

The Use of Intellectual Property Rights among Nordic Service Companies

- Use of patents, copyrights, trademarks in Nordic Service sector
 - Nordic service companies are to a large extent using informal protection instruments more than IPR mechanisms
 - Nevertheless, 23 percent of the studied companies have some kind of IPR registered



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Abstract: A new survey conducted by the Nordic consultancy company ECON Analysis reveals that large Nordic enterprises in the service sector fail to recognize IPR as a natural part of their strategic management. That can be a problem in a globalized world, where also service enterprises must compete on innovation and new ideas. 344 Nordic Service enterprises participated in the survey questionnaire. The result shows that six percent of the enterprises have a written IPR strategy and only four percent plans to formulate a strategy in the near future. The absence of a strategic focus on IPR interacts with a general low awareness and knowledge about IPR in service enterprises. This raises the challenge, how can an IPR culture become strengthened in the Nordic service enterprises? A possible response to this can be to highlight the economic value of strategic IPR management. In this context, the analysis identifies factors which contribute positively to enterprises' ability to obtain IPR.		
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Executive Summary

Abstract

In cooperation with ECON Analysis the Nordic patent authorities and the Nordic Innovation Centre have studied the knowledge of the IPR field among the Nordic service companies, the use of formal and informal protection instruments, their competences and the obstacles, which the companies are facing. Finally the study reveals the companies' suggestions for initiatives to encourage a wider use of IPR.

The study has been carried out in the period August–December 2005 as an online questionnaire among 344 large (more than 100 employees) and innovative service companies in the Nordic countries (139 interviews in Denmark, 138 in Sweden, 34 in Norway and 33 in Iceland) combined with telephone interviews. It has been difficult to carry out the study due to the low attention on this field from their side. For the same reason there were more “do not know” answers in this study than under normal circumstances. In spite of the difficulties in obtaining answers from the service companies there is no doubt that the study represents the best present data basis in this field.

This paper is a short version of the full report. It is structured in the following way: The introduction includes a literature review, an outline of research sample and the methodology. Chapter two defines the basic terms that are applied throughout the paper while section three establishes a theoretical background for the structuring of IPR activities and the IP organisation. Chapter four provides an empirical overview of the awareness and use of IPR in the service companies. Section five describes the IP organization and the organisational and human resources being used for handling IPR in the service companies. Furthermore, section 5.4 analyses a best practice method for the use of IPR. In section six the obstacles experienced by the service companies in using IPR are outlined as well as the initiatives which possibly can support a wider use.

Results

- The study takes the point of departure in the formulation of best practice model of IP organisation. According to the model best practice is consist of a written IPR strategy, the handling and coordination of IPR in several departments and the integration of IPR issues in general business procedures, which may turn into an IPR culture. Moreover, strategic considerations of IPR as part of the agenda of the executive management, and a proactive use of the IPR system are important elements of best practice.
- The service companies in the Nordic region estimate that quality, marketing and price are the most important factors regarding competitiveness. It means that most companies prioritise IPR to a relatively lower extent. Trademark is the most important type of IPR. The reason is possibly the additional effect of trademarks on the visibility of the company.
- About 20 % of the Nordic service companies estimate that the need to protect their innovations is below medium. On the other hand 13 % believe that the need for protection is above medium. It is interesting to note that within the knowledge-based and transport service sectors about 25 % of the respondents do not see the need for exclusionary rights. In contrast 15-20 % believe that the need is above medium. The companies in the communication, financial and retail sectors are more divided over the issue of IPR.
- The most important reason for using the IPR system is to protect service innovations from copying. In addition the IPR system is used proactively to create and expand the visibility of the service products and company names in the market. This is interesting because it shows that IPR can be an element in relation to further business development. However, the visibility is primarily market-oriented. By contrast few companies use the IPR system as an indicator of R&D efficiency in order to attract investors.
- Generally speaking the level of knowledge of IPR among the Nordic service companies is low. However, approximately 14-24 % of the companies have an acquaintance level above medium depending on the specific IPR category. The most well-known category is trademarks whereas industrial design protection is the less well-known. The transport, communication and knowledge-based service sectors have a slightly better knowledge of the IPR system. For the most part this is due to higher familiarity with copyrights, industrial design protection and patents. The retail service sector has the lowest level of knowledge across all categories.
- During the past five years the 344 companies in the survey have applied for 163 IPR registrations. 27 % of the applications concerned trademarks while patents and industrial design protection accounted for 11 % and 9 % respectively. This result means that Nordic service companies are more active than European service companies in filing patent applications. According to a previous study 7 % of the European companies had filed patent applications.
- In the Nordic region 23 % of the service companies have obtained some form of IPR during the past five years. 20 % have registered at least one trademark. This is more than what have been observed in a study of German service companies of which 8 % have obtained trademarks. Additionally 8 % of the Nordic companies have obtained at least one patent compared to 6 % of the German competitors.

- 6 % of the Nordic service companies have a written IPR strategy. This is very few compared to the fact that 25 % of the European competitors appear to have IPR strategies. Only 4 % of the Nordic companies expect to formulate a strategy in the near future.
- In the Nordic countries 8 % of the service companies have established an internal IPR department. 16 % have distributed the IPR activities in several departments whereas only 14 % are coordinating these activities internally.
- 13 % of the respondents in the Nordic survey see their IPR activities as an integrated part of their business procedures, and 10 % find that IPR is part of their company culture.
- In addition to the function as a protection instrument, the IPR system can be used proactively, for instance in relation to market and stakeholder surveillance or to find inspiration for new innovation activities.
- Based on the findings in the survey this study has established a model for best practice in IPR. Supported by the results of a regression model it is found that a written strategy, an internal IPR department, the employment of persons with IPR qualifications and the use of the patent database to get inspiration are significant, and therefore define best practice.
- The fact that Nordic companies do not find their services relevant for exclusionary protection is the most important barrier for increasing the use of IPR. Additionally, the lack of tradition for using the IPR system in the service industry appears to be a constraining factor. In contrast aspects that are directly related to the responsibilities of the patent authorities, such as application fees, time for case administration and bureaucracy, are not seen as significant barriers.
- In order to increase the use of the IPR systems, written information, publications with general guidelines and better access to web pages are welcomed initiatives. The Nordic service companies generally request more offers on training and education in using the IPR field and how they should structure the IPR activities internally. Thus, it is suggested that the patent authorities could develop more direct consultancy services including broader strategic, organisational and business related aspects.

1 Introduction

In the industrialised countries the service industry has expanded during the past decades. Today the service industry accounts for the main parts of GDP and employment. Yet, it is only recently that the potentials of the industry relating to growth and innovation have been recognised. Several studies show that the research and innovations activities of the service industry are at a similar level as in the manufacturing industries¹. In order to encourage the innovative activities of the service industry the Nordic countries have embarked on developing new policies to support innovative service companies. These policies include the opportunities relating to the attainment of intellectual property rights (IPR) and usage of the IPR system in general business procedures. Due to the focus on the service industry and appropriate policies the Nordic patent authorities, Nordic Innovation Centre and ECON Analysis have carried out this study concerning the use of IPR among 344 Nordic service companies. The purpose was first to identify the extent to which Nordic service companies take advantage of the IPR system, and second to detect the barriers and possible initiatives to enhance the use of IPR. The third objective was to define and explain best practice in relation to IP organisation in order to give the Nordic patent authorities and the service companies some strategic and organisational elements that are connected to a higher number of IPR registrations.

Based on the purposes stated above, the Nordic study focused on *the awareness of IPR, use of the IPR system as well as competences and organisational structures relating to IPR among Nordic service companies*. In addition the study has identified some of the barriers faced by the service companies. Finally, the study concludes with a number of initiatives to encourage the use of IPR suggested by the companies that participated in the study. This paper is a short version of the Nordic Innovation Centre full report. It includes the methodology, theoretical framework and the results of the survey regarding the awareness and use of IPR, the IP organisation, alternative protection mechanisms and the barriers identified as well as potential initiatives.

¹ Please see the Ministry of Science, Technology and Innovation, 2005

1.1 Research Design

The data collection consists of interviews by Internet (quest back questionnaire) and by phone. The companies were selected according to their size in terms of number of employees (more than 100) and their degree of innovative activity. The large companies are selected because the survey should contain information that contributes to the identification of the elements of best practice. The latter criterion is important because it should be pertinent for the participating companies to consider applications of IPR to protect their innovations. In this study innovation is defined as the development of new service products, new ways of delivering the services and new markets. Additionally, innovation in service may include the development of new organisational structures. The emphasis on large and innovative service companies and the focus on knowledge-intensive sectors mean that this study is not representative for the service industry as a whole.

Initially, the companies were contacted by phone in order to ensure their interest in participating in the survey, and to ensure that the person answering the questionnaire had appropriate knowledge of the IPR activities. The persons interviewed were generally the marketing manager, product manager or the general manager.

1.2 Research Sample

In the following the characteristics of the companies that participated in the survey are outlined.

Table 1.1 Country and sub-sectors

Sub-sectors	Countries				Total	Pc.
	Denmark	Norway	Sweden	Iceland		
Transport service	17	4	19	5	45	13
Financial service	25	4	17	1	47	14
Knowledge-based services	56	5	60	7	128	37
Communication service	16	7	21	6	50	15
Retail services	25	14	21	14	74	22
Total	139	34	138	33	344	
Pc.	40	10	40	10		100

The data collection is quantitative and covers 344 Nordic service companies (139 in Denmark, 138 in Sweden, 34 in Norway and 33 on Island). The companies are distributed across five sub-sectors within the service industry consisting of 37 % operating with knowledge-based services, 22 % in retail, whereas transport, financial and communication services cover 13, 14 and 15 % respectively.

Table 1.2 Number of employees

	Frequency	Pc.
49 employees or less	25	7
50-99 employees	17	5
99-249 employees	118	34
250 employees or more	181	53
Don't know	3	1
Total	344	100

Half of the companies in the sample employ more than 250 people whereas 87 % employ more than 100.

Table 1.3 Target markets

	Yes	No	Don't know
Part of an international company	48 (164)	51 (174)	2 (6)
Business to Consumer (B-C market)	61 (211)	35 (121)	3 (12)
Business-to-Business (B-B market)	76 (262)	20 (69)	4 (13)

Note: In pc. The per cents state the frequency within the category. The number in the parentheses states the frequency. Please remark it is possible to state more than one answer.

Most of the participating companies (76 %) are active on business-to-business markets whereas somewhat more than half (61 %) are active on business-to-consumer markets. It means that part of the companies market service products that apply to both types of customers.

Around half are part of an international corporation whereas less than 50 % are responsible for activities outside their national borders. Most business developments within the service companies concern new service products (41 %), new ways of servicing the customers (30 %), restructuring of the internal organisation (29 %) and establishment of new markets (21 %). Business developments happen both organically and through mergers and acquisitions or through other external means.

2 Definitions

This section defines the central terms used throughout the study, including service, service innovation, intellectual property rights and the sub-sectors that were included in the study.

2.1 Service

Service products can be characterised as containing the following elements:

- Intangible,
- Difficult to put on a stock;
- The fact that production cannot be separated from consumption implying close personal contact between the buyer and the seller of a service product.

Regarding the two first characteristics it is noted that intangible services can be delivered in the form of tangible materials such as reports, guidelines accompanying a physical product, CD-ROMs, etc. In that sense it is possible to put the service product in the form of a CD-ROM on stock as a piece of information. Additionally, the separation of production and delivery over time and space becomes possible. Especially innovations in information technology enable the storage of large amounts of information in software products. Thus, technological innovations are capable of changing the nature of services. The production of a service is seen as the organisation of a solution to a particular problem. Thus, service producers offer a set of capacities, resources and technologies to their customers that in combination organise a solution, which is more or less targeted the need of the customer².

² Gadrey et al. 1995, p.5-6

2.2 Service Innovation

The service innovation is defined as “a new or significantly changed service concept, a channel of customer interaction, service delivery system or a technological concept that independently from each other or most likely in combination result in one or more new or renewed service functions, which are new for the company itself and which change the service that is delivered on the market, and which requires new technological, human or organisational competences in the service company”³. This definition emphasises the combination of technological, human and organisational factors, which corresponds to the intangible characteristics of the service product. It is noted that there is a distinction between incremental innovations in terms of customised adaptations of existing services and more radical changes in the nature of a service product. In this study the innovation of new services refers to the latter, thus a service which implies a radically new design, function or mode of delivery. Hence, the minor adaptations of existing concepts to individual customers are not taken into account here. However, it is recognised that customisation can be the point of departure in the innovation process, which is often characterised by a dynamic process of interactions with the customers.

2.3 Intellectual Property Rights

Intellectual property rights are a set of formal rights to protect commercial interests. IPR includes patents, trademarks, industrial design protection and copyrights. IPR is regulated on the national and international levels.

Patents

Patents protect a product or a process which forms the basis of the invention or its implementation. Patents are defined as “a legal device to encourage and **reward** invention by giving exclusive right to inventors. In many countries the inventor of a **new product or process** can supply for a patent, giving the holder the exclusive right for a number of years to produce the good or use the process. This right can be used either through their own business, or by charging a licence fee to other users”⁴. The definition indicates that the holder of a patent has the exclusive right to implement the process or produce the product in question within a given geographical area and period of time.

Patents protect a product or a process, which forms the basis of the invention or its implementation. Patents can therefore be distinguished between:

- A **product patent** provides the holder with the exclusive right to produce, offer and expand the availability of the patented product. Such patents are often obtained to protect products or technological components⁵.
- A **process patent** is the exclusive right “to use a certain mode of production or offer its use within a given geographical area”. In addition to the industrial mode of production the process patent incorporates the specific algorithms that apply to e.g. encryption or compression in IT applications. Thus, the process patent both composes

³ Van Ark et al., 2003, p.14

⁴ Oxford Reference Dictionary

⁵ IT-Retten: www.it-rekken.dk

the mode of production and the exclusive right “to offer, market or use the part of a product, which is produced by using this mode of production”⁶.

It is expected that process patents are most relevant for the service industry because of the characteristics of services. Process patents are especially anticipated to be important in relation to the implementation of software solutions. However, within some service sectors patent might be irrelevant because the services are primarily based on tacit knowledge, which is difficult to codify and therefore patent. The two types of patents are distinguished by the kind of knowledge to be patented, and thereby the degree of codification.

Trademarks

Trademarks are defined as “a **distinctive sign**, which identifies certain goods or services as those produced or provided by a specific person or enterprise. Its origin dates back to ancient times, when craftsmen reproduced their signatures or “marks” on their artistic or utilitarian products. Over the years these marks evolved into today’s system of trademark registration and protection. The system helps consumers to identify and purchase a product or service because its nature and quality, indicated by its **unique** trademarks, meets their needs”⁷. The definition indicates that trademarks are used to identify the person or company behind the product or service. Thus, the service companies may use trademarks to improve the recognition of their services all though the protection of the innovation per se is limited.

Industrial Design Protection

The definition of an industrial design refers to “the ornamental or aesthetic aspects of an article. The design may consist of three-dimensional features, such as the shape or surface of an article, or of two-dimensional features, such as patterns, lines or colour”⁸. The protection of industrial design thus focuses on the look or forms of a product. To obtain an exclusionary right, it requires a completely new design or unique characteristics. Design is protected on the national level or in the form of an EF design.

Copyrights

Copyrights are defined as “the ownership of and right over the means of reproducing works of literature, art, drama, film, sound and computer technology”.⁹ Copyright refers to the right to reproduce one of the products included in the category. Within the service industry, copyrights in particular apply to media and software companies.

⁶ IT-Retten: www.it-retten.dk

⁷ World Intellectual Property Organisation: <http://www.wipo.int.portal.index.html.en>

⁸ World Intellectual Property Organisation: <http://www.wipo.int.portal.index.html.en>

⁹ Oxford Reference Dictionary

2.4 Informal Protection Instruments

Part of the literature about IPR in the service industry notes that exclusionary rights is a formal protection instrument. At the same time service products tend to be intangible and therefore difficult to codify and patent. Consequently, service companies might use other forms of protection that are more informal than IPR¹⁰.

Secrecy

Secrecy means that the company seeks to keep essential knowledge and information secret, for instance by competition clauses with the employees. Secrecy may also be applied in contracts with customers, suppliers and other business partners. However, this may result in a more limited outcome of the relationships.

Short Innovation Cycles

The company may minimise the risk of being copied by ensuring continual product or process development making it irrelevant to apply for IPR and to copy the service.

Making Intangible Products Tangible

The company may seek to apply some tangible elements to an intangible service product, which adds value for the customers and tends to build customer loyalty. For instance software producers have stored their software in micro electronic items. In this way the producers are able to install control programmes in microprocessors making it difficult to copy the software.

Lock-In

Service companies can use specific standards or protocols when they deliver their services. Thereby international service companies are able to lock-in their clients and guarantee similar quality standards all over the world.

Entry-Barriers

In some sectors the establishment of service operations requires a high amount of start up capital to be able to compete and to be able to copy the services of other companies. This is for instance the case in the financial service sector.

¹⁰ Howells, 1997 in Blind et al., 2003, p.37-40

2.5 Service Sectors

The sub-sectors studied in this project include transport, knowledge-based, financial, communication and retail services¹¹. The statistical included sub-sectors (NACE) codes are stated in the brackets.

- **Transport service** incorporates the transport of goods and people such as shipping, bus and railway, taxis, etc. Additionally the sector includes airports, ports and other forms of logistics. Transport service contains personal and goods transport (60, 61, 62) and their support companies (63) and driving schools (80).
- **Knowledge-based services** refer to core business services and the companies or institutions responsible for knowledge transfer, e.g. education and consultancy. The sector includes research and development (73) IT and consultants (72, 74, 7220), training and education (80, 42).
- **Financial service** is the delivery of financial consultancy and other financially related services. The sector incorporates banks, investment institutions and funds (65, 66), insurance companies (67) and pension funds.
- **Communication service** consists of informational activities including mail, telecommunication (64), IT and the media. The category includes television, movie and radio production (92) as well as publication of books and booklet (22).
- **Retail services** include companies which market commodities to private consumers (62).

¹¹ Erhvervsfremmestyrelsen, 2001, side 25-27.

3 Intellectual Property

In this section it is attempted to establish a theoretical framework in order to identify what “best practice” means in relation to organising the IPR activities. Subsequently chapter 5 compares the theoretical framework with the empirical findings.

Intellectual property (IP) refers to the mode of organising the potential of a company to handle IPR activities. In other words IP is the internal competencies and structuring of IPR activity. It includes the following dimensions:

- A written IP/IPR strategy (step 1)
- The internal IP/IPR competences (step 2)
- The internal IP organisation (step 3)
- The internal IPR-culture (step 4)

The written strategy is seen as the basis of the company’s IPR activity. First, a written strategy indicates an explicit recognition that IPR is an important instrument in encouraging further business development. Second, the written strategy may induce the integration of IPR in organisational and competence related aspects making IPR part of general operations. In this way the IPR strategy is seen as part of further development of the company’s strategic assets and core competences¹².

In order to handle IPR appropriately a range of competences, e.g. legal, economic and technical skills are necessary. Additionally, a correlation between these competences and the strategy is necessary making it pertinent to integrate IPR in general strategic planning. In cases where IPR is deeply integrated across departments and competences in the company, one may speak of an IP culture.

Figure 3.1 below illustrates the relations between the elements explained above. The IP/IPR strategy is seen as the point of departure for working with IPR. The second step is the establishment of an organisational design which structures the IPR related activities and competences within the IP organisation. From this point of view the IP organisation is a process through which the company moves upwards in accordance with the integration of the IP organisation. The higher the company moves, the more it has integrated the IPR organisation. At the same time a decrease in the degree of formalisation is indicated as the company moves towards the institutionalisation of an IPR culture shared across departments.

¹² See Prahalad & Hamel (1990).

Figure 3.1 IP organisation

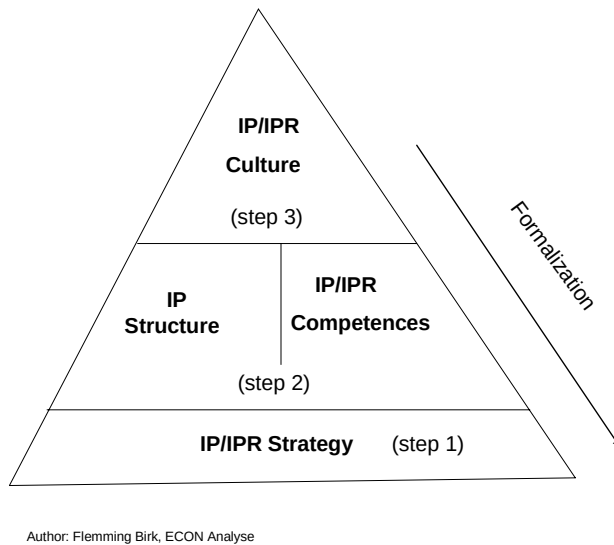
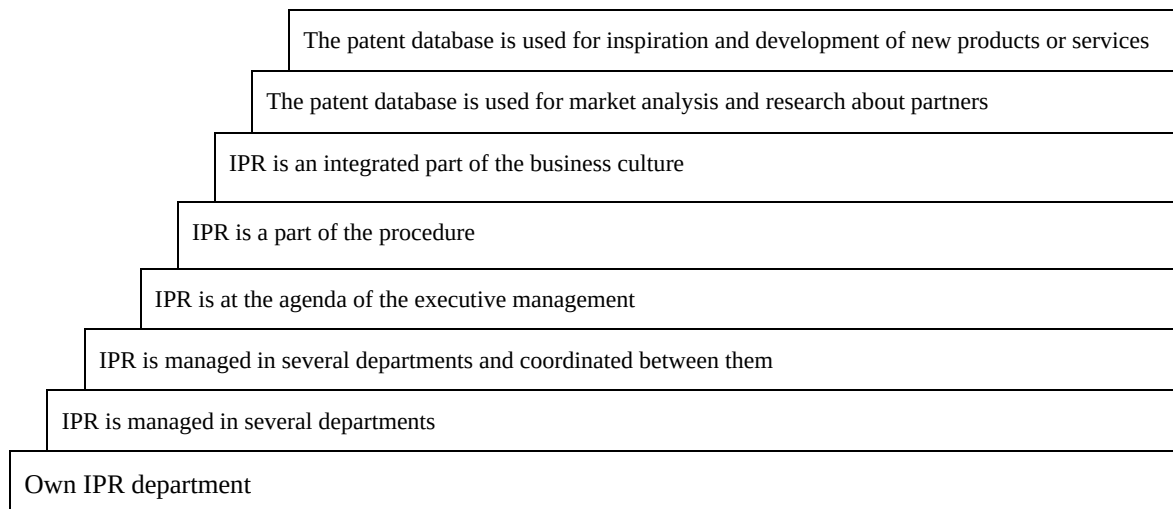


Figure 3.2 shows the advancement of the IP structure in terms of the level on which the company handles IPR.

Figure 3.2 IP-structure hierarchy



Reference: ECON Analysis, 2006

The organisational correlation in figure 3.2 illustrates an ideal model for the IP-structure. Yet, it is possible that companies deploy some of the more advanced activities such as using the patent database for inspiration or market surveillance without having an integrated IPR culture or without involving the management and the board. The idea of the model is to provide inspiration for service companies to how they can approach IPR activities in an appropriate way.

It is seen that an IPR department is the first step whereas the handling and coordination of IPR across departments reflect a more advanced IP organisation. For instance the marketing

department may inform the IPR department about the opportunities to protect a certain product which is already on the market. In this situation IPR is an integrated function of general business operations. Another example is a situation where a new service has been developed. The product manager therefore asks the IPR department to identify the opportunities to obtain exclusionary rights for the new service product. In cases where the company uses the patent system for market surveillance or inspiration it has reached a highly advanced level of working with IPR. For instance a Danish company can identify patented services in the American patent system. The idea of the American service can be used to generate new services that can be transferred to the European or Nordic context. When the company integrates the IPR activities in the general business operations and uses the patent system proactively, IPR is seen to complement the general strategic competences of the company. IPR might even constitute a necessary element to conserve and further develop the core competences of the company.

3.1 Best Practice

The concept of “best practice” is defined here in order to establish a basis for identifying the elements that are necessary to handle IPR appropriately. Previously Blind has defined best practice as “*a comprehensive, strategic, conscious, and context-related usage of IPR means*”¹³. This definition emphasises that best practice involves quantitative, qualitative and strategic elements. Yet, Blind's definition does not explain clearly what the strategic element involves.

Figure 3.1 above illustrates that in addition to the quantitative element best practice is related to *the organisational and strategic competences to handle IPR issues and thereby the IP organisation*. Best practice in IPR requires that the company is aware of IPR in daily operations. According to the figure the basic element is a written IPR strategy as a means to integrate IPR in organisational and strategic procedures, and to make the employees aware of the impact of IPR on business development. A deep awareness of this impact on the business procedures is expected to result in coordination of IPR across departments, and ultimately that IPR activities become taken for granted by the employees. Thus, IPR awareness and activity become deeply institutionalised in the company culture. Ultimately, IPR should be part of the strategic work, which involves the board and top managers. Finally, figure 3.2 indicates that using the patent system for inspiration is a proactive and professional way of working with IPR issues. Therefore this element is also a part of the best practice model.

¹³ Blind et al (2003).

4 Empirical Overview

This section provides an overview of the current knowledge/awareness and use of IPR in the Nordic service industry as it was indicated in the survey.

Table 4.1 To which extent are the following factors important for your customers and future competitiveness?

	Not at all	To a less extent	To some extent	To a high extent	Largely	Don't 'know	Average
Quality	1 (3)	0 (0)	3 (9)	23 (80)	49 (169)	24 (82)	3,5
Marketing, branding, image	2 (6)	3 (10)	12 (40)	29 (101)	29 (101)	25 (85)	3,1
Price	0 (1)	2 (6)	15 (52)	27 (94)	30 (103)	25 (87)	3,1
Trademarks	17 (57)	13 (43)	16 (55)	18 (63)	8 (27)	28 (98)	2,0
Copyright	23 (79)	16 (55)	13 (46)	10 (34)	4 (15)	33 (114)	1,6
Patents	29 (100)	17 (59)	12 (40)	9 (30)	2 (8)	31 (106)	1,5

Note: In pc. The per cents state the frequency within the category. The number in the parentheses states the frequency. Please remark it is possible to state more than one answer.

Note: The average is calculated as a weighted average on the background of the 1-5 scaling which is in the questionnaire. This is valid for all the average calculations in this report.

First, the survey shows that quality, marketing and price are estimates to be the most important competitive parameters. By contrast the effect of IPR on competitiveness is perceived as relatively low. This is similar to the findings in other studies about service companies, which also show that IPR is regarded as less important than other competitive parameters¹⁴. Regarding the types of IPR, trademarks are seen as more important than the remaining forms. One possible reason is the effects of trademarks on the visibility and recognition of the service product or company behind as part of the marketing and branding activities. In other words, in addition to protection from copying, trademarks have several other effects on the competitiveness of the company. It is estimated that trademarks have an increasing interest and that this form of IPR will become more important in the future. In contrast, copyrights have faced difficulties to cope with the challenges related to new technologies and opportunities to copy the products (such as literature, music etc.).

¹⁴ Blind et al., 2003, p.36

Table 4.2 To which extent do you see it as necessary to protect your services?

	Frequency	Pc.
Not at all	24	7
To a less extent	47	14
To some extent	30	9
To a high extent	24	7
Largely	22	6
Don't know	192	56
Total	339	99

About 20 % of the companies in the survey estimate that the need to protect innovations in service is low whereas 13 % see a high need of protection. Yet, almost 60 % do not know whether there is a need to protect service innovations. The latter fact indicates that the awareness of IPR among service companies is low. Regarding the sub-sectors, it is interesting to find that around 25 % of the knowledge-based and transport companies do not see a significant need to protect innovations. Yet, it is the knowledge-based and transport service sectors that feel the highest need for protection instruments whereas especially the retail sector has a limited interest. The answer from the communication and financial companies indicate a division within those sectors concerning the need of IPR.

Table 4.3 The objectives of using IPR

	Frequency	Pc.
Preventing copying	78	23
Improving the image of the company (branding)	70	20
Blocking competitors	59	17
Entry in new markets	40	12
Increasing company income (licensing revenues)	36	10
Improving the position in negotiations with other companies (partners, alliances, etc.)	29	8
Indicating R&D efficiency in relation to investors, etc. (access to venture capital)	16	5
Total	328	

Note: The per cent states the number of positive answers to the specific question. Please remark that it is possible to state more than one answer.

The reasons for applying for IPR are most often to protect innovations from copying, which is similar to the findings in previous studies on the subject¹⁵. In addition companies are interested in using IPR in order to make the products or the company more visible in the market. This is interesting because it indicates the use of IPR as a proactive instrument in further business development. In this relation the fact that IPR has little interest as a means to attract investors is surprising. However, previous surveys also show that the interest in using

¹⁵ Blind et al., 2003, p.86

IPR to prove R&D efficiency is limited.¹⁶ It indicates that the aim to promote visibility of the company is mostly market oriented.

Table 4.4 Knowledge about the possibilities to use the following forms of protection in relation to the products of your company

	Below medium	Medium	Above medium	Don't know	Average
Trademarks	9 (30)	20 (69)	24 (81)	48 (164)	1,8
Copyright	14 (47)	19 (67)	19 (65)	48 (165)	1,7
Patents	16 (56)	21 (73)	14 (49)	48 (166)	1,6
Industrial design	19 (64)	19 (67)	14 (48)	48 (165)	1,5

Note: In pc. The number in the parentheses states the frequency. Please remark it is possible to state more than one answer.

In order to use the opportunities related to IPR, the knowledge of different types of IPR is an important factor. It is therefore remarkable that almost 50 % of the companies in the survey are not able to assess their level of knowledge about IPR. On average the knowledge of IPR among Nordic service companies on a scale from 1-5 is between 1.5-1.8. It means that the level of knowledge about IPR ranges from “none” to “below medium” on average. On the other hand there is a minor group of 14-24 % of the companies, depending on the type of IPR, whose level of knowledge is above medium. Generally speaking there is little variety in the level of knowledge between the different IPR categories. In the Nordic countries trademarks is the most well-known category whereas knowledge about industrial design protection is the most limited.

The survey also shows that there are minor differences in the level of knowledge between the sub-sectors in the service industry. Hence, the average level of knowledge in all of the sub-sectors in this study is between 1-2.

¹⁶ Blind et al., 2003, p.86

Table 4.5 Knowledge about IPR distributed on sub-sectors

	Below medium	Medium	Above medium	Don't know	Average
I. Trademarks					
Knowledge	10 (13)	18 (23)	27 (35)	45 (57)	2,0
Communication	8 (4)	22 (11)	26 (13)	44 (22)	2,0
Transport	9 (4)	16 (7)	27 (12)	49 (22)	1,9
Finance	9 (4)	17 (8)	21 (10)	53 (25)	1,6
Retail	7 (5)	27 (20)	15 (11)	51 (38)	1,6
II. Copyright					
Communication	8 (4)	28 (14)	20 (10)	44 (22)	2,0
Knowledge	14 (18)	19 (24)	22 (28)	45 (58)	1,8
Transport	20 (9)	11 (5)	20 (9)	49 (22)	1,6
Finance	11 (5)	15 (7)	21 (10)	53 (25)	1,6
Retail	15 (11)	23 (17)	11 (8)	51 (38)	1,4
III. Patents					
Knowledge	13 (17)	21 (27)	21 (27)	45 (57)	1,8
Communication	24 (12)	26 (13)	6 (3)	44 (22)	1,5
Transport	16 (7)	18 (8)	16 (7)	51 (23)	1,5
Finance	21 (10)	13 (6)	13 (6)	53 (25)	1,3
Retail	14 (10)	26 (19)	8 (6)	53 (39)	1,3
IV. Industrial Design Protection					
Transport	13 (6)	18 (8)	20 (9)	49 (22)	1,7
Communication	16 (8)	26 (13)	14 (7)	44 (22)	1,7
Knowledge	25 (32)	15 (19)	15 (19)	45 (58)	1,5
Finance	15 (7)	15 (7)	17 (8)	53 (25)	1,4
Retail	15 (11)	27 (20)	7 (5)	51 (38)	1,3

Note: In pc. The number in the parentheses states the frequency. Please remark it is possible to state more than one answer.

Despite the similarities within the service industry, the transport, communication and knowledge-based service companies have a slightly higher acquaintance level but the difference compared to financial and retail services is low. These acquaintance levels are primarily distinguished regarding copyrights, industrial design protection and patents. It is interesting to note that the transport segment is relatively familiar with trademarks and industrial design protection. The retail sector seems to have the most limited knowledge of IPR across all categories.

Within the Nordic region, the Danish service companies have the highest level of knowledge of IPR. However, their average level is only around 2, which is still below medium. In Sweden the average level of knowledge is 1.5. The Danish and Swedish companies are most familiar with trademarks and less familiar with industrial design protection. In Norway the service sectors have a higher knowledge of trademarks compared to the other form of IPR whereas the patents are the less well known category.

Table 4.6 Companies which have applied for IPR during the last 5 years

	Yes	No	Don't know
Trademarks	27 (94)	15 (52)	58 (198)
Patents	11 (39)	29 (101)	59 (204)
Industrial design	9 (30)	30 (102)	62 (212)

Note: The per cent states the number of positive statements within the specific question. Please remark it is possible to state more than one answer.

During the past five years the 344 companies in the survey have applied for 163 IPR registrations. The applications have primarily been within trademarks, which account for 27 %. Applications for patents and industrial design protection represent 11 % and 9 %

respectively. According to a European study 7 % of the companies in this survey had applied for a patent. It makes the Nordic companies comparatively active in the European context. However, the service industry is significantly less active in the field of IPR than manufacturing industries in which 25 % of the companies have applied for patents¹⁷.

The Nordic survey shows that 23 % of the companies have registered at least one form of IPR. Trademark is the most popular form as 20 % of the companies have registered at least one trademark within the past five years. It is likely that the popularity of trademark registrations has a connection to the creation of visibility in the market. According to the findings in table 4.3, visibility is an important issue for the service companies in this survey. It is interesting to note that the Nordic service companies are more than twice as active in relation to registering trademarks compared to German service companies of which only 8 % had applied for trademarks to protect their innovations¹⁸. Similarly the Nordic companies seem to be slightly more active in filing patents applications. 8% of the Nordic service companies are using patents compared to 6 % of the German competitors¹⁹. If the indications of IPR activity in this Nordic study are compared to a study of the IPR activity among British service companies with more than 10 employees²⁰, one finds that Danish and British companies are almost equally active whereas the remaining Nordic nationalities are less active. Finally, it is interesting to note that despite the low costs of obtaining copyrights²¹ this form of exclusionary protection is only used to a limited extent in the Nordic service industry.

Table 4.7 Registered IPR during the last five years

	No one	1	2-5	6-10	10+	Total 1 =<	Don't know
Trademarks	2 (6)	4 (15)	9 (32)	3 (11)	3 (10)	20 (68)	6 (20)
Patents	1 (5)	1 (4)	3 (9)	1 (2)	4 (14)	8 (29)	2 (6)
Industrial design	0 (0)	1 (5)	3 (11)	0 (1)	2 (7)	7 (24)	2 (6)
Copyright	0 (1)	1 (2)	2 (8)	0 (1)	2 (8)	6 (19)	6 (19)
Total	(12)	(26)	(60)	(15)	(39)	-	(51)

Note: The per cent states the number of positive statements within the specific question. Please remark it is possible to state more than one answer.

The majority of the IPR active companies have obtained 2-5 IPR registrations. Yet, regarding patents most companies obtained more than ten patents. It might indicate that few companies are using patents and that those companies do so in a professional way and thereby they realise their potentials. Generally speaking the communication, knowledge-based and financial service companies have obtained most IPR registrations. The transport service sector has obtained a slightly lower number of registrations whereas retail companies have obtained few exclusionary rights compared to the other sectors. Additionally, the survey shows that about 17 % expect to apply for IPR within the next years. The knowledge-based and financial service sectors have the highest expectations of applying for IPR. In total one third of the companies indicate that they do not expect to apply for IPR.

¹⁷ Eurostat, 2000, p.38 in Blind et al., 2003, p.2 & 79

¹⁸ Blind et. al., 2003, p.79

¹⁹ Blind et al., 2003, p.79

²⁰ Blind et. al., 2003, p.31

²¹ Copyrights is a relatively low-cost form of IPR because it does not require registration as such. Source: Andersen & Howells, 2000, p.237

5 IP Organisation

Chapter 3 defined IP organisation and explained the theoretically important elements in best practice. In this chapter, the elements that constitute the IP organisation, as illustrated in figure 3.1, are analysed by looking at the practical approaches to handling IPR issues among Nordic service companies. The aim is to establish a basis to test which of these elements that explain the attainment of IPR, and thus define best practice. First the section identifies the extent to which the Nordic service companies use written IPR strategies, second it looks into the characteristics of the competences, which the companies employ and finally the organisational structure to handle IPR issues.

5.1 IP Strategy

In the theoretical model a written strategy is considered the basic instrument in guiding and encouraging IPR activity. Therefore it is interesting to see whether the companies in this study have written strategies.

Table 5.1 Does your company have a written strategy for protection and utilize IPR?

	Frequency	Pc.
Yes	22	6
No, but we are planning to formulate a strategy	13	4
No	102	30
Don't know	207	60
Total	344	100

It turns out that in total 6 % of the companies have written IPR strategies whereas 4 % are planning to formulate one. This result is remarkable compared to the fact that other studies show that 25 % of the European service companies have a written IPR strategy²². However, 60 % do not know whether they have an IPR strategy or not. The latter indicates that the field has limited attention from the part of the companies and that their interest might be limited. Additionally the survey shows that a higher percentage of the companies within the transport service sector have written strategies. This is the case for 13 %. 9 % of the knowledge-based companies have IPR strategies.

²² Blind et al., 2003

5.2 IPR Competences

The second step in the theoretical model points to the quantity and characteristics of the competences used to handle IPR issues. The employment of such competences is important for the companies in order to deal with and take advantage of the IPR system.

Table 5.2 The number of persons who are working with IPR

	Frequency	Pc.
No one	46	13
1	20	6
2	19	6
3	8	2
4 or more	22	6
Don't know	229	67
Total	344	100

It is notable that 13 % of the Nordic service companies in this survey do not have any employees who specifically are responsible for handling IPR. On the other hand it is indicated that 20 % do have one or more employees working with IPR. This is remarkable because it shows that the number of companies with IPR competences is three times more than the number of companies with a written strategy. Hence, some companies do employ people responsible for IPR but their work is not based on a strategy.

Table 5.3 The number of persons who are working with IPR distributed by sub-sectors

	None	1	2	3	4+	Don't know	Total
Transport	13 (6)	7 (3)	7 (3)	4 (2)	9 (4)	60 (27)	27 (12)
Knowledge	19 (24)	8 (10)	6 (8)	3 (4)	8 (10)	56 (72)	25 (32)
Retail	9 (7)	7 (5)	5 (4)	0	4 (3)	74 (55)	16 (12)
Communication	8 (4)	2 (1)	0	4 (2)	8 (4)	78 (39)	14 (7)
Finance	11 (5)	2 (1)	9 (4)	0	2 (1)	77 (36)	13 (6)

Note: In pc. within the sub-sector. The number in the parentheses states the frequency.

It is interesting to note that less financial and communication companies than expected have IPR employees compared to their level of activity in the field. On the other hand it is indicated that one part of the communication companies has many IPR employees whereas another part does not have specific IPR competences. In light of the low level of activity among the retail companies, it is also surprising that a relatively high percentage of these companies have IPR employees. In general the transport service sector includes more companies with IPR employees than the remaining sectors. It corresponds to the fact that more transport companies have written strategies.

Regarding the extent to which IPR competences is prioritised there are also significant variations within the Nordic region. In Denmark 33 % of the service companies employ persons with specific IPR qualifications. In Sweden and Norway this is the case for 14 % of the companies. Further, most of the companies with a relatively high number of employees are Danish.

The characteristics of the qualifications most often reflect legal and economic skills whereas technical skills are used to some extent. Moreover, 17 % of the companies use external advisors. This is the case for 22 % of the Danish companies, 16 % in Norway and Sweden whereas only 6 % of the Icelandic companies use external IPR consultants. In the Nordic countries the external consultants are most often lawyers, patent agencies and public authorities whereas management consultants and auditors are involved in very few cases. In conclusion, the Nordic service companies tend to rely more on internal competences. External competences, then, are used to complement the internal knowledge when specific skills are necessary.

Competence development in the field of IPR is another aspect, which characterise the interest of the service companies relating to IPR. It is observed that almost one in four of the companies prioritise further education and development within other fields than IPR higher. A similar part does not spend time on courses and seminars focusing on IPR issues. 8 % prioritise training and education in IPR equal to other competences whereas 2 % believe that IPR is more important in terms of further education. This reflects the emphasis on other parameters relating to competitiveness as noted in chapter 4. These observations are notable with regards to the reliance on internal competences.

5.3 IP Structure

The IP structure refers to the internal organisational design of IPR related activities and competences. From a theoretical point of view it is assumed that the organisation is based on the written strategy.

Table 5.4 Structuring of IPR activities

	Frequency	Pc.
Written IPR strategy	22	6
IPR department	29	8
IPR is managed in several departments	55	16
IPR is managed in several department and coordinated between them	47	14
IPR is at the agenda of the executive management	23	7
IPR is a part of our business procedures	45	13
IPR is a integrated part of our business culture	35	10
The patent database is used for market analysis and research about partners	22	6
The patent database is used for inspiration and development of new products or services	21	6

Note: The per cent states the number of positive statements within the specific question. Please remark it is possible to state more than one answer.

The findings in this survey show that 6 % of the companies have a written strategy whereas only 8 % have an internal IPR department. It means that 2 % of the companies have an internal IPR department without working on a strategic basis. With reference to figure 3.2, it is favourable when the IPR activities are shared among and coordinated between several departments. 16 % of the Nordic companies have distributed the IPR activities while only 14 % coordinate these activities. 13 % of the respondents believe that they have reached a higher level of IP organisation as their IPR activities are seen as an integrated part of their business procedures. Additionally, 10 % of the Nordic service companies find that they have institutionalised IPR as part of the company culture. These findings indicate that a group of 10-20 % of the companies in the survey are working seriously and well organised with IPR as part of their services.

The patent system is primarily used to register and protect services. Due to the systematic registration in the patent database the system can also be applied in relation to market and stakeholder surveillance. 6 % of the Nordic service companies are using the patent system in this way. Additionally, the patent database may be deployed in order to find inspiration for the development of new service products. For instance the Nordic service companies might get ideas from the American patent database to generate further developments of their own business activities. The patent system is used in this way by 6 % of the companies in the survey sample²³.

Table 5.5 IP-organisation distributed by sub-sectors

	Transport		Finance		Knowledge		Communication		Retail	
	Pc.	Don't know	Pc.	Don't know	Pc.	Don't know	Pc.	Don't know	Pc.	Don't know
We have an IPR department	9 (4)	56 (25)	4 (2)	66 (31)	13 (17)	49 (63)	6 (3)	54 (27)	4 (3)	72 (53)
IPR is managed in several departments	16 (7)	60 (27)	13 (6)	66 (31)	20 (25)	52 (66)	20 (10)	60 (30)	9 (7)	73 (54)
IPR is managed in and coordinated between several departments	13 (6)	60 (27)	11 (5)	66 (31)	16 (21)	53 (68)	16 (8)	60 (30)	9 (7)	76 (56)
IPR is at the agenda of the executive management	2 (1)	58 (26)	4 (2)	79 (37)	10 (13)	59 (75)	10 (5)	66 (33)	3 (2)	77 (57)
IPR is a part of our procedures	16 (7)	58 (26)	6 (3)	72 (34)	18 (23)	52 (67)	16 (8)	60 (30)	5 (4)	73 (54)
IPR is an integrated part of our business culture	13 (6)	58 (26)	4 (2)	74 (35)	14 (18)	54 (69)	14 (7)	62 (31)	3 (2)	74 (55)
We use the patent database for market analysis and research about partners	7 (3)	58 (26)	4 (2)	70 (33)	10 (13)	53 (68)	0	64 (32)	5 (4)	73 (54)
We use the patent database for inspiration and development of new products or services	7 (3)	56 (25)	2 (1)	68 (32)	9 (12)	55 (71)	2 (1)	60 (30)	5 (4)	74 (55)

Note.: In pc. within the country. The number in the parentheses states the frequency. The per cent states the number of positive statements within the specific question. Please remark it is possible to state more than one answer.

Looking at the sub-sectors the table above shows that the majority of companies with an internal IPR department are found in the knowledge-based service sector. This is the case for 13 % of the knowledge-based companies. This rate is three times higher than in the financial service sector and twice as high as in the communication sector. Regarding the transport sector 9 % of the companies have an IPR department which is high compared to both the financial, communication and retail sectors. However, it corresponds to the fact that the transport sector is one of the most active sectors working with IPR.

In relation to the distribution of the IPR activities across different departments the knowledge-based and communication service sectors are distinguished. One in five of these companies structures IPR in several departments. This is the case for respectively 13 % and 11 % of the

²³ The survey by Blind et al., 2003 shows that these companies estimate the impact of using the patent system proactively to be 2 on a scale from 1-5, where 5 means very high impact.

transport and financial service companies. Finally, it is striking that the proactive use of the patent system is largely seen limited to the knowledge-based sector. Knowledge-based companies also tend to refer IPR issues to top-level decision-makers more often than the remaining sub-sectors. It is interesting that a quite high number of transport, knowledge-based and communication service companies estimate IPR to be an integrated part of their business procedures. This is the case for 16, 18 and 16 % respectively. Finally, 13 % in the transport sector and 14 % of the knowledge-based and communication companies think they have an integrated IPR culture.

5.4 Informal Protection Instruments

As mentioned in section 2.4 IPR is a formal means to protect exclusionary rights. It has been argued that it is difficult to protect innovations in the service industries due to the nature of services. Therefore Howells argues that service companies use informal instruments to protect their innovations to a higher extent than the formal IPR system²⁴. Consequently this study among the Nordic service companies has also investigated the use of informal means of protection.

This study shows that among the Nordic service companies the most widespread informal means to protect innovations is to keep important knowledge and information secret or within the company. Secrecy is used by 18 % of the companies whereas 13 % make special contracts with customers and suppliers. Some companies, 10 % in this survey, have very short innovation cycles making it irrelevant to obtain exclusionary rights while others seek to bound their customers and employees to the company through competition clauses.

Table 5.6 The use of informal means of protection

	Frequency	Pc.
Secrecy	61	18
We work with specific contracts to our customers and suppliers	44	13
Short Innovation Cycles	34	10
We work with specific contracts to our employees	23	7
We do not protect our services	23	7
Our products is complicated to copy	22	6
We do have a specific business concept (e.g. franchise)	12	3
Don't know	223	65

Note: The per cent states the number of positive answers within the specific question. Please remark it is possible to state more than one answer.

²⁴ Howells, 1997 in Blind et al., 2003, p.37-40

5.5 Best Practice

The final section referring to the IP organisation composes the establishment of a “best practice” approach. It seeks to identify the extent to which a connection can be established between the way of handling IPR in organisational and strategic terms, and the number of IPR registrations obtained. In the first place the theoretical model which was established in chapter 3 is tested. It focuses on a number of elements that are assumed to play an important role:

- A written strategy (S)
- The number of employees working with IPR (M)
- An IPR department (A)
- Coordination between several departments (K)
- The use of external competences (E)
- Regular attention to IPR on the top level (D)
- The patent system is used as a source of inspiration in connection with product and service development (I)

In order to test the effect of these variables on the IPR attainment a linear regression model is established. The dependent variable is the number of IPR registrations. The different types of IPR, copyrights, trademarks, industrial design protection and patents, are not distinguished. First, a general calculation is undertaken including all of the variables above.

$$Y = \alpha + \beta_1 S + \beta_2 M + \beta_3 A + \beta_4 K + \beta_5 E + \beta_6 D + \beta_7 I + \varepsilon$$

The results are presented in the table below. It is indicated that the model explains 42 % of the IPR registrations.

Table 5.7 Results from the linear regression model. Full model:

	Coefficient	Significance	OK
Constant	0,330	0,227	
Strategy	3,218	0,02	X
Coordination	0,768	0,362	÷
IPR department	4,374	0,00	X
Number of IPR employees	0,959	0,003	X
External competences	0,321	0,677	÷
Agenda	-2,210	0,055	÷
Inspiration	7,026	0,000	X

Note: Dependent variable is the number of reviewed IPR. R2 (adj): 0,414. The regression is done by the OLS estimation.

The findings point out that a written strategy, an IPR department and employment of people with IPR competences have positive values. Therefore these elements are significant. In contrast the regression shows that the coordination of IPR activities, the use of external consultants and the fact that IPR is on the agenda of the executive management are insignificant. It means that a written strategy, establishment of an IPR department the number of internal competences, and a search for inspiration in the patent system are able to explain the IPR attainment. Subsequently these four explanatory variables are isolated in the second calculation in order to determine the degree of explanatory power. The results of the second regression are presented below:

Table 5.8 Results from the linear regression model. Revised model

	Coefficient	Significance	OK
Constant	0,382	0,148	
Strategy	3,172	0,019	X
IPR department	4,165	0,000	X
Number of IPR employees	0,945	0,001	X
Inspiration	6,832	0,000	X

Note: Dependent variable is the number of reviewed IPR. R2 (adj): 0,414. The regression is done by the OLS estimation.

The results of the second regression show that the new model is significant and is able to explain 41 % of the variations among the companies. It means that there is a clear connection between these four variables and the performance in terms of IPR registrations. The regression shows that the formulation of an IPR strategy can increase the attainment of IPR with 3 registrations. The establishment of an internal IPR department adds 4 registrations whereas the employment of IPR competences almost generates 1 additional registration. The use of the patent database to find inspiration has a remarkable effect due to the attainment of 7 IPR registrations.

In conclusion it is seen that there is a clear connection between the way companies structure their IPR activities and the accumulation of IPR attainments. According to the model above best practice includes the following elements:

Strategy

IPR department

The number of IPR employees

Proactive use of the patent system for inspiration

6. Barriers and Suggestions

One of the main purposes of the Nordic study was to identify the barriers that the Nordic service companies face regarding the use of IPR, and to come up with some suggestions for initiatives that could encourage a wider use of the system. Therefore this chapter first outlines the barriers and then the suggestions.

6.1 Barriers

At the beginning of this article the relevance of IPR in relation to the service industry was discussed. The question of relevance is raised because of the nature of services making the protection instruments weaker compared to manufacturing products. Therefore it might be suggested that current formal IPR instruments do not fit the needs of the service industry in terms of adequate protection. However, 22 of the companies in this survey estimate that the need to design protection instruments fitting the service industry specifically is insignificant. On the other hand 10 % of the companies do see a need for such instruments. One explanation of the apparently limited fit between the current IPR system and the needs of the service companies might be a lack of information about the existing instruments, the ways and the advantages of using them. Another explanation might be a lack of tradition of using IPR, which is institutionalised in the service industry. These hypotheses are tested in the survey and the results are listed below.

Table 6.1 Barriers faced by the companies in relation to the use of IPR

	Yes	No	Don't know
Our products/services are not relevant for patenting, etc.	24 (82)	14 (47)	61 (210)
No tradition for the protection of exclusionary rights	16 (55)	22 (76)	60 (208)
We need protection instruments that are specifically designed to services/service products	10 (36)	22 (74)	68 (234)
Copying is not a risk	11 (38)	23 (80)	66 (226)
It is difficult to enforce patents, trademarks, industrial design protection, etc.	10 (35)	17 (59)	73 (250)
Lack of competences to handle IPR applications.	8 (28)	28 (95)	63 (216)
The development of the sector is too quick making IPR irrelevant	8 (27)	27 (92)	65 (225)
The costs of advisors in IPR are too expensive	8 (26)	17 (57)	76 (261)
The application procedure is too complicated and bureaucratic	7 (25)	19 (65)	74 (254)
The application fees are too expensive	7 (25)	18 (63)	74 (256)
Innovation, research and development are not highly prioritised	6 (19)	31 (108)	62 (212)
The time for case administration is too long	5 (17)	21 (72)	74 (255)
Lack of financial resources	5 (16)	31 (107)	63 (216)
Patent publications reveal too much important information	3 (9)	27 (93)	69 (237)

Note: In pc. The per cent states the number of positive answers within the specific question. The parentheses states the number of observations Please remark that it is possible to state more than one answer

- 24 % of the companies do not use IPR because they do not think that IPR is relevant for their service and products. Thus, lack of pertinence of the current patent system is the most significant barrier to the use of IPR;
- 16 % of the Nordic service companies believe that the lack of tradition to take advantage of the patent system protect services impede the increased use of IPR;
- 11 % of the companies perceive the risk of copying to be limited, and 10 % find it difficult to enforce exclusionary rights. Regarding the latter aspect a study of European service companies have emphasised the little success of IPR in protecting music, literature and other kinds of service products from duplications as a possible explanation. On the other hand the same study also concludes that one in five of the European service companies find IPR irrelevant due to short innovation cycles²⁵. In this Nordic survey, the impediment of short innovation cycles is seen as a barrier to the use of IPR by 8 % of the companies;
- 10 % of the Nordic service companies think that there is a need to develop protection instruments, which specifically fit the characteristics of the service industry. By contrast 22 % do not see this need;
- Though the limited knowledge of IPR among service companies and little attention to competence acquisition and development, as noted in chapter 4 and 5, companies do not seem to find that they lack the capabilities to handle IPR applications;
- Neither costs of consultancy, applications fees, difficulties or other issues directly related to the patent authorities are significant barriers.

It is indicated that the primary constraining factor regarding the use of IPR is the perceptions of the companies that the formal protection instruments are not relevant for their services. The

²⁵ Blind et al. (2003).

second most constraining factor is the lack of tradition in the service industry to register the service products. It is likely to be connected to the lack of fit between current IPR instruments and service products.

It is interesting to see that the Nordic service companies in general do not think that the factors, which are directly related to the functions of the patent authorities, are significant barriers. Thus, neither the administrative costs and procedures, nor the time for case administration are considered limiting the use of IPR. However, a minor part of the companies seem to lack the necessary competences to handle IPR applications, and they consider the costs of consultancy to be too high.

Generally speaking the findings listed above make it relevant for the Nordic patent authorities to engage more actively in the enhancement of knowledge and competences among service companies to handle IPR applications. Additionally, it seems pertinent to introduce less complicated application procedures, which requires fewer competences.

In relation to the barriers there are minor differences between the Nordic countries. In Norway and Iceland more companies seem to lack competences and financial resources to handle IPR and more companies report dissatisfaction with the patent agencies regarding the application procedures. In Denmark and Sweden the number of companies which point out the service characteristics and aspects relating to the service culture is more significant.

6.2 Suggestions and Initiatives

The section above identified the barriers that service companies face with regard to the IPR system. Additionally, this survey has asked the companies what kind of initiatives they would consider relevant in order to increase the use of the IPR system. The most welcomed initiatives are listed below.

Table 6.2 Evaluation of potential initiatives to increase the opportunities of the service companies to protect their innovations

					Willingness to pay		
	Relevant	Less relevant	Not relevant	Don't know	Yes	No	Don't know
I. Information, consulting							
Access to a better web page	16	8	12	64	4	16	4
Better written information about exclusionary rights	13	11	12	64	3	17	4
Access to legal advice/consultancy about IPR	13	12	12	63	14	7	4
Access to strategic/business related advice concerning the use of IPR	13	9	14	64	8	9	6
Access to a hotline	6	13	17	64	4	13	3
We need organisational and strategic assistance in relation to exclusionary rights	4	11	17	67	3	8	4
II. Offers on education/courses							
Need for offers on education and courses adapted to my company	8	9	20	47	10	6	3
Need for offers on education and courses targeted at the service industry	7	11	19	47	8	7	3

Note: In pc. The per cent states the number of positive answers within the specific question. Please remark that it is possible to state more than one answer

- Access to information, for instance improved web pages and written information, is estimated to be the most important initiative to encourage the attainment of IPR among service companies;
- Availability of consultancy services concerning legal, strategic and business related aspects of IPR. It indicates that the need for advice is not limited to information about the types of IPR. It also involves the broader know-how of how companies organisationally and strategically can structure the IPR activities. The willingness to pay for such services is relatively high;
- Offers on education in terms of seminars and courses about IPR are of a more limited interest and only few companies want to pay for such courses. However, Danish companies are distinguished from the remaining due to their higher willingness to pay for educational initiatives in the field of IPR.

These suggestions indicate that the Nordic patent authorities should consider offering more direct consultancy services to the companies. For instance the patent authorities might consult the companies in structuring their IPR activities and the IP organisation. In addition the suggestions lead towards the formulation of advices and recommendations in more general terms. For instance the patent authorities could develop general guidelines and publications that target the service industry.

7 Conclusion

This paper aims to outline the results of a study about the *awareness of IPR, use of the IPR system and competences relating to IPR among Nordic service companies*. Additionally, it establishes a best practice model to guide companies that wish to work more with IPR and it identifies barriers for and suggestions to expanding the use of the IPR system.

Initially, best practice is based on a written IPR strategy, the handling and coordination of IPR in several departments, integration of IPR issues in general procedures, which may turn into an IPR culture. Moreover, strategic considerations of IPR as part of the agenda of the executive management and board meetings, and a proactive use of the IPR system are important elements of best practice.

The survey has indicated that quality, marketing and price are estimated to be the most important competitive parameters among Nordic service companies. Hence IPR has a relatively low priority. Regarding the types of IPR, trademarks are seen as more important than patents and copyrights. One possible reason is the effects of trademarks on the visibility and recognition of the service product or company behind as part of the marketing and branding activities. About 20 % of the companies in the survey estimate that the need to protect their innovations in service is low whereas 13 % see a high need for protection. Regarding the sub-sectors, companies within the knowledge-based and transport service companies are divided in two groups. Approximately 25 % of the companies within both of these sub-sectors do not see a need while another group of 15-20 % see a high need for exclusionary protection. In the remaining sectors the estimations of the need for protection are more dispersed.

The primary reason for using IPR is to protect innovations from copying. Furthermore the companies use IPR as an instrument to create or enhance the visibility of their products or the company in the market. It indicates that IP is also used proactively in relation to further business development. However, the survey shows that visibility is mostly market oriented. Thus, IPR is not seen as a means to attract potential investors. The knowledge of IPR and its possibilities is generally low ranging from “none” to “below medium” on average whereas a minor group of 14-24 companies have a knowledge level “above medium”. Trademarks is the most well-known category whereas knowledge about industrial design protection is the most limited. The transport, communication and knowledge-based service companies have a slightly higher acquaintance level but the difference compared to financial and retail services is low. The companies in these three sub-sectors are generally speaking more familiar with copyrights, industrial design protection and patents compared to the financial and retail service companies.

In total the 344 companies in the survey have applied for 163 IPR registrations during the past 5 years. In 27 % of the cases, companies have applied for trademarks. Applications for patents and industrial design protection represent 11 % and 9 % respectively. It means that the Nordic

service companies are more active in filing patent applications than their European competitors. According to a previous study 7 % of the European companies had applied for patents. 23 % of the Nordic companies have obtained some kind of IPR. 20 % have registered at least one trademark during the past 5 years. The results from the Nordic survey show that Nordic service companies are very active in obtaining trademarks. According to a study in Germany only 8 % of German service companies had obtained trademarks. Moreover, 8 % of the service companies in the Nordic countries have obtained patents compared to 6 % of the German competitors.

Regarding the IP organisation the survey shows that 6 % of the Nordic service companies have a written IPR strategy, and 4 % expect to formulate one in the near future. This is considerably few compared to the results of a European study showing that 25 % of the European service companies have a written strategy on IPR. The reason might be the relatively low attention to the issue in the Nordic region. For instance 60 % of the Nordic companies “do not know” whether they have a written IPR strategy or not. 8 % of the Nordic companies have an internal IPR department whereas 16 % have distributed the IPR activities in several departments. 14 % coordinate these activities. 13 % of the respondents see their IPR activities as an integrated part of their business procedures. Additionally, 10 % of the Nordic service companies find that they have an internal IPR culture. 6 % of the Nordic service companies are using the patent system in relation to market surveillance or to find inspiration for the development of new service products.

Based on the findings in the survey a regression model is calculated to identify the factors that have an impact on the number of IPR registrations. It is concluded that an IPR strategy, establishment of an IPR department, employees working with IPR and attempts to seek inspiration for new products in the patent system are significant, and therefore define best practice.

Finally, the study showed that the primary barrier for using the IPR system is the perceptions of the companies that their services are not relevant for IPR protection. The second most important aspect is the lack of tradition for using IPR system in the service industry. In contrast, aspects that are directly related to the patent authorities such as application fees, bureaucratic procedures and the time for case administration are not significant constraints. The initiatives which the companies in the survey have suggested indicate that there is a demand for more and better written information, for instance web pages, written guidelines and general publications about IPR and IP organisation. It means that the companies are interested in offers on training and education about IPR as well as broader consultancy services in aspects such as organisational, strategic and business issues relating to the use of the IPR system.

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Appendix 1. Questionnaire

A. Introduction

The objective of this survey is to identify the extent to which Nordic service companies take advantage of the IPR system to protect their innovations and how important IPR is for the competitiveness. The survey aims are to contribute to the development of IPR-initiatives which specifically fit the service sector.

The survey is done by ECON Analysis in cooperation with the patent offices in the Nordic countries and Nordic InnovationsCenter. It will only take 10 minutes to complete the questionnaire.

Instruction to the interviewers:

The questionnaire must be answered by a person centrally positioned in relation to the company's service development and intellectual property rights.

The interviewee must be one of the following:

- (1) ☐ IPR manager
- (2) ☐ Marketing manager
- (3) ☐ Product development manager
- (4) ☐ General manager/director
- (5) ☐ Other, please note: _____

Terminology:

- The term Intellectual Property Right (IPR) covers patents, trademarks, copyright or industrial design. Questions about IPR (or exclusionary rights) therefore concern the use of patents, trademarks, copyrights or industrial design protection.

B. Innovation and use of IPR

1) Has your company introduced new services during the last 5 years?

You can have more than one answer

- (1) ☐ Yes, we have developed new service products or concepts
- (2) ☐ Yes, we have developed new modes of servicing our customers
- (3) ☐ Yes, we have developed new service markets
- (4) ☐ Yes, we have developed new organisational forms
- (5) ☐ Yes, Other
- (6) ☐ No
- (7) ☐ Don't know

Guidelines for the interviewers:

By answering "no" or "don't know" the interview is finished!

Thanks for your help, but you are not in the target group

2) In which kind of innovation activities are your company engaged in?

	Yes	No	Don't know
(1) Our company have internal innovation activities	(1) ☐	(2) ☐	(3) ☐
(2) Innovation partnership with private partners	(1) ☐	(2) ☐	(3) ☐
(3) Innovation partnership with public partners	(1) ☐	(2) ☐	(3) ☐
(4) Taking over other companies	(1) ☐	(2) ☐	(3) ☐
(5) We are buying licences	(1) ☐	(2) ☐	(3) ☐
(6) We have sold licences	(1) ☐	(2) ☐	(3) ☐
(7) Other, please note: _____	(1) ☐	(2) ☐	(3) ☐

3) What is your knowledge about using the following types of intellectual property rights in relation to the products of your company?

	None	Less knowledge	Some knowledge	Good knowledge	Very good knowledge
(1) Patents	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(5) ☐
(2) Trademarks	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(5) ☐
(3) Industrial design	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(5) ☐
(4) Copyright	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(5) ☐
(5) Other, please note: _____	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(5) ☐

4) Have your company applied for the following types of intellectual property rights during the last 5 years?

	Yes	No	Don't know
(1) Patents	(1) ☐	(2) ☐	(3) ☐
(2) Trademarks	(1) ☐	(2) ☐	(3) ☐
(3) Industrial design	(1) ☐	(2) ☐	(3) ☐
(4) Other, please note: _____	(1) ☐	(2) ☐	(3) ☐

5) Have your company obtained one or more of the following types of intellectual property rights during the past 5 years?

Number	No one	1	2-5	6-10	10+	Don't know
(1) Patent	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(5) ☐	(6) ☐
(2) Trademarks	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(5) ☐	(6) ☐
(3) Industrial design	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(5) ☐	(6) ☐
(4) Copyright	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(5) ☐	(6) ☐
(5) Other, please note: _____	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(5) ☐	(6) ☐

6) Does your company plan to apply for intellectual property rights (patent, trademarks, industrial design protection)?

- (1) ☐ Yes
 (2) ☐ No
 (3) ☐ Don't know

7) What are your company's motivations for using Intellectual property rights (patents, trademarks, industrial design protection and copyrights)?

You can have more than one answer

- (1) ☐ Preventing copying
 (2) ☐ Improving the image of the company (branding)
 (3) ☐ Blocking competitors
 (4) ☐ Open up new markets
 (5) ☐ Increase company value (licensing revenues)
 (6) ☐ Improving position in negotiations with other companies (partners, alliances etc.)
 (7) ☐ Indicator for R&D efficiency in relation to investors etc. (access to venture capital)
 (8) ☐ Other, please note: _____
 (9) ☐ Don't know

C. IPR competences and organisation

8) How does your company work with intellectual property rights?

	Yes	No	Don't know
(1) We have an IPR department	(1) ☐	(2) ☐	(3) ☐
(2) IPR is managed in several departments	(1) ☐	(2) ☐	(3) ☐
(3) IPR is managed in and coordinated between several departments	(1) ☐	(2) ☐	(3) ☐
(4) IPR is regularly at the agenda of the executive management	(1) ☐	(2) ☐	(3) ☐
(5) IPR is a part of our procedures	(1) ☐	(2) ☐	(3) ☐
(6) IPR is an integrated part of our business culture	(1) ☐	(2) ☐	(3) ☐
(7) We use the patent database for market analysis and research about partners	(1) ☐	(2) ☐	(3) ☐
(8) We use the patent database to get inspiration for development of new products or services	(1) ☐	(2) ☐	(3) ☐
(9) Other, please note: _____	(1) ☐	(2) ☐	(3) ☐

9) How many employees are working with IPR?

- (1) ☐ No one
- (2) ☐ 1
- (3) ☐ 2
- (4) ☐ 3
- (5) ☐ 4 or more
- (6) ☐ Don't know

Guidelines for the interviewers:

By answering “no one” in question 9 go to question 11.

10) Which kind of internal competences does your company employ to deal with IPR issues?

Competences	Yes	No	Don't know
(1) Legal skills	(1) ☐	(2) ☐	(3) ☐
(2) Economic/marketing skills	(1) ☐	(2) ☐	(3) ☐
(3) Technical skills	(1) ☐	(2) ☐	(3) ☐
(4) Other, please note:	(1) ☐	(2) ☐	(3) ☐

11) Does your company use external advisors in relation to the IPR activities?

- (1) ☐ Yes
(2) ☐ No
(3) ☐ Don't know

12) If Yes in question 11: Which kind of external advisors does your company use?

You can have more than one answer

- (1) ☐ Patent agencies
(2) ☐ Lawyers
(3) ☐ Auditors
(4) ☐ Management consultants
(5) ☐ Technological institutes, etc.
(6) ☐ Patent authorities
(7) ☐ Other, please note: _____

13) How important is training in IPR compared to other kind of training programs?

Less important	Similar importance	More important	Don't know
(1) ☐	(2) ☐	(3) ☐	(4) ☐

14) How many days a year do your company spend on training in IPR?

- (1) ☐ No one
(2) ☐ 1 day
(3) ☐ 2 days
(4) ☐ 3 days
(5) ☐ 4 days or more
(6) ☐ Don't know

D. Company strategy and protection of IPR

15) To which extent do you find it necessary to protect your services?

- | Not at all | To a less extent | To some extent | To a high extent | To a very high extent |
|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| (1) ☐ | (2) ☐ | (3) ☐ | (4) ☐ | (5) ☐ |

16) Does your company have a written strategy to protection and to exploit IPR?

- (1) ☐ Yes
(2) ☐ No, but we are planning to formulate one
(3) ☐ No
(4) ☐ Don't know

17) To which extent is it important for your company to have a strategy for intellectual rights (IPR)?

- | Not at all | To a less extent | To some extent | To a high extent | Don't know |
|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| (1) ☐ | (2) ☐ | (3) ☐ | (4) ☐ | (5) ☐ |

18) Which of the following aspects prevent your company from using patents, trademarks, industrial design protection and copyrights?

	Yes	No	Don't know
Internal aspects			
(1) Our products are not suitable for IPR	(1) ☐	(2) ☐	(3) ☐
(2) Patent publications etc. reveal too much information	(1) ☐	(2) ☐	(3) ☐
(3) Innovation, research and development have low priority	(1) ☐	(2) ☐	(3) ☐
(4) We do not have a tradition for protecting exclusionary rights	(1) ☐	(2) ☐	(3) ☐
(5) We lack financial resources	(1) ☐	(2) ☐	(3) ☐
(6) We lack the competences to apply for patents, trademarks, industrial design etc.	(1) ☐	(2) ☐	(3) ☐
(7) We prefer to use other protection instruments	(1) ☐	(2) ☐	(3) ☐
Please note:			
External aspects			
(8) Too short innovation cycles	(1) ☐	(2) ☐	(3) ☐
(9) Copying is not a risk	(1) ☐	(2) ☐	(3) ☐
(10) The time for case administration is too long	(1) ☐	(2) ☐	(3) ☐
(11) The application process is too complicated and too bureaucratic	(1) ☐	(2) ☐	(3) ☐
(12) The application fees are too expensive	(1) ☐	(2) ☐	(3) ☐
(13) It is difficult to enforce IPR	(1) ☐	(2) ☐	(3) ☐
(14) The costs of advisor in the field of IPR are too high	(1) ☐	(2) ☐	(3) ☐
(15) Other, please note:	(1) ☐	(2) ☐	(3) ☐

19) Does your company use the following mechanisms to protect innovations?

You can have more than one answer

- (1) ☐ We keep important information and knowledge secret to prevent accessibility for the competitors
- (2) ☐ We make sure to have short innovation cycles and to be first movers in the market
- (3) ☐ We are operating with a specific business concept (e.g. franchising)
- (4) ☐ We attempt to bound our customers and employees to the company by using customer and competition clauses
- (5) ☐ We have specific contracts with our customers and suppliers
- (6) ☐ It is difficult to copy our products
- (7) ☐ Other, please note: _____
- (8) ☐ We do not seek to protect our innovations
- (9) ☐ Don't know

E. Improvement of the IPR system

20) Below some initiatives which could increase the possibilities for the service companies to protect their innovation are listed. Please estimate how relevant these initiatives are for your company

					20B: Are you willing to pay for this offer?		
	Relevant	Less relevant	Not relevant	Don't know	Yes	No	Don't know
I. Information and consultancy							
(1) More written information about IPR	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(1) ☐	(2) ☐	(3) ☐
(2) Access to better web pages	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(1) ☐	(2) ☐	(3) ☐
(3) Access to a hotline	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(1) ☐	(2) ☐	(3) ☐
(4) Access to legal advising about IPR	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(1) ☐	(2) ☐	(3) ☐
(5) Access to strategic and business oriented advising about the use of IPR	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(1) ☐	(2) ☐	(3) ☐
(6) We need organisational and strategic assistance within the area of IPR	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(1) ☐	(2) ☐	(3) ☐
II. Offers on training and courses							
(7) We need training and courses which are adapted to the needs of our company	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(1) ☐	(2) ☐	(3) ☐
(8) We need training and courses which are target service companies	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(1) ☐	(2) ☐	(3) ☐
(9) Other, please note: _____	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(1) ☐	(2) ☐	(3) ☐

21) Do you have further suggestions, which could increase the use of patents, trademarks, industrial design protection etc. in the service sector?

F. Final questions to characterise the company

22) How many people does your company employ?

- (1) ☐ - 49
- (2) ☐ 50- 99
- (3) ☐ 99-249
- (3) ☐ 250-
- (3) ☐ Don't know

23) How is your company characterised?

You can have more than one answer

	yes	No	Don't know
Part of an international company	(1) ☐	(2) ☐	(3) ☐
Business to Consumer (B-C market)	(1) ☐	(2) ☐	(3) ☐
Business-to-Business (B-B market)	(1) ☐	(2) ☐	(3) ☐
Part of a large national chain	(1) ☐	(2) ☐	(3) ☐
e) Other: _____	(1) ☐	(2) ☐	(3) ☐

24) How has the number of employees developed during the past 5 years?

- (1) ☐ Increased
- (2) ☐ Unchanged
- (3) ☐ Decreased
- (4) ☐ Don't know

25) How has the turnover developed during the past 5 years?

- (1) ☐ Increased
- (2) ☐ Unchanged
- (3) ☐ Decreased
- (4) ☐ Don't know

26) Does your company have international sales/export?

- (1) ☐ Yes, to EU-countries
(1) ☐ Yes, to countries outside the EU
(2) ☐ No, we do not have international sales/export

27) If yes in question 26: How has your export developed during the past 5 years?

- (1) ☐ Increased
(2) ☐ Unchanged
(3) ☐ Decreased
(4) ☐ Don't know

28) To which extent are the following factors important for your customers and future competitiveness?

Factors	Not at all	To a less extent	To some extent	To a high extent	To a very high extent	Don't know
(1) Quality	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(5) ☐	(6) ☐
(2) Marketing, branding, image	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(5) ☐	(6) ☐
(3) Price	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(5) ☐	(6) ☐
(4) Trademarks	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(5) ☐	(6) ☐
(5) Copyright	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(5) ☐	(6) ☐
(6) Patents	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(5) ☐	(6) ☐
(7) Other: _____	(1) ☐	(2) ☐	(3) ☐	(4) ☐	(5) ☐	(6) ☐

G. Closure

29) May we contact you later on for a deeper discussion about this subject?

- (1) ☐ Yes, my name is: _____, you can contact me by
E-mail: _____
(2) ☐ No

Thanks!

Nordic Innovation Centre

The Nordic Innovation Centre initiates and finances activities that enhance innovation collaboration and develop and maintain a smoothly functioning market in the Nordic region.

The Centre works primarily with small and medium-sized companies (SMEs) in the Nordic countries. Other important partners are those most closely involved with innovation and market surveillance, such as industrial organisations and interest groups, research institutions and public authorities.

The Nordic Innovation Centre is an institution under the Nordic Council of Ministers. Its secretariat is in Oslo.

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