



Book Managing Intellectual Capital

Organizational, Strategic and Policy Dimensions

David J. Teece
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Recommendation

In his preface, author David J. Teece promises a theoretical framework for understanding intellectual property and practical advice about managing it. Theory ultimately prevails in this book, but valuable nuggets of managerial guidance await any entrepreneur willing to dig for them. As a professor and as the presenter of Oxford's Clarendon Lecture in Management Studies, from which this book is drawn, Teece naturally tends toward abstract thinking. Some of the territory has been traveled before (i.e. the message that bureaucratic, hierarchical organizations tend to stifle innovation) but Teece adds a lot of intriguing material. *BooksInShort.com* believes analytically minded academics, entrepreneurs and executives will find Teece's volume illuminating, most notably his educated perspective on antitrust activism in the high tech arena. He concludes that government regulators should probably stick to regulating industries they understand. Well, if they want to understand intellectual property, they should start here.

Take-Aways

- Cultural influences affect an organization's ability to innovate.
- Innovative organizations create places where people communicate openly, feel free to challenge authority and are unimpaired by hierarchical bureaucracies.
- While some hierarchical companies innovate effectively, most outsource many functions to smaller, independent firms.
- Despite calls for "virtual corporations," outsourcing can have competitive disadvantages.
- Companies can recover value from innovations by licensing knowledge assets.
- Licensing restrictions depend on how easy a technology is to imitate or appropriate.
- Monopolistic behavior is difficult to determine in the high-tech sector.
- Although government regulators and economists think they are well suited to pursuing monopoly cases in high tech fields, they aren't.
- Government intervention in the high-risk, high-reward field of innovation could encourage capital flight to traditional economic sectors.
- Government intervention might be harmful but inaction carries few risks, since market dominance can last only until the next

Summary

Types of Knowledge

Did you ever think that your knowledge about knowledge might be lacking? You probably tend to think of knowledge as one entity - you either have it or you don't. Just as light is considered the opposite of dark, despite the countless shades and gradations available, we tend to think of knowledge as either present or absent. Well, knowledge isn't what you thought.

The New Global Economy

Fundamental changes have altered nothing less than the basis of competitive advantage and the functions of management. These changes include a decrease in the cost of the flow of information, an increase in the number of markets and deregulation of international financial flows. Now, the new core business is development and deployment of intangible assets (knowledge). The traditional bases for competitive advantage, such as access to natural resources, access to skilled labor and ownership of plants and equipment, are being stripped away. Even so, visionary leaders who know how to make the most of knowledge and competence can earn supernormal profits.

The Genus of Genius

Business actually depends upon taxonomies of knowledge, and the different types include:

- Tacit versus codified knowledge - We often know more than we speak. Some knowledge is hard to codify. This is relevant because you will only receive intellectual property rights for language that you can codify. Moreover, tacit knowledge is slow and costly to communicate, and is subject to ambiguities. Thus, master teachers can only handle so many pupils at a time, and because their teaching is best conveyed by example, learning from someone who has tacit knowledge can take a long time.
- Observable versus non-observable - Some technology is very observable. A new cell phone-PDA hybrid is a concrete example of technology you can see and study. However, don't assume that this is always the case. Process technology, for example, may imbed the signature of a process within a product, but it is not ascertainable merely through studying the process. Non-observable technologies are more easily protected.
- Positive rather than negative knowledge - Negative knowledge means knowing what doesn't work, and often that can be just as valuable as knowing what does. Thus, firms often find it useful to keep their failures as secret as their successes.
- Systemic versus independent knowledge - Knowledge that adds value without causing a wholesale change in the technical system that employs it is autonomous or independent. For example, fuel injection did not require substantial changes in the overall automobile. Knowledge that results in a systemic change causes adjustments to other sub-systems. This can be an important distinction when deciding how to allocate resources.

Promoting Innovation

The notion that economic and organizational values either stimulate or retard innovation has become widely accepted. In a competitive free enterprise system, for example, firms compete based on their know-how. This intelligence becomes the essence of a corporation's knowledge assets. Companies can either promote or degrade the quality and pace of development. Conditions that promote innovation include access to capital, flat hierarchies, minimal bureaucracies and the autonomy to try new things and possibly fail. Innovation is spurred by open communication in a culture that encourages teamwork and values.

Innovation versus Governance

Running an organization and stimulating maximum innovation can be mutually exclusive, but several typical organizational profiles do promote innovation:

- The individual inventor - Although most technological advances today come from corporate labs, where innovation is a group product, some garage-based innovation still occurs. But unless the individual inventor establishes property rights to an unusual degree, he or she will face difficulty deriving the economic value from the innovation. One option is licensing the innovation to an organization with more resources.
- The big bureaucracy - Companies with hierarchical structure offering many products and distribution lines may not be the classical sources of innovation, but they do contribute to it, to wit, IBM, Honeywell and General Motors. Such giants tend to be internally focused and slow to respond to change. Many use smaller firms to help cover these deficiencies.
- The Silicon Valley firm - These companies' change-driven culture avoids ossifying practices of seniority and rank, and resists functional specialization and bureaucratic silos.
- The virtual corporation - Some companies subcontract virtually every function. They face many of the same difficulties as the individual inventor. Some analysts believe that divorcing oneself from the process of production ultimately impairs innovation.

The Chameleon: A Strategy of Imitation

The imitation or use of one country's technology by another country is a constant feature of the high-tech landscape. Avoid naively thinking that technology developed by one party won't be used by another, since technology has always provided opportunities for pioneers and followers. The tightening of intellectual property laws have not kept followers from reaping rewards from technologies developed elsewhere. As U.S. companies have become less vertically integrated, new opportunities have opened for those who can adapt technologies developed elsewhere, particularly newly industrialized countries (NICs) in Asia.

To Outsource or Not to Outsource? That Is the Question

Some leaders who understand the link between a flat bureaucracy and maintaining innovative competitiveness have responded by outsourcing administrative and other functions to get the bureaucracy out of company's guts. Virtual corporation advocates urge outsourcing everything, believing that the less investment in the status quo, the more the firm will be nimble and ready to respond to market changes. This movement tends to overlook the drawbacks of outsourcing, such as coordination costs.

“Economic prosperity rests upon knowledge and its useful application.”

One solution is to form business alliances in critical areas. The alliance model is the middle ground between the virtual organization and the integrated, hierarchical organization. Managers must select the organizational form that best promotes innovation for their company. Outsourcing is not a panacea. Proponents should recall IBM's experience with outsourcing the PC - suppliers rebelled and created their own clones. When IBM outsourced development of the operating system to Microsoft, it sacrificed a tremendous potential revenue stream. Outsourcing can have hidden costs that are nonetheless real.

To License, or Not to License? That's the Other Question

Licensing is one way a company without developmental capital or an effective distribution system can earn money from its innovative technology. However, for the most return, the licensing company must restrict how, where and how much of its technology may be used and for what compensation. The question of appropriability must be addressed - how susceptible is the technology to a competitor's reverse engineering, adoption or imitation? The owner must take control over the terms of the license, and maintain control over vulnerable technology with high appropriability. When appropriability is low, the license can be structured differently. Consider these important licensing options:

- Technology transfer agreements - In these licensing deals, the owner agrees to teach the licensor how to use and implement the technology. Transfer agreements can be risky if the technology is highly subject to appropriation, because they can create short-run competitors. However, they often best serve the innovating firm's long-term interests.
- Limitations of use - To make a technology deal work, it is often necessary to limit its use, particularly where two or more uses exist for the same innovation. The limitations prevent losses due to a broader-than-anticipated application of the product.
- Cross-licensing - Cross-licensing enables companies to develop technology that relies on developments by different innovators. In high-tech fields, cross-licensing often does not involve a transfer of technology, but instead grants freedom to operate in a field that might be vulnerable to patent infringement claims. It clears the way for companies to develop a product relying on multiple sources of intellectual property. A company's ability to negotiate cross-license agreements lies in the strength

of its intellectual property. Cross-licensing works well with an IP that is in demand and has a clear owner.

Antitrust Analysis

Experts debate whether current U.S. antitrust law is suitable to application in the high-tech arena. The existing analytical tools have several limitations when applied to knowledge assets. In sectors with rapid innovation, government behavior has a much greater chance of harming - rather than promoting - social good. This happens because industries that are experiencing rapid technological change are often characterized by incremental innovation, the introduction of disruptive technologies that cause marketplace paradigm shifts. These high-risk disruptive shifts can topple a dominant player's market position.

“Much confusion has been caused in valuation analysis by ignoring the significant distinction between an innovation and the intellectual property which embodies that innovation.”

To avoid a mortal blow from one of these disruptions, recognize opportunities early in the game and quickly adjust to new circumstances. However, even if your company responds in a rapid and nimble fashion, you have no assurance that the new technological development will be a valuable addition to your firm's core competencies. While it is a good idea to make a fast adjustment to the new market, the new dynamics may not play out to your advantage. Of course, this has severe implications in U.S. antitrust law. With waves of creative destruction occurring randomly, antitrust law must be adjusted to account for the fact that apparent dominance of a market sector today may be completely irrelevant tomorrow. Antitrust regulators should expect to see far higher profit margins in tech sectors, in order to defray the expense of research and development as well as to compensate for an exponentially higher risk. Undue regulatory action will tend to discourage investment in sectors that are already risky enough, which could slow the pace of innovation altogether.

What Is A High-Tech Monopoly?

So what really constitutes a monopoly in the high-tech sector? Well, the high-tech landscape is so different that the usual signs of monopoly do not apply. The operational definition of monopoly tends to be vague under the best of circumstances. If an innovator introduces a product, and an imitator introduces a cheaper version, and the innovator then responds by further reducing his price - is that anticompetitive or just ordinarily competitive? The courts have established monopoly as the power to set price in a market or to exclude competitors. Barring substantial anticompetitive conduct by a company with overwhelming market power, the governmental bias should be against intervening in high tech markets.

“Intellectual property, standing alone, generates little or no value to the final consumer.”

Intervention may discourage innovation and cause economic disruptions and disincentives. Also, the ability of the courts to assess monopolistic behavior within high-tech sectors accurately is dubious at best, so courts are likely to do more harm than good. On the other hand, the cost of inaction is likely to be low. A company that is engaging in high-tech monopolistic behavior can only cause trouble until the next technological paradigm shift comes along - no doubt, sooner rather than later.

About the Author

David J. Teece teaches business administration at the University of California at Berkeley, and is the director of the Institute of Management, Innovation and Organization. He has held previous positions at St. Catherine's College, Oxford University, and at the Oxford Institute for Energy Studies. He presented the Clarendon Lectures in Management Studies in 1998 and in 1999 was awarded the Andersen Consulting Award.
