

Managing intellectual property a challenge for firms, innovators

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The increasing complexity of multi-invention technologies such as laptops and smartphones raises serious challenges for firms looking to cash in with the "next big thing," and points to a need for businesses to integrate their patent and business strategies, according to research published by a University of Illinois patent strategy expert.

Business professor Deepak Somaya says the successful commercialization of patent-based products that draw upon multiple inventions, whose ownership is often spread across a variety of organizations, can be a cumbersome and thorny proposition.

"Companies need to think about their [intellectual property](#) strategy along with their strategy and [business models](#)," Somaya said. "Almost every complex electronics product sold to consumers today contains numerous technologies and inventions, most of which are covered by patents and other forms of [intellectual property rights](#). To essentially defer intellectual property strategy until after you've become successful is invariably going to be a costly mistake."

In their paper, Somaya and co-authors David J. Teece, of the University of California at Berkeley, and Simon Wakeman, of the European School of Management and Technology, present a framework for addressing the challenges of commercialization strategies for multi-invention products, as well as strategies for appropriating value from innovation in these contexts.

"A large number of industries and products are now taking a multi-invention form," Somaya said. "In order to create an innovative product or service, a very large number of inventions have to be brought together. The analytical framework advanced in the paper provides a useful guide for firms and innovators in these multi-invention contexts, and enables them to devise suitable business models and patent strategies."

According to the paper, to maximize the chances for success in multi-invention contexts, innovators must determine the relative organizational costs and benefits of different business models, and choose the most effective model for the given context.

Somaya and his co-authors provide four case studies to show the application of the key theoretical concepts in real-world situations, and a set of guidelines for choosing from among three types of business models: licensing, componentization and integration. There are also three main strategies for intellectual property – proprietary, defensive and leverage – that firms can use and combine in different ways.

"The paper's main insight is that innovating companies must choose patent strategies that are well aligned with their business models," he said. "You simultaneously have to think about your patent strategy and your business strategy. [Innovators](#) must combine inventions and complementary assets in ways that maximize their chances of success, and figure out how best to appropriate value from these unique combinations at the same time. For example, if you're a component manufacturer or licensor of technology, then it becomes much more important for you to use a proprietary strategy for your intellectual property."

Somaya says Apple and Google provide a good contrast of business models competing in the same market.

"Google is focused on creating a core technology with the Android operating system, but they let other firms develop most of the complementary inventions," he said.

"Apple also has a lot of technology partners, but they're much more integrated than Google. With the iPhone, for example, other firms make all of the hardware components, but Apple's footprint is much wider and it ultimately controls the final product. HTC is a great example of an integrator in the Android ecosystem that builds off Google's core technology and adds significant value in the process."

But firms such as HTC are playing defense on the intellectual property front with multiple patent infringement suits from firms such as Apple and Microsoft, and this ultimately hurts Android's chances of success as well, Somaya said.

"Ideally, Google's patent strategy for Android should have been developed in parallel with their business model and technology strategy," he said. "Instead the company has been backfilling with acquisitions like Motorola Mobility, whose primary assets are patents that Google can use to defend its Android franchise. Google has also been lending support to partners like HTC, who has now responded to Apple's patent suits by suing Apple back using a [patent](#) the company acquired from Google."

And it's not just consumer electronics. Somaya says a large number of rapidly growing technologies – including biotechnology, semiconductors and nanotechnology – also share in the multi-invention characteristic.

"That raises important strategic challenges about how [firms](#) should innovate that are affecting vast swathes of the economy" he said.

More information: The paper, "Innovation in Multi-Invention Contexts: Mapping Solutions to Technological and Intellectual Property

Complexity," is published in the current issue of *California Management Review*.

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