

European Trend Chart on Innovation

Valorising the Innovation Capacity of the Firm

The value of intangible assets in the knowledge economy

Brussels, 27-28 September 2005

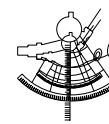
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Background report

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(using input from Trend Chart correspondents and Slavo Radosevic)

The contents of this paper have not been verified by the European Commission and do not necessarily express the position of the European Commission



1 Introduction

The European Union is facing a paradigm shift from a traditional industry driven economy to the new knowledge based economy. This is impacting on every facet of life and requires a radical transformation of Europe's economy and society¹.

In the knowledge economy market and technical knowledge, skills, networks, business relationships, are important drivers for a companies' ability to innovate and gain competitive advantage². Traditional physic assets such as manufacturing plants, machinery, and inventory are no longer the key assets in the knowledge economy and considerable emphasis is placed upon the creation and safeguarding of intellectual property rights (IPR) such as copyright, patents, trademarks, design rights and other "soft" factors such as competencies, innovation management skills, know-how, and networks. These assets do not have a physical substance and are therefore defined as *intangibles*³. Intangible assets play a crucial role in the innovation process firms, business performance, and economic growth and an increasing share of the market value of firms appears to derive from intangible assets. As a result valuation, management and reporting of intangibles becomes increasingly important.

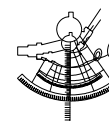
Many types of intangibles can be defined⁴, but this workshop will focus on two specific types of intangibles, namely *Intellectual Property Rights*, specifically patents (chapter 2) and *Innovation Management Competences* (chapter 3), and how these assets can be used to support fund raising. This paper explores the issues discussed during the workshop.

¹ EC Lisbon Agenda 2002

² Increase of productivity – increase of economic output not attributable to increase in input of labour or capital – is attributed to technological improvements (either more efficient use of existing equipment or replacement of existing equipment by more efficient technologies.

³ Financial assets (e.g. cash, equities, bonds) are considered tangible assets.

⁴ Previous studies have shown the difficulties in defining intangibles. For instance there is discussion whether the definition of intangibles should encompass "soft" factors such as competencies or whether it should be limited to those factors over which legal rights have been assigned, such as patents, trademarks and copyrights.



2 Importance of Intellectual Property Rights

Intellectual Property Rights are derived from the legal system, e.g. patents, trademarks, copyrights, registered designs⁵. For this workshop the focus is specifically on patents and how firms can exploit the value of these patents in order to raise funds to support their development.

Data from the OECD (2004)⁶ shows that over the past decade there has been a sharp increase in the level of patent activities across the world. This reflects the growing importance of patents in the knowledge-based economy, as the business community and research institutions are increasingly making use of patents to protect their inventions. More than 109 609 patent applications were filed at the European Patent Office (EPO), and 179 658 patents granted by the US Patent and Trademark Office (USPTO) in 2000, compared with 60 104 and 107 039, respectively, in 1991.

2.1 Accounting rules on IPR

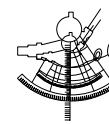
Current accounting rules for companies quoted on a regulated market in the EU, only allow for intangible assets, to be recorded on the balance sheet if these are (1) identifiable, (2) controlled by the enterprise and (3) from which future economic benefits are expected to flow to the enterprise⁷. When recognised an intangible asset should be carried at its cost less any accumulated amortisation. An intangible asset may be carried at a revalued amount only if ‘fair value’ can be determined by reference to an active market. The IPR value is therefore mainly based on the costs, whereas several other methods have been developed that reflect the market value more adequately (see below under 2.3).

For companies with limited liability, not quoted on a regulated market, there is a possibility under the 4th Accounting Directive to capitalise start up and expansion

⁵ Eustace, C. et al. 2003. The PRISM report. Research findings and policy recommendations. European Commission. IST Programme

⁶ OECD. 2004. Compendium of patent statistics.

⁷ International Accounting Standard 38. Intellectual property rights which are not fulfilling the above mentioned conditions will be recognised as (part of the) “goodwill” only in case of mergers and acquisitions.



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costs including certain expenses for IPR.⁸ This is the case for example in Germany. However also under these rules the measurement of the IPR is limited to the costs. This balance sheet item is also not recognized as an "ordinary" asset but as a so-called "accounting convenience." Although this instrument offers start-ups and SMEs the possibility to avoid over-indebtedness it does not provide for extra funding.

There is however a lot of discussion going in Europe and the US on how to tackle this and how to account for intangibles, so their value is better reflected in the balance sheets of companies.

In the US the way in which IPR is treated in Mergers and Acquisition (M&A) is revised by the introduction of FAS 141 and FAS 142 in the US General Accepted Accounting Principles (US GAAP). Whereas historically the balance sheets of two merging companies were simply added together, the newly introduced purchase method requires to identify each single acquired asset and determine its 'fair value'. The overall purchase price must be distributed across all business items (intangibles and tangibles) that qualify as assets. Thus, companies have now the possibility to discern the assets lumped together under "goodwill"⁹ and value them separately. The new approach to IPR in M&As is generally considered to be a very progressive step as it allows, for the first time in the history of accounting, to separately list the respective IPR of the firms involved in the M&A and to put a fair value on such IPR. However more modifications will be needed to adequately reflect IPR on the balance sheet, especially in relation to balance sheets of SMEs who are not likely to get involved in M&A¹⁰.

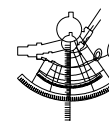
2.2 Exploiting the value of IPR – patents to access finance

The use of patents to get access to finance is relatively new. Financial analyst and private investors increasingly recognize IPR as a key element in the value of a firm and a key indicator of firms technological capabilities. This might be especially

⁸ Article 9 B and C.1.1. and C.1.2 (b) of Fourth Council Directive of 22 July 1978 (78/660/EEC)

⁹ Historically, goodwill has been primarily defined in residual terms, that is, as the price a market participant is ready to pay in excess of the value of a firm's tangible assets

¹⁰ Based on Ghafele, Roya. Getting a grip on accounting. WIPO



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attractive for Small and Medium Sized Enterprises (SMEs) and New Technology Based Firms (NTBFs). These companies spend large sums developing new products and services which they protect through patents, but have difficulties accessing finance because they lack internal sources of financing and track-record of success to attract external financiers to provide debt or equity capital.

2.2.1 Debt financing

When applying for a loan a bank looks for assets of the business as shown in the balance sheet for collateral and the IPR does not appear there or only at cost value. While multinational companies often have sufficient “hard” assets that can be used as collateral for raising debt finance SMEs and New Technology Based Firms often do not have “hard” assets, but often have only intangible assets like IPR. Banks appear not to have developed a standard or guideline for treating IPR with respect to e.g. credit extension.¹¹ Companies can therefore not easily use their IPR to obtain debt financing which is the largest part of overall external financing for SMEs. As a result these companies have difficulties to raise capital. Many SMEs for this reason do not try to value their IPR.¹² According to Davies, such under-utilisation of intangibles like IPR as collateral may be impacting upon the survival of small technology-based firms where their principle assets are their IPR.

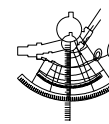
In general European banks are reluctant to accept IPR or other intangibles as a collateral for a loan. The main reasons for this are¹³:

- Cost of IPR-collateral valuation are high and resulting values of low credibility;
- Protection of IPR is more important as part of the overall assessment of the risk of a loan rather than as collateral itself;
- Value of the IPR of new technology-based firms is often difficult to assess;
- No confidence in the realisation of the value of the firms’ IPR.

¹¹ Information from the European Banking Association

¹² Professor Iwan Davies, 2004, Swansea University, *Financing of Welsh SMEs and the Commodification of IP Rights*, <http://www.ipwales.com/fe/default.asp?n1=1&n2=6&n3=8>

¹³ European Commission. 2000. Funding of new technology based firms by commercial banks in Europe. Brussels



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Despite these barriers to use IPR as a collateral it seems that banks and other financial institutions are becoming more relaxed to use IPR as collateral and are starting to experiment with this way of financing.

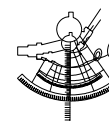
In Japan the Development Bank, a government-related financial institution, implemented a loan system in 1995 that allows the use of patents and patent applications, as well as copyrights of computer programs and contents, as collateral. Since then, the Bank has granted more than 250 loans to venture firms, with the Bank assessing the present value of the cash flows to be generated by the IPR¹⁴.

In Germany there are some experiences with patent based financing. Recently the German Federal Financial Supervisory Authority (Bundesaufsichtsamt für Finanzdienstleistungen - BaFin) offers banks the possibility of accepting patents as a sole security for bank lending as long as they are valued using an objective method. Since 2004 the first banks are beginning to offer patents based loans which only security are patent portfolios, but this is still in experimental phase. Furthermore, in order to value patents in a systematic and transparent way, some German banks have started to use newly developed methods of valuation. In section 2.3 different methods of patent valuation will be described in more detail.

2.2.2 Equity finance

Private investors such as venture capitalist use a firms patent portfolio to determine the value of the firm, just as they use management capabilities, product and market opportunities as key indicators for a firms value. The value of the patent portfolio is not assessed using specific guidelines, but always in relation to the business model, management, market and product opportunities. Several private equity providers have expressed the opinion that the fair value of a patent cannot be separated from the fair value of the owning company and would have a different value, or no value at all, for a different company. Hence the “context” is very important when valuating patents

¹⁴ OECD. 2005. Background paper Conference on IP as economic asset. EPO/OECD/BMWA. 30 June – 1 July 2005. Berlin.



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and the decision to invest in a business opportunity is not based on the value of the patent portfolio alone.

2.3 Valuation of IPR

A crucial aspect for banks to accept patents as collateral for a loan is the value of a patent or patent portfolio. But at the same time this is also a weakness because there is no general accepted, reliable IPR valuation method.

The value of a patent or patent portfolio depends on the method used, is highly context dependent, varies according to expectations about future markets for products and services that make use of the patented invention, and on the complementary assets that a firm has in place to successfully implement and commercialise the invention.

There are a number of methods to value patents which can be divided into two groups, quantitative and qualitative methods.

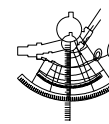
2.3.1 Qualitative valuation methods

Qualitative methods are based on rating and scoring patents based on factors such as patent strength, coverage, defensibility, uniqueness, etc. Qualitative patent analysis is often performed by patent lawyers and used by Venture Capitalist. The value of the patent portfolio is strongly linked with other business factors such as management and product-market opportunities. Other qualitative methods are for instance self-assessment tests and IP-Score test developed by the Danish Patent and Trademark Office¹⁵.

2.3.2 Quantitative valuation methods

Quantitative methods are cost approach, market approach, and income approach. These methods will briefly be described below.

¹⁵ <http://www.ipscore.dk/UK/index.asp>



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The **Cost Approach** seeks to establish the value of an IPR asset by calculating the cost that a company would incur if it were to develop a similar asset either internally (R&D costs) or acquire it externally (through licensing). There are many practical challenges in determining what costs to include or exclude. The cost approach provides a useful indicator especially in the case of IPR assets whose future economic benefit are not yet evident. The major problem is that cost and value are usually not the same. The historical cost of developing a specific IPR asset or its reproduction/replacement cost has generally no direct correlation with the future revenue potential of the IPR asset.

The **Income Approach** - such as discounted cash flow (DCF) - calculates the present value by estimating future income flow arising from the underlying IPR asset during its economic lifetime with a certain discount rate. The method has its shortcomings, which includes not providing the full value of the IPR asset especially when such an IPR asset is not to be licensed exclusively to one party (but non-exclusively to many parties).

Systematic Market Approach by IPB

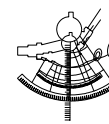
IPB has developed a quantitative patent valuation method which is objectively applicable to large patent portfolios, and available at low cost. Historical data from patent databases is collected and used to define certain characteristics in the patent document that show significant correlation with patent value and explain most of the variances in patent values.

There are at least 20 indicators extracted from the patent database (e.g. claims, backward citations) and fed into a multivariate regression model. The impact of each indicator on the patent value is determined. The simulation model is run 10.000 times to ensure robust outcome and each time sensitivity for each indicator is varied and the impact on patent value is measured.

The result of this exercise is a patent value distribution graph, which shows the likelihood that a certain patent value will be realised. On the x-axis patent value interval is shown and on the y-axis the likelihood that this value will be realised is shown. For the investor the risk profile of a patent (portfolio) is clearly visible and banks are able to calculate the “value at risk”.

This method is in January 2004 approved by accounted KPMG as method to value patents for financing.

Based on; Patentbewertung mit dem IPB-Marktwertansatz on <http://www.werte-aus-wissen.de/>



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The **Market Approach** is based on comparing the value of sales of earlier similar/comparable IPR assets in the market. To make such comparisons, there must be an active public market, an exchange of comparable properties, and easy access to price information. Unlike the income approach, this method is seldom used in the valuation of IPR primarily because there is rarely an active market in which relevant information is readily available.

For the financial sector important aspects for systematic patent evaluation are objectivity, short evaluation time, applicability for large patent portfolios, and a competitive price. Until now none of the above described methods seem to fulfil these requirements¹⁶.

During the Workshop the following topics with regard to **IP** will be explored and discussed:

General

- How can IP be used to exploit the innovation potential of the firm
- Are capital providers interested in using IP valorisation to evaluate companies? Is it different for banks and venture capitalist?

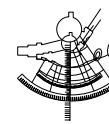
Valuation of patents

- Nowadays patents are often valued on qualitative criteria or based on their development costs. Are there alternative IP asset measurement methods that take into account their contribution to future firm revenue?
- Which valuating methods will be accepted by venture capital when evaluating a company (if any)?
- Which valuating methods will be accepted by banks when assessing patents to be used as collateral for a loan?
- To what extent will better methods to value intangibles (IP) have an impact on the access to finance of SMEs?
- Does policy (European or national level) have a role to play to stimulate adoption of a certain valuation method?

IP and financing

- To what extent can IP and in particular patents be used to attract debt and equity financing
- What types of companies (multinationals, SMEs, high-tech starters, etc) have difficulties raising finance as a result of under-utilisation of IP?

¹⁶ Scheffer, von, et al., From patents to finance. Intellectual Asset Management Magazine. February-March 2005. p 37-39

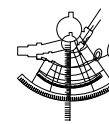


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- What is the potential of patent based financing (e.g. patents used as collateral for a bank loan). Is this a feasible concept?
- Does policy (European or national level) have a role to play? If yes, which?

Reporting

- Is it relevant to modify accountancy standards so intangible assets (e.g. IP) will be better reflected on firms' balance sheets? What are the bottle-necks?
- When intangibles are included on balance sheet, does this make it easier for banks to accept patents as a collateral for a loan?
- What are the experiences in the US with FAS 141 & 142 to value intangible assets in case of mergers and acquisitions?
- Have there been any initiatives at a national level to develop industry guidelines, outside of the formal accounting rules, for valorising patents? Would it be of interest for the financial sector?
- Does policy (European or national level) have a role to play to stimulate adoption of accountancy standards?



3 Innovation Management

Besides Intellectual Property, a company management capability is also a key aspect that determines the ‘intangible value’ of a company. An important criterion for private investors to finance a company is the trust it has in the management of the company, whether headed by a single entrepreneur or a larger management team. Organisational management is a very broad area and includes many aspects like financial, knowledge, human resources, innovation management, etc.

3.1 Defining Innovation Management

Innovation management is becoming an important aspect of overall management capabilities, especially for technology-based companies. The concept of innovation management encompasses a variety of aspects such as IPR management, training support, change management or others.

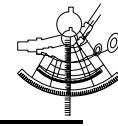
Tidd et al.¹⁷ have categorised measures and indicators to assess whether firms manage their innovation well under the following categories of questions:

- Does the organisation take a strategic approach to innovation?
- Has the organisation established effective external linkages?
- Are there effective implementation mechanisms?
- Does innovation take place within a supportive organizational context?

In a previous Trend Chart Policy Review Workshop on “Benchmarking Innovation Excellence”¹⁸ AT Kearney running the German Best Innovator Award, used the following graph to illustrate the complex set of business functions and skills involved in Innovation Management (See Figure 1).

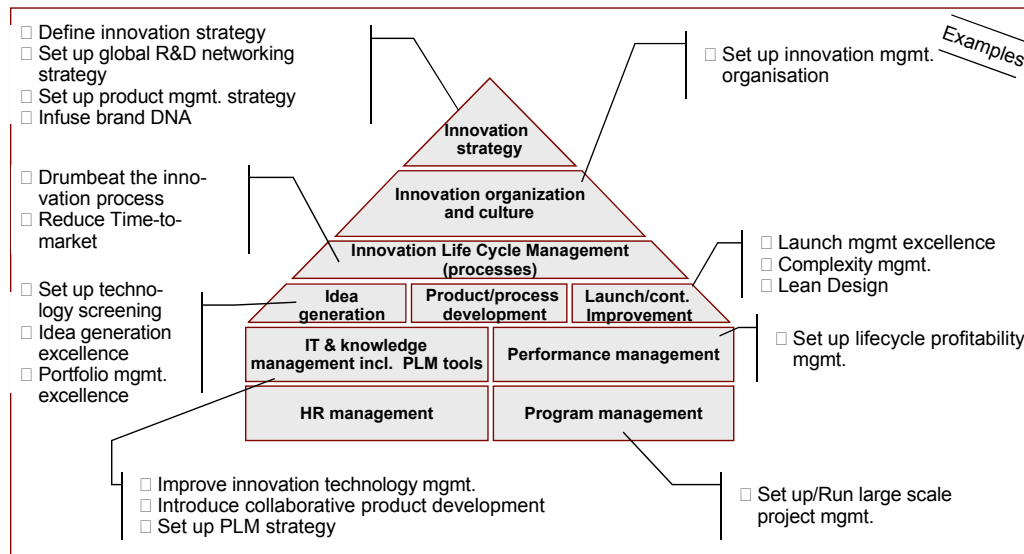
¹⁷ Tidd, Joe, John Bessant and Keith Pavitt, *Managing Innovation*, 2005.

¹⁸ (see http://trendchart.cordis.lu/tc_workshop_home.cfm)



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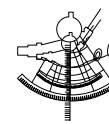
Figure 1 AT Kearney's 'House of Innovation'



Innovation Management Techniques (IMTs) have been recently surveyed by the European Commission. IMT can be defined as the range of tools, techniques and methodologies that support the process of innovation in firms and help them in a systematic way to meet new market challenges¹⁹. Characterisation of IMTs is difficult, because it covers so many areas but a recent study *Innovation Management and the knowledge driven economy*¹⁹ Commissioned by DG Enterprise selected the following most appropriate IMTs:

- Knowledge Management Tools
- Market Intelligence Techniques
- Cooperative And Networking Tools
- Human Resources Management Techniques
- Interface Management Approaches
- Creativity Development Techniques
- Process Improvement Techniques
- Innovation Project Management Techniques
- Business Creation Tools

¹⁹ Innovation management and the knowledge-driven economy, January 2004, European Commission,



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Among the various drivers of innovation management, the workshop will aim at identifying whether or not a certification scheme can be efficient encompassing all aspects of innovation management. If not, the workshop will explore which elements are more susceptible to be supported by a certification scheme.

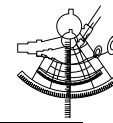
3.2 Need for sound Innovation Management

Sound innovation management is becoming increasingly important to turn acquired knowledge (external or internal from R&D and often protected with patents) effectively into innovations and is critical to increase competitiveness.

European initiatives such as PAXIS (<http://www.cordis.lu/paxis/>) and Gate2Growth (http://www.gate2growth.com/g2g/g2g_welcome.asp) provide clear evidence that companies, and especially SMEs, encounter difficulties in the planning, implementation and commercialisation of innovation. These difficulties can be observed in several areas such as:

- Missing or insufficient strategies for the management of Intellectual Property;
- Insufficient quality of business plans and business presentation to the finance community;
- A lack of awareness of available new technologies to support the modernisation of business processes, such as e-business;
- Little understanding of non-technological innovation as a tool to enhance productivity and competitiveness;
- Poorly developed marketing strategies for new markets, public procurement and blue chip companies;
- Poor usage of new state-of-the-art standards due to a lack of awareness or organizational resistance.

Previous European studies on innovation management have underlined that companies, especially SMEs, must stand up to the challenge of turning innovation into competitive advantage in the marketplace, by obtaining useful knowledge of the



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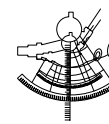
existing experience and utilizing results in the field of Innovation Management . Companies seem however hesitant to seek (external) expertise to better manage the innovation process, and as a result the innovation performance of many European enterprises may be suboptimal.

The study *Innovation Management and the knowledge driven economy* concludes that many companies lack the experience in Innovation Management Techniques (IMTs). A survey among 433 organisations in Europe showed that the main IMTs used were project management (82%), followed by business plan development (67%), corporate intranets (66%) and benchmarking (60%). Less used IMTs included Delphi method and lateral thinking. Some 43% of the surveyed organisations stated that they have successfully used IMTs in their own organisation. Another 32% said that they do not use IMTs, but the techniques were known to them. Most of the surveyed organisations would like to have more information on IMTs, as well as better categorisation that included clear descriptions, level of application, functionality, benefits, etc¹⁹.

Especially for SMEs their management capabilities and in particular innovation management capabilities are rather weak which hamper their innovation performance. According to the European Cost Efficiency Association the life expectancy of enterprises younger than five years is low in Europe, with a failure rate of 30% on average. One of the reasons of this phenomenon is the fact that those SMEs suffer from a lack of credibility, image, and capital with respect to their customers and potential investors and financiers, inhibiting innovation, further development and growth. The workshop will address the question: is there room for European/ national schemes to increase the credibility of these SMEs through a certification programme?

3.3 Policy support for Innovation Management skills

The study *Innovation Management and the knowledge driven economy* shows that a majority of the surveyed organisations see the role of the public policymakers as a promoter of innovation management techniques by providing information dissemination, free training and seminars on the new techniques available to manage innovation and to provide financial support and funding to promote innovation



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management methodologies and tools. Only 6% of the survey respondents stated that the public administration does not have any role at all.

3.3.1 Programmes to stimulate use and creation of innovation management

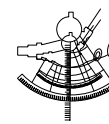
In Europe there are only a few policy initiatives or programmes aiming at developing innovation management or at stimulating the use of innovation management techniques by companies. A Trend Chart survey among all European Member States and Associated States²⁰ shows the spread policy programmes aiming at developing innovation management techniques and tools varies significantly across European countries from very strong presence in the case of Denmark to zero presence in seven countries (Slovenia, Netherlands, Portugal, Czech Republic, Turkey, Latvia, Liechtenstein). Programmes oriented towards *use of innovation management techniques or tools* are much frequent across European countries. This may be expected as policies are primarily concerned with diffusion of IMT techniques in order to improve effectiveness of innovation process. Appendix B shows spread of these programmes across all European countries and provides a brief description of the most interesting programmes.

3.3.2 Other types of innovation management policies

The Trend Chart on Innovation database on policy measures provides an overview of other types of policies directed at innovation management, in addition to the specific management techniques described above. These are typically a mix of internal and external management competences:

- 1 Programmes focusing on developing entrepreneurial skills of students or young entrepreneurs;
- 2 Awareness programmes, encouraging SMEs to take up innovation activities;
- 3 Initiatives to help firms understanding IPR issues and tackling IP applications;
- 4 Programmes supporting the management of innovation networks and clusters;
- 5 Financial support schemes for SMEs to hire specialist consultancy services;

²⁰ The analysis is based on questionnaires received from 24 Trend Chart national correspondents. Questionnaires are not received from Bulgaria, Romania, Malta, Estonia, Greece, Austria and Finland.



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- 6 Programmes to help SMEs to access and absorb external knowledge, particularly from public laboratories and other knowledge centres or through the recruitment of graduates;
- 7 Programmes to provide strategic market intelligence to SMEs covering specific markets, geographical areas or technologies.

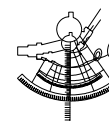
3.4 Certificate of good innovation management

In order to encourage small and medium enterprises to improve their innovation management capabilities, a **European label or certificate** might be an effective and appropriate tool. Such a certificate guarantees that companies have incorporated (to a certain extent) sound innovation management competences. If this certification is of sufficient high quality and robustness, external investors (banks, venture capitalists, business angles, etc) might accept this label as an additional guarantee that the company has put in place ‘good management practices’ and therefore forms a lesser risk for investment.

3.4.1 Policy support for certification of Innovation Management

There are some examples in Europe of public and private initiatives aiming to develop a “tool” or “self-assessment test” which can be used by (start-up) companies to assess their business strengths and innovation potential. Some of these schemes are mainly assisting companies to develop their innovation management competences while others use benchmarking or certificates to show good innovation management.

Public support programmes at the European level like Gate2Growth provides entrepreneurs with tools, “how to guides”, tips, information and access to networks of innovation professionals (e.g. early stage technology venture capital investors, managers of technology incubators, managers of industrial liaison and technology transfer offices linked to universities and research centers, academics in entrepreneurship, finance research and teaching). More specifically Gate2Growth allows entrepreneurs to develop a business plan step-by-step based on diagnostics performed by industry and financial experts, to test interest of investors for business



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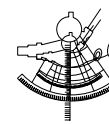
ideas, and to identify appropriate type of support. It also gives quick and relevant solutions to questions like: “Is my business plan complete and adequate to create investor interest” or “How do I find an investor”. Companies are assisted by this scheme to develop their innovation management skills, but good innovation management practises are not benchmarked with other companies or “rewarded” by a certificate or label.

At the level of the Member States there are also various initiatives. DTI has developed a self assessment tool for businesses. It is designed to be complementary to financial accounting by focusing on the non-financial aspects of a business which influences future cash flows and ultimately the value of the business. The tool offers a framework which enables users to set clear aims and understand the critical success factors which drive value creation. Central is the evaluation of the following intangibles that contribute to innovation and value creation: Relationships, Knowledge, Leadership and Communication, Culture and Values, Reputation and Trust, Skills and Competencies, Processes and Systems. This scheme is not evaluated and there are no figures available about companies that have used this tool.

Similar (self) assessment tools are developed in Germany by the Fraunhofer Institute for Industrial Engineering, called “Balance Scorecards”, to complement financial reports. Such a scorecard uses various innovation indicators to provide information about the innovation performance of a company. As these figures are focused on the future of the business and gives more information than just financial figures and is very useful for internal (e.g. strategic management) and external use (e.g. investors).

In addition various private consultants use innovation toolkits or self assessment tools to map and benchmark the innovation potential of a company.

In Switzerland there is an interesting example to stimulate development of technology based start-up companies by providing a label which shows that the start-up company has met certain criteria and is “ready for sustainable growth”. This programme runs for almost 10 years now and has shown some interesting results in with regard to



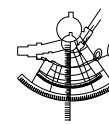
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financing of innovative organisations. A brief overview of this programme and lessons learned is shown below.

The Swiss CTI start up label, an initiative of the Federal Office for Professional Education and Technology (OPET). It promotes the building of New Technology Based Firms by providing the expertise of professionals from various fields such as business management, research and development. The programme aims to bridge the difficult stages between the initial development of an innovative idea, usually in an academic laboratory, and the readiness for sustainable growth, with or without external—venture-capital—financing.

The CTI Start-up initiative is a coaching process divided into four phases. Phase 1 is the basic check of the business idea. If the project is high tech, innovative, realistic and matches with the CTI Start-up scope, the case is accepted. During phase 2 professional experts evaluate the business plan (technology, management, financial planning, market acceptance, etc) and determine if it is feasible for intensive professional coaching. The main assessment criteria are market and business potential, commitment of start-up team and coach, and a favourable IPR situation. Phase 3 aims at developing and optimising the business model and strategy and to prepare for the CTI Start-up label. During this phase a professional coach provides training and addresses issues like financial planning, IPR, technology evaluation, investor relations, etc. At the end of this phase the CTI label "ready for sustainable growth" is achieved if the following criteria are met:

- Basic qualification for sustainable growth and/or venture capital financing is demonstrable
 - People – a professional management team is in place or at least identified with relevant industry experience;
 - Product/technology – a working product is at hand;
 - Market access – feasible market access and practical acceptance are shown;
 - Growth potential – a large and growing market exists, corresponding resources are available (human, financial);
- Professional business plan and presentation are available



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- A Swiss stock company is formally incorporated (SA/AG/Inc. or Sàrl/GmbH/LLC)

Phase 4 is optional and differs case by case. CTI may extend its support until the business is developing properly.

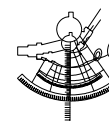
The CTI Start-up Label confirms readiness for sustainable growth and thereby gives credibility to the company, acts as door-opener for venture capital financing, and gives better access to various (business angel) networks and programs. The industrial board of the CTI programme (it's members are experienced entrepreneurs) awards the label only to the best projects that have met the assessment criteria mentioned before.

The programme is evaluated in 2003. Since 1996 more than 1000 projects have been evaluated and only 113 received the CTI Start-up label. Of these labelled companies around 100 are still running creating around 1000 new jobs. In 2004 labelled companies have raised 90 million SFR from institutional and private investors. Experiences with this programme also show that labelled companies have a higher chance to get financed than non-labelled companies and that the survival rate of labelled companies is higher than non-labelled companies.

The main findings of this evaluation are that the CTI label is very useful for new technology based firms because it provides them access to networks of experts and investors and helps them to acquire innovation management competences such as IPR and technology management, strategy building, marketing, sales, value creation, etc. For investors the label provides extra information about the company making an investment decision easier. Also the fact that a company is coached for a long time by recognised experts has a positive effect on potential investors.

Summarising, the evaluation suggests that investors accept the label as an extra guarantee for their investment, making the investment decision easier.

Besides the CTI Start-up programme there are not many initiatives in Europe using certification of innovation management. There is no analysis available why this is the case. The complexity of combining technological, commercial and financial



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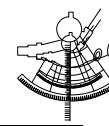
intelligence of a company and its (potential) markets, knowledge on the personal skills and experiences of a companies' management team and the high uncertainty involved with innovation, make certification of these intangibles quite challenging. It involves different types of expertise and stakeholders to collectively agree to the criteria and standards of such a certification.

The questionnaire among Trend Chart correspondents shows that only 7 of out of 24 countries have institutionalised some level of support to innovation management through a certification or labelling procedure (Ireland, Lithuania, Spain, UK, Slovenia, Germany and Switzerland) of which only 4 countries have programs which support the use of certification procedures (Ireland, Lithuania, UK and Slovenia). Appendix A provides a brief description of the different initiatives related to certification of innovation management.

During this workshop is will be discussed what role European policy can play in designing, implementing, and verifying such an innovation management certification scheme that will be accepted by companies and financial institutions. More specific the following topics with regard to **Innovation Management Certification** will be explored and discussed:

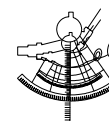
Innovation Management Capabilities and certification

- Are there any existing innovation management tools used to convince financial institutions of the performance and potential of a company?
- Will companies use such a tool?
- Will financiers accept this kind certification to assess the creditworthiness or credibility of companies and entrepreneurs?
- Can Innovation Management certification come alone, or has it to be part of a larger business certification including other aspects?
- Can Innovation Management certification be a one-shot analysis or does it have to be a longer process, including accompanying the firm
- Which indicators should be included to make a scheme acceptable for financial institutions (e.g. what information, which aspect of innovation management should be certified)?
- How could a certificate of innovation management practices be implemented?
- To what extent would an EC approved innovation management certificate have an impact on access to finance for SMEs and start-ups?
- To what extent will the implementation of innovation management certification help companies to launch a new products or activity?



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- What advice can be given to establish a “credible” EU certification?
- Does policy (European or national level) have a role to play to stimulate development or use of such an innovation management certificate?



Appendix A Certification of innovation competences

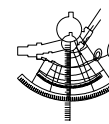
A variety of examples given under this activity show big differences in understanding of correspondents regarding promotion of the creation and the use of innovation management certificates. They range from support of IPR activities, certification of RTD projects and systems, award for innovative enterprises, quality assurance standards, start ups where innovation management stand as an important criteria and education for innovation management. As in the case of IMTs a difference can be made with respect to whether IMT certification is explicit or implicit aspect of the activity. It seems that there is not a case of explicit support for IMT certification and use but mainly these activities are supported as part of the programs for enterprise support.

Below is a selection of examples mentioned by the Trend Chart national correspondents:

The Lithuanian Innovation Centre has implemented a *PHARE 2002* supported project whose objective was to develop and test innovativeness index of an enterprise and monitor of intangible property. The project involved training of professional consultants in order to become certified innovation management consultants.

Spain supports *certification of RTD projects and systems*. This initiative has arisen from the necessity to systematize and harmonize the activities of research, technological development and innovation. The project has developed a methodology, and norms that regulate the processes of certification of Projects and Systems of RTD Management. Two different processes of certification have been developed: Certification of RTD Projects, and Certification of Systems of RTD Management.

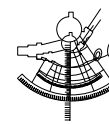
The *British Standards Institution (BSI)* published the first edition of its BS 5750 series of quality assurance standards in 1979. These were intended for general use by any



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manufacturer. They enabled organizations to become certified; allowing them to display a mark of registration issued by the body that carried out the assessment. British Standards is the National Standards Body of the UK, responsible for facilitating, drafting, publishing and marketing British Standards and other guidelines. Since ISO 9000 pioneered the pursuit of externally-validated standards of excellence, many other initiatives have been introduced, such as Investors in People, the Business Excellence Model and Charter Mark - all of which are process-driven.

Swiss program KTI Start-up label support successful start-ups fulfilling several criteria including innovation management abilities. The label confirms the readiness for sustainable growth. It stimulates interest and simplifies the decision of potential investors. The organisational structure and management of the start-up company are taken into account in awarding the label.



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Appendix B Overview of programmes that address innovation management across EU

Exhibit 1 Frequency of individual Innovation Management Programmes across TC countries (numbers denote frequency of countries)

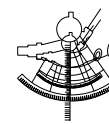
	Total	Creation	Use
Innovation Project management techniques	22	9	13
Cooperative and networking tools	16	5	11
Process Improvement Techniques	15	5	10
Knowledge Management Tools	14	5	9
Business creation tools	14	6	8
Human resources management techniques	12	5	7
Market Intelligence Techniques	11	4	7
Creativity development Techniques	10	4	6
Interface management Approaches	9	4	5
Total	123	47	76

Source: Trend Chart correspondents

Exhibit 2 Total IMT related programmes in TC countries

Country	Total IMT related programmes
1 Denmark	18
2 Ireland	15
3 Lithuania	12
4 Germany	9
5 Slovak Republic	8
6 Spain	7
7 UK	7
8 Hungary	7
9 Luxembourg	7
10 Switzerland	6
11 Poland	6
12 Italy	5
13 France	5
14 Cyprus	4
15 Norway	3
16 Sweden	2
17 Belgium	1
18 Slovenia	1
19 Netherlands	0
20 Portugal	0
21 Czech Republic	0
22 Turkey	0
23 Latvia	0
24 Liechtenstein	0
Total	123

Source: Trend Chart correspondents



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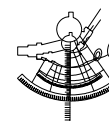
One should note that the results presented are far from objective statistics and are entirely based on experts' opinions what constitutes programme for supporting innovation management technique. The biggest differences arise from views whether innovation management is explicitly addressed in a programme or support scheme or whether it is part of a broader programme which to some extent addresses issues related to IMT. For example, although incubators schemes exist in all countries only Danish correspondent considers that innovation management is an essential part of incubators funding programs. Moreover, boundaries of innovation management are quite broad which affects classification of support programs. For example, UK program 'National Occupational Standards for Management and Leadership' is an example of how important it is to enhance general management techniques, which are important building blocks for innovation management techniques. So the collected data on public support programmes for IMTs should be taken with reservation due to the above methodological issues.

Highlights of good practice in supporting IMT: explicit and implicit support programs

We highlight below examples of IMT support suggested by national correspondents. We classify them into two groups: programs which explicitly support different IMT techniques and, programs which do not explicitly promote IMTs but they are considered as important ingredients of these program. Examples of implicit support to IMTs are much more present than examples of explicit support.

Explicit support programs for Innovation Management

Enterprise Ireland's Innovation Management Initiative seems to be a comprehensive effort to support IMTs through several schemes like a) Innovate to Profit - a programme for achieving international best practice in this area delivered by: Genesis Strategic Management Consultants, b) BA in Technology Management - A one year Degree programme which is designed for employees and is delivered by: Institute of Technology, Tallaght, c) MSc in Technology Management and research delivered by: NITM, d) MSc in Technology Management by distance education delivered by: The



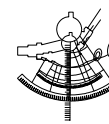
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Atlantic University Alliance (AUA) and e) Champions of Innovation Programme - A support action for consultants, trainers and industry professionals providing Seminars, Workshops and Regional Networking on innovation and R&D Management tools and techniques delivered by: Enterprise Ireland.

A prominent example of IMT in Germany is *INNOMAN - Innovation Management in SMEs in Eastern Germany* - programme which offers external consulting services to improve innovation management techniques. It covers auditing of the firm and technology, feasibility study; realisation concept; and project management. Public funding is provided for consulting services offered by consulting agencies, the former agencies for technology and innovation - ATI.

Among the new member states Lithuania seems to be the most active in area of IMT. One of the major activities has been an international project supported by Lithuanian and Danish ministries, and implemented jointly with the Danish Technology Institute and *Lithuanian Innovation centre* and other Lithuanian partners. The aim was to train managers of innovative project in order to become certified innovation management consultants, coming from both - public and business institutions, where the wide ranges of innovation management techniques were covered. The project was successfully implemented, and its experience was transferred to the later competence development related projects of Lithuanian Innovation centre.

Norwegian program on Innovation Competence, which is administered by Innovation Norway, is to strengthen the innovative ability of firms as well as the innovation competence of consultants and knowledge environments offering their services to these firms. A three step programme has been designed to increase firms' interest in and knowledge about innovation as well as provide them with methodologies to assess their internal innovative capacities. The three steps are: (1) A one day seminar aimed at making firms familiar with and interested in the concept innovation" (2) A gathering aimed at developing a deeper understanding of the innovation concept including important implications for administration, organisation and networking, where the participating firms also are to make an assessment of their respective innovation climates and (3) A 6-12 month period where the firms carry out individual



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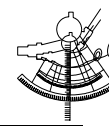
innovation projects, receiving assistance in the form of individual counselling and interactive learning through collective gatherings.

FRAM is Innovation Norway's programme for developing firms' competencies in the fields of management and strategy. FRAM Strategy and Innovation targets firms with less than 50 employees, and is aimed at strengthening the competencies of the firm managers in order for them to be able to carry out strategy and innovation processes contributing to increased competitiveness and profitability. Competence development takes place in connection with specific innovation projects or the development of firm strategies. Over a period of 12-15 months, participating firms attend six gatherings where they receive theoretical and practical information on strategy, management and innovation. In between the gatherings, they carry out individual projects with professional coaching.

Luxemburg has developed the *awareness programme in innovation management techniques* which is aimed at increasing companies' awareness and knowledge in IMT by the organisation of thematic workshops, and publications, the set up of a database of experts in IMT, and the set up of a collaboration mechanism between experts and enterprises. This programme was set up in 2004 and is run by Luxinnovation.

French programme Support for innovation (Aide à l'Innovation) assists technology-based start-ups, newly created firms (less than three years) or firms willing to develop an innovative project. It allows companies to have access among others to external competencies for innovation projects, to get advises on management and organisation. All the stages of the innovation process can be supported through this scheme: project definition and feasibility, project development and industrial launching of projects.

Slovenian University of Maribor has established *M.A. programme in Innovation Management* with several courses on innovation management, project management, system thinking, etc.



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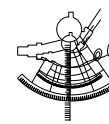
Implicit Support programs for Innovation Management

Implicit support programs do not focus explicitly on IMTs as they are part of broader programs. It is difficult to evaluate to which extent IMTs are central or peripheral to these programs. Examples listed below show a variety of implicit support programs.

UK has originally developed an *online-based information service 'Achieving best practice in your business'* that provided small business with advice on using information and communication technologies to assist performance and competitiveness, which was set up in 2000. This program has been further developed by using case studies, guides and interactive tools. Topics cover range from business strategy and human resources issues through to technology and marketing.

Hungarian Innovative Education Support Systems programme is aimed at promoting the development of new software packages and internet-based services to identify and follow young talents, and to provide information support for R&D activities conducted at education institutes. Hungarian Regional Knowledge Centres are supposed to closely co-operate with businesses, speed up the given region's technological and economic development by - among other tools - supporting innovation activities of SMEs in the region, including the promotion of the diffusion of innovation management techniques

Swiss Promotion of Start-up and Entrepreneurship programme aims at encouraging entrepreneurial behaviour in order to detect market potentials of research results and realise them (within a short time period) in terms of new products. This programme includes a start-up coaching" procedure where experienced manager advise start-ups in innovation management. This programme is not focusing on specific techniques. The kind of promoted techniques strongly depends on the advising experts and focuses on the successful commercialisation of a product idea. "



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The most distinctive form of support to IMT is establishment of dedicated organisation in charge of IMTs. This seems to be the only organisation among TCs where IMT is the core activity. The *Irish National Institute of Technology Management* is the flagship organisation for technology management. The Institute was established in 1997 with the support of Enterprise Ireland, as part of the Government's initiative to develop innovation and transform Ireland into a Knowledge Based Economy. Its mission is to develop the capability of Irish based companies to manage technology for competitive advantage to the highest international standards. Its specific role is to develop the technical entrepreneurs and professional managers of technological innovation who will lead Irish companies to the international forefront. NITM pursues its mission by teaching, research, industry outreach and input to national policy. The courses and certification provided are: the Masters in Technology Management (2 years) and the Higher Diploma in Technology Management (1 year) - both are provided as part-time courses on University College Dublin's campus. The MSc degree is supported by Enterprise Ireland's Innovation management Initiative.