

# INTENSIVE INVESTMENTS IN INTELLECTUAL PROPERTY: THE WAY TO INCREASE SUSTAINABLE INNOVATION TURNOVER

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## **1. Introduction**

Intangible assets are an important source of business value and are not generally included in the standard financial reporting. Several models have been developed and applied in order to better monitor these resources, particularly intellectual capital reports (Edvinsson and Malone, 1997), complementary financial reports and scoreboards (Eurostat, 2010; Lopes, 2010; Lev, 2001) or *Balanced Scorecard*<sup>®</sup> programs (Kaplan and Norton, 1996). Broadly, intangibles are non-monetary resources, without physical substance, but embodying relevant future economic benefits (IAS 38). The disclosure of these resources can mitigate information asymmetry and improve market liquidity (Boone and Raman, 2003:360).

Intellectual property (IP) typifies the most visible side of those resources as embodiment of the integrated research and development effort. Business and market developments require their valuation and disclosure through additional reports as well as continuous diagnoses of their real benefits and returns.

This paper aims to highlight the need to monitor the macroeconomic innovation effort and diagnose its linkage with business returns. It constitutes a basic approach about intellectual property as a key driver towards better strategic and financial performance achievements.

## **2. Intellectual property measurement and valuation**

Intellectual property (patents, trademarks and copyrights, among others), have been seen by economic agents as no more than legal instruments or as basic tools for business. Many companies have explored this type of asset, managing it as a potential competitive weapon and source of unexpected returns (Germeraad, 2010; Taghaboni-Dutta *et al.*, 2009; Ramanatyhan *et al.*, 2001; Rivette and Kline, 2000; Shapiro and Varian, 1999). Intellectual property management has been reflected in the way added value has been created. We refer to registered IP, codified or un-

codified organisational and human capital (Contractor, 2001). And, as stated by Germeraad (2010), IP strategy should be strongly integrated with innovation strategy.

The identification of competitive advantages emerging from IP claims for to identification of certain key drivers, namely research and development expenditure ratios and innovation processes inside the organizations. These drivers allow companies to gain competitive advantages in market and financial terms. According to Rivette and Kline (2008:58-60), investing in IP allows companies to increase their expected future returns and aligned with other structural capital allows companies to achieve important strategic and financial returns (Edvinsson and Malone, 1997). Its translation into competitive advantage can:

- Protect core technologies and business methods;
- Tap patents for new revenues;
- Boost research and development and branding effectiveness;
- Anticipate market and technology shifts
- Reduce costs; and
- Attract new capital and enhance corporate value.

This assertion, broadly irrefutable, is gradually being assumed as a strategic principle, drawing our attention to internal innovation activities and processes. Measuring it is not an easy or feasible task. Several methods have been followed in order to complete that task: approaches based on income or in market or, at least, measured at its historical cost. The expected returns still remain the most important corollary, enabling companies to include those assets in their financial statements, unless, as sometimes, they are used, only for internal purposes.

### **3. Innovation as the core activity for sustainable turnover**

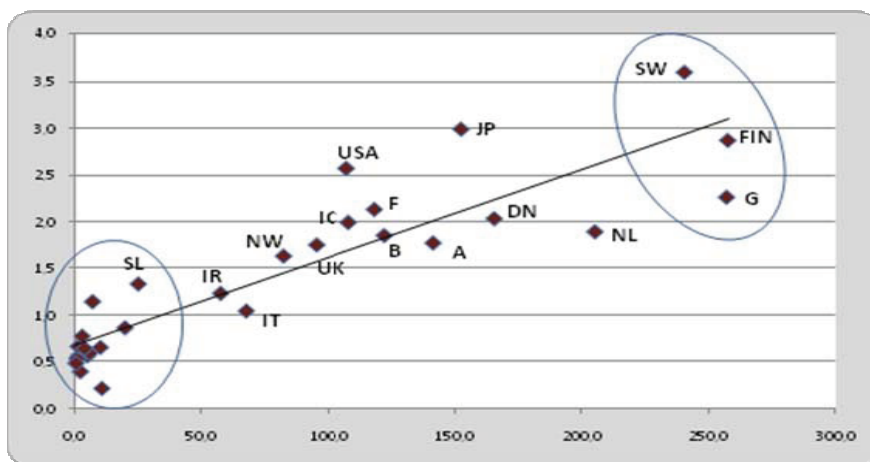
At a macroeconomic level, the intensity of research and development (R&D) investment also typifies a key innovation indicator that induces competitive advantages between nations or regions. In the last decade, in Europe, moderate increases have been observed, particularly in the business enterprise sector. As stated by European Union in the Lisbon’s strategy, EU members should increase its R&D expenditure to at least 3% of GDP in 2010 (average, in 1998: 1,4% of GDP). This type of expenditure is seen, in this scope, as the creative work developed on a systematic basis in order to achieve higher standards of knowledge by the business enterprise sector. However, among those states above the European average, the Nordic countries have been the leaders with regard to the intensity of R&D, both in the business enterprise and public sectors (e.g. in higher education institutions). As regards, the poor levels observed in the other countries, in particular for the ones that have joined the European Union in the last decade, new and stronger macroeconomic policies are required, that, in the medium and long run, can support the new business models development and generate increased competitive advantage.

Patent registration is, probably, the most visible indicator of innovation management. According to Willigan (2001:35): “*Companies wishing to exploit*

*their intellectual assets may wish to establish an incentive program for scientists and engineers to direct and motivate their invention activity. The objectives of such an incentive program are to channel invention activity into areas where the current patent portfolio needs improvement and to identify areas of future technology that companies need to “play in” in order to be successful in the “knowledge-based” world of the future”.*

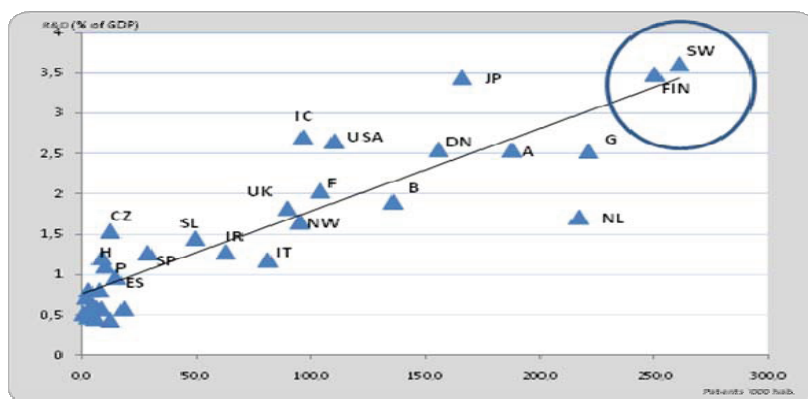
Patent applications refer to the requests for legal protection, directly submitted to the European Patent Office (EPO) or carried out under the patent Cooperation Treaty, independently of their acceptance. Registrations are allocated to the country of the inventor except in the case where more than one country is involved. A fractional method of counting is used in this particular case. This indicator also grants a simplistic overview of the European scenario about the real trend towards the strategy implementation as stated in Lisbon, in 2000.

At a microeconomic level, IP should be measured and disclosed through complementary business reports. Patents, copyrights, internal software developments, brands and even strategic alliances, are enablers of business protection and source of granted returns. Graph 1 indicates the correlation between R&D intensity and patent registration in the beginning of this century.



**Graph 1 – R&D intensity and patent registrations – 1998**

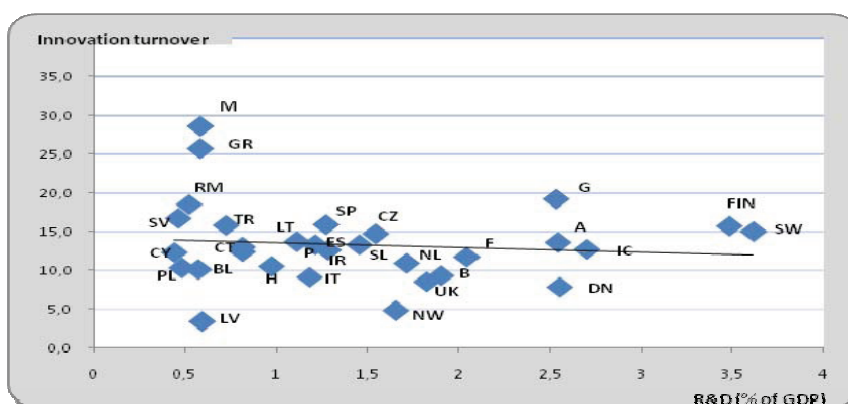
Sweden and Finland led the European scenario as they have submitted, in 1998, per million inhabitants, approximately 237 and 231 requests, respectively (average of 78,5 with a standard deviation of 85,1). We note the same trend if we refer to the requests submitted to the EPO by country in 2007 (298 and 251 requests were registered by Sweden and Finland, respectively). The United States of America (USA) and Japan (JP) lead the patent registrations, per million inhabitants, in the USPTO.



**Graph 2 – R&D intensity and patent registrations - 2007**

As expected, both in 1998 and in 2007, we found a statistical significant correlation between R&D investments and patents registered in the international offices (overall adjusted  $R^2$  above 88%). These results are aligned with the assertions stated by Taghaboni-Dutti (2009). Patent analysis can be used to monitor some trends in order to understand the innovative activities developed inside the organizations, diagnose the internal weaknesses and strengths and interpret the market demand.

If we compare the information stated in graphs 1 and 2, the European scenario did not change significantly, since 1998. Research and Development ratio has not increase, far away form the goal stated, from European Union, for 2010. The supremacy of the Nordic countries (FIN and SW), USA and Japan becomes clear. Other European countries, in particular the last ones that have joined the European Union, still present weaknesses that require technological innovation policies and procedures if they are to achieve a fair and sustainable alignment. Without these developments, we shall continue to face the difficulties arising from a Europe developing at different speeds. Moreover, potential competitive advantage may be gradually and permanently lost in the digital and global economy.



**Graph 3 – Innovation turnover**

Concerning the effectiveness of R&D intensity, we did not achieve a significant correlation between those expenditures and turnover from innovation (adjusted  $R^2$  of -0,107). Turnover from innovation ratio indicates the % of total turnover derived from new products and services totally new for the market (it occurs when a new or significantly improvement was introduced in product/service or in a process). This result seems consistent with evidences achieved by Chan *et al.* (2003) relating to the stock market valuation derived from R&D expenditures. In fact, the evidence achieved does not support a direct link between R&D expenditure (and even other intangibles as advertising) and future returns. Different evidences were obtained by Lev and Sougiannis (1996) relating insider gains. These gains in R&D intensive companies are significantly higher than insider gains obtained in firms not strongly engaged in innovation expenditures. However, and as mentioned by Boone and Raman (2003), the disclosure of innovation activities can contribute for the asymmetry information mitigation and liquidity rates, despite their poor impact in the company's periodical revenues.

In the European scenario, the turnover derived from innovation seems quite residual, except in some countries with poor rates of innovation intensity. Probably, the cycle of innovation and its impact in the financial statements will take a long time to become effective. Or, the innovation effort is only the way ahead to achieve a strategic a leadership positioning.

#### 4. Final remarks

The intangible asset concept is, according IAS 38, associated with expected future returns. It is viewed as an identifiable non-monetary asset without physical substance, controlled by companies and viewed as source of future returns. In this respect, one of the most visible sources of intangible assets is patent registration, supported by the intensity of research and development. This evidence is consolidated at a later date by the number of patents effectively registered and granted by the international agencies. Innovation management is, therefore, a source of competitive advantage for national economies in general and for the business sector in particular. However, especially in Europe, we have a lack of innovative ideas that will lead to broad application-based patents that can maximize a company's investment in research and development. The European evidence in those domains clearly indicates a need for additional macroeconomic policies. The European scenario didn't change, in substance, between 2002 and 2007 and the trend observed reveal that the Lisbon's strategy for R&D will not be achieved.

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## SUMMARY

### INTENSIVE INVESTMENTS IN INTELLECTUAL PROPERTY: TSHE WAY TO INCREASE SUSTAINABLE INNOVATION TURNOVER

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**Purpose** – To invest in intellectual property is a strategic decision towards the creation of a sustainable value added, at a firm or even at a macroeconomic level. The multiple insights achieved reinforce the paradigm that intangibles are the main structural support for