Strategies for Maximizing Value from Intellectual Capital in a Technology-Driven Business

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Over the past few years the amount of attention focused on intellectual assets has increased in proportion to IBM's *3,000 percent increase* in revenues from licensing its intellectual capital. IBM is just one example. Companies such as Microsoft, Texas Instruments, and Dow Chemical have also demonstrated the power of licensing to improve a company's financial performance. It is not surprising that many companies have been advised to mimic the strategies of IBM, and nationwide licensing revenues have skyrocketed over the past 20 years to over $100 billion. This is due in part to the increase in the number of patents issued.

But most companies are not like IBM, which has 315,000 employees, $88 billion in annual revenues, five Nobel laureates, eight worldwide research laboratories, and almost 2,900 new patents issued every year. Most companies are smaller, younger, and comparatively poorer. They do not have the global reach or leverage of IBM.

However, companies of different sizes and at different stages of development can get maximum value from their intellectual assets. There is no single formula, no magical secret, no "swallow this strategy and call me in the morning." A winning strategy for managing intellectual assets must be tailored to fit the unique constraints, conditions and aspirations of the company.

Not every small company can afford to do what a large company might be foolish not to. Not every established company should bother with the tactics of the start-up. Nearly all companies will have to adapt their intellectual capital management strategies to changes in the business cycle. What matters is that companies integrate their intellectual asset management strategies with their business strategies, and adapt these strategies to internal and external changes over time.

To integrate a company's intellectual capital management strategy to its business strategy, it is necessary to understand:

- The levers of value from managing intellectual capital,
- How to identify undervalued or underutilized assets,
- How to keep intellectual assets working for the company, and
- How to assess the risks and rewards of an entrepreneurial approach to managing intellectual capital.

Levers of Value from Intellectual Capital

The value of intellectual capital to a business is manifested through benefits to business innovation, operating performance, and strategic positioning. These levers are complementary and not mutually exclusive, and they each have a substantial effect on shareholder value.

Business innovation is the core value of intellectual capital for most companies. The purposes of business innovation are to: bring new or improved products and services to market; enable more efficient methods of production; allow penetration of new market seg-

ments; and enable breakthrough product or service concepts that restructure industries and provide long-term competitive advantages. A good example of a company using its intellectual capital for new product development is 3M. 3M was granted 434 patents in the year 2000, and is renowned for its ability to bring its innovations to market.

Focusing on the new product innovation dimension of intellectual capital value keeps the business in touch with the purpose and ultimate value of intellectual capital. Studies show that only 20 to 40 percent of research results normally make it into a company's product portfolio. Improving business innovation means either increasing this conversion rate or increasing the total volume of new ideas without reducing this rate.

Operationally, the value of intellectual capital can be realized by companies that *sell* it, *buy* it, or *share* it.

Out-Licensing

Intellectual capital can be sold or out-licensed to others to generate revenue. This is the fastest way to generate revenue from intellectual capital, and the development of online exchanges has made this easier than ever before. An example of licensing success is provided by a small company called Cadtrak. Cadtrak was in a dire financial position until it realized that one of its patents was central to EGA graphics for computer monitors. The company transformed itself from a mediocre manufacturing company into a highly profitable licensing operation, deriving value from its intellectual capital by selling it to others rather than using it itself.

Because of the potential from licensing, several companies have set themselves up as patent holding companies, whose value creation comes from licensing the technologies they own to others. Sometimes the patents are the results of in-house innovation, as in the case of Walker Digital, originator of Priceline. Other times they are the innovations of others.

In-Licensing

Intellectual capital can be bought or in-licensed from others to reduce the in-house costs of research and development. The large pharmaceutical companies have a competitive advantage in marketing and distributing drugs, but smaller pharmaceutical companies and biotech companies sometimes excel at developing or testing new drug compounds. As a result, many pharmaceuticals today derive a major share of their revenues from products licensed from others. For example, McKinsey & Company reports that Johnson & Johnson's in-licensed products accounted for 54 percent of its pharmaceutical revenues in 1997, and 34 percent of revenues from the top ten pharmaceutical companies came from products licensed from other companies.

Collaboration

The third operational lever is intellectual capital sharing and collaboration. For example, there is a small biotechnology company, Biosmall, with an innovative technology for performing R&D in the pharmaceutical industry. Biosmall wants to license this technology to a large pharmaceutical company, Bigpharma. Biosmall's technology is still unproven, yet it promises tremendous rewards in the drug development process. Biosmall is under pressure from investors to quickly cement a deal with a pharmaceutical company to validate the technology and the business model, yet Bigpharma is reluctant to make a big financial commitment to Biosmall because the technology is commercially unproven. A collaborative research agreement lets them reduce their individual risks by sharing the potential rewards. Bigpharma gets access to Biosmall's technology and Biosmall gets access to the research results.

These three operational levers of intellectual capital strategy are the most obvious and the most actively managed because they lead to clear, measurable benefits to business performance.

They cannot be evaluated in isolation, however, because intellectual capital often determines the competitive positioning of a business within its industry. Companies can employ their intellectual capital defensively to *protect* their market position, opportunistically to *leverage* their market position, and holistically to *expand* their market position.

Protecting Market Position

First, intellectual capital enables businesses to protect their market position by slowing and/or raising the costs of entrance by competitors into the market. A thoughtful portfolio of patents that protects the business's core technology and the obvious alternative technologies can delay profitable entrance by competitors for years, allowing the business to shape customer expectations and to reap the full rewards of innovation. The more valuable the intellectual capital is, the more difficult it is to protect, but the more important it is that it is indeed protected. Any strategy for intellectual capital should consider the business's defensive objectives at different stages of development.

Leverage Position

Intellectual capital also enables a business to leverage its market position on the basis of its intellectual capital. For example, intellectual capital increases a company's valuation in merger and acquisition transactions and increases the company's bargaining power in negotiating for access to needed technologies. Intellectual capital also enables a company to signal the market about its technology strategy or to take advantage of regulatory opportunities through orphan drugs, for example. A company with a new technology may benefit by having somebody using

the technology—testing it, proving it, providing feedback and experience.

Expand Position

Finally, strategic management of intellectual capital allows a business to expand its market position by developing valuable partnerships and licensing relationships, and sometimes even by setting industry technology standards. Rather than defensively controlling a market, which may stimulate competitor innovation, a business may want to encourage widespread use of its technology by pricing it attractively. Sony and Philips widely licensed compact disc technology and were able to establish an industry standard for the technology that replaced vinyl LPs. By doing so, they avoided the VHS-Betamax divide that slowed the growth of the video industry. Netscape also succeeded, for a period of time at least, by making its source code for its Internet search engine available at no cost, and by leveraging the skills of developers outside the company.

The actual value of intellectual capital to a business either operationally or strategically will depend on the nature of the industry and the intellectual capital in question. Not every new technology will have the requisite market for licensing success, or the timing and appeal to set a new industry standard, but it is important for a business to conceive of its intellectual assets creatively and to explore these and other levers of value creation. Before this can be done, however, the under-valued or under-used intellectual capital must be identified.

Identifying Undervalued Intellectual Capital

The nature of corporate assets has changed. Intangible assets make up an increasing share of all corporate assets, and investors today pay much closer attention to a company's portfolio of intangible assets. Intangible assets doesn't mean simply the patents, trademarks, copyrights, and trade secrets that normally come to mind and for which a company relies on legal protections. "Intangible assets" include the intellectual capital that is not formally protected, yet can represent major sources of competitive advantage.

It is useful to think of intellectual capital along a continuum. At one end are the clearly defined and discrete elements of intellectual property such as patents and trademarks. At the other end of the continuum are the fuzzier concepts of firm culture, employee talent and know-how, strategy, and experiences. These fuzzier concepts are often not recognized or managed effectively as intellectual capital, yet they are a major source of company value.

When a company, such as Cisco, acquires a smaller company, it acquires not only the patents and other legal rights but also the human capital that is associated with those rights and that technology—all the knowledge, experience, creative ideas, and inventions that the small company's techies did not bother to turn into formal intellectual property. The path to new inventions is littered with underutilized intellectual capital. Technology-driven businesses must manage the intellectual capital along the full continuum.

Formal Capital

Nevertheless, the first place to look for undervalued intellectual capital is the company's portfolio of legally protected intellectual assets, or formal intellectual capital. Are these patents, trademarks and copyrights being optimized for shareholder value through business innovation, operating performance and strategic positioning? Are there dormant assets that should be licensed? Are there licensed patents that should instead be abandoned? Are the licenses priced and structured effectively to defend the company's competitive position?

To answer these questions, companies should establish interdisciplinary teams composed of staff from business development, research and development, the legal department, technology, strategic planning, new product development, and whomever else is needed to provide the requisite skills, authority, and organizational reach. Team design will depend on the organization's structure and priorities. Some companies, BellSouth Corporation, for example, have gone so far as to create subsidiaries to manage their intellectual property.

The interdisciplinary team will assess whether each of the company's patents is fulfilling its operational and strategic potential. The assessment must weigh the tradeoffs that are unique to the business operation. If a patent is critical to a company's product development approach, its exclusive use internally may be more valuable than broadly licensing it. If the cost of prosecuting patent infringement is greater than the licensing fees and competitive benefits from restricted access, in other words if the costs of maintenance outweigh the benefits, the company might want to donate the patent for a tax deduction. The value contribution of all assets should be justified, and use of assets should be re-engineered when necessary for greater value.

In addition to evaluating intellectual capital deployment, each team member must also be an ambassador for intellectual capital management. The objective is not to elevate intellectual capital above other core functions. The objective is to align intellectual capital management with the other core functions.

The next place to look for undervalued intellectual capital is the intellectual capital that is not legally protected under traditional IP regimes, yet is critical to business value and success.

Talent Capital

The greatest components of this intellectual capital are talent and business practices—talent capital. Talent capital is to formal intellectual property what intellectual capital assets generally have been to tangible assets. Formerly considered unimportant and left to the management (if at all) of human resources staff, effective management of talent capital is now a critical function of leading businesses. When Cisco buys a smaller company, it buys the talented staff, too. Talent is the single greatest competitive tool among technology-driven companies. It is often the greatest expense, and almost always the greatest source of long-term competitive advantage. Talent capital must also be optimized: Is the talent capital providing value for business innovation, operating performance, and strategic positioning? Is the talent capital effectively protected and leveraged? Is it managed strategically? Is there a plan in place to recruit, cultivate and develop, and retain talent capital over time? Is the business structured to optimize talent capital with adequate management attention focused on talent capital challenges?

Talent capital is the new frontier of winning management. From GE to Microsoft, Peoplesoft to Dell, the most successful companies of the time have prioritized this function. Employee contracts, compensation plans, and employment strategies generally enable the business to attract the best staff and maximize value from them once they are employed.

Businesses must establish internal systems to identify undervalued or underused talent capital. The challenge is not merely to get people qualified to perform a particular function (*e.g.*, JAVA programmers), but to get, motivate, and keep the best people, people capable of growth and change as the business grows and changes, people capable of providing distinctive skills and distinctive levels of performance. Is the business meeting this challenge? Optimizing talent capital, like formal intellectual property, requires an entrepreneurial mindset, organizational structure, and culture that make intellectual assets a priority.

Maximizing Value from Intellectual Capital

It is not enough simply to put a policy in place and then forget about it. Intellectual capital management must become part of management objectives, the organization's mission and performance metrics. After the various forms of intellectual capital have been identified, winning companies will maximize value creation and value capture by optimizing the innovation, operations, and strategic levers discussed.

Business Innovation

Optimizing the business innovation levers involves balancing creativity, legal protection, and product development. Some useful strategies include:

- Assess R&D resource allocation. Many companies invest 80 percent towards product improvements versus 20 percent for new products. Is this appropriate?
- Monitor innovation time to market: Does the R&D approach match the length of product lifecycles?
- Create incentives for fruitful innovation (*e.g.*, JVC pays inventors over $800,000 for new patents).
- Experiment with different team-based approaches, corporate incubators, and knowledge management tools.
- Woo superstar innovators from competitors. Look at patent filings to find the most prolific inventors.
- Leverage talents of non-employees through collaboration (unbundled innovation).

Operating Performance

There also are some useful strategies employed to optimize operating performance levers.

Businesses focused on buying, selling, and sharing intellectual property can take advantage of new online tools. A recent survey of Internet sites turned up the following incomplete list of exchange sites: Patex.com, Uventures.com, PL-X.com, TechEx.com, Biostreet.com, ActiveCyte.com, Yet2.com, Pharmalicensing.com, Ipex.net, Freeipx.org, and PatentAuction.com. Even PricewaterhouseCoopers has an IP exchange service. (And don't forget LES!)

These services enable businesses to make their IP available to the public in an electronic marketplace where people seeking to buy IP can go to find it, and people seeking to sell IP can go to sell it. These marketplaces dramatically reduce the cost of finding buyers and sellers of potentially valuable IP. These sites and the electronic marketplace concept are not without their challenges: there are too many of them still providing largely undifferentiated, unfocused services; they don't yet have the necessary critical mass of users really to be active exchanges. Nevertheless, the effective exchanges will survive the coming shakeout, and they do represent a new strategy for buying, selling, and sharing IP.

This online exchange approach is a good place to start, but it may be too passive to generate the necessary buyers.

Companies should develop a proactive licensing and partnering program that involves:

- Identifying likely licensees or partners based on their technologies, markets, and customers (*e.g.*, who is citing your patents?).
- Preempting infringement with compelling licensing deals.

- Bundling patents into license packages when possible; acquire and relicense complementary patents currently owned by others.
- Aggressively collect royalties.
- Make strategic alliances that offer new capabilities in new markets.

Another interesting online tool worth noting is bountyquest.com. This site allows a business or individual to offer financial rewards in exchange for information demonstrating the existence of prior art. In effect, a bounty of $10,000, for example, is offered for a publication that disputes the novelty or nonobviousness of a claim. Students or researchers or bored techies do the investigation, and they are paid only if they succeed. This site, or one like it, might be used to prove the invalidity of a competitors patent or to help ensure the novelty of the business's or individual's own claim. These are useful tactics of proactive partnering.

Licensing

In-licensing and out-licensing are tools for achieving various value objectives, rather than ends in themselves. Although the licensing process helps to refine the business objectives of the deal, the deal making process should begin only after the overall innovation, operational, and strategic objectives (taking into account pre-existing obligations and institutional constraints) have been determined. It is important to focus on value capture in addition to value creation.

In licensing a company's technologies, the key elements of the deal will include answers to the following:

- What can be done with the technology by the licensee (*e.g.*, field of use restrictions)?
- What level of exclusivity does the licensor grant to the licensee?
- What is the duration of the rights?
- Who owns and controls the intellectual capital created as part of the deal?
- Is there a right to public relations regarding the deal, and credit in publications?
- How are risks and responsibilities allocated (including indemnification, regulatory compliance, patent prosecution)?
- What is the compensation schedule (up-front vs. milestone, minimum/maximum royalties, reimbursements, etc.)?
- What are the monitoring and reporting obligations?
- Is there a plan for transferability of rights (sublicensing)?
- What are the performance benchmarks?
- What triggers termination (term, breach, convenience, consent)?
- How are conflicts to be resolved?
- How will collective decisions be made and cross-company teams be managed?

The relative significance of these elements will change over time as the business matures and as the market conditions evolve. Companies with desirable technology may have greater leverage over some terms than over others. Moreover, these elements will vary in importance depending on the business's operational and strategic objectives.

Strategic Position

Optimizing the strategic positioning levers is how winning companies can truly distinguish themselves. The key considerations for companies seeking to *defend* their intellectual capital value are:

- Are the patents valid?
- Are the procedures in place to avoid infringing the patents of others?
- Is there a portfolio of alternative or "related" patents that constrain competitors?
- Are strategic lawsuits called for to stop infringement by others?

The key considerations for companies seeking to *leverage* their intellectual capital value are:

- Should the company acquire another company or be acquired? Who?
- Is there a patent that can be acquired to open new markets?
- Should the company outsource the licensing function for greater scale benefits?
- Are capital markets sufficiently "aware" of the company's intellectual capital?

The key considerations for companies seeking to *expand* their intellectual capital value are:

- Does the company have a breakthrough technology?
- How much access should the company allow?
- Are there strategic patenting opportunities?
- Are there benefits from joining research consortia?

Most importantly, maximizing value from intellectual capital requires figuring out the strategic objectives and integrating intellectual capital assets into a coherent strategy.

Assessing Risks and Rewards of Entrepreneurial Management

Many elements of a deal will involve tradeoffs between competing objectives in the face of uncertainty. For example, Biosmall may not want to offer exclusivity to Bigpharma out of concern that Bigpharma may fail to devote adequate resources to develop the desired drug. How does Biosmall assess the risks and rewards of various out-licensing or partnering deals?

Businesses should develop term sheets first and resolve the business decisions before trying to craft a

license or partnering deal that anticipates all possible scenarios. Businesses also should simplify and quantify the various uncertainties so that they can be compared and evaluated using a managerial economics approach.

This approach includes discounting expected returns by the probability of realizing those returns. So, for example, if Biosmall has a 50 percent chance of doing deal A (or getting term A), and only a 25 percent chance of doing deal B, Biosmall should do deal A unless deal B is more than twice as valuable as deal A. This approach can be used to compare various outcome scenarios and choose the strategy with the greatest expected return.

There are a few cautions about this approach to note. First, make sure that the benefits of having strategic options or alternatives are not undervalued. In evaluating strategies amidst conditions of uncertainty or ambiguity, assessment should be made of the value of a particular course of action and of the options for alternative courses of action in the future once the first course has been selected. These are the "down the road" options.

This is part of a larger problem of measuring expected value. IP valuation is notoriously difficult, and many businesses have difficulty quantifying the cash flow benefits of competitive positioning. Nevertheless, the exercise of quantifying strategic decisions and the managerial discipline it encourages are invaluable to effective management of intellectual capital.

The second caution is to make certain that the probabilities assigned are realistic. Oftentimes executives bias the results by assigning unrealistically high probabilities of success to their preferred strategies or to the status quo. People too often take status quo performance as a given, not appreciating how much the market environment and competition has changed or may change in the future.

Third, beware the hidden challenges of partnering: cultural differences. This is particularly significant in innovation businesses.

Fourth, record decisions and the rationale used to make them in order to evaluate them over time.

Fifth, it is important to put in place some metrics to evaluate the company's ability to manage intellectual capital over time. Metrics tend to be much easier for the innovation and operational levers of intellectual capital, but can be used to enforce internal honesty regarding the strategic levers as well. Some metrics include: licensing revenues, R&D effectiveness, and infringement settlement rates, among others.

Finally, any intellectual capital management strategy must be continuously reevaluated. The strategy must be current and fresh.

Summary

An entrepreneurial approach to deal making is simply a process of integrating an entrepreneurial business strategy with intellectual capital management practices. It requires a mindset shift within businesses about the nature of their assets and competitive advantages.

This more sophisticated conception of intellectual capital better captures the strategic options faced by technology-driven businesses and better accommodates their individual conditions and constraints.