

R&D in the 21st Century. Obtaining Optimal Value from Intellectual Property

Authors: Mattia Fogliacco (Sisvel), Harold Blomquist (Sisvel Advisor), other contributors

Overview

The globalization of electronic and sensor markets has transformed the business models of all but the most local players. The success of low-cost providers is forcing many established businesses and investors to re-think their strategies. Many have come to the conclusion that a significant contributor to their true value lies with their existing and future intellectual property.

Today, fewer companies can finance research and development exclusively through sales and profits. This creates a need for alternative sources of financing research and developing, and protecting and deriving monetary value from the results of that research and development.

In the 21st Century research will continue to be financed through direct sales of a company's products and through internal and external investment sources. Investors and companies are now more alert than ever to returns on their investments made possible through revenue streams derived directly from intellectual property. With changes in laws governing and protecting intellectual property, it is becoming necessary for companies to become conscious of, and plan for, optimum IP creating, protection, and monetization strategies.

Leading technology innovators must employ strategies that it can identify, evaluate, and monetize intellectual property assets for its investors from an earlier stage of R&D than ever before if they are to derive maximum potential value. The assets derived from a well-managed licensing program contribute significantly to a company's R&D efforts and overall financial health.

Protection of Intellectual Property Began More Than 500 Years Ago

Forward thinkers began to understand the potential value of the product of inventive genius long before the first official regulations or statutes were formalized. Drawings credited to The Greats such as Michelangelo around the turn of the 16th century were a form of idea formalization. These ideas were not protected, and I doubt that The Greats would have wanted them to be, leaning more toward the edification and benefit of all mankind. At the time of the death of

Michelangelo was born another of the world's Great inventors, Galileo. Credited with laying the foundation of modern physics and astronomy, he developed methods and practices while at the University of Pisa that superseded the Aristotelian view of the simple physics of falling objects and gave rise to the idea of controlled flight. Again, his inventions, like those before him, were available for the good of human kind – and like today in the case of inventions funded and cultivated in certain public institutions with federal monies, are generally available for the public good.

Contrary to this way of thinking, certain visionaries felt that it was in the best interest of encouraging inventions to protect the inventors against others copying their inventions. In Venice, in the late 1400s, the first statute appears.

“There are in this city, and because of its grandeur and virtue there come to us from other places, men of great genius, apt to invent and discover a variety of ingenious devices. And if it were provided that the works and devices discovered by such persons could not be imitated by others who may see them, stealing away the inventor's honor, such men would exercise their genius and invent and make devices of no small utility and benefit to our commonwealth. Therefore, it is decreed by the authority of this Council that any person in this city who invents any novel and ingenious device, not made previously in our dominion, as soon as it is reduced to perfection, so that it can be used and exercised, shall give notice to the office of our Provisioners. It being forbidden to all others in our land to make any other device which imitates and resembles the invention, without the consent and license of the author, for up to ten years.”

Venetian Patent Act of 1474

Driven by knowledge and innovation Intellectual Capital has emerged as a leading asset. It hasn't always been viewed this way, in spite of the Venetian Patent Act of 1474. A little more than 100 years ago, there were those in positions of visibility and knowledge who confidently thought that all the good inventions had already been invented. Charles H. Duell was the Commissioner of US patent office in 1899. Mr. Duell's most famous attributed utterance is that "everything that can be invented has been invented." He proposed that the USPTO be closed due to the "perceived fact" that there were no more new inventions for the PTO to process. My son, who is a patent attorney has also heard the quote...was it real? The quote may have been apocryphal but it reflected a belief at the time that revolutionary inventions had so significantly altered life as it was previously known that people had a hard time seeing that such revolutionary things could continue. But, we were on the precipice of hugely accelerated growth in inventions....and protecting them.

We can see the significance of this acceleration by the below graph from an article written by Dennis L. Crouch, published in the patent blog, "PatentlyO" in 2011. While the number of patents issued in the US in the late 1800s and throughout most of the 1900s was not zero, in comparison to the 1980s through the early 2000s, the number is pretty close to asymptotically approaching zero.



From the beginning of the Industrial Revolution until well after World War II the global economy was propelled by the power of Industrial Labor. Even well into the computer age, including today, we still see the power that arises from low cost massive labor forces like China and Southeast Asia. To a lesser degree, we've seen in Europe the emergence of southern European countries with low cost labor providing highly labor intensive assembly and manufacturing work to their northern and central European brothers.

In the '70s, intangible assets and intellectual property represented about 20% of a typical company's assets. Today that ratio has been inverted. Intangibles such as brand, patent portfolio, copyright, management reputation, employees know-how and partnerships with customers and suppliers, account for 80% of a company market value.

A Smart Idea is Not Enough – You Must Protect It

An excellent example is the roles of key inventors related to the telephone. Alexander Graham Bell is largely credited with the invention of the telephone. As a child, educated in the US, I was taught that Bell invented the telephone. No mention was ever made of Antonio Meucci. Meucci is best known for developing a voice-communication apparatus which several sources credit as the first telephone.

On June 11, 2002 the US House of Representatives contributed to the gradual correction of this historical injustice with the following resolution:

"Whereas if Meucci had been able to pay the \$10 fee to maintain the caveat after 1874, no patent could have been issued to Bell.

Now, therefore, be it resolved, that it is the sense of the House of Representatives that the life and achievements of Antonio Meucci should be recognized, and his work in the invention of the telephone should be acknowledged.

Crisis and Innovation

The global financial crisis has affected companies' innovative activity. The ravages of the economic downturn has worsened the slowdown in patent activity, notwithstanding substantial heterogeneity across countries. In 2008 in China the number of patent applications grew substantially preventing applications worldwide from reaching zero growth (or being negative). +18.2% increase in Chinese patent applications. While the economic recovery remains uncertain, there

will likely be a continuing geographic shift of innovative activity towards East Asia and India. (Source: WIPO – World Intellectual Property Indicators, 2010)

“Innovation is now recognized as crucial to growth of companies and the economy. But *Growth Centered Innovation*SM – the sustained conversion of ideas to invention, invention to true innovation, and innovation to income and growth – requires new dexterity and unprecedented collaboration within and between organizations. Such real innovation currently evokes anxiety and can freeze even the most experienced managers. The need is for business, academia, and policy interests to bring brand, intellectual property, research and resources to focus...” (Source: The Institute for Intrapreneurship and Silver Park Group).

Intellectual Property as a Tool for Economic Growth

R&D investments are more and more essential for Western companies to be competitive in the global marketplace. Competitive advantage can no more be related to the low cost of materials and human resources. With the influence of China, and other countries where the protection of Western European and US Intellectual Property is less well regulated and controlled, IP rights, are increasingly important and are being assaulted in many new ways.

*“With the increasing importance of knowledge as a driving force of innovation and economic growth worldwide, **IP rights are becoming central to the modern economy**. This is particularly true in the context of current global challenges which include economic recession, the challenges of climate change, and public policy issues such as health and food security. In all of these cases, **human creativity and inventiveness will be essential to finding solutions for a sustainable future, and IP rights are an important tool for stimulating and rewarding that creativity**”.*

Source: WIPO – World Intellectual Property Indicator, 2009

IPRs help you to **protect** your market from competitors. IPRs give you the potential of **economic return** for your invention even if you don't have direct access to the marketplace for products and services. Companies are not always able to market the invention. Companies are not always able to reach every markets. IPRs give **measurable and therefore valuable tools** when discussing with banks, investors, potential partners.

IPRs are legitimate exclusive rights, which confer upon their owners two basic prerogatives as a reward for their innovative contribution:

1. **The right to prevent any third party from applying or using the subject-matter of the IPR**
2. **The right to set the conditions of a license in consideration for use of the IPR**

These exclusive rights are recognized in all patent laws as well as in the TRIPS agreement. However, as we all know, protection under the law isn't always sufficient. Sometimes it is in the best interest of individual inventors to collaborate, or pool, their IP and IPRs with others whose IPRs lie in contiguous areas, creating a standard set of technical descriptions, depending on the strength of the many vs. the strength of the one in protecting IPRs. As an example, relying on the EC Treaty rule on abuse of a dominant position (Article 102 of the Treaty on the Functioning

of the European Union), **the European Court of Justice indicated that in certain exceptional circumstances IPR holders may be forced to grant a license to other firms.**

The Future of Innovation and Invention

As inventors, you are all aware to some extent of the importance of patents and other IPRs. Bless you, if you are fortunate enough to be working on essential patents. An essential patent is a patent which discloses and claims one invention that is **required to practice a given industry standard**. Standard Setting Organizations (SSOs), therefore, often require members to disclose and grant licenses to patents and pending patent applications that they own and that cover a standard that the body is developing. In the sensor world, there are many consortia focused on advancing the state of the art in a wide range of areas, photonics, smart sensors, MEMS sensors, and others.

With the diversity of fields of interest in the sensor world, SSOs are critically important to creating leverage and protective barriers of greater power than that of any individual patent owner or inventor. Deeper pockets sometimes prevail. After being advised of relevant patents, the SSOs will seek to use a different technology for the standard or obtain a commitment from the patent owner to license on fair, reasonable and nondiscriminatory (“**FRAND**”) terms. Failure to make such a disclosure can be a form of patent misuse (the so-called **Patent Ambush**). Care must be taken to avoid falling afoul of the myriad different protections both for the inventors and for the “public.”

At a leading university in the western United States, there is a “best in class” organization focused on creating and capturing economic value from their IP. They are called Technology Venture Commercialization. They are committed to forming companies to take their inventions to the market. They also recognize the importance of finding ways to monetize patents that may not, or have not, made their way into the successful products in markets. They are spear-heading a collaboration between universities including nearly 20 institutions of a like mind who believe there is more value in pooling IPRs than in trying to go it alone. Their initiative may have a similar shape to the UK-based company, The IP Group.

The concept may loosely be defined as a Patent Pool. A “Patent Pool” is a **portfolio of patents essential** to the same standard but owned by different parties. The purpose of a patent pool is to **facilitate licensing** of essential patents, which discloses and claims one invention that is required to practice a given industry standard. Patent pools have substantial pro-competitive effects, including:

- provide more certainty and predictability to those who are interested in adopting the standard and creates a leveled playing field;
- reduce aggregate royalties by establishing a single royalty rate for the participating companies patents;
- reduce transaction and administrative costs for both patent owners and licensees;
- promote FRAND licensing terms and conditions.

In Conclusion

As a result of the growing importance of IP, a new business paradigm has evolved. In today's world of rapidly expanding Intellectual Capital and IPRs, you, as inventors need to be aware of many new elements contributing to unleashing the economic value of your inventions.

1. Companies patenting to obtain an exclusive commercial monopoly
2. Companies patenting to preserve market share
3. Companies financing R&D with licensing revenue
4. Universities with in-house licensing departments that subsidize research activities
5. Multinational companies entering cross license agreements
6. Companies exploiting patents originated from companies dismissing certain business
7. Companies acting as patent pool facilitators and administrators
8. Companies specialized in acquiring, developing, licensing and enforcing patents, the so-called "Non Practicing Entities"
9. Companies investing in "Non Practicing Entities"
10. Patent auction houses
11. Companies fostering the transfer of patents
12. IP Stock Exchanges

In conclusion, the global technology market is becoming increasingly more competitive with inventions and potential misuse of inventions accelerating at an unparalleled pace. Continuing, and even enhanced investments in R&D are ever more critical and essential to maintaining competitive advantage in the market. It is important to be aware of the subtle and not-so-subtle changes in IPRs and value releasing changes in the legal environment worldwide. An appropriate business model needs to be considered and adopted in order to achieve value from existing patents and to finance new R&D. Giving appropriate consideration to the elements of the new business paradigm will position you, your companies, and your institutions to achieve optimum value from your inventive genius.