, OECD Publishing.
- ECORYS-NEI et al.-NEI, Cambridge Econometrics, University of Cambridge (2003), *A study on the factors of regional competitiveness,*
- European Commission (1997), *Evaluating EU Expenditure Programmes: A Guide*, European Commission, Directorate-General XIX – Budgets.
- European Commission (2004) Overview of Evaluation Guides in the Commission, Brussels DG Budget
- European Commission (2005) *Working Together for Growth and jobs; Integrated guidelines for growth and jobs (2005-08)*
- European Commission (2005), *EU sectoral competitiveness indicators,* Luxembourg, Office for Official publications of the European Communities
- European Commission (2006) *Spain - Assessment of the National Reform Programme*
- European Commission (2006) *Sweden - Assessment of the National Reform Programme*
- European Commission (2006) *The Netherlands - Assessment of the National Reform Programme*
- European Commission (2006), *Economic reforms and competitiveness: key messages from the European competitiveness report 2006,* Brussels,
- European Commission (2007), http://europa.eu/scadplus/glossary/lisbon_strategy_en.htm
- European Commission, DG Budget (2004), *Evaluating EU activities,* Luxembourg; Office for Official Publications of European Communities
- European Council (2 May 2007), *Presidency Conclusions*
- European Council, (18 May 2006), *Presidency Conclusions*
- European Council, (2001), *Presidency Conclusions*
- European Council, (23/24 March 2000), *Presidency Conclusions*
- European Council, (6 August 2005), *Presidency Conclusions*
- European Evaluation Society (2006) "Call for Abstracts: Evaluation in in Society: Critical Connections", *Evaluation*; 12; 145
- Eurostat, ec.europa.eu/eurostat, june 2007
- Evaluation 2006; 12; 119 Ernest R. House, "Democracy and Evaluation"

- Fagerberg, J. Mowery. D.C., Nelson, R.R. (2003) "Innovation and competitiveness" in *Oxford Handbook for Innovation,* Oxford; Oxford university Press
- Fendel, R. & Frenkel, M. (2005) "The international competitiveness of Germany and other European economies: the assessment of the global competitiveness report" *Intereconomics,* January/February 2005, pp 29-35
- Florida, R. (2002) "The Economic Geography of Talent" *Association of American Geographers,* Vol. 92, Iss. 4, pp 743-755
- Fothergill, S. (2004) "A new regional policy for Britain", *Regional Studies,* Vol. 39, Iss. 5, pp 659-667
- Freeman, C. (2004) "Technological infrastructure and international competitiveness" *Industrial and Corporate change,* Vol. 13, No. 3, pp 541-569
- Gardiner, B., Martin, R. and Tyler, P. (2004) "Head" *Regional Studies,* Vol. 38, Iss. 9, pp 1045
- Garrido, ED, Martin-Pena, ML, Garcia-Muina, F. (2007), "Structural and infrastructural practices as elements of content operations strategy. The effect on a firm's competitiveness", *International journal of production research,* Vol. 45, Iss. 9, pp 2119-2140
- Gertler, M.S. (2003) "Tacit knowledge and the economic geography of context or the undefinable tacitness of being there", *Journal of Economic Geography,* Vol. 3, Pp 75-99
- Global competitiveness report
- Greene, F.J., Tracey, P. and Cowling, M. (2007) "Recasting the City into city-regions: place promotion, competitiveness benchmarking and the quest for urban supremacy", *Growth and Change,* Vol. 38, No. 1, pp1-22
- Grilo, I. & Koopman, G.J. (2006) "Productivity and microeconomic reforms: strengthening eu competitiveness", *Journal of Industry, Competition and Trade,* Vol. 6, pp67-84
- Hakvoort, J.L.M. (1996) *Methoden en technieken van bestuurskundig.* Delft: Eburon
- Hämäläinen, T.J. (2003) *National competitiveness and economic growth,* Cheltenham; Edward Elgar Publishing Limited
- Hanberger, A. (2001) "What is the Policy Problem?: Methodological Challenges in Policy Evaluation", *Evaluation* Vol. 7, Iss. 1; pp. 45
- Hanush, H. & Pyka, A. (2006) "Principles of Neo-Schumpetarian Economics", *Cambridge Journal of Economics,* Vol. 31, pp 275-289
- Harrison, J. (2007) "from competitive regions to competitive city-regions: a new orthodoxy, but some old mistakes", *Journal of economic geography,* March 26, 2007, pp 1-21
- Hart, R. (2004) "Growth, environment and innovation – a model with production vintages and environmentally oriented research", *Journal of Environmental Economics and Management,* Vol. 48; pp 1078-1098

- Haughton, G. and Counsell, D., "Regions and sustainable development: regional planning matters", *The geographical journal,* Vol. 170, No. 2; pp 135-145
- Hawkins, J. (2006) "The concept of competitiveness" *Treasury Working Paper,* April 2006
- High Level Group (2004) *Facing the challenge; The Lisbon strategy for growth and employment,* Luxembourg; Office for Official Publications of the European Communities
- Hitt, M.A., Ireland, R.D., Hoskisson, R.E. (2001) *Strategic Management; competitiveness and globalization,* Cincinatti, Thomson Learning
- Hoogerwerf, A. & herweijer, M. (2003), *Overheidsbeleid: een inleiding in de beleidswetenschap,* Alphen aan de Rijn: Kluwer
- Howells, J.R.L., (2002), "Tacit knowledge, innovation and economic geography" *Urban Studies, iVol. 39, Nos, 5-6, pp 871-884*
- Huber, W. (2006) , 'Evaluation of European Union cohesion policy: Window-dressing, formal exercise or coordinated learning process?', *Regional Studies*, 40:2, 277 – 280
- Huggins, R. (2003) "Creating a UK competitiveness index: regional and local benchmarking", *Regional Studies,* Vol. 37, Iss. 1, pp. 89-96
- Ickis, J.C. (2005) "Building a national competitiveness programme", *Journal of Business Research,* Vol. 59, pp. 341-348
- J.Th.A. Bressers & Hoogerwerf, A. (1995), *Beleidsevaluatie,* Alphen aan de Rijn: Samson
- Jarvis, H. (2007), "Home truths about care-less competition" *International Journal of urban and regional research,* Vol. 31, Iss. 1, pp. 207-214
- Kahneman, D. & Sugden, R. (2005), *Experienced Utility as a standard of policy evaluation", Environmental & Resource Economics,* Vol. 32, pp. 161-181
- Keep, E, Mahew, K. & Payne, J. (2006), "From skills revolution to productivity miracle – not as easy as it sounds?", *Oxford Review of economic policy,* Vol. 22, No. 4. pp 539-559
- Ketels, C. (2006), "Michael Porter's Competitiveness framework – Recent learnings and new priorities", *Journal of Industry, competitiveness and trade,* Vol. 6: pp 115-136
- Knox, C. & McAlistar, D. (1995), "Policy Evaluation; Incorporating users' views" *Public Administration,* Vol. 73, pp. 413-436
- Kohler, W. (2006), "The Lisbon Goal of the EU: Rhetoric or Substance?" *Journal of Industrial Competition and Trade*, Vol. 6, pp 85-113
- Krueger, R. & Savage, L. (2007) "City-regions and social reproduction: A place for sustainable development?" *International Journal of urban and regional research,* Vol. 31, Iss. 1, pp, 215-233
- Lawson, C. (1999) "Towards a competence theory of the region", *Cambridge journal of Economics,* Vol. 23, pp. 151-166
- Ledoux, L., Mertens, R., Wolff, P. (2005), "EU sustainable development indicators: An overview", *Natural Resources Forum,* Vol. 29; pp 392-403

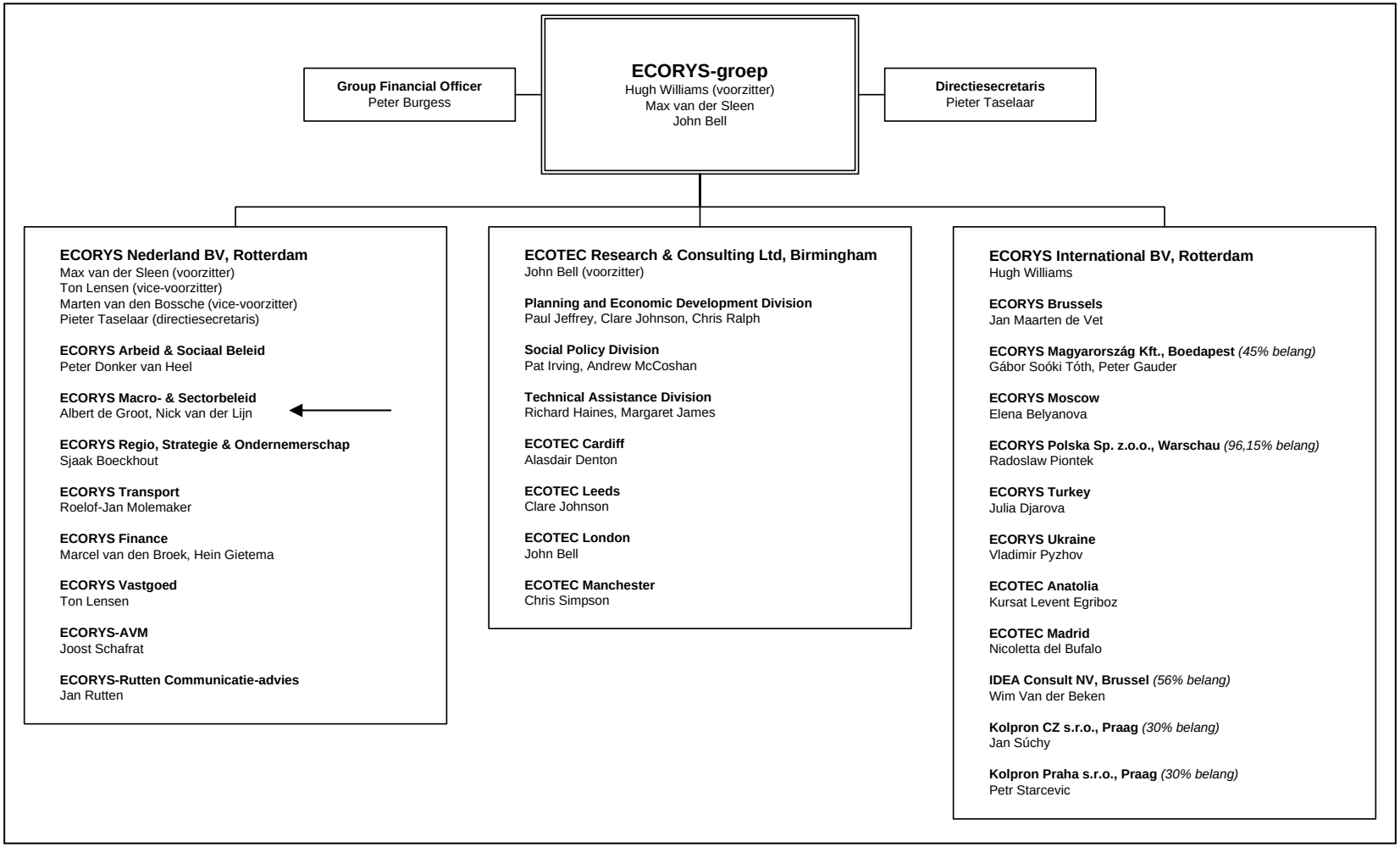
- Lovering, J. (1998) "Theory led by policy? The inadequacies of the new regionalism, in economic geography illustrated from the case of Wales", *Cardiff university*
- Malecki, E.J. (2004) "Jockeying for Position: What it means and why it matters to regional development when places compete" *Regional Studies,* Vol. 38, Iss. 9, pp 1101
- Malmberg, A. & Maskell, P. (2002) "The elusive concept of localization economies: Towards a knowledge-based theory of spatial clustering", *Environment and Planning,* Vol. 34, pp. 429-449
- Mark, M. M. and Henry, G.T. (2004), "The Mechanisms and Outcomes of Evaluation Influence", *Evaluation,* Vol. 10, pp35
- Martin, R. & Sunley, P. (2003), "Deconstructing clusters: chaotic concept or policy panacea?", *Journal of Economic Geography*, Vol. 3, pp 5-35
- Martin, R. & Sunley, P. (2006) "Path Dependence and regional economic evolution", *Journal of Economic Geography,* Vol. 6, pp. 395-437
- Martin, R. (2005) "Thinking about regional competitiveness: critical issues" *Background think-piece paper commissioned by the East midlands Development agency,* 26 October, 2005
- Martin, S. and Sanderson, I. (1999), "Evaluating Public Policy Experiments: Measuring Outcomes, Monitoring Processes or Managing Pilots?", *Evaluation,* VOl. 5, pp 245
- Melville, N., Gurbaxani, V. & Kraemer, K. (2007), "The productivity impact of information technology across competitive regimes: The role of industry concentration and dynamism", *Decision Support System*, Vol. 43, pp 229-242
- Meyer-Stamer, J. (2002), "Clustering and the creation of an innovation-oriented environment for industrial competitiveness: beware of overly optimistic expectations", *International High-level seminar on technological innovation,* Ministry of Science and Technology of China and United Nations University
- Morgan, K. (2004) "The exaggerated death of geography: learning, proximity and territorial innovation systems", *Journal of Economic Geography*, Vol. 4, pp 3-21
- Neary, J. P. (2006) "Measuring competitiveness", *Economic and Social review,* Vol. 37, No. 2 pp. 197-213
- Neary, J.P. (2006), "International Trade and the Environment: Theoretical and Policy Linkages", *Environmental & Resource Economics,* Vol. 33; pp 95-118
- Nispen, F.K.M. van (1993), *Het dossier heroverweging,* Delft: Eburon
- O'Mahony, M., & van Ark, B. (2003) *EU productivity and competitiveness: An industry perspective,* Luxembourg, Office for official = publications of the European communities
- OECD (2005) *Building competitive regions: strategies and governance,* OECD Publishing
- OECD (2005) *Economic Policy Reforms: going for growth,* Paris; OECD Publishing
- OECD (2006) *Economic Policy Reforms: going for growth 2006,* Paris; OECD Publishing
- OECD (2007) *Economic Policy Reforms: going for growth 2007,* Paris; OECD Publishing

- Pawson, R., Tilley, N. (1997) *Realistic Evaluation,* London; Sage Publications ltd.
- Permanent Lisbon Unit Spain (October 2006), *Spain National Reform Programme 2006 Progress Report*
- Permanent Lisbon Unit of Spain (13-10-2005) *Convergence and Employment – The Spanish Reform Program,* Madrid; Diseño, maquetación e impresión: Imprenta Nacional del Boletín Oficial del Estado.
- Pinch, S. Henry, N., Jenkins, M. and Tallman, S. (2003) "From industrial districts to knowledge clusters: a model of knowledge dissimination and competitive advantage in industrial agglomerations", *Journal of economic geography,* Vol. 3 pp. 373-388
- Pollitt, C. (2006), "Performance Information for Democracy: The Missing Link?", *Evaluation,* Vol. 12, pp 38
- Porter, M. (1998) *On competition,* Harvard Business School Press
- Radaelli, C.M. (2007) "Whither better regulation for the Lisbon agenda?" *Journal of European public policy,* Vol. 14, Iss. 2, pp 190-207
- Robert Huggins associates
- Sahlberg. P. (2006) "Education reform for raising economic competitiveness", *Journal of Educational Change,* Vol. 7, pp 259-287
- Sanderson, I. (2000), "Evaluation in Complex Policy Systems", *Evaluation,* Vol. 6, pp 433
- Sanderson, I. (2002), "Evaluation, Policy-based learning and evidence based policy making", *Public Administration,* Vol. 80, No. 1, pp1-22
- Schmidt, C.M. (2001), "Knowing what works; the case for rigorous programme evaluation", *CEPR,* Discussion Paper No. 2826
- Scriven, M. (1996), "Types of Evaluation and Types of Evaluator", *Evaluation Practice,*Vol. 17, No. 2, pp151-161
- Siggel, E. (2006) "International competitiveness and comparative advantage: a survey and a proposal for measurement", *Journal of Industry, Competition and Trade,* Vol. 6, pp. 137-159
- Stame, N. (2006), "Governance, Democracy and Evaluation", *Evaluation,* Vol. 12 pp 7
- Stame, N. (2006), "Theory-Based Evaluation and Types of Complexity", *Evaluation,* Vol. 10, pp58
- Sweden (2006), *A report on Sweden's Lisbon Reform Programme, 2005-2008*
- Sweden (21-10-2005), *The Swedish Reform Programme for Growth and Employment, 2005-2008*
- Sweden (28-11-2006), *The Swedish Reform programme for growth and Jobs, 2006-2008*
- The Netherlands (2005) *National Reform Programme for the Netherlands 2005-2008*
- The Netherlands (2006), *Progress Report 2006 on the National Reform Programme for the Netherlands 2005-2008*

- Turok, I. (1991) "Political Evaluation as a science, a critical assessment", *Applied Economic*, Vol. 23, pp. 1543-1550
- Turok, I. (2004) "Cities, Regions and Competitiveness", *Regional Studies,* Vol. 38, Iss. 9, pp. 951-975
- van der Knaap, P. (2004), "Theory-Based Evaluation and Learning: Possibilities and Challenges", *Evaluation,* VOl. 10, pp 16
- Verschuren and Doorewaard, (1999) *Designing a research project*, Lemma
- Walz, R. (2006) "Impact of strategies to increase RES in Europe on employment and competitiveness" *Energy and Environment,* Vol. 17, No. 6, pp 951-975
- Wholey, J.S. (1996) "Formative and Summative Evaluation; Related issues in Performance Management", *Evaluation Practice,* Vol. 17, No. 2, pp. 145-149
- Wildavsky, A.B. (1987), *Speaking truth to power: the art and craft of policy analysis,* Boston: Little brown
- Wilkinson, I.F., Mattson, L.G. & Easton, G. (2000) "International competitiveness and trade promotion policy from a network perspective", *Journal of World Business,* Vol. 25, Iss. 3, pp. 275-299
- World competitiveness yearbook of the IMD
- Yin, R.K. (2003). *Case study research: Design and Methods,* Thousand Oaks, London & New Delhi: Sage Publications.
- Zanakis, S. H., Becerra-Fernandez, I. (2004) "Competitiveness of nations: a knowledge discovery examination", *European Journal of Operational Research,* Vol. 166, pp 185-211

8 Appendices

8.1 Appendix A: Organisation scheme ECORYS- group



8.2 Appendix B: Lisbon 2000

PREPARING THE TRANSITION TO A COMPETITIVE, DYNAMIC AND KNOWLEDGE-BASED ECONOMY

An information society for all

- the Council, along with the European Parliament where appropriate, to adopt as rapidly as possible during 2000 pending legislation on the legal framework for electronic commerce, on copyright and related rights, on e-money, on the distance selling of financial services, on jurisdiction and the enforcement of judgements, and the dual-use export control regime; the Commission and the Council to consider how to promote consumer confidence in electronic commerce, in particular through alternative dispute resolution systems;
- the Council and the European Parliament to conclude as early as possible in 2001 work on the legislative proposals announced by the Commission following its 1999 review of the telecoms regulatory framework; the Member States and, where appropriate, the Community to ensure that the frequency requirements for future mobile communications systems are met in a timely and efficient manner. Fully integrated and liberalised telecommunications markets should be completed by the end of 2001;
- the Member States, together with the Commission, to work towards introducing greater competition in local access networks before the end of 2000 and unbundling the local loop in order to help bring about a substantial reduction in the costs of using the Internet;
- the Member States to ensure that all schools in the Union have access to the Internet and multimedia resources by the end of 2001, and that all the teachers needed are skilled in the use of the Internet and multimedia resources by the end of 2002;
- the Member States to ensure generalised electronic access to main basic public services by 2003;
- the Community and the Member States, with the support of the EIB, to make available in all European countries low cost, high-speed interconnected networks for Internet access and foster the development of state-of-the-art information technology and other telecom networks as well as the content for those networks. Specific targets should be defined in the *e*Europe Action Plan.

Establishing a European Area of Research and Innovation

- develop appropriate mechanisms for networking national and joint research programmes on a voluntary basis around freely chosen objectives, in order to take greater advantage of the concerted resources devoted to R&D in the Member States, and ensure regular reporting to the Council on the progress achieved; to map by 2001 research and development excellence in all Member States in order to foster the dissemination of excellence;
- improve the environment for private research investment, R&D partnerships and high technology start-ups, by using tax policies, venture capital and EIB support;
- encourage the development of an open method of coordination for benchmarking national research and development policies and identify, by June 2000, indicators for assessing performance in different fields, in particular with regard to the development of human resources; introduce by June 2001 a European innovation scoreboard;
- facilitate the creation by the end of 2001 of a very high-speed transeuropean network for electronic scientific communications, with EIB support, linking research institutions

and universities, as well as scientific libraries, scientific centres and, progressively, schools;
- take steps to remove obstacles to the mobility of researchers in Europe by 2002 and to attract and retain high-quality research talent in Europe;
- ensure that a Community patent is available by the end of 2001, including the utility model, so that Community-wide patent protection in the Union is as simple and inexpensive to obtain and as comprehensive in its scope as the protection granted by key competitors.

Creating a friendly environment for starting up and developing innovative businesses, especially SMEs

- the Council and the Commission to launch, by June 2000, a benchmarking exercise on issues such as the length of time and the costs involved in setting up a company, the amount of risk capital invested, the numbers of business and scientific graduates and training opportunities. The first results of this exercise should be presented by December 2000;
- the Commission to present shortly a communication on an entrepreneurial, innovative and open Europe together with the Multiannual Programme in favour of Enterprise and Entrepreneurship for 2001-2005 which will play an important role as catalyst for this exercise;
- the Council and the Commission to draw up a European Charter for small companies to be endorsed in June 2000 which should commit Member States to focus in the abovementioned instruments on small companies as the main engines for job-creation in Europe, and to respond specifically to their needs;
- the Council and the Commission to report by the end of 2000 on the ongoing review of EIB and EIF financial instruments in order to redirect funding towards support for business start-ups, high-tech firms and micro-enterprises, as well as other risk-capital initiatives proposed by the EIB.

Economic reforms for a complete and fully operational internal market

- to set out by the end of 2000 a strategy for the removal of barriers to services;
- to speed up liberalisation in areas such as gas, electricity, postal services and transport. Similarly, regarding the use and management of airspace, the Council asks the Commission to put forward its proposals as soon as possible. The aim is to achieve a fully operational internal market in these areas; the European Council will assess progress achieved when it meets next Spring on the basis of a Commission report and appropriate proposals;
- to conclude work in good time on the forthcoming proposals to update public procurement rules, in particular to make them accessible to SMEs, in order to allow the new rules to enter into force by 2002;
- to take the necessary steps to ensure that it is possible by 2003 for Community and government procurement to take place on-line;
- to set out by 2001 a strategy for further coordinated action to simplify the regulatory environment, including the performance of public administration, at both national and Community level. This should include identifying areas where further action is required by Member States to rationalise the transposition of Community legislation into national law;
- to further their efforts to promote competition and reduce the general level of State aids, shifting the emphasis from supporting individual companies or sectors towards

tackling horizontal objectives of Community interest, such as employment, regional development, environment and training or research.

Efficient and integrated financial markets

- to set a tight timetable so that the Financial Services Action Plan is implemented by 2005, taking into account priority action areas such as: facilitating the widest possible access to investment capital on an EU-wide basis, including for SMEs, by means of a "single passport" for issuers; facilitating the successful participation of all investors in an integrated market eliminating barriers to investment in pension funds; promoting further integration and better functioning of government bond markets through greater consultation and transparency on debt issuing calendars, techniques and instruments, and improved functioning of cross-border sale and repurchase ("repo") markets; enhancing the comparability of companies' financial statements; and more intensive cooperation by EU financial market regulators;
- to ensure full implementation of the Risk Capital Action Plan by 2003;
- to make rapid progress on the long-standing proposals on takeover bids and on the restructuring and winding-up of credit institutions and insurance companies in order to improve the functioning and stability of the European financial market;
- to conclude, in line with the Helsinki European Council conclusions, the pending tax package.

Coordinating macro-economic policies: fiscal consolidation, quality and sustainability of public finances

- alleviate the tax pressure on labour and especially on the relatively unskilled and low-paid, improve the employment and training incentive effects of tax and benefit systems;
- redirect public expenditure towards increasing the relative importance of capital accumulation – both physical and human – and support research and development, innovation and information technologies;
- ensure the long-term sustainability of public finances, examining the different dimensions involved, including the impact of ageing populations, in the light of the report to be prepared by the High Level Working Party on Social Protection.

MODERNISING THE EUROPEAN SOCIAL MODEL BY INVESTING IN PEOPLE AND BUILDING AN ACTIVE WELFARE STATE

Education and training for living and working in the knowledge society

- a substantial annual increase in per capita investment in human resources;
- the number of 18 to 24 year olds with only lower-secondary level education who are not in further education and training should be halved by 2010;
- schools and training centres, all linked to the Internet, should be developed into multi-purpose local learning centres accessible to all, using the most appropriate methods to address a wide range of target groups; learning partnerships should be established between schools, training centres, firms and research facilities for their mutual benefit;
- a European framework should define the new basic skills to be provided through lifelong learning: IT skills, foreign languages, technological culture, entrepreneurship and social skills; a European diploma for basic IT skills, with decentralised certification

procedures, should be established in order to promote digital literacy throughout the Union;
- define, by the end of 2000, the means for fostering the mobility of students, teachers and training and research staff both through making the best use of existing Community programmes (Socrates, Leonardo, Youth), by removing obstacles and through greater transparency in the recognition of qualifications and periods of study and training; to take steps to remove obstacles to teachers' mobility by 2002 and to attract high-quality teachers.
- a common European format should be developed for curricula vitae, to be used on a voluntary basis, in order to facilitate mobility by helping the assessment of knowledge acquired, both by education and training establishments and by employers.

More and better jobs for Europe: developing an active employment policy

- improving employability and reducing skills gaps, in particular by providing employment services with a Europe-wide data base on jobs and learning opportunities; promoting special programmes to enable unemployed people to fill skill gaps;
- giving higher priority to lifelong learning as a basic component of the European social model, including by encouraging agreements between the social partners on innovation and lifelong learning; by exploiting the complementarity between lifelong learning and adaptability through flexible management of working time and job rotation; and by introducing a European award for particularly progressive firms. Progress towards these goals should be benchmarked;
- increasing employment in services, including personal services, where there are major shortages; private, public or third sector initiatives may be involved, with appropriate solutions for the least-favoured categories;
- furthering all aspects of equal opportunities, including reducing occupational segregation, and making it easier to reconcile working life and family life, in particular by setting a new benchmark for improved childcare provision.

Modernising social protection

- strengthen cooperation between Member States by exchanging experiences and best practice on the basis of improved information networks which are the basic tools in this field;
- mandate the High Level Working Party on Social Protection, taking into consideration the work being done by the Economic Policy Committee, to support this cooperation and, as its first priority, to prepare, on the basis of a Commission communication, a study on the future evolution of social protection from a long-term point of view, giving particular attention to the sustainability of pensions systems in different time frameworks up to 2020 and beyond, where necessary. A progress report should be available by December 2000.

Promoting social inclusion

- promote a better understanding of social exclusion through continued dialogue and exchanges of information and best practice, on the basis of commonly agreed indicators; the High Level Working Party on Social Protection will be involved in establishing these indicators;
- mainstream the promotion of inclusion in Member States' employment, education and training, health and housing policies, this being complemented at Community level by action under the Structural Funds within the present budgetary framework;

- develop priority actions addressed to specific target groups (for example minority groups, children, the elderly and the disabled), with Member States choosing amongst those actions according to their particular situations and reporting subsequently on their implementation.

8.3 Appendix C: Structural indicators:

General Economic Background

1. GDP per capita in PPS
2. Labour productivity per person employed

Employment

3. Employment rate *
4. Employment rate of older workers*

Innovation and Research

5. Youth educational attainment (20-24) *
6. Gross Domestic expenditure on R&D

Economic Reform

7. Comparative price levels
8. Business investment

Social Cohesion

9. At-risk-of-poverty rate after social transfers *
10. Long-term unemployment rate *
11. Dispersion of regional employment rates *

Environment

12. Greenhouse gas emissions
13. Energy intensity of the economy
14. Volume of freight transport relative to GDP

* Indicators disaggregated by gender

(http://ec.europa.eu/eurostat/structuralindicators)

8.4 Appendix D: Guidelines for the member states

1.	**To secure economic stability.** 1.1. In line with the Stability and Growth Pact, Member States should respect their medium term budgetary objectives. As long as this objective has not yet been achieved, they should take all the necessary corrective measures to achieve it. Member States should avoid pro-cyclical fiscal policies. Furthermore, it is necessary that those Member States having an excessive deficit take effective action in order to ensure a prompt correction of excessive deficits. 1.2. Member States posting current account deficits that risk being unsustainable should work towards correcting them by implementing structural reforms, boosting external competitiveness and, where appropriate, contributing to their correction via fiscal policies.
2.	**To safeguard economic and fiscal sustainability:** 2.1. undertake a satisfactory pace of government debt reduction to strengthen public finances; 2.2. reform and reinforce pension, social insurance and healthcare systems to ensure that they are financially viable, socially adequate and accessible; 2.3. take measures to increase labour market participation and labour supply especially amongst women, young and older workers, and promote a life-cycle approach to work in order to increase hours worked in the economy.
3.	**To promote a growth- and employment-orientated and efficient allocation of resources:** 3.1. Member States should, without prejudice to guidelines on economic stability and sustainability, re-direct the composition of public expenditure towards growth-enhancing categories in line with the Lisbon strategy, adapt tax structures to strengthen growth potential, ensure that mechanisms are in place to assess the relationship between public spending and the achievement of policy objectives, and ensure the overall coherence of reform packages.
4.	**To secure economic stability for sustainable growth:** 4.1. encourage the right framework conditions for wage-bargaining systems, while fully respecting the role of the social partners, with a view to promote nominal wage and labour cost developments consistent with price stability and the trend in productivity over the medium term, taking into account differences across skills and local labour market conditions.
5.	**To ensure that wage developments contribute to macroeconomic stability and growth:** 5.1. Member States should pursue labour and product markets' reforms that at the same time increase the growth potential and support the macroeconomic framework by increasing flexibility, factor mobility and adjustment capacity in labour and product markets in response to globalisation, technological advances, demand shift, and cyclical changes. In particular, Member States should: renew impetus in tax and benefit reforms to improve incentives and to make work pay; increase adaptability of labour markets combining employment flexibility and security; and improve employability by investing in human capital.
6.	**To contribute to a dynamic and well-functioning EMU:** **6.1.** ensure better coordination of their economic and budgetary policies, in particular: 6.2. pay particular attention to fiscal sustainability of their public finances in full compliance with the Stability and Growth Pact; 6.3. contribute to a policy mix that supports economic recovery and is compatible with price stability, and thereby enhances confidence among business and consumers in the short run, while being compatible with long-term sustainable growth; 6.4. press forward with structural reforms that will increase euro area long-term potential growth and will improve its productivity, competitiveness and economic adjustment to asymmetric shocks, paying particular attention to employment policies; 6.5. ensure that the euro area's influence in the global economic system is

	commensurate with its economic weight.
7.	**To increase and improve investment in R&D, in particular by private business**: the overall objective for 2010 of 3 % of GDP is confirmed with an adequate split between private and public investment; Member States will define specific intermediate levels. Member States should further develop a mix of measures appropriate to foster R & D, in particular business R & D, through: 7.1. improved framework conditions and ensuring that companies operate in a sufficiently competitive and attractive environment; 7.2. more effective and efficient public expenditure on R & D and developing public–private partnerships (PPPs); 7.3. developing and strengthening centres of excellence of educational and research institutions in Member States, as well as creating new ones where appropriate, and improving the cooperation and transfer of technologies between public research institutes and private enterprises; 7.4. developing and making better use of incentives to leverage private R & D; 7.5. modernising the management of research institutions and universities; 7.6. ensuring a sufficient supply of qualified researchers by attracting more students into scientific, technical and engineering disciplines and enhancing the career development and the European, international as well as inter-sectoral mobility of researchers and development personnel.
8.	**To facilitate all forms of innovation.** 8.1. improvements in innovation support services, in particular for dissemination and technology transfer; 8.2. the creation and development of innovation poles, networks and incubators bringing together universities, research institutions and enterprises, including at regional and local level, helping to bridge the technology gap between regions; 8.3. the encouragement of cross-border knowledge transfer, including from foreign direct investment; 8.4. encouraging public procurement of innovative products and services; 8.5. better access to domestic and international finance; 8.6. efficient and affordable means to enforce intellectual property rights.
9.	**To facilitate the spread and effective use of ICT and build a fully inclusive information society.** 9.1. encourage the widespread use of ICT in public services, SMEs and households; 9.2. fix the necessary framework for the related changes in the organisation of work in the economy; 9.3. promote a strong European industrial presence in the key segments of ICT; 9.4. encourage the development of strong ICT and content industries, and well-functioning markets; 9.5. ensure the security of networks and information, as well as convergence and interoperability in order to establish an information area without frontiers; 9.6. encourage the deployment of broadband networks, including for the poorly served regions, in order to develop the knowledge economy.
10.	**To strengthen the competitive advantages of its industrial base.** Europe needs a solid industrial fabric throughout its territory. The necessary pursuit of a modern and active industrial policy means strengthening the competitive advantages of the industrial base, including by contributing to attractive framework conditions for both manufacturing and services, while ensuring the complementarity of the action at national, transnational and European level. 10.1. start by identifying the added value and competitiveness factors in key industrial sectors, and addressing the challenges of globalisation; 10.2. also focus on the development of new technologies and markets. (a) This implies, in particular, commitment to promote new technological initiatives based on public–private partnerships and cooperation between Member States, that help tackle genuine market failures. (b) This also implies the creation and development of networks of regional or local clusters across the EU with greater involvement of SMEs.
11.	**To encourage the sustainable use of resources and strengthen the synergies between environmental protection and growth.**

	give priority to energy efficiency and co-generation, the development of sustainable, including renewable, energies and the rapid spread of environmentally friendly and eco-efficient technologies, (a) inside the internal market on the one hand, particularly in transport and energy, inter alia in order to reduce the vulnerability of the European economy to oil price variations, (b) towards the rest of the world on the other hand as a sector with a considerable export potential; 11.1. promote the development of means of internalisation of external environmental costs and decoupling of economic growth from environmental degradations. The implementation of these priorities should be in line with existing Community legislation and with the actions and instruments proposed in the environmental technologies action plan (ETAP), inter alia, through (a) the use of market-based instruments, (b) risk funds and R & D funding, (c) the promotion of sustainable production and consumption patterns including the greening of public procurement, (d) paying particular attention to SMEs, and (e) a reform of subsidies that have considerable negative effects on the environment and are incompatible with sustainable development, with a view to eliminating them gradually; 11.2. pursue the objective of halting the loss of biological diversity between now and 2010, in particular by incorporating this requirement into other policies, given the importance of biodiversity for certain economic sectors; continue to fight against climate change, while implementing the Kyoto targets in a costeffective way, particularly in regard to SMEs.
12.	**To extend and deepen the internal market.** 12.1. speed up the transposition of internal market directives; 12.2. give priority to stricter and better enforcement of internal market legislation; 12.3. eliminate remaining obstacles to cross-border activity; 12.4. apply EU public procurement rules effectively; 12.5. promote a fully operational internal market of services, while preserving the European social model; 12.6. accelerate financial market integration by a consistent and coherent implementation and enforcement of the financial services action plan.
13.	**To ensure open and competitive markets inside and outside Europe and to reap the benefits of globalisation.** 13.1. the removal of regulatory, trade and other barriers that unduly hinder competition; 13.2. a more effective enforcement of competition policy; 13.3. selective screening of markets and regulations by competition and regulatory authorities in order to identify and remove obstacles to competition and market entry; 13.4. a reduction in State aid that distorts competition; 13.5. in line with the upcoming Community framework, a redeployment of aid in favour of support for certain horizontal objectives such as research, innovation and the optimization of human capital and for well-identified market failures; 13.6. the promotion of external openness, also in a multilateral context; 13.7. full implementation of the agreed measures to open up the network industries to competition in order to ensure effective competition in European-wide integrated markets. At the same time, the delivery, at affordable prices, of effective services of general economic interest has an important role to play in a competitive and dynamic economy.
14.	**To create a more competitive business environment and encourage private initiative through better regulation.** 14.1. reduce the administrative burden that bears upon enterprises, particularly on SMEs and start-ups; 14.2. improve the quality of existing and new regulations, while preserving their objectives, through a systematic and rigorous assessment of their economic, social (including health) and environmental impacts, while considering and making progress in measuring the administrative burden associated with regulation, as well as the impact on competitiveness, including in relation to enforcement; 14.3. encourage enterprises in developing their corporate social responsibility.

15.	**To promote a more entrepreneurial culture and create a supportive environment for SMEs.** 15.1. improve access to finance, in order to favour their creation and growth, in particular micro-loans and other forms of risk capital; 15.2. strengthen economic incentives, including by simplifying tax systems and reducing nonwage labour costs; 15.3. strengthen the innovative potential of SMEs; 15.4. provide relevant support services, such as the creation of one-stop contact points and the stimulation of national support networks for enterprises, in order to favour their creation and growth in line with the Small Firms Charter. In addition, Member States should reinforce entrepreneurship education and training for SMEs. They should also facilitate the transfer of ownership, modernise where necessary their bankruptcy laws, and improve their rescue and restructuring proceedings.
16.	**To expand, improve and link up European infrastructure and complete priority crossborder projects:** with the particular aim of achieving a greater integration of national markets within the enlarged EU, Member States should: 16.1. develop adequate conditions for resource- efficient transport, energy and ICT infrastructures as a priority, those included in the TEN networks — by complementing Community mechanisms, notably including in cross-border sections and peripheral regions, as an essential condition to achieve a successful opening-up of the network industries to competition; 16.2. consider the development of public–private partnerships; 16.3. consider the case for appropriate infrastructure - pricing systems to ensure the efficient use of infrastructures and the development of a sustainable modal balance, emphasizing technology shift and innovation and taking due account of environmental costs and the impact on growth.
17.	**Implement employment policies aiming at achieving full employment, improving quality and productivity at work, and strengthening social and territorial cohesion.** 17.1. Policies should contribute to achieving an average employment rate for the European Union of 70 % overall, of at least 60 % for women and of 50 % for older workers (55 to 64) by 2010, and to reduce unemployment and inactivity. Member States should consider setting national employment rate targets.
18.	**Promote a life-cycle approach to work.** 18.1. a renewed endeavour to build employment pathways for young people and reduce youth unemployment, as called for in the European Youth Pact; 18.2. resolute action to increase female participation and reduce gender gaps in employment, unemployment and pay; 18.3. better reconciliation of work and private life and the provision of accessible and affordable childcare facilities and care for other dependants; 18.4. support for active ageing, including appropriate working conditions, improved (occupational) health status and adequate incentives to work and discouragement of early retirement; 18.5. modern social protection systems, including pensions and healthcare, ensuring their social adequacy, financial sustainability and responsiveness to changing needs, so as to support participation and better retention in employment and longer working lives.
19.	**Ensure inclusive labour markets, enhance work attractiveness, and make work pay for job-seekers, including disadvantaged people, and the inactive.** 19.1. active and preventive labour market measures including early identification of needs, job search assistance, guidance and training as part of personalised action plans, provision of necessary social services to support the inclusion of those furthest away from the labour market and contribute to the eradication of poverty; 19.2. continual review of the incentives and disincentives resulting from the tax and benefit systems, including the management and conditionality of benefits and a significant reduction of high marginal effective tax rates, notably for those with low incomes, whilst ensuring adequate levels of social protection; 19.3. development of new sources of jobs in services for individuals and businesses, notably at local level.

20.	**Improve matching of labour market needs.** 20.1. the modernisation and strengthening of labour market institutions, notably employment services, also with a view to ensuring greater transparency of employment and training opportunities at national and European level; 20.2. removing obstacles to mobility for workers across Europe within the framework of the Treaties; 20.3. better anticipation of skill needs, labour market shortages and bottlenecks; 20.4. appropriate management of economic migration.
21.	**Promote flexibility combined with employment security and reduce labour market segmentation, having due regard to the role of the social partners.** 21.1. the adaptation of employment legislation, reviewing where necessary the different contractual and working time arrangements; 21.2. addressing the issue of undeclared work; 21.3. better anticipation and positive management of change, including economic restructuring, notably changes linked to trade opening, so as to minimise their social costs and facilitate adaptation; 21.4. the promotion and dissemination of innovative and adaptable forms of work organisation, with a view to improving quality and productivity at work, including health and safety; 21.5. support for transitions in occupational status, including training, self-employment, business creation and geographic mobility.
22.	**Ensure employment-friendly labour cost developments and wage-setting mechanisms**. 22.1. encouraging social partners within their own areas of responsibility to set the right framework for wage bargaining in order to reflect productivity and labour market challenges at all relevant levels and to avoid gender pay gaps; 22.2. reviewing the impact on employment of non-wage labour costs and where appropriate 22.3. adjust their structure and level, especially to reduce the tax burden on the low-paid.
23.	**Expand and improve investment in human capital.** 23.1. inclusive education and training policies and action to facilitate significantly access to 23.2. initial vocational, secondary and higher education, including apprenticeships and entrepreneurship training; 23.3. significantly reducing the number of early school leavers; 23.4. efficient lifelong learning strategies open to all in schools, businesses, public authorities and households according to European agreements, including appropriate incentives and cost-sharing mechanisms, with a view to enhancing participation in continuous and workplace training throughout the life cycle, especially for the low-skilled and older workers.
24.	**Adapt education and training systems in response to new competence requirements.** 24.1. raising and ensuring the attractiveness, openness and quality standards of education and training, broadening the supply of education and training opportunities and ensuring flexible learning pathways, and enlarging possibilities for mobility for students and trainees; 24.2. easing and diversifying access for all to education and training and to knowledge by means of working time organisation, family support services, vocational guidance and, if appropriate, new forms of cost-sharing; 24.3. responding to new occupational needs, key competences and future skill requirements by improving the definition and transparency of qualifications, their effective recognition and the validation of non-formal and informal learning.

(EC, 2005)

8.5 Appendix E: Community Lisbon Plan

Regulatory Actions			
KNOWLEDGE AND INNOVATION	RA01	**Community patent Regulation and implementation measures**	**Adopted**
	RA02	Review of regulatory framework for electronic communications	**Adopted**
	RA03	Audiovisual media services directive	**Adopted**
	RA04	Eco-design requirements Directive	**Adopted**
ATTRACTIVE PLACE TO INVEST AND WORK	RA05	**Directive on Services**	**Adopted**
	RA06	**Doha Development Agenda**	**Ongoing**
	RA07	**Directive on payments services**	**Adopted**
	RA08	**Framework Directive on clearing and settlement of securities**	**Planned**
	RA09	**Proposal on the Common Consolidated Tax Base**	**Planned**
	RA10	**State aid measures**	**Planned**
	RA11	Interinstitutional agreement on a common approach to impact assessment	**Adopted**
	RA12	Extension of Directive 98/45 to services	**Planned**
	RA13	Free trade agreement with Mercosur	**Adopted**
	RA14	Free trade agreement with Gulf cooperation Council	**Planned**
	RA15	Trade and Investment Enhancement with Canada	**Adopted**
	RA16	Public procurement markets in third countries	**Adopted**
	RA17	Air services agreement with third countries	**Planned**
	RA18	International co-operation within 3rd maritime safety package implementation of international maritime safety standards	**Ongoing**
	RA19	Cross Border mergers	**Adopted**
	RA20	Transfer of companies' registeres seat	**Planned**
	RA21	Proposal to simplify the current VAT compliance obligations	**Adopted**
	RA22	eCustoms: Modernised Community Customs Code	**Adopted**
	RA23	Revision of the New Approach to technical harminsation and standards/ Global Approach to conformity assessment	**Planned**
	RA24	3rd railway package	**Adopted**
	RA25	Directive in the charging of heavy goods vehicles for the use of certain infrastructures	**Adopted**
CREATING MORE AND BETTER JOBS	RA26	Directive on fast track visa and work permit arrangements for third country researchers	**Adopted**
	RA27	Legislation on portability of supplementary pension rights	**Adopted**
	RA28	Directive on recognition of professional qualifications	**Adopted**
	RA29	Recast proposal on the implementation of the principle of equal opportunity and equal treatment of men and women in matters of employment and occupation	**Adopted**

Financing Action			
OTHER	FA 01	**Decisions on operational programmes for the structural and cohesion funds**	**Planned**
	FA 02	**Decisions on rural development programmes**	**Planned**
	FA 03	**Regulations for the Structural and Cohesion Funds post-2007**	**Adopted**
KNOWLEDGE AND INNOVATION	FA 04	**7th framework programme for research, technological development and demonstration activities**	**Adopted**
	FA 05	Framework Programme for competitiveness and innovation	**Adopted**
	FA 06	European Investment Bank: Innovation 2010 initiative	**Adopted**
	FA 07	Climate Change Financing Facility	**Planned**
	FA 08	Legislative proposals, if necessary, on the framework of each joint technology initiative	**Planned**
ATTRACTIVE PLACE TO INVEST AND WORK	FA 09	**SESAR European air traffic management infrastructure modernization programme for the implementation of the Single European Sky**	**Adopted**
	FA 10	Trans-European transport networkd including Quickstart programme for transport	**Adopted**
	FA 11	Trans-European Networks for Energy including Quick Start Programme for Energy	**Adopted**
	FA 12	Marco Polo Programme (I and II)	**Adopted**
CREATING MORE BETTER AND JOBS	FA 13	Integrated Lifelong learning programme	**Adopted**
	FA 14	Institute for Gender Equality	**Adopted**
	FA 15	Proposal establishing a Community programme for Employment and Social Solidarity – *Progress*	**Adopted**
Policy development			
OTHER	PD01	**Community Strategic Guidelines on cohesion, 2007-2013**	**Adopted**
	PD02	**Community Strategic Guidelines on Rural Development**	**Adopted**
KNOWLEDGE AND INNOVATION	PD03	**State aid plan**	**Adopted**
	PD04	**Communication on a Modern industrial Policy**	**Adopted**
	PD05	**Commission Communication on more research and innovation – Investing for growth and employment: A common approach**	**Adopted**
	PD06	Sectoral and regional follow-up to the Communication on restructuring	**Adopted**
	PD07	Commission report to the European Council on European Council on Euroean Technology Platforms and Joint Technology Initiatives	**Adopted**
	PD08	Eu Guidelines or recommendations to make research careers more attractive including in the private sector – Commission Recommendation on the European Charter for Researchers and on a Code of Conduct for the Recruitment of Researchers	**Adopted**

	PD09	EU Guidelines to ensure an optimal EU-wide use of fiscal incentives in favour of R&D	**Planned**
	PD10	Eu Guidelines or recommendations to improve research collaboration and technology transfer between public research and industry	**Planned**
	PD11	I2010 – European information society/implementation plan: inclusion initiative (incl. eSkills); eGovernment Action Plan; Strategy for secure information society; Strategy for broadband communications and convergence	**Adopted**
	PD12	Green Public Procurement	**Planned**
	PD13	Green Paper on a European plan for Energy Efficiency	**Adopted**
ATTRACTIVE PLACE TO INVEST AND WORK	PD14	**Market inquiries and competitiveness assessments in key sectors**	**Adopted**
	PD15	**Intellectual Property Right enforcement strategy**	**Adopted**
	PD16	**Better regulation**	**Adopted**
	PD17	Communication on SME policy	**Adopted**
	PD18	EU-US regulatory cooperation and transparency	**Adopted**
	PD19	Policy paper following up to Green Paper Financial Services Policy	**Adopted**
	PD20	Interpretative communication on intra-EU investment in the financial services sector	**Adopted**
	PD21	Communication on fostering entrepreneurial mindsets through education and learning	**Adopted**
	PD22	Driving forward the agreed agenda with ASEAN: TREATI	**Ongoing**
	PD23	Extension of the major trans-European transport axes to the neighbouring countries	**Planned**
	PD24	Green papers on asset management and mortgage credit	**Adopted**
	PD25	eCustoms Initiative	**Adopted**
	PD26	Revised Impact Assessment Guidelines	**Adopted**
	PD27	(Pilot) Internal Market Infromation System	**Adopted**
	PD28	Communication on Home State Taxation	**Adopted**
	PD29	Communication on Customs actions to combat counterfeiting	**Adopted**
	PD30	Intelligent Transport Systems for logistics and intermodality	**Adopted**
	PD31	Rail network interoperability capacity and safety	**Adopted**
CREATING MORE AND BETTER JOBS	PD32	**Action plan on legal migration**	**Adopted**
	PD33	**Consultation on European Institute of Technology**	**Adopted**
	PD34	**Proposal for European qualifications framework**	**Planned**
	PD35	Anticipate and accompany restructuring: adoption of Communication and Consultation of Social partners	**Adopted**
	PD36	Restructuring forum	**Adopted**
	PD37	Social Dialogue	**Adopted**
	PD38	Confronting demographic change	**Adopted**
	PD39	Communication on health services	**Adopted**

	PD40	Open method of coordination in the field of social protection / social inclusion: common objectives on inclusion, pensions and healthcare reforms	**Adopted**
	PD41	Promote the integration of people excluded from the labour market	**Adopted**
	PD42	Monitoring policies for sustained integration of young people into the labour market, via the mutual learning programme on employment	**Planned**
	PD43	Incorporate youth dimension in Social Inclusion Strategy	**Planned**
	PD44	Proposal for European Credit Transfer Systems for Vocational Education and Training	**Planned**
	PD45	Education and Training 2010: follow-up measures	**Planned**
	PD46	Follow-up to the European youth Pact: Communication on 'European polcies concerning youth. Adressing the concerns of young people in Europe: implementing the European Youth Pact and promoting active citizenship	**Adopted**
	PD47	Youthpass – Development of an instrument for recognition of non-formal learning in the youth field	**Planned**
	PD48	European Voluntary Service	**Adopted**
	PD49	European Year of Workers' mobility in 2006	**Adopted**
	PD50	European Year on Equal Opportunities for all in 2007	**Adopted**

(EC, 2006)

8.6 Appendix F: Priorities of the European Council

• **Investment in knowledge and innovation:** o the importance of the 3% objective was stressed, member states should refocus expenditures on research and innovation as well as promote private sector R&D o called for speedy adoption of the 7th framework programme o EIB should support innovation o Creation of attractive clusters for a dynamic environment o Comprehensive approach to innovation policy o Importance of education and training, Investments in education and training o European Institute of Technology	• **Employment of priority categories** o Increasing labour market participation, especially of the young, women, older workers, disabled persons and legal migrants and minorities o Creating a European employment strategy o Reduction of youth employment o Active ageing strategies o Gender equality policies o Adaptability of workers and enterprises o Additional support for workers made redundant
• **Business potential especially of SMEs** o Importance of a strong and competitive industrial base in Europe and the need for a balance between horizontal and sectoral approached. o Creation of a favourable business environment o Importance of SME's and therefore the need of a regulatory environment which is simple, transparent and easy to apply o Reduction of the time to set up a business o Stimulate entrepreneurship o A fully integrated financial market and sufficient access to finance o State aid rules	• **Definition of an energy policy for Europe** o The Europe faces a number of challenges in the energy field o Security of supply, competitiveness and environmental sustainability is important and several actions have been identified to achieve this o Link with environment, employment, regional and transport policy o The EPE should ensure transparency and non-discrimination on markets, be consistent with competition rules and with public service obligation and fully respect member states sovereignity. o Several measures are proposed to the Commission for which action is needed

(European Council, 2006)

8.7 Appendix G: Planned activities and outputs, the Netherlands, Sweden and Spain

8.7.1 The Netherlands

GL	Planned Activities	Outputs
Strengthening the innovation climate:		
7&8	increasing the tax scheme for R&D (WBSO)	The WBSO programme
7&8	lowering the corporate income tax	
7&8	Abolishing the capital tax	
7&8	Making science and technology programmes more attractive	
7&8	training courses with extra challenges for ambitious and talented student	
7&8	experiments with selecting students and with differentiating tuition fees for certain courses	Experiments within higher education with the differentiation of tuition fees, entrance selection and an open systems in which private institutions can qualify for public funding
7&8	New doctoral system, for example by extending the grants for research masters with one year	
7&8	Simplifying and streamlining administrative procedures for access to the Dutch labour market for knowledge immigrants	Introduction of the Knowledge migrant scheme Introduction of the Self-employed Migrants scheme
7&8	scholarships for talented foreign students	
7&8	increase network of Dutch offices that support education abroad and international centres of excellence in higher education	
7&8		A system of individual learning entitlements will be introduced to make education more demand driven
7&8		A change in the financing for universities.
7&8		Establishment of a research funding committee, looking at proposals on the

		methods of measuring the performance of universities and on the overall system of financing university research
More innovating companies		
7&8	innovation performance contracts	Four Innovation performance contracts have been initiated
7&8	stimulating start-ups	Knowledge exploitation subsidy programme designed to encourage knowledge institutes and private companies to help entrepreneurs to launch technological start-ups.
7&8	making risk capital available (technopartner programme)	Activities to achieve better access to information and capital
7&8	supporting knowledge transfer to SMEs through knowledge centres (Syntens and target-oriented subsidies (vouchers, SBIR)	EUR 22,5 million available for innovation vouchers in 2006 for SMEs to buy knowledge from institutions Challengers facility for SMEs to provide credit facilities to SMEs Small business Innovation research programme was launched at the end of 2004 by which R&D contracts are issued directly to SMEs. Two companies in 2005 and six companies in 2006
7&8	stimulating private R&D investments through tax benefits for the business sector (WBSO)	The WBSO budget on tax incentives is now EUR 425 million for 2006, an evaluation of the programme started the summer 2006
7&8	strengthening R&D cooperation	Smart Mix scheme will start in 2007, it focuses on creating focus and mass in excellent scientific research and to create economic social and cultural value through collaboration between knowledge institutes and the business sector or NGOs
Focus and mass in strategic areas of innovation		
7&8	performance funding	Four Innovation performance contracts have been initiated
7&8	stimulate spin-offs in universities; effective use of patents will also be stimulated to encourage the exchange of knowledge between universities and the business sector	The government wants to develop a single type of patent that can be maintained for up to 20 years, threshold costs will be lowered. It is now under consideration in the Lower House of Parliament.

7&8	use subsidies in thematic and regional strategic areas of innovation and promoting long-term excellent research (ICES-KIS) and combining the supply and demand of ICT	Programmatic package to stimulate companies and research institutes to strive for excellence and promote investment in specific areas that will have a major impact on the Dutch economy's growth potential. 37 ICES/KIS-3 incentive schemes to develop consolidate and build on excellent research in strategic aims
7&8	Stimulate Dutch participation in international knowledge products(KP7, ERA, networks of excellence) and links with international knowledge clusters	Programmatic package to stimulate companies and research institutes to strive for excellence and promote investment in specific areas that will have a major impact on the Dutch economy's growth potential.
Social innovation		
7&8	Consider the available options for supporting social innovation on a local level	
Innovation policy mix		
7&8	Reducing the number of access points	Formulation of an action plan setting out how it would foster innovation in the private sector by strengthening its role as launching customer
7&8	Reduction in the preparation costs and administrative burden	Formulation of an action plan setting out how it would foster innovation in the private sector by strengthening its role as launching customer
Area oriented policy		
7&8	Strengthening the innovation potential in regions by focusing resources specifically on a number of likely innovation regions	Six joint programmes (peaks in the delta) involving different levels of government. Five programmes started in 2006, 1 will start in 2007.
7&8	Local governments will facilitate innovation by means of cooperation and by stimulating the formation of clusters	Peaks in the delta
7&8	Stimulating creative industry	A programme for the creative industry was summated to the Lower house of parliament in October 2005
7&8	Providing risk capital for innovative regional and local companies	Peaks in the delta
7&8	Creating innovative economic zones of opportunity	Peaks in the delta

	Better utilisation of ICT	
9	Development of electronic basic facilities for government; such as a system of base registrations with information on citizens, companies, property lots, addresses, buildings and maps an electronic machine for creating forms and unique identifying numbers (65% of government services should be provided digitally in 2010)	The authentication facility DigiD enjoyed a good start, the new business counter went live, legislation is pending for the citizen service number, the electronic identity card. The next generation of facilities including e-forms machine, the citizen service number and basic registration of buildings and maps are expected in 2007. (55% of government services is provided digitally).
9	Increased use of innovative ICT applications and services to help solve problems with traffic, education, safety and health care	Netherlands Digital: Groundbreaking with ICT and Broadband throughout the Netherlands Netherlands goes Digital is a project which is dedicated to promoting the use of ICT by SMEs (EUR 40 million) Social Sectors & ICT action programme for the period 2005-2009 to exploit the possibilities of ICT ICTRegie focuses on strengthening and bringing focus to ICT research and also started in 2005
9	One consumer contact point and a mandatory independent settlement of disputes	
	Strengthening the ICT base	
9	Provision of faster internet connections; 'Connecting the Dots' for innovative broadband networks and ICT services	Connecting the dots has be initiated in 2005 and deals with closer integration of local initiatives
9	The Opt-in regime will also apply to business users	Opt-in regime for business users to solve the spam-problem
9	Establishment of a standardisation council and forum	
9	Technical agreements with respect to interoperability and communication infrastructure (eNorm)	
	International cooperation	

	Focus on interoperability, safety and trust, ICT in the public sector, broadband and effective utilisation of R&D funds. This in order to achieve a strong European ICT agenda (i2010)	

Table 1: National Reform Programme (2005) and Progress report (2006), The Netherlands

8.7.2 Sweden

GL	Planned activities	Outputs
	Research for a better life	**Research is an investment in a future welfare**
7&8	Funding for research and postgraduate education should be increased by SEK 2.34 billion for the period 2005-2008. Focus will be on reinforcing scientific quality and ensuring that the Swedish research system offers the best conditions for internationally competitive research.	Bill 'research for a better life' was implemented allocating SEK2.34 billion to research and postgraduate education. SEK 900 million is allocated to research and postgraduate education between 2007 and 2009 (=300 million per year)
7&8	Promotion of cutting-edge research, strong research environments and centres of excellence that are internationally competitive in all scientific fields will be built up gradually to a level of SEK 300 million per year.	15 research and innovation environments with relevance to business have been selected which have to share SEK 2 billion over 10 years (= 0.2 billion per year) 20 top-quality dynamic research environments have been selected which have to share SEK 3 billion over 10 years (= 0.3 billion per year)
7&8	Renewal of the Swedish research community, resources will be available for higher education institutions, the Swedish research councils and the Agency for Innovation Systems (VINNOVA)	
7&8		Intention to eliminate the VAT on external research grants of academic institutions (SEK 350 million SEK per year)
7&8		Intention to study the issue of a tax deduction for donations to research
	Technology transfer and increased commercialisation	**Technology transfer and increased commercialisation**

7&8	Promotion of public-private partnerships in sectors of special importance	Promotion of new public-private partnerships in six key industry sectors. Strategic development programmes have been and will be designed for this purpose (SEK 200 million per year)
7&8	Assigning universities and colleges which specialise in technology, medicine and science to develop action plans for commercialisation and technology transfer	Appointment of a negotiator to recommend a more effective structure for academic institutions, the government still has to consider the findings.
7&8	Creating larger and more polytechnically oriented institutes	
7&8	Strengthening of the Innovation Bride, to make seed capital available	
7&8	VINNOVA will be allocated resources to improve the access of SMEs to R&D	In 2007 the Industrial Research Institutes will be allocated SEK 45 million in order to be able to support SMEs in getting access to research
	Measures to increase protection of intellectual property rights	**Measures supporting the protection of intellectual property**
7&8	Monitoring the work of the Commission on patent litigation insurance	Examination of the possibility of introducing property protection insurance at a national level for patents
7&8	Implementation of the Directive on the Enforcement of Intellectual Property Rights	Several measures which strengthen legal protection
7&8	Establishment of a court system with exclusive jurisdiction in all civil and criminal intellectual property cases in order to create an even more effective and more specialised court system	In 2007 a proposal will be made for concentrating intellectual property cases to one court
7&8	Encouraging inventors and innovators to protect their rights; implementation of the London Agreement	Reduction of the fee for patent applications
7&8	A new trade act, which will reduce administrative burden on companies	Government will propose a new trade mark act in 2007
7&8	Review on the financial aspects of patenting on the growth of companies, presentation of the findings at the end of 2005	A proposal was made by a commission of inquiry to introduce advantageous loans in connection with patent applications and a review of the role of the Swedish Patent and registration office, it is now under consideration with the government

7&8		The government will propose to parliament that Sweden joins two international patent conventions
7&8		A committee of inquiry will report its findings on biotechnology and research on 1 March '08
7&8		A committee of inquiry on the development of legal alternatives for access to films and music on the internet will report its finding by 1 May 200
	Quality	**Quality**
9	Development of service centres for deaf-blind and visually impaired persons	
9	Increase the use of E-services and IT support in the health care sector with projects including a national patient overview and the aim of enabling the electronic communication of information between health authorities and different levels of health service	
9	The already established HLG for e-health and other care services has to present a national IT policy by the beginning of 2006.	
9		Establishment of Verva on 1 January 2006, which will work on developing public administration and especially on the development of an electronic administration.
		Establishment of an inquiry chair who will assess and propose improvements in the forms for coordination of the development of standards in the IT area project in order to increase the number of women in higher management in the IT sector
	Sustainable Growth	**Sustainable growth**
9	Financial support to the development of IT skills in SMEs	

9	Increased resources for the Agency for Innovation Systems for research and postgraduate education for 2005-2009	The Swedish National Agency for School Improvement has been instructed to promote development and use of IT in preschools, schools and adult education. A final report should be made by 1 July 2009
9		Initiation of a three year programme which will stimulate the use of e-identification.
9		The Swedish Development Agency has been instructed to examine both the opportunities and the conditions for increasing telework in sparsely populated areas by means of an office hotel
	Accessibility and security and confidence in IT	**Availability**
9	New law on country code top-level domains aimed at ensuring secure and effective administration of country code top-level domains for Sweden and at facilitating State access to and supervision of the administration	
9	Appointing a committee of inquiry to investigate and propose measures to make the decision-taking process more effective in accordance with the Electronic Communications Act.	
9	A committee of inquiry will be appointed to study the accessibility of the physical infrastructure	The National Post and Telecom Agency gas been asked to identify barriers to the establishment of an infrastructure in sparsely populated areas.
9	The Swedish Consumer Agency will be tasked with implementing special information drives for consumer advisors on IT issues.	The national post and telecom agency has been asked to draw up proposals for a national centre for handling IT disruptions

Table 2: National Reform Programme (2005) and Progress Report (2006), Sweden

8.7.3 Spain

GL	Planned Activities	Outputs	Status	Responsibility

7&8	CÉNIT public-private consortium Projects	CENIT PROJECTS	Approved	MITYC
7&8	Risk-capital Fund of Funds for technology companies (the CÉNIT program)	NEOTEC Venture Capital Fund of funds for technology companies		MITYC
7&8	Torres-Quevedo Program to incorporate PHDs into companies (1,000 contracts in 2008, 1,300 contracts in 2010)	Torres Quevedo programmes for PH.D. Secondment to companies. Torres Quevedo programme had 551 beneficiaries.		MEC
7	CONSOLIDER Projects to create excellent research groups	Consolider Projects to create excellent research groups	Approved	MEC
7	CIBER Projects to create healthcare research networks (CONSOLIDER program)	CIBER projects to create stable research structures in the field of health care		MEC
7	I3 to encourage, integrate and intensify research activity (CONSOLIDER program)	I3 to incentivate, integrate and intensify research activity		MEC
7	The CONSOLIDER program (Critical mass and research excellence). Fund for large scientific-technological facilities.	Consolider programme: fund for large scientific and technological infrastructures	In process (2006)	MEC
7	Enhanced R & D & i Management and Evaluation. Integrated Monitoring and Evaluation System (SISE)	Improve management and assessment of research and innovation: integrated monitoring and assessment system	Approved	
7	The Agencies Act, to foment R & D & i.	Agencies Act	In process (2006)	
7	The Organic Universities Reform Act (LOU) to foment R & D & i.	Reform of the universities act	In process (2006)	
7		Regulation under the general subsidies act	Approved	
7	Legislative reforms to promote R & D & i: the Public Contracting Act	Public sector procurement act	In process (2006)	
8	Creation of the risk-capital Fund of Funds of the	Renewal of ICO-CDTI credit line for technological innovation	Approved	MEH, MITYC

	Centre for the Development of Industrial Technology (CDTI)			
8		Innovation in organisation, technology and quality and incorporation of information and communication technologies	Approved	MITYC
8		Innoempresa plan	In process(2007	MITYC
8	Adoption of a program to stimulate entrepreneurial innovation in non-technology areas, including support for entrepreneurial clusters	Programme to support business clusters	In process (2007)	MITYC
8		Studies and analyses regarding business clusters	Approved	MITYC
8		Support for business groups to explore their technology needs	In process (2007)	MITYC
8		Strengthen the profit programme to support technology centres	Approved	MITYC
8		Support for the creation of consortia of technology centres	In process (2007)	MITYC
8	Enhanced system of technological transfer to companies, paying particular attention to the group of Technological Centres	Agreement with fedit to promote cooperation and synergy between technology centres	Approved	MITYC
8		Initiatives to improve management of industrial property	Under study	MITYC
8	Bonuses on social benefits for research personnel	Rebated on employer social security payments for research staff	In process (2007)	MEH, MTAS
8	Enlargement of participative loan lines to innovative and technology-based companies	Technological loan programme was able to benefit 27,000 companies with a budget of 325 million euro		
8&9	AVANZ@ Plan: homes	AVANZ @ PLAN: Homes	Approved	MITYC

8&9	AVANZ@ Plan: education	AVANZ @ PLAN: Education		MITYC, MEC
8&9	AVANZ@ Plan: Homes	AVANZ @ PLAN: Homes		MITYC
8&9	AVANZ@ Plan: Education	AVANZ @ PLAN: Education		MITYC, MEC
8&9	AVANZ@ Plan: companies	AVANZ @ PLAN: Companies		MITYC
8&9	AVANZ@ Plan: Connect (Digital Public Administration)	AVANZ @ PLAN: E-administration		MITYC, MAP, MJ
9	To guarantee effective entry of the fourth operator with UMTS licence into the mobile telephone market setting a deadline of June 2006 to start operations.	Incentive entry of fourth mobile telephony operator with UMTS licence	Approved	MITYC
9	The Government will deal with a Broad-Band extension plan to provide service to virtually all population by 2010.	extend the use of broadband and provide rural centres (2 million inhabitants) In 2007 all municipalities with more than 250 inhabitants will have broadband connectivity	Approved	MITYC

Table 3: National reform Programme (2005) and Progress Report (2006), Spain

8.8 Appendix H: Indicators of competitiveness (eurostat)

	Netherlands			Sweden			Spain			EU 25		
	2004	2005	2006	2004	2005	2006	2004	2005	2006	2004	2005	2006
Spending on Human Resources												
Gross domestic expenditure on R&D	1.78 (p)	:		:	3.86		1.06	1.12 (ep)		1.85 (s)	1.85 (s)	
Gross domestic expenditure on R&D by source of funds - industry	:	:		:	:		48	:		54.9 (s)	54.5 (s)	
Gross domestic expenditure on R&D by source of funds - government	:	:	:	:	:	:	41	:	:	34.6 (s)	34.7 (s)	:
Gross domestic expenditure on R&D by source of funds - abroad	:	:	:	:	:	:	6.2	:	:	8.2 (s)	8.5 (s)	:
Level of internet access - households	:	78	80	:	73	77	34	36	39	42	48	51
Science and technology graduates - T	7.9			15.9 (i)			12.5			12.6 (s)		
Science and technology graduates - F	3.1			11.0 (i)			7.7			7.9 (s)		
Science and technology graduates - M	12.6			20.6 (i)			16.9			17.2 (s)		
Patent application to the European Patent Office (EPO)												
Patents granted by the United States Patent and Trademark Office												
Venture capital investments - early stage	0.008	0.002		0.082	0.052		0.008	0.013				
Venture capital investments - expansion and replacement	0.077	0.158		0.159	0.248		0.146	0.076				
ICT expenditure - IT	3.8	3.9		4.4	4.4		1.7	1.7		3.0	3.0	
ICT expenditure - telecommunication	3.7	3.7		4.3	4.2		3.8	3.8		3.4	3.4	
E-commerce via Internet	:	:	:	: (c)	: (c)	: (c)	0.4	0.6	4.5	2.1	2.7	4.0
Youth attainment level - total	75.0	75.6	74.7	86.0	87.5	86.5	61.2	61.8	61.6	77.2	77.5	77.7
Youth attainment level - females	78.9	79.9	79.6	87.2	88.7	88.6	68.4	68.5	69.0	80.2	80.3	80.9
Youth attainment level - males	71.2	71.4	69.9	84.8	86.4	84.5	54.4	55.4	54.6	74.3	74.7	74.7
E-government on-line availability	32		53	74		74	55		55	41		50
E-government usage by individuals - T	:	46	52	39	52	:	:	:	25	:	23	26
E-government usage by individuals - F	:	38	42	37	47	:	:	:	22	:	20	23
E-government usage by individuals - M	:	53	61	40	56	:	:	:	28	:	26	29
E-government usage by enterprises	47	57	70	92	80	80	50	55	58	52	57	64
Broadband penetration rate	14.7	22.4	29.0	12.1	17.1	22.9	6.7	10.0	13.2	6.5	10.6	14.8

High tech exports	19			14			6			18		

		Netherlands			**Sweden**			**Spain**			**EU 25**		
		2004	*2005*	*2006*	*2004*	*2005*	*2006*	*2004*	*2005*	*2006*	*2004*	*2005*	*2006*
GDP per capita in PPS		124.6	125.4	127.9 (f)	115.4	114.6	118.0 (f)	96.6	97.8	99.4 (f)	100.0	100.0	100.0
Labour productivity per person employed		108.0	109.4	111.6 (f)	105.1	105.0	107.9 (f)	97.4	97.0	97.9 (f)	:	:	:
Employment rate *	**T**	73.1	73.2	74.3	72.1	72.5 (b)	73.1	61.1	63.3 (b)	64.8	63.3	63.8	64.7 (p)
	F	65.8	66.4	67.7	70.5	70.4 (b)	70.7	48.3	51.2 (b)	53.2	55.7	56.3	57.3 (p)
	M	-------	71.4	69.9	-------	86.4	84.5	------	----------	--------	-------	74.7	74.7
Employment rate of older workers*	**T**	45.2	46.1	47.7	46.1	69.4 (b)	69.6	41.3	43.1 (b)	44.1	41.0	42.5	43.6 (p)
	F	33.4	35.2	37.2	67.0	66.7 (b)	66.9	24.6	27.4 (b)	28.7	31.7	33.7	34.9 (p)
	M	56.9	56.9	58.0	71.2	72.0 (b)	72.3	58.9	59.7 (b)	60.4	50.7	51.8	52.8 (p)
Youth educational attainment (20-24) *	**T**	75.0	75.6	74.7	86.0	87.5	86.5	61.2	61.8	61.6	77.2	77.5	77.7
	F	78.9	79.9	79.6	87.2	88.7	88.6	68.4	68.5	69.0	80.2	80.3	80.9
	M	71.2	71.4	69.9	84.8	86.4	84.5	54.4	55.4	54.6	74.3	74.7	74.7
Gross Domestic expenditure on R&D		1.78 (p)	:	:	:	3.86	:	1.06	1.12 (ep)		1.85 (s)	1.85 (s)	:
Comparative price levels		105.2	104.5		121	117.3		90.2	91.9		100	100	
Business investment		15.9	16.1	16.7	13.2	14.2	14.7	24.7	25.8	26.4	17.1	17.5	:
At-risk-of-poverty rate after social transfers *	**T**	: (i)	11 (b)		11 (b)	9		20 (b)	20		16 (s)	16 (s)	
	F	: (i)	11 (b)		12 (b)	10		21 (b)	21		17 (s)	17 (s)	
	M	: (i)	11 (b)		10 (b)	9		19 (b)	19		15 (s)	15 (s)	
Long-term unemployment rate *	**T**	1.6	1.9	1.7	1.2	1.2 (p)	1.1	3.4	2.2 (b)	1.9	4.1	3.9	3.6 (p)
	F	1.6	1.9	1.8	1.0	1.0 (p)	0.9	5.0	3.4 (b)	2.8	4.7	4.5	4.0 (p)
	M	1.5	1.9	1.6	1.4	1.4 (p)	1.2	2.2	1.4 (b)	1.2	3.6	3.5	3.2 (p)
Dispersion of regional employment rates *	**T**	2.3	2.0	4.4		3.0		8.7	8.3		12.2	11.9	
	F	2.8	2.6	4.3		3.5		14.8	13.8		17.3	16.9	
	M	2.1	2.1	4.8		2.8		5.5	5.3		10.2	9.7	
Greenhouse gas emissions		101.6		96.4				147.9			92.7		
Energy intensity of the economy		203.20	--------	---------	--------- -	--------	--------- -	236	237	--------	204.89	--------- -	--------
Volume of freight transport relative to GDP		102.7	101.3		88.9	90.2		149.2 (b)	151.7		104.0 (bs)	104.6 (s)	