

Competing on your IP in the electronics industry

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Competing on your IP in the electronics industry

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Competition in the electronics industry continues to intensify. Shrinking market windows, corporate consolidation and specialisation, and the ever-increasing viability of low cost jurisdictions such as China and India for both manufacturing and design are adding to the pressure. Companies must innovate their business strategies to succeed. Central to this effort is intellectual property, which can be effectively leveraged into a sustainable competitive advantage in market position, revenue and/or strategic partnerships with the appropriate strategy.

An IP strategy that will enable a competitive advantage within the electronics industry must address the following issues:

- Patent thickets.
- Technology convergence.
- Standards.
- Patent quality – build or buy.

Most of the traditional IP powerhouses have been based in North America. Obvious examples include IBM, Texas Instruments and Qualcomm. Organisations around the world have studied their practices and have implemented IP programmes with varying degrees of success.

Within the electronics industry, this can be seen most dramatically in Asia. The rise of the so-called Japanese IP Samurai has been evident for some time now. Japan is the top foreign patent filer in the US and China and is second only to the US in Europe. Japanese companies have strong patent positions in consumer electronics and semiconductors and are asserting their rights on a worldwide basis. The patent strength of Korean and Taiwanese corporations is also growing. They are asserting patent rights within Asia. China is also evolving from a global manufacturing

centre to a player in the intellectual property community. China was number 10 in terms of PCT applications in 2005, up from a ranking of number 15 in 2000. This worldwide focus on patent rights has been driving increases in the number of patents filed and issued by the various patent offices.

Growing competition

Patent thickets are the result of this increased patent activity. They are dense lattices of overlapping patent rights that cover almost every product in the electronics field. It is estimated that an average mobile phone is impacted by a minimum of 7,000 patents. Similarly, a laptop computer is estimated to contain technology relevant to a minimum of 15,000 patents. To bring a product to market in this environment, a company is driven to increase its own patent holdings to provide bargaining chips for licensing negotiations. Increased patent holdings also raise the probability of a realised commercial return from a company's IP since it is less likely other companies will be able to circumvent.

Technology convergence only complicates this issue. Communications, data processing, imaging and entertainment technology are being incorporated into single devices. For example, mobile handsets are developing into powerful computing engines with imaging capability. Personal computers are becoming increasingly portable with enhanced communications features. In the semiconductor domain, more and more features are being built into single integrated circuits (ICs) through system on chip (SoC) or system in package (SiP) technology. This means that firms traditionally playing in separate markets are colliding in terms of their business models. This growing overlap between firms is creating even more competition and complicating standardisation efforts.

Standards are established to provide

Building an effective IP programme

There are a number of elements that must be considered when putting in place a strategic IP programme. These are:

- Competitive intelligence.
- Portfolio management linked closely to technology development, patent prosecution, and licensing efforts.
- Development of key partnerships – both service providers and other industry players.
- Active patent procurement effort to reinforce areas of importance.
- Effective licensing venture – IP programme should be self sustaining, if not cash flow positive.
- Defined communication channels between IP teams and rest of business.
- Education programme for staff and executive team.

compatibility between products from different vendors. The success of a new standard can be affected by a dominant patent position held by a key market player. To address this situation, some standards bodies are enforcing certain licensing or royalty limits for patents judged to be essential to the standard. Others only require the licence to be issued at a reasonable royalty. This can be difficult though, depending on the number of organisations participating in developing the standard, the relative dominance of any of these organisations and the diversity of the business models pursued by these organisations. However, in any of these cases the potential of royalty constraints increases competition for a greater share of the patents judged to be essential to the standard. Again, this drives companies to increase their patent holdings in this area. An example of this is the evolving standards for mobile telephony. In the GSM standard there were 23 organisations that held a total of 140 patents judged to be essential to the standard. The estimated royalty stack for GSM products was in the range of 13%. UMTS is the next generation standard expected to replace GSM. It is estimated that there are 1,200 patents that are essential to this standard held by a total of 73 organisations. It is predicted that the royalty stack for UMTS products will approach 20%. This will likely impact the adoption rate of UMTS.

A strategic approach

The conventional approach to make your organisation more competitive in this environment would be to increase your patent holdings relevant to a given product or standard. The key to being more competitive is to adopt a strategic approach that focuses on the aspects of your technology that will provide a competitive differentiator in the marketplace and how your business intends to use them to its advantage. Unfortunately, this is easier said than done. It requires a detailed understanding of the needs and wants of the market, the technology being produced by the competition, and the makeup of your own patent portfolio.

In addition to patenting technology that provides competitive differentiation, companies can achieve this goal by improving the quality of their patents. This sounds like an overly simple goal, but it requires incredible sophistication to achieve.

This sophistication must be applied in three specific areas. The first is portfolio

management, which must be a core strength of the organisation. The portfolio must be organised so that value can be extracted and key metrics established to identify patents that provide the most value in a particular field. Information from these portfolio management efforts must be fed back to the patent prosecution team. This leads to the second area – a well linked patent prosecution team. Patent prosecution professionals must be closely linked to the technology development, marketing, competitive intelligence, portfolio management and licensing teams. Ensuring consistent feedback to and from all of these groups is very difficult. The third area is patent procurement. The company must look to supplement its internal efforts by procuring patents from third party sources. This can greatly accelerate the building of a strong patent portfolio that will deliver a competitive edge.

Competitive intelligence

When seeking to build a sustainable competitive advantage, it is imperative to understand the competitive position of your company. This includes understanding how your products stack up from the standpoint of feature sets, performance and cost. It should also include insight into the relative positioning provided by the patent portfolios of competitive organisations.

Competitive intelligence can provide this information from a number of sources:

- Information gathered by your sales force from discussions with clients.
- Information gathered by technical staff attending conferences and seminars.
- Monitoring of standards development.
- Marketing and technical literature published by the competition.
- Reverse engineering and testing of competitive products to verify implementation details, performance specifications and cost to manufacture. This is an important aspect of any competitive intelligence programme as the information from the earlier sources can be intentionally vague or misleading in regards to specific product details.
- Studies of the patent landscape in a particular field or organisation to identify patenting trends and assets that will pose a threat or provide an opportunity for your company.

All of this information must be collected in a central location where it is searchable and can be disseminated across the

organisation. Many of these activities may already be occurring within the marketing department of your organisation. If so, a close collaboration between the marketing and IP teams is essential.

Portfolio management

As mentioned earlier, portfolio management must be a core strength of any organisation attempting to leverage its intellectual property for competitive advantage. A successful portfolio management programme organises the portfolio so that patents are put in the context of the organisation's markets, customers, products and competitors. This task can seem unwieldy, especially for technology companies with thousands of patents. The answer to moving this effort forward lies in developing and implementing a systematic process for portfolio management.

All successful portfolio management programmes begin in a similar manner:

- Define a clear, well articulated goal for the portfolio management programme.
- Select a team to lead the programme that incorporates individuals with technical, business and legal backgrounds and skills.
- Determine if external specialists will be required to provide a broader or deeper view than is available from internal resources and/or to minimise internal bias and agendas.
- Define the programme as ongoing and iterative rather than a one-time event.
- Create links between the portfolio management programme and initiatives that will execute on generating return such as licensing or strategic partnership development.

The last point is key, but is often overlooked. Portfolio management should incorporate a feedback loop from licensing activities, competitive intelligence and business unit strategies. Having a systematic approach that utilises this information on a regular basis is greatly preferable to receiving sporadic inputs every few years.

Once this foundation is created, programme execution can begin. This requires two additional steps.

- Create a mechanism to capture information in a re-usable format so that the effort does not need to be repeated.
- Develop an effective triage process to filter the strongest and/or weakest patents for further assessment.

Capturing the information from this process for re-use can be a major challenge. A range of solutions, from sophisticated knowledge management tools or databases to simple spreadsheets, can be employed. Each can be effective, depending on the size of the portfolio, as long as it is treated as a living document and utilised on a regular basis. In fact, both competitive intelligence and portfolio management rely heavily on knowledge management to be effective. The proper processes and tools are required in order to capture and disseminate in a consistent manner the vast array of information that both efforts produce. The complexity of the processes and tools should be adapted to the size of your organisation.

Relationship development

An IP programme has many components and it is rare for an organisation to have all of the necessary skills and information in-house. It is important to identify the aspects of the programme that need to be handled internally and the aspects that require external support. An IP programme requires legal, technical and business expertise. Legal, licensing, technology and valuation firms are all readily available to provide needed skills and information. Finding the specific firms that understand your strategy and business objectives and can add value to your efforts is a more challenging undertaking. The key is a detailed dialogue regarding your problems and the firms' proposed solutions. Far too many organisations treat this as a task-based outsourcing exercise rather than associating themselves with long-term partners that will provide a business advantage.

In addition to service providers, companies should look at other industry players to determine if partnerships or shared efforts would be advantageous. This can range from sharing ideas and information on IP strategy, through establishing patent purchasing consortia and assembling a joint defence against a major assertion programme, to formal joint ventures for technology development and licensing.

In closing, the key to addressing many of the IP issues facing electronics organisations today is to identify and protect the technologies and business practices that will provide competitive differentiation for the business. This requires active competitive intelligence programmes, effect portfolio managements and open communication channels between the various IP teams and the rest of the business.



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Mr McLean holds a bachelor of science, engineering with first class honours from Queens University and is a licensed member of the Association of Professional Engineers of Ontario. In recognition of his strong technical and business acumen, Mr McLean has served as an expert witness in several intellectual property suits on behalf of Semiconductor Insights' clients.