



Intellectual Property Rights and Nordic SMEs

A study of IPR practise
in the IT and Biotech sectors

February 2005



"Problems worthy of attack, prove their worth by hitting back." – Piet Hein

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and
Nordic SMEs**

A study of IPR practise in the IT and Biotech sectors
by
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Executive summary

Objectives of the project

The general objective of this “Intellectual Property Rights and Nordic SMEs” project is to improve the use of IPR by Nordic SMEs, in order to enhance their competitiveness.

The project is part of the Nordic Innovation Centre's Forum for Innovation Policies.

The detailed objectives of this project are:

- to map and disseminate good practise in IPR Management, based on the interviews with Nordic Biotech and IT SMEs,
- to identify online tools and services supporting good IPR management,
- to identify IPR management teaching programmes and estimate IPR practise in higher education and innovation support agencies, and their influence on the IPR practise of SMEs,
- to investigate the legal and financial frameworks, and look for initiatives that may encourage the effective use of IPRs,
- to provide recommendations for improving the effective use of the IPR system by Nordic SMEs.

Main recommendations

Build a Nordic IPR portal. Currently, online search possibilities for Nordic IPR (aside from the Danish ones) are weak. This Nordic IPR portal should provide free and user-friendly search facilities over all Nordic published IPR, patents, trademarks and design registrations. It should provide additional services such as IPR news and information, a help-desk and a handbook.

Assist SMEs with IPR learning and IPR surveillance. Several interviewed SMEs (particularly in the IT sector) felt their knowledge about IPR was not comprehensive enough, and several interviewed SMEs (particularly in the Biotech sector) asked for sector-specific advanced IPR courses. Many SMEs thought the IPR system was too expensive, but particularly felt restrained by the high costs of patent surveillance.

This calls for targeted courses and surveillance services with a more supportive pricing model, perhaps a fixed price scheme.

Assist SMEs with foreign filings. While national filing costs are relatively low, foreign filings costs can be significant, and may occur as early as within six months of the first filing. If there is no way to extend the priority period (we think such solution should be investigated), foreign filing support packages should be proposed to SMEs by the various innovation support agencies.



Encourage the formation of a Nordic Patent Defence Union. As a voluntary union of SMEs accepting mutual compulsory arbitration and defending their IPR together, a Nordic Patent Defence Union could be the start of a European initiative to prevent intimidation by large companies, therefore encouraging the effective use of IPR by SMEs. Such a union would need financial support through the first years.

Include IPR in all higher education programmes. Today, too many graduates start their first job without ever having studied anything about IPR. A combination of lecture modules, practical cases and a compulsory IPR part in all Master's projects would build IPR awareness and competence for the future graduates.

Further suggestions

A Patent Litigation insurance scheme. Such a scheme would encourage SMEs to make more use of IPR by reducing the consequences and the risk of being involved in IPR litigation. An exhaustive investigation is in course at the EU level, and Nordic countries should follow it up actively.

A Nordic Patent Institute. Such a Nordic centralised authority, with a "Patent Cooperation Treaty" role, would enhance the quality and efficiency of search and examination. With the reduced manning and competence of the Nordic National Patent Offices due to a more important role of the European Patent Office, this initiative would help retain in Nordic countries the IPR competence so important to keep a regional high quality IPR environment.

Norway in the EPO. Norwegian industry would be served by the increased IPR competence, and the overall lower patenting fees that membership in the European Patent Organisation would bring. This would also ensure a direct access to the Office which controls a very relevant market.

Put an end to the publication of the filing of Norwegian and Swedish patent applications. By publishing a few weeks after filing basic information on inventor, applicant, class of invention, and title, the Norwegian and Swedish patent offices put Norwegian and Swedish patent applicants at a disadvantage when compared with their foreign competitors who can keep an 18-months full-secrecy period.

Findings on IPR practise of the SMEs interviews

Biotech SMEs are very well aware of the patent system, and live in a "patent or perish" world. On the other hand, IT SMEs, and especially those selling software, still depend on copyrights as their only IPR protection. They are often opposed to start patenting by principle, but admit to not being confident in their knowledge of the possibilities and risks of the patent system in Europe and the USA.

Biotech companies in Norway and Sweden tend to shop abroad for patent attorney expertise, mostly in the UK, thus creating an impoverishing vicious circle in terms of local competence. Many of the SMEs see the patent surveillance and prior art analysis costs as too high, and would engage in these practices more often if they were less costly.



Biotech SMEs show the way in terms of IPR awareness, practise and processes. From our interviews, we have extracted ten practical rules:

- Understand the power of IPR : risks and opportunities
- Make IPR a board issue, and designate and train an official IPR Manager
- Put in place basic IPR quality control: review contracts etc...
- Map and rank your internal intellectual assets
- Know the IPR and technology landscape
- Start formalising an IPR strategy beginning with the most critical assets
- Train all employees
- Put in place IPR processes
- Use systematic selection to choose partner IP firm
- Question your IPR strategy and portfolio regularly

These rules only incur a minimal cost to implement.

Findings on online IPR tools and services

There is a wide and rich choice of online services available, and we have identified a number of existing services which, in combination, would produce the Nordic portal described in the recommendations above.

Findings on higher education and innovation support institutions

There are few higher education programmes dedicated to IPR management. Most higher education and innovation support institutions currently have an IPR policy in place or in preparation, but their experience is to a large extent still limited. However, projects handled with the help of these institutions do generally benefit the SMEs, thanks to the involvement of internal or contracted IP competence.

Findings on the legal and financial framework

With the exception of Norway not being a member of the European Patent Organisation, the legal framework is relatively similar among Nordic countries. The financial framework is also relatively similar among these, again with the exception of Norway which has implemented an interesting tax reduction scheme on R&D, Skattefunn.

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1 Introduction

This project is part of the Nordic Innovation Centre's Forum for Innovation Policies.

The Forum is an initiative to promote more effective policy-making through exchanging information and initiating joint Nordic projects to improve the policy framework and business conditions for Nordic companies.

1.1 Purpose of the project

The purpose of this project is:

- to map and disseminate good practise IPR Management observed among investigated Nordic SMEs,
- to identify tools and online services supporting good IPR management,
- to identify which role the local, national or regional research and innovation support institutions have and may play in improving the IPR capabilities of SMEs,
- to investigate the comparative value of legal and financial national policies as incentives to make good use of IPR,
- to come up with recommendations in order to facilitate an efficient use of the IPR system by Nordic SMEs.

The report is in particular written for:

- IPR Managers -in title or in function,
- Project Managers working in organisations supporting SMEs in their research, development and commercialisation tasks,
- IPR policy decision-makers,
- anybody with an interest in the practise of IPR.

This project is a compromise. With limited resources, it covers an ambitious field of investigations, and is intended to be useful to

a broad range of professionals¹. Please note that that we have not always had the opportunity to collect all the evidence we wanted in order to support our argumentations.

1.2 SMEs and IPR

SMEs in the industrial landscape

Small and Medium Enterprises (SMEs) in the Nordic countries represent in average more than 98% of all registered companies, employ nearly 60 % of the private sector workforce, and generate about 50% of the total turn-over². SMEs contribute to a large extent to innovations in the Nordic countries.

IPR represents a special challenge to SMEs

Improving the use of the IPR systems and instruments is a challenge for SMEs. Due to a limited cash flow and the necessity to focus on deliveries, these firms tend to restrict spending on Intellectual Property Rights (IPR).

A 2000 Danish study for the Danish Patent and Trademark Office³ indicated that out of the companies which had at least one patent, about 75% of them did not patent other product developments because it was too expensive, or the returns were too low.

The report indicated also that out of the companies which had no patent at all, 33% did not patent because of reasons similar to those stated above, and that an additional 24% did not patent because the patent would have too low a value.

In a study on French and Swiss SMEs⁴, the perceived high cost was a common deterrent to a more intensive (more of a given IPR) or comprehensive (different IPR instruments) use of IPR.

One explanation for this assumption of getting too low a return may be the ability to defend the patent. In a European study⁵, about 55% of participants mentioned the "fear of heavy costs to defend ...patents" as a

“significant” or “big” deterrent to their investment in an invention. This puts SMEs in a weak position in relation to larger enterprises and foreign competitors⁶.

An exhaustive Norwegian study⁷ shows that SMEs in Norway withdraw patent applications at twice the rate of large enterprises (32% versus 17%). It also shows that SMEs have about 50 % chance to get a patent application granted, versus 65 % for larger enterprises. These diverging results probably stem from a different “understanding of the IP system”⁸ and a variable alignment of IPR strategy with business strategy. Similar rates have been estimated for Australia⁹.

The Innobarometer survey carried out in September-October 2004 looked into “experience of European managers in innovative activities” for some 4000 SMEs. One of their findings is that a vast majority (80%) of innovative firms have not applied for patents or registered a trademark to protect their invention. However, over 40% of SMEs that are classified as “successful, innovative” have done so¹⁰. The Innobarometer also confirms that the larger the SME, the more IPR aware it is.

1.3 Biotech, IT, and IPR

In order to make our study more relevant while reducing the field of our investigations, we have focused on two industrial sectors: Biotechnologies (Biotech) and Information Technologies (IT). Generally speaking, the Biotech sector is known for being a clever user of IPR, and specifically patents. On the other hand, the IT sector, strongly represented by software actors, has been known for relying on copyright and in some cases for the use of open source models. Below, we analyse further these two sectors.

Biotech

Biotechnological companies (as well as traditional pharmaceutical companies) have high R&D costs and long development periods, which may include long clinical trial periods to achieve governmental approval. They tend to have high initial licensing costs in order to build the platform they will use to develop their own products. They are usually dependent on external funding for many years, and need to uphold and convince investors of the viability and market potential of their products. “Firms have few tangibles to show for ... and proving their strong scientific base will be their strongest asset”¹¹.

And “because of the extreme use of resources needed to bring biotechnology products all the way to the market, firms tend to specialise in narrow parts of the value chain. There is need for a wide array of contract services. External collaboration and numerous alliances”¹² are necessary. The Biotech firm is defined by its network of collaborations, where IPR are critical negotiation assets.

Despite the high amount of Biotech patents filed during the last period, there is lack of jurisprudence to validate the various IPR strategies adopted.

IT

IT is about handling and transferring data. Software companies are the most widely represented in this category, and this is not surprising: there is almost no upfront investment to start a software company.

There are many discussions on which type of IPR protection is best suited for software, on the patentability of software in Europe and on the differences between Europe and USA on this last subject.

The “pure” software companies have traditionally not cared much about patents, neither to protect their own technology nor to avoid infringement of others’ IPR. There is also a strong argument around the idea that using patents does not encourage innovation for industries like software¹³ as it does for others. However, other innovative use of IPR

is common in the industry, e.g. shrink wrapped licenses for end users (do you read carefully before pressing the “I agree”-button?) or the dual licensing models with both commercial and open source principles pioneered by the Nordic companies eZ systems, Trolltech and MySQL.

The service providers, on the other hand, have traditionally not made use of patents but have only protected their trademarks.

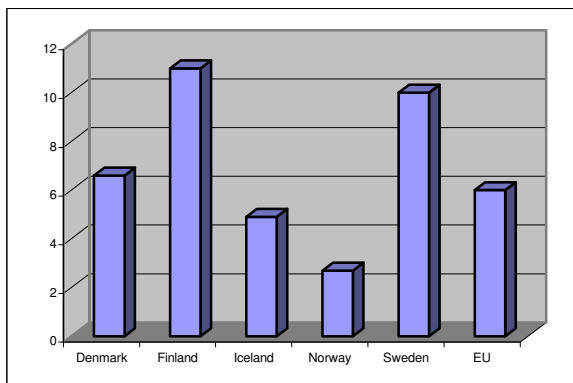
We have excluded from our study the producers of telecom equipment. Nokia, Ericsson and the like, are intensive users of IPR, and thus most SMEs in that industry have relevant fair awareness about IPR.

1.4 Focus on the Nordic region

We have investigated the situation in Denmark, Finland, Iceland, Norway and Sweden, referred to as the Nordic countries¹⁴.

From an IPR point of view, the Nordic countries do not show consistent characteristics. As an example of this, we may look at the EPO patenting intensity over Gross Domestic Product (GDP):

EPO patent applications over GDP, for priority year 2000



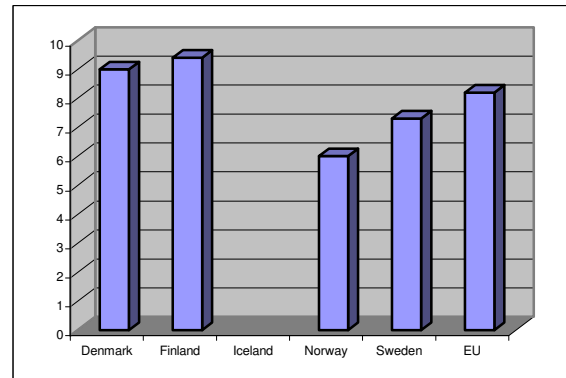
Extracted from “Compendium of Patent statistics, 2004 OECD”

Sweden, Finland and Denmark do patent more than the EU average, with a very high score for Sweden, second only to Switzerland within the OECD. On the other hand, Norway

-and to a lesser extent Iceland- do patent significantly less.

The conditions for protection of IPR are also well perceived in those three countries, at almost the same level as for the EU average:

Comparative conditions for Protection of IPR



Extracted from “Feasibility study on the establishment of a Joint Nordic PCT Authority”, 2004

On the other hand, Norway (Iceland was not part of the study) shows a less favourable climate to IPR.

Two relevant international agreements set Norway apart from the other Nordic countries.

One is the membership in the European Patent Organisation (EPO), which manages examination and granting of patents for all of its members. Sweden (1978), Denmark (1990), and Finland (1996) have been members for many years. Iceland joined in 2004, and Norway is not yet there.

Another important agreement is the Community Trade Mark and Design office, managed by OHIM, the Office for Harmonization of the Internal Market. This organisation manages trade marks and design registrations for all EU members, exclusively. Norway and Iceland are therefore not part of it.

Despite these significant differences, there are strong arguments to consider the Nordic countries as a whole in this study. The Nordic countries represent a coherent market, and a coherent basis for economic growth. Nordic collaboration is intense in relation to industry and research, innovation¹⁵ and not least to

IPR legislation. Detailed and comprehensive supporting analysis backs these assertions¹⁶.

1.5 Methodology

Our investigations targeted several objectives:

- Nordic IPR-proficient SMEs and how they manage their IPR,
- IPR tools and services available online,
- Innovation supporting institutions, how they manage IPR, and how they interact with SMEs,
- legal and financial systems, and how they treat IPR,
- policy measures that may improve the exploitation of IPR by SMEs.

SMEs

In order to capture the qualitative and dynamic aspects of IPR Management, we carried out personal interviews. Although it would have allowed statistical processing, a multiple choice questionnaire approach would not have achieved our purpose.

In order to make the best use of our resources, we interviewed three to four companies within each sector (Biotech and IT) in each of the five Nordic countries. Interviews were generally taken live, seldom over the phone.

For each of these countries, we targeted companies with a reputation for good IPR Management and a background representative of their sector among the following: equipment suppliers/molecular development/service providers for Biotech, and software / hardware / development on demand for IT.

IPR online tools and services

Our analysis results from applying our knowledge of the field, carrying out interviews with users, and further online investigations

on the characteristics of selected tools and services. Direct contacts with some of the suppliers have also been established.

Innovation supporting institutions

We have applied several different investigation methodologies. Investigations of IPR in higher education were based on general information of the field, relayed by a Nordic Innovation Centre sponsored study called "Scanbalt IP Knowledge Centre"¹⁷. Investigations on Technology Transfer Offices, incubators, science parks, large research organisations and state initiatives were based on a variable combination of questionnaires sent to institutions, phone calls, live meetings, general knowledge of the field, specialised literature and internet browsing.

Legal and financial systems

Legal and financial frameworks were described on the basis of specialised literature and documents accessible on the internet.

Policy measures

Our recommendations were based on the analysis of specialised literature, publications from organisations such as OECD and EU, interviews with SMEs or representatives of innovation supporting organisations, and IPR consulting experience.

Contributing resources

This study has benefited from direct contributions from a number of study partners and interviewees. Their contribution is acknowledged at the end of this report.

The Center for Intellectual Property Studies (CIP) in Gothenburg has been a major contributor. Tom Laine, through his contribution and the material from his report on Patenting Computer-implemented Inventions¹⁸ was a key contributor.

1.6 Structure of the Report

The results of our interviews with SMEs, and the IPR Good Practise lessons learnt will be presented in Chapter 2.

Available IPR Management online tools and services are assessed, and their beneficial use for Nordic SMEs discussed, in Chapter 3.

In Chapter 4, the existing Nordic higher education programmes on IPR management are reviewed.

Chapter 4 also analyses the interaction which may exist between SMEs and

- science parks, incubators, and technology transfer offices,
- large research organisations,
- State institutions,

in terms of IPR competence transfer.

Chapter 5 reviews the comparative characteristics of the legal and financial systems in Nordic countries, and looks for initiatives encouraging the use of IPR.

Finally, Chapter 6 discusses some initiatives favourable to a more efficient use of the IPR system by SMEs, and provides recommendations for the IPR system proposed in Chapter 7.

1.7 Definitions

SME

In the European Union, the Small and Medium sized Enterprise is an independent financial entity (not the department or subsidiary of a non-SME) with less than 250 employees. We shall retain this simple definition. Some finer criteria considering annual revenues are sometimes used, but are of little meaning to our qualitative study.

Biotech

In this report, the term Biotech describes a biotechnological company. It may sometimes be used to encompass both true biotechnological companies and pharmaceutical companies.

The term biotechnology generally applies to technological development based on biological systems and normally targets or includes the manipulation of genes, protein, antibodies, micro-organisms and other compounds or processes directly derived from living cells. On the other hand, pharmacy applies to the development of biologically active substances that have a curing or preventive effect, generally in the field of organic chemistry.

Both activities are compatible, and the current interaction is one of collaboration. Typically, "Big Pharma" (established multinational pharmaceutical companies with extensive revenues and resources) contract Biotech (small companies bursting with PhDs, but with limited or no revenues) on defined contract-research programs. These are generally instigated by Big Pharma based on developments led by (and generally proprietary to) Biotech, but sometimes proposed by the Biotech companies.

IT

IT, or Information Technologies, covers all activities, products and services related to data processing by one (or several) computers.

IPR

Intellectual Property Rights, or "IPR are legally enforceable rights over the use of inventions or other creative works. ... They confer a right to exclude others from their use"¹⁹.

The ETAN report quoted above lists patents and utility models, industrial designs (or design registrations), copyrights, and trademarks.

In this study we have chosen a broader definition closer to Intellectual assets, i.e. intellectual property rights, but also all assets that may become IPR, thus including trade secrets, publications, domain names and know-how.

We also use IPR for Intellectual Property, so as to avoid the confusion with Internet Protocol. One exception is our use of "IP

firms" for patent and trademark attorneys or agents, as this is a term used in the profession.

We have enclosed a table describing the different IPR available

The exhaustive IPR tool-box (Nordic practise)

Patent	Technology Product, Process, Use of a product	Novelty, Inventive step, Industrial application Validity < 20 y (+ 5 years possible)	Grant 2-5 years Publication after 18 months
Petty patent = utility model	Technology Product (mainly)	Lower requirements than for patents No harmonisation of rules between countries Validity 6-12 years	Registration directly No examination
Design registration	Visual appearance, not functionality	Novelty, Individual character Validity < 25y	Grant after examination. Unregistered designs under certain conditions.
Trademark registration	Name, logo, sound and odour	Distinguishable over other marks Validity < no limit if trademark is used and fees paid	Registration or Shown to be known within the field
Copyright	Artistic works Computer programs	Originality (low requirement) Prevents against copying and adaptations Validity < Life + 70y	Automatic © 2005, Acme AS
Trade secrets	Anything that will give a company a competitive advantage by not being generally known	Positive measures to keep secret must be applied. Valid as long as secret	Protected by secrecy agreements
Domain names	Related to trademarks	Validity unlimited, fee payment	Registered by special authority
Scientific Publications	Publication	Novelty bar to later patent applications Content of patent applications can be published in Scientific Publications	Peer review
Know-how	Specific field within trade secrets	Is often under constant development	Documentation important

For information, we also enclose an overview of the major differences between the American and the Nordic-European patent system.

Major differences between the US and Nordic patent systems

"First to invent": A United States patent is granted to the inventor who was the first to conceive the invention (importance of documenting ideas and inventions, for example in a laboratory notebook), whereas in the European system the patent is granted to the first who applies for it ("first to apply" - importance of applying early to the PTO).

One-year grace period: inventions may be the object of a US patent application for up to one year after having been disclosed, whereas the European system requires that an invention is filed before it is disclosed.

Provisional patent application: non-examined filing with few requirements on the form, basis for filing of an US (non-provisional) or PCT application within 12 months.

Doctrine of equivalents: allows courts in the US to consider infringement even if the technology used is not identical, but similar (broader interpretation of claims).

Discovery: means that the parties can request any (relevant) document or information to be produced. Nothing can be kept secret during a US litigation, not even personal notes.

Heavy litigations: patent litigations cases are very expensive and seldom in favour of the foreign litigant in the first judgement in the District Courts. Losing party does generally not have to pay the attorneys fees of the winning party. Damages are high and the court can double or treble the damages if the infringement is found to be wilful.

1.8 Acronyms

CII: Computer Implemented Innovation

EEA: European Economic Area

EPC: European Patent Convention

EPO: European Patent Organisation

EU: European Union

IP firms: Intellectual Property firms acting as agents towards the PTOs.

IPR Intellectual Property Rights

"Madrid": Madrid protocol

PCT: Patent Cooperation Treaty

PTO: Patent and Trademark Office

SME: Small and Medium sized Enterprise

NPO: National Patent Office

OHIM: Office for Harmonisation of the Internal Market

TRIPS: Trade-Related Aspects of Intellectual Property Rights

WTO: World Trade Organisation

2 Interviews with SMEs

2.1 Portrait of interviewed SMEs

This section describes the type of activity, size, and IPR portfolio of the companies that

have been investigated within the scope of this study.

Overview of interviewed SMEs

	Biotech	IT
Activity	development on demand, manufacturing services, analysis and diagnostic equipment, own development	Ssoftware development and licensing, development of software and product with embedded software
Number of SMEs interviewed	17	16
Revenues	about half of them had significant sales	all companies had significant sales
Employees	from 5 to 250, average: 70	from 1 to 185, average:50
Patent/application portfolio	from 3 to 100, average: 25	from 0 to 10, average: 1,6
Average patenting rate	1 per 2,8 employee	1 per 31,2 employee

Finance

From among our interviewees, most Biotech companies were a long way from being able to survive solely on their own sales – investors' rounds were still necessary. On the other hand, most software companies were self-sufficient.

Average Patenting rate

The rate of patents was quite distinctive: 1 patent for every 3 employees in Biotech versus 1 for every 30 employees in IT.

This significant difference does not per se indicate unsatisfactory IPR management by

these IT companies. It may simply reflect that the effectiveness, or at least the perceived effectiveness, of patents "... vary considerably by industry sector and technological field. For example, whereas most participants agreed that patents provide incentives to innovate in the pharmaceuticals sector, the opinions were divided as regarded software." ²⁰

In addition, given the size of the sample and the manner by which we came in contact with the interviewed companies, this company sample is not statistically representative.

2.2 Management of the company and IPR

Characteristics of IPR Management among interviewed SMEs

	Biotech	IT
IPR awareness	high	varying
IPR representation at board and top management level	all companies	some companies
IPR Manager	generally founder-PhD or PhD researcher who has taken over from founder	seldom a function – part of CTO focus or (when applicable) task of legal director
Budget for IPR	non limiting	generally not an issue since the companies do not consider formal IPR registrations
IPR litigation history	almost none (NDAs)	some issues regarding employees having left the company to join a competitor

Biotech

All the Biotech companies interviewed developed IPR actively and clearly understood every related issue. This is natural: most Biotech companies meet heavy upfront costs before becoming self-sustaining, and depend on external financing. No fresh capital can be secured without patents to “guarantee” returns on the investments in R&D and clinical trials.

Founders, top managers, board members (typically the same persons during the early stages) were most often PhDs with personal experience in both drafting patents and attracting investors.

When starting the company, the IPR Manager function was generally held by a founder/manager. Once the company grew, the founder had to transfer that responsibility to an interested researcher or, alternatively,

to an IPR professional hired for the occasion (this happened generally in a later phase).

A study on Biotech companies with “rich experience” in IPR insisted on the “integrated and centralised IP management working closely together with the top management, when developing technology and business strategies”²¹.

Patenting policies varied. Some firms applied early for many patents and only screened for results after a time, typically before payment deadlines. Others were very strict on criteria for a patent application. Patenting was generally seen as expensive, but money was never mentioned as a limiting factor: Biotech companies do prioritise patenting.

Several Biotech interviewees were bothered by “umbrella patents”, typically granted patents with broad coverage.



It is important to keep in mind though, that the Biotech sector has met only few public patent litigation cases. Patent and patenting strategies cannot today be valued solely against specific Biotech IPR litigation jurisprudence. This generates some uncertainty as to their strength.

IT

Out of all IT interviewees, about half of them had at least one patent or one application ongoing, mostly one or two. Only one company had a significant portfolio.

The person in charge of IPR (there is seldom an IPR Manager function in these companies) was generally the CTO or the Legal Director.

Several of the interviewed software firms limited themselves to flag out "copyright" as their market and product protection.

Copyright is something IT companies know quite well, but only few take it seriously.

Trusting copyright too much?

Many SMEs believe that their software product is protected by copyright, and that they own both code and content. There are limitations to how far copyrights can protect software developed partly from other software: the final product can depend on a long chain of licensing terms from the various contributors to the final code. The value of a company or a product is reduced when the ownership of the code cannot be thoroughly documented.

None was engaged in analysing the patent landscape, neither in Europe nor in the USA, where a higher complexity prevails (provisional patents, software and method patents, priority dates etc...). It seems that some companies preferred to ignore the issue.

Some companies, whose market is limited to the Nordic countries, believed that nobody would be interested in interfering with their products, especially when they kept tight consulting relations with their customers. Others relied on their ability to wake strong

media attention in their favour if an aggressive large company were to claim infringement.

Dual licensing software companies tended to be proficient in the analysis of IPR: their often complex business models depend on the good formulation of ownership and rights of use in their licenses and contracts.

Dual licensing

eZ systems, Trolltech and MySQL are successful Nordic SMEs that have pioneered a new licensing model called "dual licensing". Their software is offered both as open source and as a commercial license.

Used as part of other software products or services, the licensees may choose between making the end product available as open source, or defining themselves the licensing terms of the end product.

This dual offer ensures both a rapid growth of users that download the software for free and contribute to debugging and improvements, and revenue from users that do not wish to share the results of their developments.

It is crucial for the companies using dual licensing that they control and own all parts of their software; in practise they need to write all code in-house and handle carefully improvements developed by their open source community in a special way, so as not to mix the open source and commercial versions.

"Development on demand" companies were often quite aware of IPR. They had often had to discuss quite fundamental IPR issues such as: "who owns the rights to a software-embedded product that we have designed from an initial specification provided by our client?" Generally speaking, it is interesting to note that in the software arena, the answer found most often to that question is that it is the customer who owns the alleged right, whereas in the Biotech "development on demand" arena, the developing company has a stronger position and may own all or part of the IPR generated during collaboration.

Most software companies followed the discussions related to European patenting of



Computer Implemented Innovations, as well as the high profile American litigations. Few of them felt they mastered software patent or database property issues well enough. Few knew about the possibility of opposition at the EPO.

Comments on European proposal for patenting of computer programs

There are strong feelings against patents on software in most of Europe, mainly by groups related to or in favour of Open Source program development.

The EPC excludes computer programs from being regarded as inventions, insofar as the subject-matter of a European patent relates to computer programs. The European Union is trying to issue a directive on software patents in Europe, but has difficulties in coming to a decision.

The current practice at EPO is basically to allow patents on software provided that when run on a computer or similar processor, it has a technical effect on the resulting product or process.

A result of this definition which may affect SMEs, is that network distribution of software is not restricted by a patent on the software. In order to enforce one, a SME must use the more complicated rules of charging a competitor with contributory infringement or charging the user of the program (much likely a customer or a potential customer).

This applies equally for larger companies, but the relative disadvantage is probably greater to the smaller ones.

As an illustration of the issue, the market for enterprise control software is not dominated by Microsoft (< 2% market share.) A study made by AMR Research shows that around 65% of all such software is supplied by a multitude of smaller companies.

IPR written policies among interviewees

Few of the interviewed companies had any explicit written IPR strategy or policy, but most of these were small firms, and claimed very effective direct person-to-person communication. .

Litigation

None of the interviewed companies had a major IPR litigation history, although several had experienced conflicts with employees having left the company, or had experience from violated NDAs.

2.3 IPR competence and services

Typical IPR manager profile descriptions among interviewed SMEs

	Biotech	IT
Background of person in charge of IPR	generally PhD, with IPR Manager title	technical (often the CTO), or legal – some had had former IPR experience
Training in IPR	self patent inventor / some patent courses / learning by inventing and learning by managing	none, except legal IPR in the case where they have a lawyer
Who writes patents	researchers in collaboration with patent attorney	external patent attorney

Interviewed Biotech companies had a part-time or full-time IPR Manager. Whenever the function had been transferred to another researcher, the latter had often taken one or several courses organised by the National Patent Office.

Patent applications were generally drafted by the researcher, sometimes with the help of the IPR Manager. Claims were however often discussed with an external patent attorney. Involvement of an external patent attorney depended on the company size: cash-strapped companies limited the external patent attorney to claims drafting, while larger companies had their own IPR people to do the whole job. In between, there was a full spectrum of degrees of collaboration.

More mature Biotech companies had sometimes hired IPR professionals with industrial and/or IP firm background as IPR Managers.

Interviewed IT companies did not employ an IPR Manager in that title. IPR matters tended to be managed by the CTO or CEO. They had generally not dedicated much time to build up on their own IPR competence, and this was reflected, when applicable, in patent applications being drafted by an external

patent attorney. Trademark issues were typically outsourced to a trademark attorney. In one company there was a full-time Legal Director, and she was in charge of IPR.

The responsibility for IPR seldom resided with somebody having either a financial or sales background. It proved even more seldom that the IPR manager reported to the Sales or Marketing director.

IPR management in the Sales and marketing department

One interviewee, a successful “development on demand” Biotech company, had several agreements with large pharmaceutical companies on the development of various molecules. Its clients were companies, not end-users of the products. Collaboration agreements were very detailed in terms of use of the generated IPR. We noted two unusual and good practices:

- The IPR team reported to the Sales and Marketing Director,
- The IPR team collaborated with the IPR departments of their partners, large corporations with experienced IPR professionals.

Reporting IPR to Sales makes sense. It clearly establishes the link between the value of IPR and the increase of sales. This approach may not always be recommended, though: salesmen often have an appetite for short-term sales bonuses, which is not necessarily compatible with the long-term development of IPR.

Nearly half of the Biotech IPR Managers interviewed were women. Although few had a formal law background, this may result from the relatively high female representation in both the legal profession and the biology-chemistry profession.

2.4 IPR processes, instruments and services

IPR processes and practise among interviewed SMEs.

	Biotech	IT
Employment or consulting contracts	clear IPR clause	often relying on national employment laws, without a specifically worded IPR clause
NDAs, publications, licenses	centralised management	NDAs seldom trusted or used
Idea tracking	seldom structured, but a US-styled log-book is the rule	non-structured or non-existent
Incentives	generally none for employees, some for researchers on temporary contracts	some for employees working for development on demand
IPR Toolbox	mostly limited to patents, and publications	copyright, some trademarks
Surveillance	at least occasional, seldom regular	mostly non-existent
Specific IPR instruments	patent and technology databases, often self-developed patent portfolio management tool	none
Patent Attorney location	local IP firms in DK, FI and IS, foreign and local in SE, foreign in NO (4 foreign-based attorneys out of 10)	local IP firms

2.4.1 The IPR Manager activities in Biotech SMEs

In the interviewed Biotech firms, the IPR Manager was active throughout the organisation. He/she was attending project and strategy meetings, patent drafting sessions, chaired patenting committees,

drafted or reviewed Non-Disclosure Agreements as well as collaboration and licensing agreements, etc.

He/she was specifically involved in preparing employment contracts, including temporary contracts with university researchers and students.

Non-Disclosure Agreement in order to frame exchanges between companies

This IPR Manager in a Biotech company had the exclusive authority to sign Non-Disclosure Agreements (NDAs). NDAs formalise and frame the confidential character of a live or remote discussion that two or more parties may have regarding technology and business matters. He meant it was crucial to specify and restrict the matters that can be discussed in order to avoid the other party claiming later on that the company had stolen his idea. This strict NDA policy encouraged a systematic step-by-step approach to potential partners. This approach did not cost much.

By attending all project meetings, the IPR Manager was part of the idea screening process. Patentable ideas were then discussed in a patenting committee, involving top management people. No systematic idea tracking was in use among our interviewees – but the relatively small size of these companies and the high degree of collaboration between researchers did not justify it either. However, a US-style lab log-book was a common practice to all of these firms, in order to document the invention (“first-to-invent” US system).

The US-style invention log-book*

Records must be sufficiently detailed and clear to allow “someone skilled in the art” to recreate the work and to conduct additional work without the direct assistance of the original researcher.

Never include in a notebook an opinion on patentability.

The laboratory notebook should be bound with numbered pages.

A witness should sign and date each notebook page immediately after the annotations are made, or at least before one week has elapsed. The witness should not be a co-inventor or someone working on the project, but someone who has a basic knowledge of the work being conducted.

*extracted from <http://www.warf.ws/forresearchers/>

In fact, most Biotech companies did target the US market, and were careful of following practises according to American rules.

Wilful infringement and triple damages in the USA

The charge of wilful infringement in the USA may expose a company to a possible triple-damages penalty. Building proofs of good faith is a common preventive measure. Showing a positive legal opinion from a US patent attorney (costs in the order of 15 000 \$) at critical development stages is a good measure. A strict ban on mentioning any infringement or patentability issue on any written internal document is good policy, and its implementation doesn't cost anything.

Biotech firms have often had to negotiate comprehensive licensing agreements in order to build up the platform that allowed them to develop their products. This is generally an expensive exercise crucial for subsequent Freedom-to-Operate. It requires IPR competence from the creation of the firm.

2.4.2 The IPR Manager activities in IT SMEs

Among the interviewed IT firms, the person in charge of IPR neither had the title of IPR Manager, nor carried such a central role as in the Biotech firms.

Frequently, little or no attention was paid to employment contracts or NDAs, and no formalised tracking of ideas was in place.

However, traditional software development routines work very well in supporting documentation of copyrights. Well-structured version tracking, back-up procedures and signatures of code support the verification of the origin of a code.

In contrast with the Biotech sector, most of the software sector interviewees did not target the US market. It is expensive and difficult to enter, competition is tough and litigation is common.

IT companies, and especially those involved in software development, generally had easy platform acquisition processes, both because common software licensing tends to be simpler and because many platforms are in fact free, open source, or licensed-in automatically when purchasing the embedding hardware.

2.4.3 Bonuses

Few interviewees had a bonus scheme related to generation of IPR. In fact, most of the companies that engaged in tracking and registration of IPR were Biotech firms. They had few sales (or none at all) and felt that in a company under construction, bonuses were not a significant motivation. These companies also felt that the practise would be difficult to justify to investors. In some cases, there was a general incentive provided to employees in the form of shares or options in the company. An external researcher under contract was often treated differently: a bonus could be paid when he became the inventor of a patent assigned to the company.

Employment laws may require compensation in the case of an invention. For instance, in Norway, an employer is obliged to offer a reasonable bonus for any invention that may be patentable in the country.

Researchers employed by a university generally enjoy a special status, as discussed in Chapter 4 and 5. This exception is very relevant for Biotech, where integration between SMEs and universities is high.

2.4.4 IPR instruments for the SMEs

The IPR instruments in use among both the Biotech and IT companies interviewed were not very diversified. Where Biotech used patents, IT -dominated by software -used copyrights.

Both had generally registered a few trademarks, and had discussed some domain-names issues, mainly in terms of domain name extension and spelling or

phonetic variations around the main name to register.

None had any structured trade secrecy system such as classification, “confidential” stamping, special access rights etc...

Such structuring is useful to document unauthorised leakage or proprietary technology used by a former employee.

Two of the interviewees had applied for business method patents in the USA, but had later abandoned them: they felt the protection was too weak in comparison to the costs.

None of the interviewed firms had registered any design or utility model. This requires some further explanation.

As clarified below, the utility model is not adapted to the type of inventions in the Biotech and IT sectors.

Utility models

Also called “petty patents”, these are cheaper registered rights with shorter validity. Most appropriate for mechanical solutions, they are not relevant for process claims. Utility models do not require as high an inventive step as patents do. They are not examined, and are thus no guarantee of their uniqueness or strength.

Utility models can be registered in Finland and Denmark, but not in the other Nordic countries.

On the other hand, the new design registration system may generally apply to inventions in both Biotech and IT. It allows for the registration of a part of an object, or a family of screen designs. It is easy and not expensive. However, few IT or Biotech companies considered the look or “touch and feel” feature of their products to be unique.

2.4.5 Patent surveillance

Patent surveillance was general practise among Biotech interviewees, although it was seldom performed regularly. An exhaustive patent and literature landscape analysis was typically carried out before each major project launch or patent drafting. This was sometimes executed in-house, but more

often outsourced to an IP firm or a dedicated supplier.

None of the Biotech SMEs interviewed kept a patent search profile running on a regular basis to check competitors' activities over time, or the publication of new patents in a given field (it is common practise in large companies to run search profiles on quarterly or even monthly basis). Researchers were often encouraged to use search tools, especially those freely available to the public.

IT interviewees, by comparison, paid little or no attention to patent landscape analysis. This activity was part of the professional services they paid for when involving an external IP firm for drafting a patent, when the occasion arose.

2.4.6 Portfolio management tools

Biotech companies had often built a significant patent portfolio. Most of our interviewees were happy using a spreadsheet, or had built database systems on their own,

This issue was not relevant for our IT interviewees, where except for one company, the largest portfolio was of only two patent families.

2.4.7 International registration strategy

This analysis covers patents only, and is based mainly on discussions with the Biotech interviewees.

Initial filings were made in the country where the R&D resources were located, or in another European country if using a foreign patent attorney, or else in the USA. Most companies used the PCT (Patent Cooperation treaty) to extend the first filing internationally.

USA filings are a special issue. In order to have the right of early citation, many companies filed an early Provisional patent application in the USA. For all Biotech interviewees, the home market was

important, but not critical: Europe, the USA and Asian countries (and especially Japan) were considered as the main markets.

Several companies preferred to file first in the United Kingdom. For a Norwegian firm, with Norway not (yet) a member of the European Patent Organisation, there is an obvious advantage to have the application managed by a European Patent Attorney, who will be trained in drafting European patent applications and leading procedures towards the European Patent Office. There were however other reasons for this preference, as explained below.

2.4.8 IP firms

Many Biotech companies made use of IP patenting services abroad. A high percentage of SMEs in Norway and Sweden, and only to a small extent in Iceland, Finland and Denmark, did not use their local IP firms but British ones, or -more seldom- other Nordic firms.

Companies using British IP firms cited the following reasons for doing so

- the high professionalism of their advisors
- their quality control
- their sharp technological competence in the field concerned
- the substantial size of the firms allowing for several professionals of the same field to meet and discuss a customer issue
- their consulting proactive approach
- their obvious English language skills
- their knowledge of international patenting issues

The general picture is probably not so clear cut. Our interviewees were satisfied customers, but one may certainly find firms unhappy with British patent attorneys. Some of our interviewees had retained the services of the IP firm they had worked with from the early days when no local competence was available.

There is a critical issue for Nordic IP firms and Nordic IPR competence generally speaking: local expertise is critical to maintain a vibrant local IPR competence in order to support the development of companies. Shopping abroad for IPR competence impoverishes local capability and generates a vicious circle: the more it takes place, the less business there is at home in IP firms to build, justify and attract IPR expertise. The Nordic IP firm ends up taking care of its local clients simply acting as a translator of first filings made abroad and indicating the home country. For the sake of Nordic competitiveness, Nordic IP firms must strive to reverse this trend.

The USA IPR system is considered so special that only American IP firms were managing IPR in the USA.

From among our interviewees, four of them had chosen their IP firms by means of a systematic selection process involving pre-selection, meeting with a case discussion (in one case, the activities assigned to allow comparison of the service quality were paid for), and designation of the consultant(s).

Pre-selection consisted in some cases on actively searching (through patent databases) for IP firms which had seemingly managed patents successfully in a similar -but not competing- field.

Choosing your IP firm

The CEO of a Biotech Company, with more than ten patent families in its portfolio, selected its main IP firm as follows: working from a short list, he assigned each of the three candidate IP firms with a (paid) case, and met them afterwards to discuss their recommendations.

After reaching an agreement on the financial conditions and terms, our CEO could make an educated choice of the firm and patent attorney the most able to meet the requirements of the Company.

Among the four firms who had performed a structured selection of their IP firm, three had selected British firms. Three of them had not even pre-selected a Nordic firm!

2.5 Suggestions for improvement

The most common remarks made by the interviewees on the IPR system were:

- registering patents is too expensive,
- prior art patent surveillance should be cheaper,
- tax reduction should be applied on IPR expenses.

All above comments relate to costs. This is not surprising, but should be taken seriously: costs really prevent some companies from protecting their intellectual assets.

Several interviewees would have appreciated more specialised courses from the PTOs. They experience the offered courses as a bit too general (for “beginners”), and would appreciate more in-depth courses relative to an industry sector or a country.

2.6 Lessons learnt

There are many good practise guides available²². Here below are down-to-earth good practise recommendations, based on lessons learnt through the interviews conducted.

Understand the power of IPR : risks and opportunities

- IPR represent a risk of litigation - acknowledging it allows beginning to mitigate the risk.
- IPR represent an opportunity: to keep a legal exclusive privilege and generate revenues by licensing or selling the object of the rights.

Make IPR a board issue, and designate and train an official IPR Manager

- The Board is in charge of the company strategy – that is where the overall IPR responsibility must reside.
- The formal IPR Manager reconciles strategy and company IPR practise. The IPR Manager represents a known face to employees with IPR issues – The IPR Manager does not need to be a full-time function.

Put in place basic IPR quality control: review employment contracts, Non-Disclosure Agreements, publications, licenses, formalisation of trade secrets ...

- Older employment contracts tend not be adapted to IPR issues.
- Establish routines for formalising trade secrets.

Map and rank your internal intellectual assets

- Some – even successful – companies do not know what makes them unique and competitive. They may not prioritise correctly.

Know the IPR and technology landscape

- A patent database is a particularly rich tool for surveillance of competitors and technology, and a source for inspiration.

Start formalising an IPR strategy beginning with the most critical assets

- How to protect core assets – how to deal with new product ideas – how to react against a copy of your product?

Train all employees

- Training on IPR – recognising critical assets – sharing the IPR strategy . Find out who the most interested employees are.

Put in place IPR processes

- Invention disclosure – IPR in project steering committee – IPR screening committee etc...
- Decide on US-specific processes (lab-book, legal opinions, ban on explicit infringement discussions on written documents etc...)

Use systematic selection to choose partner IP firm

- Your IP firm can be a critical partner - do invest in the selection process.

Question your IPR strategy and portfolio regularly

- Your existing IPR may not support your latest products or your updated development strategy.

To set in place these recommendations will represent a minimal amount of time and money, and will allow the organisation to make optimal use of its intellectual property.

3 Online IPR tools and services

The purpose of this section is to give an overview of existing online IPR tools and services, to comment on these and to highlight those which we find particularly useful and/or could be used as models for services suitable for Nordic SMEs.

We have been especially interested in the user-friendliness for non-experts, e.g. typically development managers in SMEs. We have also discussed these tools with the interviewees.

There are numerous online tools and online services available to help users manage and develop their IPR. There are public services and commercial offerings – some free or partly free of charge. None of these services

are targeting SMEs in particular. It makes sense, since there are but few common denominators for SMEs in terms of

- the information they are looking for,
- the industry they are in, and
- the position they occupy in the innovation cycle.

There are however some differences in the degree of IPR expertise required from the user of the services.

Many SMEs need to determine initially whether they need professional assistance or not – and it should be possible to answer this simple question using the tools and services which are available for free on the Internet.

A typical example of trademark registration challenges

I am developing a new product for the Nordic and European market. I am based in Iceland and “Greenswing” could be a great name for my company. How can I find out if this name is registered as a trademark?

The Internet domains are no problem. All registrars have services where I can check “greenswing.com”, “greenswing.net” or “greenswing.is” for free– and order that domain if available.

But how can I check for trademarks? Here is the answer.

- Check at www.ohim.eu.int if there is a community trademark under that name.

If there is one (and in the relevant classes, a specification of importance), then this name is not a good idea. If Greenswing is not a community trademark, there is still the risk that it has already been registered in one of the Nordic countries, so here is the procedure:

- Go to the web pages of the Icelandic, Danish, Swedish and Finnish PTO and search there- for Norway I need to call the Norwegian PTO and ask them directly.

If the search is negative (no Nordic registration), it would be wise to do the same for all relevant European countries (hoping for the best with regard to Greek and Portuguese registration - information retrieval is slow). Or I could take a chance and apply for a Community trademark and a Norwegian trademark. Or I can call on professional help.

The point is, it is not possible to get the answer online! It is necessary to ask a professional for help, just to find out whether a simple name like “Greenswing” is a registered trademark somewhere in Europe.

It will cost approximately 500 Euros to get the answer, and then 3000 Euros to register it. Compared with the Internet domain system, trademarks are about 10 times more costly and take one year rather than one day to register.

Typical costs, in Euro	Domain fees	Trademark fees
Check availability	0	500
Register .no, .se, .fi, .dk, .is + .com	300	
Register trademark in EU, Norway and Iceland		2500
Total	300	3000

3.1 Find the facts in IPR databases

Aside from detecting IPR registrations such as patents and trademarks, IPR databases can be used to answer simple questions like:

- “Is the name *Greenswing*, or other similar names registered as a trademark in Sweden?” or
- “which patents relate to “umbrellas”?” or
- “what patents/published applications are registered by my competitor?”

Some more complex questions, asked when working with business intelligence or R&D planning, such as “what new products may be under launch from my competitors?” or “which technology should my R&D project stay away from?” can also be answered.

3.1.1 The Danish public online service stands out

Information on patents, trademarks and designs is public information of importance for business. It is very well suited for online search and retrieval from the Internet. Most international or national PTOs have public services, where people can search in their patents and trademark databases. Sometimes however, one needs to call the PTO and ask for a search.

All the Nordic PTOs have such services, and out of them, the Danish PVSonline holds the most comprehensive information. The service is free of charge and covers all the databases available on internet.

The Swedish PRVlink is a pay service. Some trademark search is offered free of charge but with disclaimers. esp@cenet (see below) offers some access to Swedish patents.

In Finland, Trademarks and Designs are searchable without charge, and so are patents. However, the search interface for patents is provided only in Finnish.

The Norwegian PTO has no other offer than text search in the Patent, Design and Trademark bi-weekly journals that are published as “.pdf” documents on their website. This is the solution the Icelandic PTO offers, but the latter has a stronger search capacity.

Online information on Norwegian patents

The Indian National Informatics Centre through INPADOC (pk2id.delhi.nic.in) offers bibliographic data for Norwegian patents on the web, and so does esp@cenet - the Norwegian PTO does not.

In summary, aside from the Danish PVS-online, the Nordic PTOs do not yet offer easily accessible, usable and free IPR-information on the Internet.

Outside the Nordic countries, there are some good examples of public services:

- The EPO online-service for patents esp@cenet is available in Swedish, Danish and Finnish language versions (at e.g. dk.espacenet.com –Iceland will probably follow soon) integrated with the website of the respective PTO. It has good guidelines and is well suited for searching. It is however

confusing for non-professionals as to the exact range of patents searched in an Esp@cenet search²³. However, esp@cenet user-friendliness is improving.

- OHIM offers searches for European trademarks and design registrations. However, these searches do not offer information on national registrations: they detect European trademark exclusively.
- Online national searches for e.g. USA, China and for the WIPO PCT (patent) and Madrid protocol (trademark) are possible. A complete listing of all these services can be found at www.ipmenu.com.
- Singapore has developed a partly free and partly paid-for service, www.surpip.com. In addition to the Singaporean databases, this site also offers access to many other databases including US, EU and PCT. Furthermore, it has guides and some selected commercial offerings. This is a very good government IPR portal.
- Australia, with www.ipaccess.gov.au offers a similar portal, though more limitative in terms of access to foreign IPR. It offers some useful information on Copyright and Trade Secrets, subjects usually neglected by PTOs, because these are the responsibility of another government agency.

3.1.2 Commercial database services

There are many offers of this kind, and the most complete listing can be found at www.ipmenu.com. Some interesting examples are:

- www.delphion.com, for patents only. It has very good search tools and an affordable "one day pass" pricing. The advantage of using this service rather than other, e.g. esp@cenet is that the former offers more integrated searching of many national databases

in a single operation, and it handles large sets of results in a comparatively better way.

At the other end of the service scale is a Danish company – www.infoco.dk - that delivers tailored searches with a dedicated application, well suited for organisations that perform many searches on a regular basis.

- All trademark databases, like Avantiq (whose databases include all the Nordic countries but Iceland), Computemark and Questel-Orbit, require written user agreements and have complex user interfaces. Some of them charge on a per-hour basis.
- There are numerous business intelligence databases that offer information relevant to IPR prior art searches. There are also sites that propose publication of material to ensure that patent offices will find information that may hinder a new patent in a given area, e.g. www.ip.com.

In summary, there is no online commercial all-in-one search service suitable for occasional users. These will have to contract the services of professional firms. This is a hindrance to the beneficial use of searches by SMEs, and could be the object of a Nordic public initiative.

Calculating the cost of IPR registration

Calculating the cost of a patent or trademark registration in multiple countries can be so complex that there is a professional online tool

<http://www.globalipweb.com>

– and the calculation costs 20 Euros.

3.2 IPR management software

The most common way to keep track of registered IPR is to use a spreadsheet utility like Excel and assign one person to the task of updating it. Usually, administrative deadlines are looked after by a patent agent, and companies do not need to build such functionality in their spreadsheet. However, when the number of filings exceeds twenty, companies need a more robust system.

Many IP firms offer their customers the possibility to register their IPR and provide them online access.

There are many relevant tools with different characteristics. Solutions reviewed include:

- Patricia from Patrix, a Swedish developer of IPR management systems initially for IP firms,
- Arken from Kroonova, a Swedish developer of IPR management systems for industry IPR managers,
- NetsPat, a British developer of web-based portfolio management
- TechTracS from Knowledge Sharing Systems, a system initially developed for NASA and used by research labs and universities,
- IDEAS by Inteum, a system used by universities,
- CPI, used by many IP firms and corporations,
- IPscore by the Danish PTO, a tool that focuses on scoring patent and development projects, based on a scoring and valuation method.

IPscore is a complement to the database registration and tracking tools. It focuses on the value, strategic importance and strength of the technology or patent discussed. It is based on a set of questions to be answered through joint discussions between market, technology, production and law professionals.

IPscore is in our experience a practical tool to support management discussions on IPR.

In summary there is an ample choice for IPR management systems. Some of them are even of Nordic design and do reflect European innovation and IPR processes, as opposed to the US ones. Segmentation is rife, and some suppliers target for example universities and Research labs, others industry IPR Managers.

3.3 IPR Portals

Some of the services mentioned above, such as the Singaporean www.surfip.com, profile themselves as a portal or website offering all kind of IPR-related services, including searches and links to service providers. We believe that the portals described below are possible models for a portal aimed at the Nordic business community, which would serve the SMEs well.

3.3.1 DKPTO and Profitgate

The DKPTO homepage www.dkpto.dk has now become a portal, a very good one. The user can search, find information and even file registrations online. This is as close as one can get to an ideal public IPR portal - probably the best PTO site in the world -. Regrettably, it covers only IPR registered by the DKPTO, and copyright and trade secrets are left out.

www.profitgate.dk is also run by the Danish PTO in association with several Danish IP firms, and is sponsored by the confederation of Danish industries. Profitgate presents news, information and cases. Its target audience is unclear – businesses or IP firms only – but it is an interesting initiative, not least because it results from a co-operation between industry, government and IP firms.

3.3.2 The IP-Europe and ePatent projects

The web-site www.ip-europe.org proposes a guided handbook structured according to business processes and the needs expressed by SMEs. It also offers IPR information on different countries (at this stage, only on those participating to the project). The website is obviously under development and many of its links are not yet

active. This project, sponsored by the EU and including the Icelandic Research Council and the Swedish PTO, proves that a multinational portal on IPR can work.

The ePatent project²⁴ resulted in a technology for natural and multilingual interfaces for patent searches. It is used by the French PTO's www.plutarque.com, a search site that also offers search in registered Designs.

3.3.3 IPR Helpdesk

www.ipr-helpdesk.org is offered in connection with the EU 6th Framework programme. It is free of charge, multilingual and offers first-line assistance to current and potential participants to the European Research Programmes. The service was first operative in 2002. The total number of questions asked since then from Nordic organisations is detailed below and accounts for about 6% of the total. Nordic statistics since 2002 are:

Country	Users	Number of questions (IPR- questions)
Norway	141	21 (3)
Sweden	344	44 (11)
Denmark	189	23 (5)
Finland	244	22 (5)
Iceland	25	3 (2)

Source: IPR helpdesk, 2004

Each question may address several issues, and those which are not IPR-questions may still be related to it, e.g. those related to model contracts.

IPR- Helpdesk provides professional and friendly assistance services, with a good profile and a fine website with a lot of relevant information. Their own survey on user satisfaction supports this judgement.

However, the amount of questions submitted is low.

The service is not run by a PTO, but by a collaboration of the universities in Alicante and Krakow – together with a German University spin-off consultancy.

IPR-Helpdesk is aimed at research projects and is to some extent flavoured by the legal institutes that run it – but all in all it shows that a first-line multilingual IPR help function can be operated and delivered.

3.3.4 Patentcafé

www.patentcafe.com is worth a visit. It has operated since 1996 and is very commercial, very American – and exhaustive. For some services such as their search engine, the offer is of high quality. Other offers - like software for drafting your own patent application, and valuation based on macroeconomics- should be avoided. It has a dedicated section for SMEs with many good help wizards and guidelines. The mixture of ads, sponsored content and services is confusing. This service is the absolute opposite of IPR-Helpdesk in all ways – but it demonstrates that a portal can be built and operated on commercial terms. It may also indicate that some public funding could have increased its quality.

3.3.5 WIPO-SME

www.wipo.int/sme/en/ is the World Intellectual Property Organisation's website for SMEs. It has very good content for learning and looking up IPR-issues. It publishes outstanding cases from all over the world on all areas of IPR, spanning from geographical indications such as the case of Darjeeling, to licensing from University such as the case of Boreon Pharma (University of Aarhus). Their online newsletter includes links to those cases and much more. It makes it a better reading than many other IPR newsletters and publications.



If you have some spare time we also suggest <http://www.patentplace.com/> - the world's first user generated cartoon soap opera – with some Biotech and IPR issues.

3.4 Licensing.com

Technology transfer –the possibility to buy the right to use, or to generate revenues from, a developed technology - can be important for an SME. There are some web-based markets for technology that have survived the dotcom era:

- Yet2.com is a service that cooperates with Cordis – (Community Research & Development Information Service).
- Innocentive is a researcher-targeted service, with focus on presenting R&D problems and solutions.
- Ninesigma and their Managed Exchange lets a company issue Requests for Information and then await proposals from researchers.
- Techex is a service dedicated to the Biotech industry.

www.emarketservices.com is a guide to electronic marketplaces, developed with support from the Nordic Innovation Centre and now co-funded by EU. It gives a good overview of the numerous marketplaces on the web.

Aside from the web-based services, there are more traditional brokers, like BTG, UTEK and

QED. As most technology transfer depends on good understanding of the technology, the market, and face-to-face negotiations, it is not a field where web-based exchange has made a breakthrough yet.

One major obstacle for the use of web-based marketplaces is the need for a good description of the technology, a task easily more time-consuming than drafting a patent application.

We do not believe that a separate licensing online market service should be developed for Nordic SMEs, but an idea could be to negotiate good deals with existing marketplaces and improve and standardise the way a technology on offer should be described.

3.5 Conclusion

We have in this review found good models for Nordic IPR tools. A Nordic IPR portal could be modelled on the Danish PTO's www.dkpto.dk, with exhaustive and user-friendly search facilities covering patents, trademarks and design registrations. A helpdesk based on an organisation similar to that of IPR-helpdesk, and online guidelines on the model of www.ip-europe.org could be associated. A news concept inspired from www.profitgate.dk would be worth a daily visit. Finally, a natural and multilingual interface such as the one in use in www.plutarque.com would improve the search experience and quality.

4 Research and educational institutions

This purpose of this chapter is to evaluate the use of IPR in institutions, which are part of the close environment of SMEs, starting with the mapping of higher education institutions that offer a program in IPR management.

The other institutions analysed are university Technology Transfer Offices, incubators and science parks, large research organisations, research councils and Patent and Trademark Offices.

4.1 IPR management in higher and executive education

In the Nordic countries as a whole, very few universities offer extensive education in IPR outside of the classical legal context in law schools. Even fewer institutions offer IPR management education.

Most universities in the region offer only one or two courses maximum, focused on IPR as an elective for students in engineering or business. These have been mapped in a former Nordic Innovation Centre study by Scanbalt IPR.²⁵

Below we list the existing Nordic programs dedicated to IPR management.

4.1.1 Master level education

Individual master level courses are offered at a number of major universities, including Chalmers University of Technology (Sweden), Royal Technical Institute (Sweden), Copenhagen Business School (Denmark) and the IPR University Centre (Finland).

However, a dedicated business management program focused on IP is offered only at the following institutions:

The Centre for Intellectual Property studies (CIP), which is a competence centre for Chalmers University of Technology and Gothenburg University. This is the only institution in the Nordic region with a full

master's degree program in Intellectual Property/Capital Management²⁶. At present CIP offers an interdisciplinary IP management education to engineers; lawyers; and entrepreneurs, with a planned expansion to include business students and bioscience professionals in 2005. The education is action-based, meaning that the students learn mainly through live venture creation and simulated business environments designed to capture the complexity of management, economics, law, and the technology elements of intellectual property-based business. The program lasts one and a half years and graduates receive a Master of Science or Master of Law degree, depending on their specialty. All the programs are taught in English.

The Department of Engineering and Business Management at Malmö University offers a one-year certificate program on Intellectual Property²⁷. The program focuses on the need to protect IP and how to commercially defend and exploit IPR. The program collaborates extensively with both the business milieu and government. Furthermore, the course is targeted at people with a Diploma in Science/Engineering, Law or Economics. It is taught in Swedish at present.

4.1.2 Executive education

Numerous seminars are available in the Nordic region for business and IP professionals, with the largest and most comprehensive being the CIP FORUM, which is an international industry event held every second year in Gothenburg. Only a few institutions offer in an organized manner executive education focused on IP management. These include SIMI (Scandinavian International Management Institute) and CIP on a Nordic level and the IPR University Centre in Finland.

The most straightforward education is offered by SIMI and is entitled "The Business of Intellectual Property". The program run once a year in the fall and consists of an intensive five-day course aimed at IP and business professionals. It focuses on management and general policy aspects of IP, rather than on the legal detail. Currently, the course is

taught in collaboration with ICM Group (USA) and CIP (Sweden).

Customized executive education is offered both by CIP and the Finnish IPR University Centre, with CIP also having programs for university innovation systems and providing IP management tools for industry and universities.

Starting in 2005, the Gothenburg International Bioscience Business School (GIBBS) will offer a Master's degree in Bioscience Business Creation, focused on IP management. The school will offer executive level education within a full Master of Sciences degree program, which will be delivered in collaboration with CIP, Chalmers University of Technology, and the Sahlgrenska Academy at Gothenburg University.

4.2 IPR practise at university Technology Transfer Offices, incubators and science parks

Technology Transfer Offices, incubators and science parks have similar and overlapping activities and/or responsibilities when associated with universities and university research.

This is certainly more the case in Scandinavia and Europe than in the USA, in particular when referred to the legal, technical, fiscal and educational framework that has lead to the use of the "innovation" model of venture creation within Europe, as compared with the "licensing" model that is commonly used in the United States.

It may be helpful to first create some kind of definition around these three types of institutions before identifying their key activities, locations, and practices.

In most of Scandinavia, it is difficult to differentiate between the different types of institutes, which are sometime coupled together and also linked to research organisations or universities.

- **Technology Transfer offices** are generally administrative and operational offices linked to a university to facilitate the transfer of research from the science and technology based subject areas.
- **Business Incubators** are economic development facilities designed to accelerate the growth and success of entrepreneurial companies with access to and support from multiple business resources and services.
- **Science/Technology Parks** have very similar objectives to those of the Incubators, but are focused on particular scientific or technical competency areas, and often have a management and support system that reflects this competence.

The establishment of IPR policies within these organisations depends both upon the technology transfer policies of the country (particularly when related to university-born research) and the type of organisation.

The responses to our survey and interviews show that some institutions have particular policies relative to the procedures and fiscal responsibility of commercialising research through IPR, while others simply provide advisory or consultancy services and links to patent and IP networks within their regions. It seems that when in collaboration with these institutions, SMEs will be provided with support for their IPR management.

We cannot from our material point to obvious differences between policies within the different Nordic countries, neither between the different institutions within a specific country. It appears that a majority of the concerned organisations have recognised the importance of IPR in technology transfer, and have internal resources or links to IPR competences critical to the commercialisation of technology stemming from basic and collaborative research.

In summary, there is no set standard for the IPR-policies, and there is very varying practise.

4.3 IPR practice in large research organisations

Apart from research in universities, most countries conduct publicly funded research in industry research constructions. They are an essential part of many innovation systems, and function mainly as a bridge between the university and industry. These industry research organisations are often jointly owned by the state and industry.

4.3.1 Denmark

4.3.1.1 Organisations

In Denmark there are some 11 research institutes, where Risø National Laboratory is regarded as the “best practices’ organisation” concerning commercialisation of public inventions, and hence as the most interesting organisation from an IPR management perspective.

With its 743 employees and a turnover of about 72 million euros, Risø is also the primary public technology research organisation in Denmark. The “Act of Inventions at Public Research Institutions” implemented as of 1/1-2000, forces all public research organisations in Denmark into protecting and exploiting all IP holding a commercial potential. Denmark has also a centralized portal for technology transfer, www.techtrans.dk.

4.3.1.2 IPR Practice

• IPR policy

All public research organisations in Denmark have IPR policies, although some of these are still under development. Risø’s policy regulates:

- Transfer of the employee’s right to his/her invention
- Transfer of IPR, license agreements, revenue models for IPR
- Publication, trade secrets
- IPR jointly owned with external parties

- Exclusiveness and competition limitation, Illegal public support
- Infringements, Legal responsibilities
- Spin-outs
- Commercialisation responsibility, ethics and commercialisation
- Patents

Risø has (and manages) an extensive patent portfolio.

• Technology transfer

Risø is currently regarding licensing as the preferred technology commercialisation model, where the licensee is normally found among Risø’s collaboration partners.

Contract research constructions are often also used, but Risø tries to arrange its contracts as long-term collaborations, as it is the Laboratory’s strategy to relate all research collaboration to research fields that are within the scope of its interest.

Risø has created a number of spin-outs, but is attempting to increase this quantity by adjusting its selection criteria for those individuals which are to lead the projects.

• IPR competence

The law requires that all public research organisations active in relevant areas have access to IPR competence. Risø has an internal organisation for IPR management, which is a core activity.

• IPR management services

Risø does not provide these services to SMEs. Risø and the SME can however agree that the former will manage joint IPR, but will not commercialise these on behalf of the SME.

An SME can also obtain access to the competence by creating other formal relations such as licensing, etc.

As a state entity however, there are limits to the services that Risø can provide without exposing the organisation to liabilities.

4.3.2 Finland

4.3.2.1 Organisations

The Finnish system consists of 20 independent research institutes. The most interesting one in our context is the Technical Research Centre of Finland – VTT.

With its 2800 employees and a turnover of 210 million euros, VTT is Finland's largest research organisation and is active within electronics, IT, industrial systems, processes, and biotechnology, building, transport and information services.

4.3.2.2 IPR practice

- **IPR policy**

The newly revised, extensive IPR policy is designed to provide common and uniform guidelines to all units of VTT and regulates:

- Division of responsibilities and tasks between research units and corporate management
- Technology commercialisation process
- Financial goals, division of earnings and costs
- Relation of technology commercialisation to the strategies of the research units
- Exploitation of external services
- Inventors' incentive structure
- Organisation of IPR activities
- Development needs
- Patents

Patenting is a core activity of VTT and the organisation currently holds a patent portfolio of almost 300 patents.

- **Technology transfer**

The primary activity is contract research. VTT also licenses out its IP to a large degree and

has during the years created some 70 spin-outs.

The organisation is however expecting to increase the spin-out activity by the end of 2005, when it predicts to obtain permission to take equity against their IP, something currently not possible.

- **IPR competence**

VTT regards IPR management as a core activity, and has an organisation for these issues under the Development Manager for Technology Commercialisation, who also carries the title of corporate IP Manager.

- **IPR management services**

VTT provides IPR in-house management services only. By setting up collaboration with VTT, via licensing or through some other construction, an SME can however get access to the IPR competence.

4.3.3 Iceland

4.3.3.1 Organisations

The Icelandic institute system comprises a number of different research institutes including the Icelandic Building Research Institute, Icelandic Fisheries Laboratories, Marine Research Institute, Institute of Freshwater Fisheries, Iceland GeoSurvey and the institute of focus in this Report, IceTec.

IceTec is concentrated on applied research in the areas of biotechnology, materials and production technology, food technology and environmental issues and is a central part of the Icelandic innovation system. IceTec's innovation centre Impra provides guidance for entrepreneurs and SMEs.

4.3.3.2 IPR practice

- **IPR policy**

On an internal level, IceTec has an IPR policy designed to capture and protect the value of its IP. This policy comprises an agreement with all employees, granting IceTec a first right of refusal on all created IP. The policy also carefully states how rights are to be

distributed in collaborations with external parties.

On an external level, national law also states that the innovation centre of IceTec – Impra – should stimulate application of scientific knowledge, which is interpreted as a duty to help and encourage patenting by researchers in public research organisations throughout Iceland.

- **Patents**

Protection of IP via patents is central for IceTec, although patenting has so far been modest.

- **Technology transfer**

IceTec is transferring technology through contract research, licensing and spin-outs. No specific model is used.

- **IPR competence**

There is no specific organisation within IceTec which focuses on IPR issues, and external resources are often used.

- **IPR management services**

IceTec provides a wide variety of services for SMEs and entrepreneurs, including but not limited to help in the processing of information from patent databases, seeking collaboration for financing and technological support.

4.3.4 Norway

4.3.4.1 Organisations

Norway's institute sector is relatively large and accounts for about 25% of the total Norwegian R&D turnover, with approximately 70 research institutes. Half of the turnover belongs in technological and industrial institutes.

Behind the IPR statistics

There are national statistics on IPR from the national R&D and Educational institutions, but we have not included their comparative analysis in our study. These statistics are not as straightforward as they may appear.

One example is offered by the Norwegian statistics²⁸:

In 2003 Norway used 0,8 billion Euros in research institutes, with some 4000 man-years of research. The researchers published some 1700 articles with peer review.

The same year, they applied for 166 patents and were granted 36 patents.

These figures for patenting are not very impressive: it appears that there are about 2000 man-years of technology research behind 166 patent applications.

But the guidelines for reporting indicate that patents and applications are to be counted per country and not per patent family. So a patent granted in Norway and through EPO in e.g. the other Nordic countries, UK, Germany and France, for the same technology – will in the available statistics show up as **eight different patents**.

In other words – comparison between the figures for IPR use in the Nordic R&D institutes needs further and more detailed research than what is possible within the scope of this study.

4.3.4.2 IPR practice

The decentralized organisation of the institute sector means that there is yet no clear standard in place.

- **IPR policy**

The major technological institutes in Norway all have an IPR policy, but developed only to a limited extent. The largest institute, SINTEF, has its venture and IPR-activities organised in a separate unit, SINVENT AS.

- **Patents**

The number of patent applications made by SINTEF is below ten per year²⁹. No institute promote its portfolio actively; in the way e.g. Risø does (see discussion above).

Patents are traditionally and primarily used on request from the customer.

- **Technology transfer**

The institute sector is well organised, and makes good use of incubators. A particular program -“FORNY”, by the Research Council of Norway- has co-financed commercialisations with a result of 50 successful commercialisations in 2003.³⁰

- **IPR competence**

The competence is in general low. We found no formally organised IPR competence in any of the institutes, aside from SINTEF and the environment in Bergen.

- **IPR management services**

The institutes do not provide specific IPR services to external actors.

4.3.5 Sweden

4.3.5.1 Organisations

Sweden's system is built around 26 industry research institutes. These institutes are independent entities, in most cases jointly owned by industry and the state; in a majority of the cases via the state owned holding company IRECO Holding AB. In general, the Swedish institute research sector is rather restricted in comparison with corresponding constructions in the other Nordic countries, and hence most institutes play here a limited role in the industry in which they are active, except for a few successful cases.

4.3.5.2 IPR practice

The decentralized organisation of the Swedish institutes makes the competence

and application of IPR highly varied among the different participants, mainly due to their independent evolution and to their presence in different industries of vastly dissimilar characteristics.

- **IPR policy**

Almost all institutes in Sweden have a more or less formalized IPR policy. However, the different business models and industries make the purpose and content of these policies highly varied. As around 70 % of the operations of the institutes are financed by contract customers; one common purpose of these policies is to protect the IP involved in such projects.

- **Patents**

Patents are traditionally and primarily used on request from the customer. Some institutes - like ACREO - use patenting more actively and continuously, while others like Skogforsk have a policy of not using them at all.

- **Technology transfer**

The primary activity for Swedish research institutes is contract research, which makes up for the major part of all technology transfer. A significant part of the institutes work also with licensing, although this is generally a secondary value extraction model. Some, though very few (ACREO, SICS) create also spin-outs.

- **IPR competence**

The competence degree is closely related to the technology transfer model used by the institutes. Hence, IPR competence within institutes active with licensing and spin-outs is higher and often internally held, while it is limited in institutes working only with contract research. There is also a current attempt to create distributed competence for about 10 institutes around the KTH Campus in Stockholm.

- **IPR management services**

The institutes do not provide specific IPR services to external actors, while those with internal IPR competence can assist the

partner through collaboration constructions, working primarily with administrative activities but also in some cases –and to a certain extent- with more sophisticated business related services: valuation, business development etc.

4.4 IPR practise in government institutions

This section will look into state initiatives for the promotion of IPR in relation to SMEs. In the first part, a brief overview of policy discussions within the Nordic countries is presented. The second part discusses policies adopted by state-run entities that work to support and promote research, innovation and SMEs.

4.4.1 Policy Discussions

In the policy agenda of all Nordic countries there is a consensus that future economic development lies in the possibility of commercialising academic research and in the relation between academic research and SMEs.

Like all OECD countries, the Nordic countries have been greatly influenced by the activities and measures taken in the USA, such as the Bayh-Dole act. Thus, the policy discussions have to a large extent related to the ways in which to handle the “teacher’s exemption”.

Today, the attitude differs between the Nordic countries when it comes to the use of this exemption.

In Sweden, teaching and researching employees of universities are excluded from the Act on Employee Inventions and are consequently entitled to ownership of their own patentable inventions. Sweden is presently re-evaluating the existence of the exemption. No decisive conclusions can be drawn from the Government’s report “Innovativa Sverige”³¹ (Innovative Sweden) as of in which direction the government intends to go. The report just contains a statement, mentioning that the exemption must be examined and evaluated.

In Finland, the government recently presented a proposition³² in relation to academic research and the “teacher’s exemption”. The purpose of the new legislation is to clarify the condition regarding the legal situation for university inventions, and thus promote their identification and commercialisation.

However, the proposition does not state that the “teacher’s exemption” is to be repealed.

As of January 1st, 2004 Norway excluded a similar exemption from the Act. Norwegian teachers and researchers employed at universities and colleges are, however, not treated exactly as other employees, due to their perceived legitimate interest in publishing research results.

By comparison, in the new Icelandic law, employees of universities and research institutions are completely equal on this matter to any other employees.

Denmark issued a separate Act in 1999, regarding teachers’ and other academic scholars’ rights to ownership of their patentable inventions. In comparison to the general Danish Act on the right to employees’ inventions, this specific Act stipulates that inventions by these employees may, to a larger extent, be transferred to the employer.

Furthermore, teachers and researching personnel of universities and research institutions are considered by custom to be owners of the copyrighted works (such as computer software) they have created.

Nevertheless, Finland is the only Nordic country where this principle is statutory and implemented in the Act on Copyright.

	Teacher's exemption	Copyright teacher's exemption relating to computer software
Sweden	Yes	No
Denmark	No	No
Norway	No	No
Iceland	No	No
Finland	Yes	Yes

Even though all countries recognize that it is of vital interest to commercialise academic research in order to promote the innovativeness of SMEs, there is yet no Nordic consensus on how to handle the “teacher’s exemption”.

4.4.2 Other Policy Measures

During the past decade, there has been a major shift of focus in Nordic countries when it comes to promotion of SMEs, particularly within high or new technology areas. The focus is today set more on promoting entrepreneurship rather than on providing support to SMEs.

The consequence of this is that policies for promoting SMEs have become more diverse and wide ranging. This expansion of range and breadth has resulted in many instances in difficulties to discern any direction other than a general desire to promote SMEs.

The trend is a shift from directed support programs to those that focus on framework conditions.³³ Generally speaking, the national policies for promoting SMEs favour a resource deficit approach (i.e. they try to identify resource needs and fill the gaps wherever possible) and focus on two pillars: finance, and knowledge.³⁴

4.4.3 Innovation support institutions

In order to achieve the goals of innovation support, all Nordic countries have a wide range of operative agents and agencies working under the policy shaping ministries. Below follows a brief overview of the situation in the different countries. Note that the listing has no ambitions to be exhaustive.

4.4.3.1 Research Councils

In all Nordic countries, the Research Councils serve a central function in the innovation system. A fundamental ambition of the Research Councils is to give advice on the role of research in society, with the aim to better coordinate and prioritise the resources available for research.

	Existence of IPR responsible person or committee	How are they organized and what is their function?	IPR questions when evaluating funding for research?	Other means used to promote IPR?
Denmark (The Strategic Research Council)	no person or committee is responsible for IPR questions.		they look for innovation related research. However, IPR questions are up to the Universities	
Finland (The Academy of Finland)	an IPR team consisting of a finance manager, a development manager, a senior science advisor and a lawyer	the main function of the IPR team is to maintain and further develop the Academy's IPR instructions and to prepare the Academy's statements regarding IPR issues. Additionally, it organizes IPR training for the staff	already in the research plan, the researcher is asked to clarify whether the research might generate inventions with commercial application	requirements that researchers enter into written agreements regarding IPR issues. Planning IPR training for researchers.
Iceland (Rannis)	a number of people are working with IPR related questions		not taken into consideration	promotion mainly through financial contributions for patent applications
Norway (National Research council)	no person or committee officially responsible for IPR questions	a formal IPR committee is under discussion	in grant application, item on patenting (same for Skattefunn application – see chapter 5)	
Sweden (Swedish Research Council)	no central organization working with IPR questions			researcher responsible for patenting. The Research Council supports the best science

4.4.3.2 Support through direct investments

Within the Nordic countries, there are state-owned or partially state-owned investment entities. Norway has Convexa Capital III (previously the START-fund) which was established in June 2004. They provide risk capital and advisory services to start-up

companies, particularly within sectors such as IT and biotech.

Vækstfonden (The Growth Fund) is a Danish public enterprise promotion institution established in 2003. Their objective is to further innovation and renewal in Danish trade and industry. They offer co-financing for risky and promising development activities,

particularly in small and medium-sized enterprises.

The Finnish Industry Investment (FII) was established in 1995 to promote the development of venture capital in Finland.

In Iceland, the New Business Venture Fund (NBVF) is an independent entity owned by the Icelandic state. The fund works as a venture capital investor, taking an active part in business development and growth in Iceland.

4.4.3.3 Other supporting organisations and companies

Innovation Norway (Innovasjon Norge) is a state owned company that as of January 1st 2004 replaced the Norwegian Industrial and Regional Development fund (SND), the Norwegian Tourist Board, the Norwegian Trade Council, and the Government Consultative Office for Inventors, SVO.

Their business is to promote nationwide industrial development which is profitable both to the business economy and to Norway's national economy.

The Corporation for Industrial Growth (SIVA) is a Norwegian state-owned, independently operated innovation hub. It builds networks between regional, national and international R&D environments. SIVA is co-owner in more than 60 innovation centres in Norway, and it functions as an exchange for sharing industrial and innovative approaches.

All these organisations provide financial support to research and innovations, however not directly, as investors or venture capitalists do.

In Denmark, the Advanced Technology Group (GTS) is a network of independent research and technology organisations, which are privately managed institutions of public utility. The institutes provide counselling services on commercial terms to a broad range of Danish and foreign firms, mostly SMEs. Revenue from these processes is used for consolidation, development of services and research and development.

The main focus of the GTS-institutions is to develop and transfer knowledge to different

companies. The largest one is the Danish Technological Institute, DTI.

TIC (Technological Information Centre) is a Danish nation-wide, independent, non-profit organisation. TIC offers free of charge expertise and consultancy on possibilities and tools for development and growth in SMEs, and acts as a contact to relevant experts and knowledge centres.

TEKES (the National Technology Agency) was established in Finland in 1983, with the mandate of promoting the commercialisation of research in Finland and in order to encourage collaboration between public research organisation and SMEs. TEKES takes part in the planning of Finnish technology and innovation policies, along the lines given by the Ministry of Trade and Industry.

The Finnish National Fund for Research and Development (SITRA) is an independent public foundation, under the supervision of the Finnish Parliament.

SITRA focuses its operations on various programs, such as research and training, innovative projects, business development and corporate funding.

The Foundation for Finnish Inventions (INNOFIN) is a state-owned organisation that supports and helps private individuals and entrepreneurs to develop and exploit invention proposals, both within Finland and internationally.

FINNVERA is another state-owned company, founded to subsidize businesses and provide loans, especially to firms residing in the less developed areas. One of the main objectives of FINNVERA is to promote exports and internationalisation of Finnish enterprises.

In 1997, TE-centres were established in Finland. The centres implement innovation activities at regional level, alongside with several other tasks related to regional development.

Some of the tasks of the TE centres are to support and advise small and medium-sized enterprises at various stages of their life cycles, and to promote technological development in enterprises and assist in

matters associated with export activities and internationalisation.

IMPRA is an Icelandic service centre for entrepreneurs and SMEs with a role to assist entrepreneurs in evaluating business ideas. They provide counselling with start-up, growth, and management of companies, and serve as a link in the communication chain between individuals, companies and public agencies. They also advise SMEs on how to improve their business productivity, encourage innovation and assist in export planning, by facilitating for example cooperation in R&D and technology transfer with foreign businesses.

In Sweden, the seven Technology Bridge foundations (Teknikbrostiftelserna) were established in 1994 in order to increase the exchange between enterprises and universities on a regional level. Together they cover a range of enterprise promotion activities such as venture capital provision; network building and patent and license support. They are intended to cease their activities in 2007.

In 2004 the Swedish government suggested that the foundations be merged into one national group of companies in order to further promote the commercialisation of research.

Forskarpatent (Patents and Licensing offices) were set up at the major Swedish universities in order to assist researchers in the patenting and licensing processes. They were established as a joint initiative from the Technology Link foundation and the University Holding companies.

The Swedish Business Development Agency NUTEK and ALMI Business Partner merged in 2001 to form a national competence centre for enterprise development and for the fostering of entrepreneurship. ALMI has since -together with the Foundation Innovation Centre- established Innovation Sweden.

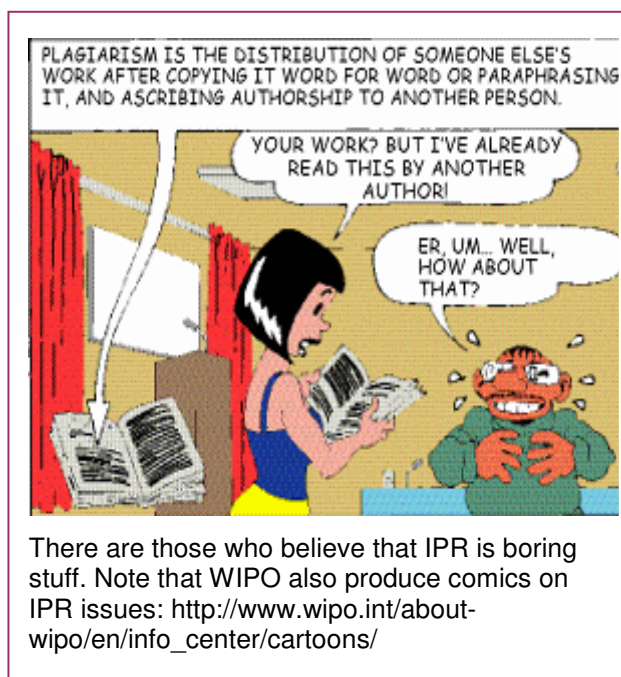
The objective of Innovation Sweden is to promote and support (financially and through advice) innovation on a regional level.

VINNOVA (The Swedish Agency for Innovation systems) has the mission to promote sustainable growth by financing

research, technology and development and developing effective innovation systems.

The Swedish Institute for Growth Policy Studies, ITPS, works to improve the knowledge and basis for Swedish growth policy, by undertaking analyses of changes with respect to institutional and technological requirements, systematic evaluations of policy measures and by securing reliable and relevant statistical data.

All these three institutions were formed the 1st of January 2001 with the intention to provide an organisation of SME support, focused on entrepreneurship and business development.



4.4.4 The Patent Offices

The National Patent Offices are central actors in promotion of IPR in SMEs, and some of their incentives are worth mention here.

The Norwegian Patent office has reduced the application fees in order to encourage smaller enterprises to patent. A 20% reduction in the application fee is offered to enterprises of 20 employees or less, including independent applicants. Additionally, this applicant group will be exempt from an examination fee. The examination fee will however be current for



medium-sized companies, but will be refunded if the application were to be withdrawn.

As a means to facilitate and promote the use of IPR for SMEs in Denmark, the DKPTO (the Danish Patents and Trademark office) has established a call centre with the objective of handling intellectual property-related inquiries of SMEs.

Another supporting concept is Profitgate, which is provided by DKPTO in collaboration with Danish IP firms. Profitgate is a campaign that consists of a web site, a “red” direct line within the DKPTO to which a potential user can call to have more information and IP articles on the media with the intention to show that Intellectual Property is an essential part of a business strategy.

The frame of this study did not allow us to investigate IPR focus, competence and policies in all these agencies and institutions – the object of a dedicated survey -.

However, it must be emphasised that all these institutions are part of the close environment of developing SMEs, and their competence in IPR cannot be overestimated.

5 Legal and financial framework

The purpose of this chapter is to describe the legal and financial frameworks in the different Nordic countries, and analyse whether there are interesting initiatives among them that may contribute to a better IPR practise by Nordic SMEs.

5.1 The legal framework

5.1.1 Harmonization and diversity

The Nordic Countries have a tradition of common legislative processes, carried out in Nordic legislative committees. This has been the case concerning the establishment of several Acts in the intellectual property law area in these countries.

However, late developments have been variable. This is *inter alia* reflected in whether or not Nordic countries are members of the different organisations which influence the development and harmonization of intellectual property law.

All Nordic countries are members of the WTO, which means that they are obliged to follow the TRIPS agreement. However, the unity stops there: Denmark, Finland and Sweden are all EU member states. The European Union has influenced the harmonization of copyright (especially concerning database protection), design and trademark protection to a large degree, as well as patents, especially concerning certain technology areas, such as computer software and biotechnology.

Both Iceland and Norway are parties to the EEA, and therefore as a general rule implement EU directives in the IPR area.

Concerning the EPC (European Patent Convention), only Norway is not a member; while Iceland recently became a member state.

The EU has long tried to create a community patent, and although this particular project has not yet been realized, many of the proposed solutions to the problems of the patent system, such as high costs concerning both the patent's acquisition including the translation costs and the patent's keeping which may include litigation costs and heterogeneous application of the law, have been implemented through the EPO.

However, not all of these mechanisms are yet in force. It is interesting to note that Iceland will be a part of these, whereas Norway will not. Denmark and Sweden seem especially eager to move forward concerning the patent system, as they are signatories to the Patent Law Treaty and the London Agreement.

The Patent Law Treaty covers harmonization of the administrative parts of the patent system. The London Agreement is designed to keep overall costs for patenting down, by reducing the need for translation. The thought behind it is that patents which are granted in one member country in French, German or English will no longer need to be translated.

The main rule at present is that patents must always be translated into the languages of the countries where they shall be valid; not requiring translation in all cases would reduce these costs, just as a uniform community patent would. The London Agreement is not yet in force.

Iceland has, however, an interesting solution in that for some cases, if the patent is written in English, only the claims and the abstract need to be translated.

Although harmonization has taken place in many areas, there is still diversity among the Nordic countries. This should be kept in mind particularly when partaking in a project within the 6th framework programme of the EU, where provisions about e.g. ownership to results might clash with national laws.

5.1.2 Licensing

Licensing provisions are a rare phenomenon in intellectual property law within the Nordic

countries – to a large extent, licensing is unregulated.

It is not a far-fetched guess, however, that this area will be increasingly regulated. When drafting licensing agreements which concern the EU area, it is important to take competition law implications into consideration. The Technology Transfer Block Exemption is of particular relevance and in order to comply, a company must re-evaluate its market share on a regular basis.

The TRIPS agreement has introduced some innovative solutions regarding compulsory licensing: before going to court to seek a compulsory license, a party now needs to try to negotiate a license with the right holder. The threat of going to court can thus be a powerful legal tool in the negotiation.

5.1.3 The right to research results

The right to ownership of patents and copyright concerning employees, including university employees, varies.

The principal rule of Nordic patent laws is that the inventor is entitled to seek patent protection for his/her patentable invention. In employer/employee relations there are, however, exemptions to this. When an employee has created an invention in the execution of his duties, the employer can demand for the rights to be transferred to him if the exploitation of the invention lies within the field of activity of the employer. There is some room for negotiation through agreement on the terms. Furthermore, collective agreements can be of relevance. Concerning the “teacher’s exemption”, the rules differ.

Regarding the employer’s right to employee work susceptible to copyright protection, the general understanding in the Nordic countries is that the rights stay with the originator of the work.

The relation is not regulated in law and customs differs between different sectors. Through the EC Council Directive 91/250 on the legal protection of computer programs, the EU countries implemented provisions which state that in the case of computer

programs developed by employees, the copyright is transferred to the employer provided the computer program has been created as a part of the employment or as a result of a specified assignment.

Furthermore, teachers and researching personnel of universities research institutions are considered to be exempted from this provision by custom. Concerning university research, the principle of public access to official documents is a “special” feature in Nordic countries.

This means that individuals have to be careful not to destroy the novelty criterion, if interested in obtaining a patent.

5.1.4 The “experimental use exemption”

The “experimental use exemption” is substantial in Europe including the Nordic countries, when compared to the USA. The only exceptions are the Netherlands and Austria.

This provision stems from the draft Community Patent Convention, which has never been in force but nevertheless has had an influence on national legislations and in the development concerning the European Patent Convention.

Any entity can rely on the “experimental use exemption” – it does not matter whether it is a university or a strictly commercial actor. However, not all research is covered by the exemption: only research conducted on the patented invention, to find out how it works, try to improve it or come up with completely new inventions etc. are covered.

Research performed with the help of the patented invention, i.e. using the invention as a research tool, thus being used exactly how it is intended to be used, is not covered.

Regarding copyrighted software, the EC Council Directive 91/250 on the legal protection of computer programs introduced a right to observe, study, and test the functioning of a computer program. This right is, however, subject to limitations and requires that the person observing the program does so while performing any of the

acts of loading, displaying, running, transmitting or storing the program which he is entitled to do.

Thus, concerning software (which is always protected by copyright), there are more generous provisions about reverse engineering if it is patented.

5.1.5 Miscellaneous

The Nordic countries have long had a sui generis protection for databases, even when these are not considered to be a “work” and thus are not encompassed in copyright protection.

In these cases, databases are protected if they are the result of substantial investments. When the EC directive (Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases) came through, the period of protection was prolonged from 10 to 15 years. Both Norway and Iceland have implemented the directive.

This is different from the USA’s policy, where only databases which are “*sufficiently original*” are considered to be “works” and thus receive copyright protection – there is no sui generis protection. This can be seen as a competitive advantage for European companies when compared to US companies.

As a conclusion, with the notable exception of Norway keeping out of the European Patent Organisation, and to a lesser degree with the exception of the “teacher’s exemption”, legal frameworks on IPR in Nordic countries are similar.

These are also quite similar to the EU framework, but differ significantly from that of the USA.

5.2 The accounting-taxation-financial framework

The accounting rules in the Nordic countries are built upon a combination of legal and professional frameworks. The information included herein, regarding accounting

obligations of public companies, is collected from the different national legislations³⁵, and also to some extent from applicable national accounting practices. Nordic countries partaking in the EU take part in a new regulation (Regulation EC No 1606/2002) including the international accounting standard IAS 38, which specifically deals with intangible assets.^{36,37}

Three particular issues in the different accounting regulations are especially interesting, as they define the reporting rules of intangible assets. These are recognition, amortization and revaluation. Additionally, development IPR and infringement reporting, and the introduction of IAS 38 are noteworthy.

5.2.1 Recognition

Intangibles, whether internally developed or externally obtained through purchase, can be recognized as expenses or assets. When recognized as assets, the costs of purchases are capitalized and included on the balance sheet.

In all Nordic countries, intangibles that are purchased can be either expensed or capitalized, the same applying to goodwill. However, internally developed intangibles are treated differently, as shown below.

Three specific categories usually appear in the capitalization context, start-up costs, research costs and development costs.

Start-up costs

The costs incurred at the start-up of an operation.

Start-up costs are expensed in all of the Nordic countries, except in Finland, where they can be capitalized.

Research

The costs incurred in operations aiming to produce new knowledge, and performed through the search for new materials, products, processes, systems, services etc.

Research costs are expensed in all of the Nordic countries.

Development

The costs incurred in the operations showing use-ability and commerce-ability. Companies referring to development must also be able to show adequate resources for the commercialisation of the intangible.

Development costs, and the results from it, can be capitalized in all of the Nordic countries, except for Iceland.

Iceland does not allow for any capitalization of internally developed intangibles.

The treatment of specific intangibles and IPR differ slightly between the Nordic countries. This is shown in the table below. Design rights have not yet been incorporated in any of the Nordic countries accounting regulation. Since the design protection protects the ornamental and cosmetic aspects of products, not their function, their treatment is most likely to fall within the area of trademarks rather than patents.

Capitalization of internally developed intangibles	Denmark	Finland	Iceland	Norway	Sweden
Research					
Development	X	X		X	X
Patents	X	X		X	X
Trademarks					
Concession arrangements	X	X		X	
Goodwill					

5.2.2 Amortization

The Nordic countries have homogenized regulations regarding the amortization of intangible assets.

Generally speaking, capitalized intangible assets should be amortized over their time period of use, which in those cases exceeding five years must be proved in the financial reports, as in Norway where each item in such cases must be individually argued for.

This period is however restricted to 20 years in all the Nordic countries, except for Sweden, which in rare cases allows for longer amortization periods. This involves cases where the company can, in a convincing way, vindicate a use and enjoyment period stretching for longer than 20 years³⁸. With the development of new international standards, most specifically the IAS38 on intangibles reporting, it is likely that

Sweden will conform to the rest of the Nordic countries, and abridge the amortization period to 20 years, for all cases.

5.2.3 Revaluation

The capitalized value of the intangible assets less amortization can be revaluated and written down in all the Nordic countries, when probable future income from the assets is less than the book value and this difference is deemed as permanent.

The value of the capitalized intangible assets cannot on the other hand be written up in any of the concerned countries. This means that acquired trademarks cannot increase in book value, regardless of the promotional actions taken by a company. However, the book value of the trademark can be written down, if the asset is seen to have permanently lost some or all of its value.

5.2.4 Reporting IPR and infringements

Currently there is no obligation to report IPR and infringements in Annual Reports in the Nordic countries. The EU has included new regulations in the last change of its 4th Company Law Directive (2003). In alignment with the International Accounting Standards (IAS) implementation, companies will be obliged to incorporate a description of the essential risks and uncertainty factors that companies face in the Annual Report.

These regulations will be amended with a requirement to present non-financial information, which is important for the valuation of companies' development potential.

This is already mandatory for all public companies in the USA, under the regulations of the Securities and Exchange Commission (SEC). The regulation will undoubtedly raise the interest for intangibles as a part of the companies' operations, in the same manner as environmental reporting experienced increased prioritization during the nineties.

The Norwegian initiative on reporting of intangible assets, led by the association of financial analysts³⁹, is worth mentioning, although practise seems not to have followed.

5.2.5 IAS 38

The European Commission and Council have adopted a regulation -IAS 38- on treatment of intangible assets, which became effective for public companies in the EEA countries including our 5 Nordic countries, as of 1 January 2005, along with the rest of the 4th Company Law Directive changes. IAS 38 is the result of the IAS Board's work and regulates the recognition, measurement and disclosure requirements of intangible assets.

The general rule of IAS 38 is that intangible assets should be capitalized if they are identifiable, controlled and can be shown to produce future economic benefits.

Specifically, many intangibles are capitalized when acquired, including R&D, IPR and computer software. Internally, development

costs should be capitalized when technical and commercial feasibility of the intangible for sale or use has been established, while research should be expensed. Moreover, computer software, brands, publishing titles⁴⁰, customer lists and items similar in substance should be expensed. Amortization is done on intangible assets that show definite lives, e.g. patents, and should reflect the pattern of benefits. According to IAS 38, the intangible assets' value will be measured at cost less amortization and impairment losses⁴¹. Revaluation will be possible, if fair value can be determined by reference to an active market⁴².

5.2.6 Taxation

Two aspects of R&D or IPR investment taxation have significant impacts on companies. Firstly, there is the capital allowance providing relief for the consumption or depreciation of intangible assets and capital assets, like modern research equipment. Secondly, there are the specific tax-credits, initiated to promote innovation.

5.2.7 Allowance

The allowance depends on the relationship between accounting and taxation, and is applicable in all Nordic countries, even if the rules differ somewhat, as described in the accounting section.

In Sweden and Finland, where the connection between accounting and taxation is fairly strong, have formally put a large share of the responsibility to determine the tax base on the accounting legislators and norm setters.

Denmark and Iceland, on the other hand, have a more independent relationship between accounting and taxation, meaning that amendments in the accounting regulation do not necessarily affect the taxation, and vice versa⁴³. This means that accounting procedures in Sweden and Finland can be more easily connected to concrete tax effects.

5.2.8 Specific tax-credits

The Nordic countries have a relatively small amount of specific fiscal R&D incentives or tax-credits. Instead, financial incentives supporting key technological sectors and activities are used. Reasons for this approach include government priorities, already having high innovative performance and fearing increased public expenditure.⁴⁴ There are however a few country specific tax-credits, as presented below.

	Denmark	Finland	Iceland	Norway	Sweden
Capital expenditure	X	X	X	X	X
Contracting of researchers	X	X			X
Share ownership / new innovative firms	X				
R&D expenditure deductions	X			X	
Company tax rate	30 %	29 % ^{*1}	18 % ^{*2}	28 % ^{*3}	28 %

^{*1} May be changed to 26%

^{*2} 26% for partnerships registered as taxable entities.

^{*3} Some different deductions make this percentage lower in some cases

Denmark, Finland and Sweden have permanent or temporary fiscal incentives for contracting foreign researchers and other key employees, but different rules apply in each country.

In Denmark, researchers and key employees recruited abroad pay only 25% tax, with the intention to enable trades and industries - as well as research institutions- to attract and retain foreign R&D employees⁴⁵.

To qualify for a special flat tax rate in Finland, a foreign researcher must have come into employment in 2003 or earlier, and attained a certain level of monthly salary⁴⁶.

In Sweden, the incentive covers remuneration to foreign experts, researchers and other key employees, limited to a three

year period, where 25% of the salary will not be subject to Swedish income and social security tax⁴⁷.

Denmark has two share ownership rules that promote innovation and investment in new ventures: capital gains on the sale of private equity shares are tax-free if the holding period exceeds three years. Also, the National Tax Directorate may approve a stock plan under which a company may transfer free shares or shares below their market value to its employees, for which the company can deduct the value of the capital loss of the shares⁴⁸. Both these regulations can be seen having an incentive function for small and medium sized enterprises, which may receive tax credits during the start-up years.



Denmark and Norway are the only Nordic countries where R&D expenditures are deductible. Denmark initiated a 2-year pilot scheme in 2002 for co-financed R&D projects which are collaborations between private companies and public research institutions, and allows companies to deduct 150% of the investments related to the project⁴⁹. In May 2004, the scheme was prolonged until the end of 2006 and adjusted to support primarily small and medium sized companies as well as international collaborations⁵⁰.

The Norwegian government has set up a system called "Skattefunn" to promote R & D projects. Skattefunn gives a 20 % extra tax reduction –paid out if the company does not pay tax- for all costs of Norwegian-based companies related to R&D, for any domestic projects and after approval of a formal application. This system is directed towards all industry sectors. Once validated by the National Research Council, Skattefunn is quite light on reporting. This system has been in place for the last few years, but no evaluation is planned before 2007. A similar system has been in place in the Netherlands since 1994. A 2002 report on the Dutch system concludes on increased research both inside the benefiting companies and in the industry in general.

As a conclusion, the financial frameworks on IPR in Nordic countries are quite similar, except for the promising Norwegian initiative Skattefunn, worth monitoring. A major challenge for all is the implementation of IAS38, from this year on.

6 Patent initiatives in favour of SMEs

Most SMEs interviewed were facing the challenges these companies generally meet: resources (people and money) is a strong limiting factor to their development speed, and the organisations need to be fully dedicated to get their product to market.

In Biotech, patenting is widespread, but there have not been many infringement legal actions. In IT, and specifically in software companies, management seldom feels confident about the protection a patent represents. This is understandable, for the European patent landscape is changing and the USA one is complex.

The fear for litigation is high, and seems to limit both the wish to investigate prior art (in addition to the general feeling against patenting as such) and the inclination to market products in the USA.

As documented in several studies⁵¹, litigation in the USA represents the worst scenario for all Biotech and IT firms.

Larger companies are well aware how resource-strapped smaller firms can be, and may use intimidation (whether explicit or implicit) to avoid having to license in the latter's products. They know the smaller company will probably not survive a full-blown legal action.

Initiatives favourable to SMEs relate to addressing their lack of resources, including money, people and expertise. The discussion here has been limited to initiatives related to patents, but most of the argumentation can be used for trademarks and designs.

6.1 Patent litigation insurance

IPR infringement insurance has been discussed at European level since 1994, the objective being to encourage SMEs to file patents despite their lack of finance to pursue a full-blown litigation.

There is a private IPR insurance market in Europe; but it is a limited one, and contracting this type of insurance is expensive. With little statistical background data and a limited portfolio, insurance companies require an expensive risk assessment analysis. "Historically, the provision of IP insurance, of which Patent Litigation Insurance is a part, has not been successful throughout the world".⁵²

Misunderstandings, wrong expectations and disputes have raised scepticism of both insurers and insured. The IPR infringement insurance contract models which are available on the market cover a wide range of protection, from reimbursement of a capped amount for legal advice to exhaustive legal fees to enforce own IPR against an infringer, to inclusion of damages and liabilities resulting from breaches of contracts with licensees.

Most interviewees of this study were quite positive towards the idea of having a publicly-supported IPR litigation insurance (implicitly "not too expensive") scheme starting right from patent filing. Only a few had given serious thoughts to the issue – and even fewer thought that they needed it.

Hardly any had experience on litigation. The reason may be that these were young companies with no major product on the market, or no patent at all. One respondent wisely remarked that litigations tend to start from the moment a product proves successful on the market, and that he would prefer contracting insurance at that later stage, instead of getting charged for an extra hundred € per patent when applied for... and this is the heart of the debate: there is no well developed market, and to develop an affordable insurance scheme, it must be spread over a large number of patents with a predictably distributed risk profile. One obvious solution is to make this system compulsory.

Previous surveys tend to confirm the interest in such scheme, stating that "fear of high litigation costs is holding SMEs back from patenting their invention"⁵³, and we hear the same from some interviewees (although some of these still did not perceive insurance

as the ideal solution). The analysis goes further: if SMEs trusted the power of patents, they would invest more in R&D, and thus patent even more, resulting in increased productivity and a positive innovation spiral.

“Reducing the case cost of a lawsuit to 7000 € would increase the patent portfolio value of Danes in Europe by 10%”⁵⁴.

Note that insurance does not only reduce the cost of a punitive legal action, it also acts as a deterrent to a larger infringer that cannot count on the intimidation of legal costs anymore.

One important issue is geographical coverage. Typically, “insurers fear US patent risk”, and feel that other territories than Europe and the USA “may incur extra underwriting and legal involvement”⁵⁵.

Denmark has been the most active supporter of a publicly initiated Patent Litigation Insurance scheme. In addition to having commissioned the above referenced study on the “Economic Consequences” of such an arrangement, it has -under its EU presidency- pushed the issue on the agenda, and has hosted the most focussed European conference on IPR Insurance to date⁵⁶.

The latest comprehensive report is the CJA study⁵⁷, ordered by the European Commission. It suggests the active involvement of EU institutions in order to:

- guarantee a minimum number of insurance policies,
- promote the scheme,
- act as an ombudsman (arbitration),
- build up a historical and statistical case database,
- help set up a risk assessment committee,
- enlarge the scheme to other IPR rights,
- (and of course) subsidise the scheme.

The CJA study recommends a Patent Litigation Insurance two-stage scheme

An insurance cover for a party involved in an infringement litigation (as defendant or patentee), to pay for preliminary investigations and clarify the situation through negotiation, capped at 35 000 €.

To limit litigation excesses, a party initiating a litigation will pay the first 5 000 € on his own. There is no risk assessment by the insuring entity of the insured patent or application, in this first stage.

If the litigation ends up in a legal action, the cover could amount to 1, 5 M€ for expenses, and 1, 5 M€ for damages - this is a two-stage scheme, and this additional cover is only triggered if the probability to win the case is higher than 50%.

This scheme would cost 300-600 €/annum per European patent applied or granted, and a back-loading yearly fee model (low in early life, growing with time) is preferred. This scheme would be compulsory. It would also include large companies with large portfolios, and even defendants who do not have registered European patents/applications would be covered.

These recommendations are based on the hypothesis that most (>95%) preliminary investigations will end with a settlement, whether by licensing or case abandonment. However, the critical issue of the arbitration mechanism, little developed in European countries, stays unsolved.

This scheme does not cover other aspects of IPR, such as trademarks and design registrations, or even trade-secrets. In fact, SMEs are also interested in enlarging the issue to trademarks, as documented in France for a study to the French PTO⁵⁸.

So if such initiative was taken and proved successful, a similar scheme for trademarks may be welcome.

Insurance professionals are still hesitating, despite some warming up to the issue during interviews reported in the CJA study⁵⁹. IPR are risky risks!

In summary, a subsidised Patent Litigation Insurance scheme as the one discussed is of interest to SMEs. It requires however a large base of patents to be workable, and this is now under further discussions at the EU level (a negotiated EU call for tenders to evaluate the feasibility of the alternatives described in the CJA report is now going on).⁶⁰

We think the Nordic region is not large enough to launch its own insurance scheme, and we recommend active follow-up of the European initiative

6.2 A Patent Defence Union

In order to reduce the adverse effects of intimidation, some sort of IPR common defence association could also be devised.

In his report to the European Commission in 2000⁶¹, Dr Kingston proposes a Patent Defence Union (PDU), whose voluntary members are SMEs owning granted European patents.

This PDU would be a small structure, with internal or hired IPR litigation competence, assisting members with patent litigations between them or between a member and an external party. Membership to the PDU would involve the acceptance of a compulsory arbitration, with no appeal.

The PDU would have limited resources: Dr Kingston suggests a 1 M€ yearly operation costs, just enough to pay a minimum staff and lead up to 2 high profile litigations.

Here are two valid scenarios:

Two PDU-members litigate

PDU company claims that PDUB company infringes its patent on an improved insulin injection sticker. Disagreement has not been solved after several meetings, and letters have been exchanged between the two parties.

Both end up on the arbitration instance approved by the PDU, and the final resolution is: PDUB must license-in PDU patent rights for a fixed fee + 1€ per sticker sold.

A non-PDU member infringes the patent rights of a PDU member

Despite several documented company lawyer exchanges, PDU has not succeeded in having BIG, an international IT-services corporation, pull its web-booking off-the-shelf software - considered a copycat by PDU - from the market.

The PDU jumps in, and encourages BIG to accept arbitration. BIG refuses. The PDU sees this case as having the potential to cover large media coverage, and decides to pursue and lead the legal action in the USA.

The PDU loses in the District court, and goes to the Court of Appeal. Before the Appeal action starts, BIG and PDU agree on a confidential and global licensing settlement involving upfront cash, the integration of the PDU engine in BIGs products, and a sales-related commission.

Given its limited resources, the PDU would generally support the infringed member with expertise only. But provided some highly publicised legal actions were won by the PDU, membership in it may reduce the risk of infringement and legal action by preventing intimidation from arrogant infringers.

Note that large companies are welcome to be Associate-Members of the PDU. They will contribute to its financing and credibility. The large company may itself be interested in arbitration (not all large companies are voluntary infringers!) as well as in such collaboration.

Dr Kingston sees such a PDU in a European Patent Organisation context as reaching self-financing after a few years. He suggests 500€ per annum per granted patent.

Some critical issues need to be addressed first: who will contribute to prime the PDU with cash in the first years during which membership revenues should grow? Will the PDU be able to receive a percentage of the compensation negotiated for its members during litigations/arbitrations, thus increasing its litigation capacity alternatively reducing either public support or membership fees? What will be the compulsory arbitration entity?

Patent Defence Union and a Patent Litigation Insurance scheme are compatible ideas: the PDU may act as the arbitration channel for the first negotiation stage in the proposed Patent Litigation Insurance scheme.

The PDU may also be an attractive target for private insurers selling coverage of investigation fees: here is a potentially huge client organisation with arbitration in its basic rules, and central staff with high IPR competence in order to help companies adjust expectations and buy the adapted product.

Note that a Patent Defence Union is very different from a patent pool, whose purpose is the commercialisation of an integrated technology based upon a group of complementary patents.

A Patent Defence Union needs not be European. It could very well be Nordic.

6.3 A Nordic Patent Defence Union

This is how a Nordic Patent Defence Union could be arranged.

A Nordic Patent Defence Union

Members: Nordic and all willing SMEs which are not majority-owned subsidiaries of large companies, with at least one European granted patent.

The inclusion of foreign SMEs will in fact favour Nordic SMEs in that it will reduce the litigation potential against them. It will increase attractiveness of the PDU, and reduce fees. It will also be a good lever to extend the PDU to the whole EU.

Associate members: larger companies.

Entry fees - finance: there were about 3 000 European Patents of Nordic origin granted in 2003⁶². Out of them, let us assume that 50% came from SMEs (rough extrapolation from a Norwegian study⁶³). Using a similar calculation process as Dr Kingston did, the fee base over a 3-year period (average lifetime assumed for the European patent) comes to a total of

$3000 \times 50\% \times 3 = 4500$ patents per year. If only 10% of those are PDU-paying, and a fee of 500 €/yr is applied, the yearly revenues from fees equals $450 \times 500 = 225\,000$ €, or about 25% of the expected necessary yearly budget for such a PDU organisation (estimated at 1M€).

After a few years, one may expect to unionise up to 30% of SMEs. With the added fees from foreign and large companies as associate members, the budget may become balanced.

Location: Denmark, in that it has shown “the most concerned with the difficulties which SMEs have in protecting their patents”⁶⁴ - alternatively, the Nordic Patent Institute headquarters (see below).

Arbitration: provided no EPO/WIPO arbitration instance is chosen, the Arbitration Institute of the Stockholm Chamber of Commerce may be selected. Alternatively, a Nordic arbitration instance could be set in place, eased by the relative similarities of Nordic laws. The discussed Nordic Patent Institute could host such arbitration.

Steering committee: instances representing SMEs should attend.

Future: such a Nordic PDU could be the initiator of a European PDU.

Note that a British-based IPR user group, the Patent Reform Group⁶⁵, is lobbying for such an initiative in the United Kingdom, together with several interesting propositions favourable to SME patenting.

6.4 IPR arbitrations

“By far the greatest deterrent to the use of IPR, in particular patents, by SMEs ... is the fear of heavy costs to enforce them”.⁶⁶ We are talking here of the fees of the many professionals involved in litigation, especially lawyers and judges. In the same report, the EU ETAN Expert Working Group writes “the main element in the excessive cost of resolving IP disputes is the use of the ordinary courts to deal with what are essentially technical matters”.

Heavy costs are not only financial costs. Companies do also fear “the high cost of distraction from innovative work”⁶⁷. And even if a specialised court may manage fast and efficient settlements, it is still involving much work with lawyers, and there are possibilities of appeal.

This is a general call for spreading technical arbitration in IPR litigations.

Arbitration is a cornerstone to both the Patent Litigation Insurance and Patent Defence Union schemes discussed above. To be the most efficient, arbitration has to be compulsory; otherwise the stronger party will tend to refuse it, because “a weak patent in the hands of a strong party may sometimes prove to be more valuable than a strong patent in the hands of a weak party”⁶⁸.

In fact, arbitration may save from 20% to 50%⁶⁹ of the costs when compared to courts. Savings may be dramatic if arbitration replaces litigation in the multiple countries where infringement is claimed.

Compulsory arbitration may be difficult to accept. Although it may be preferred for low sums (in the USA, claims less than \$100 000), it is not well regarded for heavy claims (again in the USA, all sums over \$1 000 000)⁷⁰.

The above mentioned Patent Reform Group has proposed the following amendment to the UK Patent Bill: “*requiring that every patent application shall include an agreement that, in the event of a dispute arising regarding infringement after grant, the matter shall be referred to technical arbitration before an expert or panel of experts in the relevant field of invention, approved by the Comptroller of Patents.*”⁷¹

Another important issue is the amount of the compensation to the aggrieved party: “(quicker and) fairer settlement” is a demand noted in the Patent Litigation Insurance study mentioned previously⁷².

Still another matter altogether, a major one, is litigation in the USA, a most bleeding experience. “Patent cases in the USA typically cost over a million dollars a party to try and appeal... On average, litigation of a patent dispute ... lasts about 5 years”⁷³. This

can probably not be dealt with European arbitration alone.

We shall not come up with a solution in the frame of this study, but emphasise the need to put in place such an arbitration entity for the benefit of SMEs, innovation, and the whole IPR system.

6.5 Priority period extension

In a recent article⁷⁴, Dr Kingston looks at different positive discrimination measures favourable to SMEs.

Many patents or applications fail to produce any commercial result, and are finally abandoned. The cost of these wasted rights is high, especially to small starting entities.

Postponing the payment of fees for examination/extension/granting/translation would allow the “inventor to investigate the likely value of his invention”⁷⁵ before investing further in the technology and patent foreign filings.

One way to manage this is to extend the priority period, from one year to (as an example) five years.

What is the “priority period”?

This is the period after the date of first patent application filing in a country, during which it is possible to file a corresponding application in another country and get the first filing date as the priority date.

This applies to countries members of the so-called “Paris Convention”, i.e. most countries.

Functions of the priority period

- Allow for document transmission and registration between various National Patent Offices (initial function)
- Allow extra-time to investigate (and/or improve) technology before investing in foreign filings
- Delay payments for foreign filings allowing the applicant to find investors in the project

Advantages from an extended priority for SMEs

For the invention not turning fruitful within 5 years (most of them):

- allow maturing of project until its low potential is clear
- avoid unnecessary cost of foreign filings or premature abandonment

For the invention with a future:

- more time for maturing
- make self-financed commercialisation possible, alternatively allow for further development
- search for the best partner, consequently increasing the value of the project

Dr Kingston goes on: “The priority period is prescribed as a year for patents by Art.4 of the Paris Convention, but according to Art.19, “the countries of the Union reserve the right to make separately between themselves special agreements for the protection of industrial property, in so far as these agreements do not contravene the provisions of this Convention. *Consequently, there is nothing to prevent a group of countries from agreeing a longer priority period amongst themselves for their SMEs, as long as they offered it to SMEs in all the other countries entitled to national treatment from them.*” (italics by Leogriff).

On the other hand, a longer priority period may represent some drawbacks. Once implemented in the Nordic countries, it would simplify an already complex set of international rules. Worse, long-life patent applications may become a cheap means to freeze the innovation landscape: a patent application may deter a seemingly competing technology development project from being launched.

Especially for products with short time development, this longer priority period may also reduce the development tempo, thus not serving innovation, as a macro effect.

A short priority period may also have the potential to induce an early no-go decision, thus inducing a better resource allocation (provided the project would have been abandoned)

Drawbacks from an extended priority for SMEs

Risk of freezing the innovation landscape

Counter-incentive to fast innovation

Temptation for risking higher investment before a no-go decision is made

More complex international patenting rules

We feel that despite the legal obstacles and the above listed drawbacks, the establishment of a longer priority period is worth further investigations in order to determine its practical feasibility and advantages for SMEs in a Nordic arena. Such measure, if relevant, would best be implemented by the Nordic Patent Institute, discussed below.

6.6 A Nordic Patent Institute and its possible roles

With the purpose of maintaining in the Nordic region “high quality patent competencies and make these available to the users”, Nordic National Patent Offices have been discussing a common Nordic Patent Institute.

“There is a clear correlation between local framework conditions for protection of innovations and the innovative performance of a country, for instance expressed by the patenting intensity” says an exhaustive study from 2004 on the establishment of a Nordic Patent Institute⁷⁶.

Thanks to the pooling of resources to serve a larger customer base, the advantages would essentially be quality and efficiency in their statutory tasks, i.e. search and examination.

A Nordic Patent Institute for a

- higher degree of specialisation of examiners
- higher returns on investments in search tools
- higher returns on investment in quality processes

With the reduced competence of the National Patent Offices -due to the increasing role of the European Patent Office-, this NPI is a good initiative to retain IPR search and examination competence in Nordic countries, which in turn is critical to keep a regional high quality IPR environment.

However, this pooling will not (per se) improve accessibility to customers (the non-statutory function of NPOs), neither by location nor by language, and this issue is acknowledged and discussed in the report.

Some search and examination competence must remain located in each country.

We feel the discussion on the Nordic Patent Institute is however too limited. We would like it to take also responsibilities in the field of trademarks and design registrations, in terms of access to databases, but also examination for national registrations and training. A new possible name for it could be the Nordic Patent and Trademark Institute.

This Nordic Patent Institute would be the ideal structure to manage two important initiatives we have discussed above:

- A Nordic PDU and arbitration
- An extended priority period

6.7 No more publication of patent application filing in Norway and Sweden

Both in Norway and Sweden, a patent application is listed in the Patent Gazette a

few weeks after filing, with basic data such as inventor, applicant, class of invention, and title.

Although masking of some information is possible (choosing a generic title such as “a method” for example), this amounts to the publication of early development going on in a company.

Such a publication is very illustrative of the assignee strategy, especially if the company is small or working on one product, which is the case of most SMEs.

This damages the benefit of keeping a patent application confidential for at least 18 months, which is available if the application is filed abroad, and puts the Norwegian and Swedish applicants at a disadvantage compared with their foreign competitors. The inequality is not favourable to SMEs: large companies spend more resources on business intelligence.

Fortunately, it seems both countries have now started a process to cut this rule.

6.8 Norway and EPO

Norway is not a member of the European Patent Organisation. All other Nordic countries are, as are non-EU members such as Romania, Switzerland and Turkey.

Norway was one of the original signatories of the Convention on the Grant of European Patents in 1973.

Some thirty years later, the last political issue got solved – the European Biotech Patent Directive was accepted by Norway -, but there is still no sign of Norway joining the EPO.

As a consequence, Norwegian SMEs pay more for patenting⁷⁷ and the Norwegian IP-firms are less competent and competitive, a worrying issue for Norwegian competitiveness.

It is high time Norway joined the EPO.

7 Observations and Recommendations

During the study, we have made the following observations:

- IPR practise of the interviewed SMEs was consistent with expected stereotypes:
 - Biotech: “Patent or Perish”,
 - IT : “In copyright we trust”.
- As Biotech companies are actively using patenting, they have both the discipline and the culture needed to treat seriously IPR in Non-disclosure Agreements and employment contracts, when compared to IT -and in particular software- companies.
- No interviewee had registered any design – in particular the possibility to register user interfaces is not used.
- It is common to take a Master of Sciences or a Master of Business Administration education, without ever learning about IPR.
- Many IT companies are unsure about the effects of software patenting and more generally about the IPR protection situation in the USA.
- There is a demand by SMEs for advanced IPR courses focussing on practise in a given industry sector or region
- There is a general dissatisfaction in regard to the competence of Nordic IP-firms. In particular, Norwegian and Swedish Biotech companies prefer to look abroad for patenting expertise.
- Technology Transfer Offices at the Universities, Incubators and Research institutions have a positive effect on the use of IPR in the SMEs they support – and among the academic arena.
- Patent and Trademark Offices (PTO), aside from the Danish PTO, do not

offer satisfactory online search facilities.

- Most of the interviewed companies wanted cheaper IPR surveillance services from the Patent and Trademark Offices.
- There is an obvious conflict between the statutory and the innovation promotion roles of PTOs. Their main focus is to streamline the registrations and their international obligations. This leads to a bureaucratic rather than a consulting organisation culture.
- Still, Nordic governments expect Patent and Trademark Offices to perform IPR promotional and educational activities – but there is seldom a dedicated budget for that purpose.
- There is no public organisation that assists with IPR registrations abroad, a critical step in establishing international business.
- Norway is –so far- always lagging on IPR statistics, generally below the other Nordic countries and the average country in the European Union. We inevitably have to correlate this with its being out of the European Patent Organisation.

7.1 A Nordic IPR portal

A Nordic IPR portal modelled on the Danish PTO's www.dkpto.dk portal, with its online search possibilities for all Nordic countries, would be of great help. It should contain patents, trademarks, and design registrations. A natural and multilingual search interface would help the non-expert user.

It should offer access to an IPR good practise guide, of the type www.ip-europe.org have tested, with news and information which take inspiration from www.profitgate.dk, and a help-desk based on an organisation similar to IPR-helpdesk.

The portal should propose information and services on all IPR, both registered and non-registered (such as copyrights and trade secrets).

7.2 Assist SMEs with IPR learning and IPR surveillance

The cost of patent surveillance and prior art searches is seen as a problem by many SMEs. We have observed that easy-access and free trademark databases are also missing. The Patent and Trademark Offices (either separately or unified in a Nordic Patent Institute) should take it as their mission to help.

One measure is to build up a Nordic free and user-friendly online search portal (see the above sub-section) for patent, trademarks and design registrations. Training to users should then be provided, online and through courses. Another complementary means is to provide search services for a fee which, we feel, should not reflect the real costs. Search services could be sold for a fixed-price, for instance.

Courses and seminars whose objectives are increasing awareness and competence on all IPR (registered and non-registered) throughout all territories (Europe, Japan and

the USA) need to be proposed at a low price. Their current relatively high costs are an obstacle to the spreading of IPR knowledge.

7.3 Assist SMEs with foreign filings

The Nordic countries should explore the possibility of extending the priority for patent applications from SMEs from one year to five years. This would allow time enough to develop and test technology further before investing in IPR, to estimate a realistic value of the invention (and possibly drop it), and to find the most appropriate partner.

National filing and registration fees are relatively low. Some PTOs even have a "small firm discount"⁷⁸. Compared to spendings on services by IP firms, those filing fees are minor, and we do not see substantial benefits in reducing those fees.

On the other hand, and when relevant, helping SMEs pay the fees for international registrations (PCT for patents and Madrid Protocol for trademarks do cost about 6 000€) would be very beneficial for starting SMEs with reduced cash-flow. International filing support packages should be proposed by the various innovation support agencies.

7.4 A Nordic Patent Defence Union

A voluntary union of SMEs accepting mutual compulsory arbitration and defending their IPR together, the Nordic Patent Defence Union could be the start of a European initiative preventing intimidation by large companies, increasing IPR competence and reducing litigation.

The initiative could be set up as a foundation by the national confederations of businesses and industry.

7.5 IPR in higher education programmes: a proposition

There is a lack of IPR education in higher education programmes (i.e. universities and university colleges), spanning from media and marketing to law and engineering.

A tentative package of modules that should be included in study programmes is presented in a table below. Combining law and technology or arts students in teams should also prove very positive.⁷⁹

In addition, all projects or thesis should include a section on the IPR situation and strategy: who owns the work, how could one exploit it, etc.

An example of basic modules:

Intellectual capital, intangible assets, know-how.
Patents, utility models, publications, trade secrets, PCT, EPO, US system
Trademarks and design registration, domain names, Madrid agreement, OHIM
Copyright and digital rights management.
Combinations of IPR: cases
Organising IPR processes in an organisation.
IPR in joint projects
Reporting and valuation of IPR
Trade agreements, indigenous knowledge vs. IPR, TRIPS,

We believe that the above recommendations:

- will have a positive impact on how Nordic SMEs use IPR
- are best implemented on a Nordic scale rather than on a national level

- are practical to implement and should show positive results within three years.

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They are here presented in alphabetical order for each country. The appended classification is ours, and serves only an indicative purpose.

The acronyms and abbreviations used in the table have the following meaning:

Biotech	Biotechnologies
Assoc	Association
Edu	University
Gov	Government
Innov	Innovation supporting agency
Ins	Insurance
IT	Information Technologies
Pol	Politician
PTO	Patent and Trademark Office
R&D	Science park, Incubator
TTO	Technology Transfer Office in a university

DENMARK	
CAT Science Park	R&D
Catalyst CSM	IT
Codehouse	IT
DKPTO	PTO
Forskerpark Aarhus	R&D
LifeCycle Pharma	Biotech

Maxygen	Biotech
Neurosearch	Biotech
Santaris	Biotech
Sitecore	IT
Symbion	R&D
FINLAND	
Alias Ay	IT
Author	IT
Bio-Nobile	Biotech
Blancco Oy	IT
Borenius & Kemppinen Oy	IT
Commissioner (EU) - Liikanen	Pol
Distocraft Oy/Ohjelmistoyrittäjät ry	IT
EFFI ry	Assoc
Fatman Bioinformatics	Biotech
Finnish Ministry of Trade and Industry	Gov
Finnish patent Office (PRH)	PTO
First Hop Oy	IT
Galilaeus	Biotech
Genmab	Biotech
GoodMood Oy	IT
Hormos	Biotech
HUT	Edu
IPR University Centre	Edu
Karila A&E Oy	IT

Linux International	IT
Member of the European Parliament - Kauppi	Pol
Member of the European Parliament - Paasilinna	Pol
Microsoft Oy	IT
Nokia Oyj	IT
Ohjelmistoyrittäjät ry	Assoc
Oseir Oy	IT
T&E-Central	Innov
TeliaSonera	IT
Turku University	Edu
Turku University Innovation Agent	Edu
Turun Kauppakorkeakoulu/Future Research Centre, Helsinki	Edu
Valor Computerised Systems Finland Oy	IT
Xardue Ltd.	IT

ICELAND	
Decode	Biotech
Enkaleyfastofan	PTO
Icetek	Innov
Impra	Innov
Medcare	Biotech
Prokaria	Biotech
StarOddi	IT

NORWAY	
A. anonymous	Biotech - large
Abelia	Assoc
Bioparken	Innov
Birkeland innovasjon	TTO
Capman	Investor
eZ systems	IT
Fast	IT
Forskningsparken	R&D
Hydro	Large
Lauras	Biotech
Leif Eiriksson Nyskapning AS	R&D
Lingvitae	Biotech
Natural	Biotech
NIP	Assoc
NLH	TTO
NPF	Assoc
NTNU	Edu
NTNU Technology Transfer AS	TTO
Patentstyret	PTO
S. anonymous	IT
Software Innovation	IT-Large
Tandberg	IT
Trolltech	IT
UiB/Forinnova	TTO

SWEDEN	
Agama AB	IT
Alligator	Biotech
Assuransselector	Ins
Bioinvent	Biotech
Centek-Incubator	R&D
Centre for Intellectual Property/Chalmers University	Edu
Chalmers University	TTO
Compare	IT
Electrotech AB	IT
Ideon Science Park	R&D
Karlstad	TTO
Kroonova	IT/Tools
Novum Research Park	R&D
Patrix	IT/Tools
PRV (Patent och Registrering Verket)	PTO
Quiatech	Biotech

9 Questionnaire

Below are the topics discussed during our live interviews.

LEOGRIFF	INDUSTRY QUESTIONNAIRE – MORE DETAILED FOR REPORT
Portrait	<u>Business</u> Activity- services vs products- number of employees - revenues <u>IPR portfolio</u> size and description of IPR portfolio, including trademarks, design registrations, licenses
Management	<u>Anchoring of IPR:</u> IPR strategy exists? What is it ? Rank of top IPR responsible? IPR at top management level? At board level? Who decides on IPR spendings?
Culture in the co.	<u>Incentives, bonus, values:</u> Supporting generation of IPR? Size of inventor bonus versus salesmans bonus? Bonus milestones? Case for researchers from university or R centres under contract <u>History</u> Infringement story, leaving employee starting competing business, non-successful application
IPR resources	<u>Human IPR resources:</u> Internal resources vs hired expertise (type – location)? Full-time job? Profile of responsible (technologist, lawyer, finance + training to IPR competence) – who writes patent applications, who writes trademarks and design registrations - who manages the legal aspect? <u>Spendings</u> Is IPR budget limiting? At what level decision to spend : project level, department level, totally centralised ? <u>Revenues</u> Licensing/patent sales revenues?
Various IPR	Patents, trademarks, design registration Trade secrets - <u>IT</u> :GNU/Open source – US patents on business methods and software <u>Biotech</u> : registration of new microorganisms, plants etc...

Processes	<u>IPR in R&D discussions and decisions – processes to encourage, identify, track, process ideas (screening/patenting committee etc...) –</u> <u>Portfolio management (cleaning)</u> <u>Patent surveillance –</u> <u>Registration international strategy</u> <u>IPR in employment contracts</u> <u>NDA's and scientific publications management</u>
Supporting tools and services,	Patent bureaus : which one - satisfaction with the Nordic service providers Tools for surveillance, management ... who uses them in or out of the company? Member of Industry patent practitioner association? What kind of network/competence centre can train to better IPR management?
Missing / Suggestions / comments	Type of tools, services – Public support measures (insurance, tax reduction based on IPR costs for ex.) ? Insurance system (type EPO) / Patent defense union ?

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¹ We have come up roughly with 80% of the results while having spent only 20% of investigation resources.

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²⁸ 2003 Årsrapport Forskningsinstituttene – The Research Council of Norway, 2004.

²⁹ Search at Delphion counting patent families published.

³⁰ Årsrapport 2003, FORNY, The Research Council of Norway, 2004.

³¹ Ds 2004:36

³² Prop 259 2004

³³ P. 36 SMEs and the New Role of Academic Research in four Nordic Countries. This report doesn't cover the situation in Iceland, however in a report issued by the Icelandic Prime Minister's office, the Science and Technology Council "Science and Technology Policy Iceland" the same general conclusions can be drawn relating to the interest of promoting SMEs, see e.g. pp 9 ff.

³⁴ P. 37 SMEs and the New Role of Academic Research in four Nordic Countries.

³⁵ Annual Accounts Act of 1995 and Book-keeping Act of 1999 in Sweden, Financial Statements Act in Denmark, Accounting Act and Accounting Decree in Finland, and Accounting Act and Annual Accounts Act in Iceland, Lov 1998-07-17 nr 56: Lov om årsregnskap m.v (regnskapsloven) in Norway but also "God regnskapsstandard 8".

³⁶

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³⁸ FARs Samlingsvolym, 2001

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⁶⁵ www.patentreformgroup.com

⁶⁶ ETAN “Strategic dimensions of Intellectual Property Rights in the context of science and technology policy”, working paper to the European Commission, June 1999.

⁶⁷ W. Kingston, in “Enforcing small firms patent rights”

⁶⁸ S. Takila “Arbitrating patent disputes: an alternative to patent litigation?”, Turku 2000

⁶⁹ idem

⁷⁰ S. Takila “Arbitrating patent disputes: an alternative to patent litigation?”, Turku 2000

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