

VISION ERA•NET

SHARED KNOWLEDGE BASES FOR SUSTAINABLE INNOVATION POLICIES

VISION ERA-NET RESEARCH PUBLICATION INTERNET PORTAL

Eetu Paloheimo
Ministry of Trade and Industry
P:O.B 32 FIN 00023 Finland

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1. Introduction

To enhance the policy learning function of VISION ERA-NET, the consortium has agreed to develop a common publication portal. The publication portal should contain research publications from member countries of the consortium. As a mechanical way of disseminating information, the portal should contain publications based on the most qualified articles on innovation policy reports, academic papers, evaluations and statistical surveys. In the future, it will be considered if the results from joint actions of VISION ERA-NET should be published and circulated via this medium. A review of publication portals shows that information related to national innovation research does not diffuse across national boundaries very well, and that in many cases technological solutions are outdated.

The practical prospect of the publication portal is an opportunity to collect electronic publications centred on national innovation research, which would allow consortium members to find a great amount of relevant information from one source. It would also offer an updated forum to follow participant countries' national innovation research development, national trends, and policy decisions. On the technical side it could offer a tool for increasing multinational collaboration and even the possibility of bringing research community and policy makers closer together. Another option is that the publication portal would be more centred on future joint actions.

All consortium member countries have some kind of a portal for research publication circulation, but implementations of these portals differ considerably and the common denominator is that in the majority of cases, functions are outdated and portals are not updated or maintained very actively. One of the consequences of separate innovation portals is that information is scattered around the internet, which makes searching for information a time-consuming process. It is also hard to follow particular areas of innovation policy development at national level, because member countries are either not publishing documents in English about their research programs, or there are just listed reports without abstracts or online content.

Based on the willingness of the consortium to enhance the policy learning function between member countries, the publication portal would be a plausible option to circulate national research reports in one forum. This would lead to a deeper knowledge of other countries' finished and

ongoing projects, and also remove the problem of following scattered national information about innovation research.

This report includes a review of national and European level publication portals and recommendations for the launching of a publication portal for VISION ERA-NET. The main questions in the review concern the following themes: Availability of publications in English, dissemination, implementation of web pages, usability and type of publications. In the conclusions chapter, there are some proposals for action.

2. Objectives of the Publication Database

As well as the enhanced policy learning function, a common publication database would offer also extra value to other areas of interest in VISION ERA-NET. One of the more pragmatic aspects would be the possibility to use modern web design. This would create a reliable, modern and up-to-date information source, which would use sophisticated search engine and catalogue functions. Other objectives of the publication portal are to:

- Strengthen international networking through the creation of a shared publication portal
- One information source on national innovation research publications from consortium members
- A forum disseminating information from VISION ERA-NET joint actions
- Database on innovation research at multinational level. Linkage between research and policy makers.

A common publication portal would give a greater opportunity to find the most relevant publications from consortium countries. It would also give a more profound overview about trends and development at European level. It could be used even as a technical mechanism to coordinate the direction of joint actions and serve as a contact forum for research groups from consortium countries. At present, it is a time-consuming process to wade through all national publication portals and collect relevant information concerning specific interests in area of innovation.

All the objectives above are related to the idea of increasing collaboration. Technological solutions as the common publication portal are needed to enhance more effective European level

collaboration. Technical devices such as a publication portal do not necessarily tie in directly to policy learning, but in all cases it a tool for dissemination and utilization of research knowledge. A publication portal is just one step for VISION ERA-NET, but it is an opportunity to at least circulate results and to offer information for contact groups.

3. Review of National Innovation Portals

This section summarizes results from reviews of national publication portals (see Appendix 1). In the review section, national publication portals were evaluated by different categories, which were based on availability of publications in English, dissemination, implementation of webpages, usability and type of publications. Review objects were selected to be partner-specific, the first option was always a national innovation research program; if the member country didn't have such a program, then review was performed on a partner organization homepage.

The “availability of publications in English” criteria is based on publications found in English, and how browsing succeeded with the English version of the national webpage. “Dissemination” criterion is based on the availability of publications (online content, or just listed orderable publications) and examining if the links to publications were functional. The “implementation of webpage” criteria was based on an overview of webpages and clarity. The “usability” criteria was based on the technical solutions of the webpages e.g. how well the search engine is working, how publications are categorized, are there forums for discussion? etc. The “type of publications” criteria was based on the content of publications e.g. were the publications policy documents, academic papers, short- or long term studies, statistical analysis, or evaluations.

Sites selected for review were the Austrian technology information policy consulting-program (TIP), the Danish research unit for industrial dynamics (DRUID), the Estonian ministry of economic affairs and communications (MKM), the Finland research programme for advanced technology policy (PROAct), the Finnish Funding Agency for Technology and Innovation (Tekes), the Finnish ministry of trade and industry (MTI), the Flanders policy research centre: entrepreneurship, enterprises and innovation (EEL), Ireland: national policy and advisory board for enterprise, trade, science, technology and innovation (Forfàs), the Netherlands ministry of economic affairs (MINEZ), the Latvian technological center (LTC) , Norway's knowledgebase of industrial

and innovation policy (KUNI) and The Swedish governmental agency for innovation systems (VINNOVA).

Table 1. Publications in internet and availability in English

Country	Publications available in English
Austria (TIP)	Yes
Denmark (DRUID)	Yes
Estonia (MKM)	Some*
Finland (PROAct)	Yes
Finland (Tekes)	Yes
Finland (MTI)	Yes
Flanders (EEI)	Yes**
Ireland (Forfàs)	Yes
Latvia (LTC)	Yes
The Netherlands (MINEZ)	Yes
Norway (KUNI)	Yes***
Sweden (VINNOVA)	Yes

* = It's possible to find some publications on MKM's homepage, but there is no direct link from their site.

** = EEI has publications on their webpage, but the links to them don't seem to work

*** =KUNI has publications available in English. The problem is that KUNI's pages are written in Norwegian, which makes browsing through the pages a little difficult.

Table 2. Dissemination of publications

Country	Dissemination
Austria (TIP)	<i>Average</i>
Denmark (DRUID)	<i>High</i>
Estonia (MKM)	<i>Low</i>
Finland (ProACT)	<i>Low</i>
Finland (Tekes)	<i>Average</i>
Finland (MTI)	<i>Average</i>
Flanders (EEI)	<i>Low</i>
Ireland (Forfàs)	<i>High</i>
Latvia (LTC)	<i>Low</i>
The Netherlands (MINEZ)	<i>Average</i>
Norway (KUNI)	<i>Average</i>
Sweden (VINNOVA)	<i>High</i>

Dissemination of publications is based on the availability and amount of publications on the national publication portals. The amount of publications differ from five to over a thousand, but average number per program or agency is around 20 publications in English. In this section only

online content was counted, because there was the option to order publications but not to view them online, and some portals also had many dead links.

Table 3. Implementation of publication portal

Country	Implementation
Austria (TIP)	<i>Average</i>
Denmark (DRUID)	<i>Average</i>
Estonia (MKM)	<i>Average</i>
Finland (ProACT)	<i>Average</i>
Finland (Tekes)	<i>Average</i>
Finland (MTI)	<i>Low</i>
Flanders (EEI)	<i>Low</i>
Ireland (Forfàs)	<i>High</i>
Latvia (LTC)	<i>Low</i>
The Netherlands (MINEZ)	<i>Low</i>
Norway (KUNI)	<i>Average</i>
Sweden (VINNOVA)	<i>High</i>

The implementation aspect includes an overview and graphical details concerning the outlook of publication portals. The implementation criterion is more centred on the impression of publication portal. Basically, it concerns the web design and user interface; how the interface works in practice, is it easy to use, and is the web design functional. Quality of the pages differed greatly, and other members had clearly invested more on interface aspects, but a clear measure would be better categorization of publication portals by themes and projects.

Table 4. Usability of national publication portals

Functions	search	links
Austria (TIP)	<i>yes</i>	<i>yes</i>
Denmark (DRUID)	<i>yes</i>	<i>no</i>
Estonia (MKM)	<i>no</i>	<i>no</i>
Finland (ProACT)	<i>yes</i>	<i>yes</i>
Finland (Tekes)	<i>yes</i>	<i>yes</i>
Finland (MTI)	<i>yes</i>	<i>no</i>
Flanders (EEI)	<i>yes</i>	<i>yes</i>
Ireland (Forfàs)	<i>yes</i>	<i>yes</i>
Latvia (LTC)	<i>no</i>	<i>yes</i>
The Netherlands (MINEZ)	<i>yes</i>	<i>no</i>
Norway (KUNI)	<i>no</i>	<i>no</i>
Sweden (VINNOVA)	<i>yes</i>	<i>yes</i>

Table 4. describes the different technical functions on national publication portals. “Search column” stands for the availability of a search engine on a national webpage, which is able to locate publications centred on innovation politics. “Links column” means related links to similar innovation research areas or other similar research programs or projects. A search engine exists on the majority of national publication portals, and they work quite effectively. In most cases the search engine is of a quite simple format, and the results from the search engine are quite wide. A plausible option is a categorised search engine that gives options to the narrow search results by author, year, and publication type. Links to other relevant innovation areas were also quite well provided for. Links attached to publication portals are an effective way to map out areas of interest and also to map other relevant research subjects related to programs.

Table 5. Types of publication

Country	Short-Term	Long-Term	Policy	Academic	Analysis
Austria (TIP)	<i>High</i>		<i>High</i>		<i>Medium</i>
Denmark (DRUID)	<i>Medium</i>	<i>Medium</i>	<i>High</i>	<i>High</i>	
Estonia (MKM)	<i>High</i>		<i>High</i>		
Finland (PROAct)		<i>High</i>		<i>High</i>	<i>Medium</i>
Finland (Tekes)		<i>High</i>		<i>Medium</i>	<i>High</i>
Finland (MTI)		<i>High</i>	<i>High</i>		<i>Medium</i>
Flanders (EEL)	<i>Medium</i>	<i>Medium</i>	<i>High</i>		<i>High</i>
Ireland (Forfàs)	<i>High</i>		<i>High</i>		<i>High</i>
Latvia (LTC)	<i>High</i>		<i>Medium</i>	<i>Medium</i>	
The Netherlands(MINEZ)	<i>Medium</i>	<i>Medium</i>	<i>Medium</i>	<i>Medium</i>	
Norway (KUNI)		<i>High</i>		<i>High</i>	
Sweden (VINNOVA)		<i>High</i>	<i>Medium</i>	<i>High</i>	<i>Medium</i>

Table 5. illustrates the online content of publications at web pages of national programs or organizations. Depending on the organization or program focus, it is centred on short- or long-term studies. It seems that short-term studies are more complete than long-term studies but this is also connected to the difference between fundamental research and policy reports. Most of the organizations prefer policy reports and analysis of national and international innovation trends and systems. In programs, it seems that most of the publications are more centred on fundamental research and prefer academic publications, for example notifications in scientific journals. Also,

most of the members have analysis and evaluations centred in their projects or innovation environment.

Based on the review it seems that dissemination of national research results could be improved considerably. Documentation and circulation of innovation program results as online publications is apparently not prioritized very highly. In most cases, publication portals are implemented with quite old-fashioned techniques and update frequency is not very high. Some countries don't even have publications available in English, or the amount of publications is relatively small compared to the size of the programs.

Most of the national publication portals don't actually use available web design techniques very effectively. One important aspect of research is to enhance policy learning, and at the moment it seems that many documents don't get onto the public forums, or at least their full capacity is not used. Also, most of the webpages are relatively old and publications could be better categorized. There is also lack of efficient search engines, which would allow search by author, word or subject. Including these options on national publication portals would enhance the information collection processes.

One major problem is that there are also, nationally, many innovation research actors and there is no coordination with publications between national actors; publications are found on different relevant innovation actor country pages (e.g. universities, agencies,). Information searching often becomes like finding the missing parts of a jigsaw puzzle. Based on earlier work of VISION ERA-NET, it is apparent that the knowledge needs of VISION ERA-NET partners are similar or converging and a shared publication portal to support innovation research would be a plausible option.

4. Review of European Level Innovation Publication Portals

This section summarizes results from a review of European level publication portals (see Appendix 2.). This review was conducted in a similar method as the chapter 2 review, but the focus is more centered in already existing European level publication portals and how these are implemented. All European level innovation portals were not studied, but rather for review purposes the four most representative portals were evaluated. Portals selected for this review were: Articles on innovation,

CORDIS Publications, TrendChart, OECD – Science and Innovation, and JRC-IPTS – Institute for Prospective Technological Studies. TrendChart is not actually a publication portal, but it’s relevant for following innovation development and trends. The OECD – Science and Innovation – portal was also selected even though it includes countries outside of the European Union as it is one of the most important international platforms centered on innovation.

The technical categories presented in chapter 3 are not as relevant at European level, because all the above-mentioned publication portals have their publications in English. Also, these portals had no problems with dissemination of information, and all the webpages had a functional search engine and publications were categorized by themes. Basically, the technical solutions were well implemented and the quality compared to national publication portals was much higher. The rest of the European level review is more centered on types of publication available.

Table. 6 Types of publication at European level

Country	Short-Term	Long-Term	Policy	Academic	Analysis
Articles on Innovation	<i>Medium</i>	<i>Medium</i>	<i>Medium</i>	<i>High</i>	
CORDIS		<i>High</i>			<i>Medium</i>
TrendChart	<i>High</i>				<i>High</i>
OECD	<i>High</i>	<i>High</i>	<i>High</i>	<i>High</i>	<i>High</i>
JRC-IPTS		<i>High</i>	<i>High</i>		<i>High</i>

It seems that the selected European level portals have all concentrated on a certain aspect of publication types, and the knowledge bases complement each other quite well. The Articles on Innovation portal has a great deal of traditional news, and stories about innovation, and it’s content is not as focused when compared to the other portals. CORDIS Publications is clearly more focused on analyses of priority factors affecting innovative performance and to circulate this information for policy learning purposes. TrendChart, as mentioned above, is more a tool for following development and statistics on how much European countries are investing in innovation and how they are performing; in a way it also serves a policy learning function, but on a very technical level. The OECD – Science and Innovation database is one of the widest publication portals centered on innovation, covering many different aspects. The publication range covers all areas and there is no shortage of articles, the only problem is that all the members of VISION ERA-NET consortium are not members of OECD, and there is a lack of information in this respect. Also, the research

perspective is wider than strictly European level publication portals and is not so centered on the particular focus of European research. JRC-IPTS contains publishing studies that focus on specific scientific and technological issues that have an actual or potential impact on EU policymaking

5. Conclusions

All the partners of VISION ERA-NET have built specialized publication portals to support innovation policies, even though their implementation differs considerably. Online publications are an important medium for conveying information, and they shouldn't be neglected. In the future, VISION ERA-NET will need a forum to disseminate publications, but it could also serve as a new information source for member countries. The knowledge needs of the partners are similar or converging, and a practical option would be to collect the most significant national publications from each member country on a shared forum. This medium would increase the policy learning aspect and would help in following the innovation development of other countries.

At the moment, national publication portals do not fully realize their function when considering the needs of VISION ERA-NET. A common publication portal would be one step towards a new cross-border mechanism of research and innovation. Technical solutions on most of the national publication portals are not adequate, and information collection on national innovation policies is time consuming. European level portals help to alleviate some of the issues with national knowledge bases, but the perspective on European level portals does not directly serve the knowledge needs of VISION ERA-NET.

Even though publications are the most mechanical way of disseminating information, publications still stand as the principal outputs of any scientific programme. Publications also summarize the results and, through them, the researchers communicate with their colleagues and with users of research results.

Appendix 1

Austria:

TIP - Austrian Technology Information Policy Consulting-program:

Web address: <http://www.tip.ac.at/>

TIP webpage is functioning well technically, considering that it was launched in 2001. TIP publications are reports from their previous projects, and also science and technology reports. Publications are available from the year 1997 onwards and the latest is from 2005. It is possible to download them as pdf files, or order them from TIP. Most of the publications are available in English. It seems that TIP is publishing about five documents a year on their webpage, but other publications (if any) are not listed anywhere. The webpage has a functional search engine, but it is quite simple and doesn't have extra search options. The TIP publication portal has also links to other TIP-related publications, but these are all from 2001 so it appears that this webpage is not updated very actively.

TIP publications are closely connected to OECD studies by disseminating and complementing the results of OECD studies and by participating in OECD projects relevant for the purposes of TIP. TIP publications can be categorized into three classes: policy, evaluation, and proposal for action studies. Publications are used to produce information and recommendations for Austrian research, technology and innovation policy. Publications are mainly centred on a policy reports and it seems that TIP is more interested in short-term research. TIP publications have quite a strong international dimension on publications e.g. country comparisons. TIP also publishes official science, technology and innovation reports concerning Austria, but these publications are only available in German.

Denmark:

DRUID- Danish Research Unit for Industrial Dynamics:

Web address: <http://www.druid.dk/>

The DRUID webpage is relatively old, but it fulfils its function as a publication portal. Publications are categorized on their main page and everything is well organized. DRUID has working papers starting from 1996 and the latest are from 2006. The amount of working papers published per year is around 15, and the working papers are available in English and downloadable as pdf files. It is possible to read abstracts from all the publications, but access to older reports is restricted. The DRUID page also has all of their conference papers since 1997 up to 2005, and other related publications on their webpage, so in total there are a massive 1359 articles on the publication portal. DRUID has a sophisticated search engine that allows the searching of working papers, conference papers, or all articles. The search engine has also options for word, author and particular year search filtering.

DRUID publications can be divided into three categories: 1) *Theory of the company* which includes the connections between new institutional theories of the company (such as transaction cost economics), the field of strategy (such as the capabilities and knowledge-based views of the firm) and market dynamics. 2) *Inter-Company interaction* which includes circumstances where the dynamic changes in competitive patterns of companies is associated with changes in their specialisation and position in production ecosystems. Included are analyses of co-ordination of R&D and of other activities that have a bearing on the technological development of companies, their connection to competitive strategies and performance and inter-company organizational arrangements. Of special concern is the evolution of the vertical division of labour between firms, and the way in which a deepening of the interaction between companies gives rise to innovative activity. 3) *Innovation systems* including the formation of geographically distinct systems of innovation and their effect on economic growth and development. The theme also explores and develops the theoretical and methodological base for the application of new concepts such as "the learning economy". There is a great concentration on policy papers and evaluations, but (due to many PhD students being involved in DRUID programs) there are also academic long-term studies as well.

Estonia:

MKM - Ministry of economic affairs and communications:

Web address: <http://www.mkm.ee/index.php?id=7568>

MKM launched a series of studies titled *Innovation studies: Creating an innovative Estonia* in 2002. The series consists of research publications, reports and evaluation studies on Estonian innovation systems and policy issues. MKM doesn't have a publication portal that would publish reports from this study series, and using the search engine at MKM's homepage doesn't give any results. It's still possible to find publications from this series via Google or not changing the language to English on the MKM homepage. Five research reports exist from 2002 to 2004 concerning "Creating an innovative Estonia" studies; all of them are available in English and downloadable in pdf format.

There is also information about a new program planned to run from 2004–2006 called *Innovation awareness programme*, but unfortunately there are no publications available. Based on five publications available it seems that these are mainly reports and evaluation studies centred on Estonian innovation systems and policy issues. Publications are recommendations for policy actions to improve innovation and innovation policy awareness.

Finland:

ProACT- The Research Programme for Advanced Technology Policy:

Web address: <http://proact.ktm.fi/index.phtml?lang=3>

ProACT webpage has a nice appearance, but sadly its functionality is not as good. Information about accessible publications is categorized by three themes: recent publications, publications by theme and publications by project. The recent publications category has nine articles in English, only one of them is downloadable in pdf format. There is no information on whether the rest of the publications are orderable. Publications by theme has five sub-themes, and publications range from PhD dissertations to research reports. Each sub-category has over 30 articles, but it's only possible to find approximately five articles, which are downloadable in English. Project publications also has

five sub-categories and each of these has five further sub-categories. It is possible to check what each project has been doing and what they have published. Overall, there are about seven downloadable articles in English from projects. The rest of the publications from projects are orderable via a contact person. The search engine works quite well, which is good, because otherwise you could spend hours in a labyrinth of publications.

The five themes covered by the ProACT program were: 1) The *Globalisation and innovation* theme, which covered Finland's position in the global innovation network and the progress of innovation internationalisation and its effects. 2) The *Innovation policy* theme consisted of projects studying the challenges posed for renewal of innovation policy by history, power, responsibility, structures, the economy and society. 3) The *Emergence of innovations* theme investigated the environment for the emergence of innovations. 4) The *From innovation to Business* theme consisted of projects studying the impact of innovation on business development at a sector level and in the form of special issues in corporate innovation process. 5) The *New modes of co-operation* theme considers the evolution of co-operation in innovation environments and innovation processes. ProACT publications are more concentrated on a long-term research and the emphasis is on scientific studies. There are also a good amount of publications with policy relevance which offer research-based information to support decision making in technology and innovation policy.

Tekes – Finnish Funding Agency for Technology and Innovation

Web address: <http://www.tekes.fi/eng/publications/verkkojulkaisut.asp>

The publication portal of Tekes is functional, but a bit confusing to use. Most of the reports are centered on technology reports from programs funded by Tekes. Publications are available from 1999 and the latest is from 2006. There are 12 publications in English related to innovation research, and it's possible to download 9 of them in pdf Format. Other publications can be ordered from Tekes. The confusing part is that there is a category for publications and publications on the internet, yet both of these categories have on-line content. The publication portal does not have a search engine, it just has an option to search publications by class, publication date or alphabet, which does not help when searching through the database. Tekes has a general search engine, where it is possible to search by topic, and in this way you can find publications related to innovation more easily.

The publication portal of Tekes mainly includes reports and evaluations from technology programs funded by Tekes. Tekes uses technology programmes to allocate its financing, networking and expert services to areas that it considers to be important for business and society. The technology programmes consist of research projects by companies, universities and research institutes, plus services that support companies' business operations, such as shared visions, seminars, training programmes and international visits. Evaluations and reviews on the Tekes portal are mostly centered on program evaluation and publications are final conclusions from technology programs.

MTI – Ministry of Trade and Industry

Web address: http://ktm.elinar.fi/ktm_jur/

The MTI publication portal is not implemented in a very usable matter. All the options on the publication portal are in Finnish, but it has instructions in English. Most of the publications are policy related and a large number of the publications on the portal are in Finnish, but the portal also contains some publications in Swedish and in English. Publications related to innovation start from 1997 and end in 2006. There are overall 25 publications related to innovation in English, and most of the publications after 2001 are available in pdf format, or are orderable from MTI. The search engine works quite well; it has two options, quick search and advanced search. Both of the search options seem to work, but results in Finnish, Swedish and English are shown in the same list, which makes it quite difficult to browse through.

The majority of publications on the MTI portal are related to policy recommendations and analysis of Finland's innovations systems. The problem is that the search engine is not very accurate and it mainly works by word search so actual publications related to innovation research are hard to find. Publications are also not categorized, but the majority of policy reports seem to be based on long-term research and a recent trend is centered towards internationalization of innovation research.

Flanders:**EEI – Entrepreneurship, Enterprises and Innovation**

Web address: <http://www.ondernemerschap.be/Content/en/results.php>

The Entrepreneurship, Enterprises and Innovation program began to publish its results in 2002. Their webpage is functional, but it's a little bit confusing as it has many submenus. Publications are available via the search engine and they are categorised into publications, studies and working papers. Publications range from 2002 to 2005 and it seems that EEI has published about three working papers per year. It is possible to find eight articles related to innovation research, but unfortunately the links provided don't work, so publications are mostly unreachable via the internet.

EEI publications are based on three main categories: 1) *Data collection and analysis* which are reasoned to be essential for (longitudinal) policy evaluation, fundamental research, and some of the applied research projects. These databases are divided in three categories: economy level, high tech/company-level, and individuals/entrepreneurs. 2) *Fundamental research* is mainly based on entrepreneurship as a driving force for sustainable growth. Subsequently, the aim is creating and disseminating knowledge on entrepreneurship, innovation and the stimulating role of government. The two main themes in this area are: 'successful versus failing companies' and 'the knowledge economy'. 3) *Short term policy related research and specific area studies* where the goal of this theme is to perform periodic evaluations of economic policy instruments, and development of new methodologies for policy evaluation. One of the instruments to be developed is the biennial evaluation of competitiveness of the Flemish economy. The majority of articles reviewed by headlines seems to be concentrated towards policy research and in monitoring and evaluating policies.

Ireland:

Forfàs - National Policy and Advisory Board for Enterprise, Trade, Science, Technology and Innovation:

Web address: http://www.forfas.ie/publications/_category/innovation.html

The webpage of Forfàs looks modern and is easy to browse, with full functionality. Forfàs has many publication themes on their webpage. In the innovation publications category, Forfàs has eight articles, which start from 1994 and end in 2005. All the publications are downloadable in pdf format and everything is available in English. Via the search engine it is possible to find over 300 publications related to innovation research.

Forfàs publications are mainly related to policy reports and analysis. Innovation related studies cover issues related to enterprises, trade, science and technology. Many of these articles give recommendations on how to develop or change existing structures. One main theme of the articles seems to be to provide direct policy advice in relation to national, EU and international innovation policy developments and initiatives. There is also considerable survey information and data analysis which also provides policy recommendations.

The Netherlands:

MINEZ - Ministry of Economic Affairs:

Web address: <http://appz.ez.nl/bestel/search.asp>

The Netherlands has a specific program for innovation called *Dynamism in Innovation*. The website is part of the NWO website (Netherlands organization for Scientific Research). The *Dynamism in Innovation* project website doesn't have any information in English, therefore this part of the review is more concentrated on the MINEZ website. The MINEZ English site is quite lacking in information and articles concentrated on innovation are only locatable via the search engine. Publications start from 1999 and end in 2005. There are 25 articles available and after 2001, MINEZ has been publishing about 4 articles per year and all of them are downloadable in pdf format.

It seems that in *Dynamism in innovation* the project emphasis is on long-term research and they are trying to create policy advice for relevant stakeholders. On the MINEZ publication portal, the focus is more on short-term research and proposals for actions in policy processes. There are also a couple of academic publications, but the studies are not categorised in any way.

Latvia:

LTC – Latvian Technological Center:

Web address: <http://www.innovation.lv/ino2/eng/?kat=publications>

The Latvian innovation portal is maintained by LTC (Latvian Technological Center). The webpage looks functional, but there are a lot of dead links. The publication section doesn't have any kind of categorisation. Publications are just rammed together and there aren't different sections for English and Latvian publications. There are about 50 publications, but most of the links don't work so the actual number of available articles is around ten. Also, most of the publications in English are mainly links to research reports from other facilities.

It doesn't seem that LTC is publishing articles related to any specific programme. It's mainly an information base containing articles about innovation in Latvia and some publications about innovation-based entrepreneurship. The publication section is concerned with innovative activities in Latvia and in other countries. It's hard to define which kind of publications are collected on the portal, because all the articles concerning Latvia are either in Latvian or don't work. Publications from other countries seem to range from policy recommendations to scientific articles without any clear definition of type.

Norway:

KUNI – The Knowledge Base of Industrial and Innovation Policy:

Web address: <http://www.program.forskningradet.no/kuni/>

The main deficit of KUNI's publication portal is that there is no possibility to browse the webpage in English, which hinders its usability outside of Nordic countries considerably. The positive side is

that the webpage is well built and easy to browse through, and information gathering is quite simple. In the central documents section KUNI has about 25 working papers that have all been published in 2006, so the publication rate is up to date. Just over half of the publications are written in English. KUNI also has 13 projects that have been named in English, but descriptions are in Norwegian. All of these projects have either working paper reports in English or in some cases their own English language webpages where they have information and publications in English. All the publications are downloadable in pdf format, but there isn't an archive for older publications.

KUNI aims at strengthening the theoretical and empirical knowledge base for industrial innovation policies. The KUNI programme aims to contribute to the development of a clearer appreciation of the factors contributing to value creation and a better decision base for industrial policies at both national and regional level. KUNI has two main themes: 1) *Innovation policy and value creation in an open economy*. This area includes, for example, factors influencing to innovation, the effect of innovation on firm organization, the relative importance of selective and general measures in innovation policy and regional policy and the relationship between ownership and innovation. 2) *The role of knowledge development in innovation* which includes research themes concerning the value creation potential in new forms of knowledge and new combinations of knowledge and the facilitation of systematic knowledge development. KUNI publications seem to be a combination of long- and short-term studies and there is quite a strong aspect of internationalisation. Most of the articles are quite academic as a result of the KUNI program, but there are also some policy reports and database studies.

Sweden:

VINNOVA - The Swedish Governmental Agency for Innovation Systems:

Web address: <http://publiceng.vinnova.se/main.aspx?>

VINNOVA has several innovation programs running at the moment. It is possible to search these articles from VINNOVA's pages, which are modern and easy to use. VINNOVA has five categories for their publications: analysis, forum, information, policy, report and external publications related to VINNOVA's interests. The problem is that the search engine works, but not inside of the five categories. Publications start from the year 2001 and the latest are from 2006. When this review was written, there were some problems downloading pdf files.

Publications on VINNOVA's pages are mostly outcomes from research projects. The *VINNVÄXT* project is concerned with promoting sustainable growth and international competitiveness within the growth area defined by the functional region. This is achieved through problem-oriented research and development of innovation systems to internationally competitive levels. The *VINN excellence center* program is concerned with forming collaborations between private enterprises, public sector actors, universities and research institutes as well as other research organisations. The *Institutions of excellence* program invites research institutes to draw up proposals for Competence Centres at research institutes, together with universities, industry and the community. VINNOVA's publication portal has many official reports and evaluations centred on their programs. There are also innovation policy publications, with academic credentials and reports from programmes and projects that have received funding from VINNOVA.

Appendix 2

Articles on Innovation:

Web address: <http://aoi.cordis.lu/home.cfm>

The *Articles on Innovation* portal includes all the content of both Innovation & Technology Transfer magazine and Euroabstracts since the beginning of 2000. It has been indexed according to innovation themes and sub-themes, as well as by country and technology. The Articles on Innovation portal has a suitable search engine, which offers options to search by the criteria mentioned above. This portal has over 900 articles, some of them are very general information, but there are also links to original studies and thus this service is a valuable resource for information gathering. There are about 15 articles if searched by country, but all the members of the VISION ERA-NET consortium are not represented.

Articles on Innovation is a magazine-based publication and it tries to cover the latest developments in innovation policy and practice in the European Union. Mainly this service has been developed to offer easy access to a range of on-line content from the innovation related activities of the European Commission's Directorate-General for Enterprise. Most of the publications are just magazine articles related to innovation news, but there are also academic abstracts which have links to full studies.

CORDIS – Community Research & Development Information Service:

Web address: <http://cordis.europa.eu/innovation-policy/studies/published.htm>

CORDIS publication portal presents all the innovation policy studies published so far by CORDIS. Studies are indexed by theme and it's possible to browse further information by titles or to use the search engine. Innovation themes are indexed into five categories, which are: innovation policy, technology transfer, innovation finance, innovation management and geographical issues and approaches. In total there are 36 studies related to innovation ranging from the year 1999 to 2004.

CORDIS aims to enhance the analytical capacity to review innovation policy and performance. The CORDIS innovation studies aim to analyse priority factors that are shaping innovative performance

and to reflect the increasing appreciation of the economic and social importance of innovation. Publications are mostly analysis and policy recommendations.

TrendChart on Innovation:

Web address: http://trendchart.cordis.lu/tc_country_pages.cfm

The TrendChart project develops tools for innovation policy makers in Europe. It aims to collect, regularly update and analyse information on innovation policies at national and community level. The technical functions of TrendChart are convenient; it's easy to use and information searching is easily accomplished by a site map option and search function from all European countries.

TrendChart has three main areas of interest: 1) *Country pages* which provides access to all TrendChart products such as annual country reports, briefings, information on policy measures and government decisions. 2) *Innovation policy knowledge base* provides policy monitoring network to track developments in innovation policy measures in 33 European countries. It also provides the policy information base with access, via an enhanced search function, to policy information and news items collected by the TrendChart network of country correspondents and a who's who service about key innovation stakeholders. 3) *Innovation policy tools* which includes annual country reports; these reports highlight innovation policy trends and priorities. The other innovation policy tool is The "European Innovation Scoreboard", which is the main statistical tool of the "European TrendChart on Innovation". It monitors relative strengths and weaknesses of the innovation performances in four categories: human resources, creation of new knowledge, transmission and application of knowledge and innovation finance, outputs and markets. TrendChart is mainly concerned in analysis and it doesn't offer many policy reports or scientific articles. As a database following the development of innovation policies and trends it functions adequately.

OECD - Organisation for Economic Co-operation and Development

Web address: http://www.oecd.org/topic/0,2686,en_2649_37417_1_1_1_1_37417,00.html

The OECD Science and Innovation publication portal is probably one of the widest platforms existing. The technical aspects of OECD publication portal for Science and Innovation are well developed. There are over 800 publications and everything is categorised into 21 themes that include, for example, best practises, case studies, policy briefs, publications, reports, statistics, and

data and analysis. The search engine is quite simply structured, but it's convenient to use and has an option to search sub sites. All the publications are not in free circulation; you have to be part of a subscribed organization or to order publications from the OECD online bookshop. A good option is the opportunity to browse by specific country and read publications related to them.

Publications related to innovation policy on the OECD publication portal are wide-ranging, but one of the main functions of the articles is towards policy recommendations for member countries and to support private sector innovation. OECD's publication portal also has surveys and statistic analysis e.g. "Science, Technology and Industry" scoreboard, which provides a comprehensive picture of innovation by many different indicators. OECD has also performed several case studies centred on innovation policy e.g. NIS. OECD's Science and Innovation knowledge base covers a wide area of publications reaching almost all areas of innovation, and it is probably one of the best maintained publication portals centred on innovation.

JRC-IPTS – Joint Research Centre- Institute for Prospective Technological Studies

Web address: <http://www.jrc.es/home/pages/publications.cfm>

The publication portal of IPTS is well managed and it has quite a wide collection of publications related to innovation research. The publication portal is constructed via a search engine. The search engine has options to search by author, title, year and subject. Innovation research publications start from 1996 and the latest is from 2006; the average amount of publications produced by IPTS in a year is nine. All the publications are in free circulation and you can examine abstracts before downloading pdf files.

Studies published by IPTS are focussed on specific scientific and technological issues that have an actual or potential impact on EU policymaking. The majority of publications are technical, describing findings of IPTS on certain policy problems. IPTS aims also to provide information for policy-makers about industrial research and how it is transformed into commercial value through innovation, this action is called the industrial research and innovation (IRI) program. The IRI program includes a research and development scoreboard, which contains financial data of research and development investments by the largest corporate R&D investors in the world.