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Complementary Genius

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Complementary Genius

Sometimes "sticking to your knitting" is exactly the wrong way to build your business.

by Nicholas G. Carr

What were André and Edouard Michelin thinking? In 1900, shortly after the two brothers took control of their family's venerable rubber business in Clermont-Ferrand, France, they suddenly decided to publish a guidebook for tourists. Their *Michelin Guide* provided information on gas stations, hotels, restaurants, and roadside attractions along with various maps and driving tips. The brothers printed 35,000 copies of the first edition — and gave them away free.

According to our contemporary notions of business logic, the move seems hard to justify. After all, book publishing has little to do with rubber processing. Management gurus, if they had existed then, might have chided the brothers for losing sight of their "core business" and expanding beyond the scope of their "organizational capabilities." They might even have used the story as a case study on why family businesses should bring in professional managers.

But the diversification turned out to be an act of genius. The brothers had already realized that they needed to shift their company's focus from the production of rubber, a basic commodity, to the production of rubber products — goods that they might be able to differentiate in the marketplace and sell at a premium price. They started by launching a line of pneumatic bicycle tires, which quickly became popular. As the turn of the century approached, they realized that car tires might turn out to be an even more lucrative extension of their traditional rubber business.

There was just one problem: Automobiles were still rare and exotic products. They tended to be purchased by a fairly small set of well-heeled thrill-seekers, who drove them only occasionally. Before the Michelin Group could make a go of the car-tire business, more people would have to start buying cars and they'd need to drive their vehicles more frequently. That's where the *Michelin Guide* came in. The brothers saw that by giving motorists a practical, problem-solving handbook for traveling by road, they'd encourage the sale and use of automobiles — and in turn boost their

Illustration by Lars Leetaru

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company's nascent tire business.

Tourist guides and automobile tires are what economists today call "complements." Simply put, complements are products that tend to be consumed together. Think of movies and popcorn, or plywood and nails, or personal computers and digital cameras. Economically, complements have an interesting symbiotic relationship. If you expand the supply or reduce the price of one product, demand for its complements tends to go up. Cut the cost of electricity, and you'll increase sales of vacuum cleaners and washing machines. Make it easier for motorists to find a decent hotel room, and they'll take longer trips in their cars and, in turn, replace their tires more frequently.

Innovation in complements is an important exception to the commonly heard command to "focus on the core." Sticking to your knitting has become a popular rule for good reason, but as the Michelin brothers' experience shows, it's not ironclad. Although it's important for innovation to be disciplined, focused on earning a return on investment and gaining a competitive advantage, there's a danger in narrowing your sights too much. Most products exist in an ecosystem of complementary goods and services, each of which influences the others' sales and prices. A ski manufacturer, for example, would benefit from the opening of a new ski resort. The resort would profit from a reduction in the price of skis. Both would gain from the introduction of more efficient ski lifts or snowmaking equipment. And all the players in the industry would likely get a boost from a new textile that makes parkas lighter and warmer or from the expansion of an airport near the resort. By studying the dynamics of your own company's product and service ecosystem, you may discover fruitful opportunities to be creative not only in your core product but in its complements as well.

Profitable Amusements

The most obvious benefit that complementary innovations provide is an increase in sales for your main products. But there can be other important paybacks as well. As the *Michelin Guides* became more popular with motorists, for instance, they ended up serving as a powerful and proprietary channel for marketing and brand building. They not only encouraged the sale of more tires in general, but they also led buyers to Michelin tires in particular. In time, moreover, the guides became successful and lucrative in their own right — something the brothers probably never anticipated. Today, Michelin's red and green guides are the bibles for travelers looking for smart lodgings, superb food, and spectacular sights all over the world.

In some cases, complementary innovations can bring operating as well as marketing benefits. At about the same time that the Michelin brothers were trying to pump up demand for tires in Europe, the operators of streetcar systems in U.S. cities were struggling with a different challenge: earning a decent return on their capital-intensive rail networks. Although many people traveled on the lines during weekday rush hours, commuting back and forth to work, few rode them at other times. The imbalance in demand undermined the profitability of the operators. They had to build their systems to accommodate the peaks in usage, but most of the time their expensive systems generated little revenue.

Realizing that they needed to boost ridership during nonpeak hours, the streetcar operators hit on a brilliant idea: Build amusement parks outside city centers. In the summer of 1897, for example, Boston's Commonwealth Avenue Street Railway opened Norumbega Park, complete with a zoo, a theater, and a carousel, at the end of its line in the suburb of Newton. By 1901, according to historian David Nye, more than half of the country's urban transit companies had opened such "trolley parks" — and they proved a great complement to streetcar service. They not only increased the lines' passenger load during nights and weekends, but they enabled the companies to operate much more efficiently. Since at the time transit companies owned the electricity generators that powered their trains, they were able to significantly increase the capacity utilization of those power plants, making their businesses much more capital-efficient. And a side benefit would later emerge: The technological innovations required to build safe roller-coasters and other rides could be used to improve the rail lines themselves.

There's another potential advantage as well. Smart innovations in complements can deal a blow to competitors. Look at what Intel did in the Wi-Fi networking market. At the end of the 1990s, the biggest producer of the semiconductors used for Wi-Fi connections in personal computers was a small company named Intersil. The rapidly growing popularity of Wi-Fi made Intersil a rival to Intel, threatening to weaken its control over the chipsets that run personal computers. In response, Intel introduced its own Wi-Fi chip — the Centrino — and offered it to PC manufacturers at a dirt-cheap price. According to press reports, Intel sold the Centrino for considerably less than it cost to produce it. The collapse in prices quickly destroyed Intersil's business.

Why could Intel afford to sell the Centrino at a loss? Because Wi-Fi was a complement to its core microprocessor business. By helping to make Wi-Fi service cheap, Intel encouraged companies and individuals to buy portable laptop computers rather than traditional desktops — and Intel made far more profit by selling chipsets for laptops than for desktops. Because Wi-Fi was simply a complement for Intel, it was in the company's interest to push the price down as far as possible. For Intersil, unfortunately, the Wi-Fi chip was not a mere complement but its core product.

The role of complements as competitive weapons, in fact, explains a good deal of the recent innovation in the computer business. Take open source software. In today's information economy, software is a complement to many other products, from computer hardware to consulting services. Many companies thus have an economic incentive to make software as cheap and freely available as possible.

IBM, for example, realized a few years ago that the open source operating system Linux could be a complement to its lucrative IT services business — after all, users of Linux would need trusted partners to provide advice and maintenance — as well as its server, storage, and related software lines. At the same time, IBM saw that if it promoted the adoption of Linux, it would hurt competitors like Microsoft and Sun Microsystems, which had major businesses selling the operating systems that would be displaced by Linux. In 2001, IBM shocked the information technology world by proclaiming that it would invest a billion dollars in Linux innovation. A year later, it announced that it had already earned back the investment through higher sales of its core services and products. More recently, the application-software giant SAP made a similar move, promoting the adoption of the open source MySQL database as a way to steer its customers away from the database software sold by Oracle, SAP's fiercest competitor.

Innovation in complements lies at the heart of Google's strategy. Because Google makes its money by selling Internet advertising, anything that promotes people's use of the Internet — from software applications to online auctions to telephone service — is simply a complement to its ad business. It's in Google's interest, therefore, to develop and give away as many of those products as possible, or at least to keep their prices low. That's

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exactly what it's been doing — and why this upstart has struck fear in the hearts of companies as diverse as eBay, Microsoft, Verizon, and Time Warner.

There's a risk in what Google is doing, though. It's possible to take the free-complements strategy too far. After all, giving products and services away can require big investments, and if you end up spending more than you take in, you will undermine your own profits as well as those of your competitors. Google's high-flying stock fell sharply last February when the company announced that its costs had been increasing more rapidly than investors had expected. As with much else in business, innovating in complements requires a careful balancing act between costs and benefits.

To boost ridership during nonpeak hours, streetcar companies hit on a brilliant idea: Build amusement parks.

Five Good Questions

So how do you uncover and evaluate innovation opportunities in complements? Here are five questions that can guide your thinking and help you set priorities.

1. What complements are currently constraining demand in our markets? Examine all the products and services that are used in conjunction with your own goods. Are any of the complements in short supply? Are any expensive? Are any difficult for customers to find and use? It may be possible for your company to spur advances in the production or distribution of complements in order to make them cheaper and more plentiful. The opportunities might involve the kind of direct investment that Intel made in Wi-Fi technology. But there may be cheaper options as well. You might use creative marketing programs to raise awareness of new or alternative suppliers of complements, thus promoting the kind of competition that will drive prices down. An automaker might, for instance, partner with a new hotel chain to provide discounts to anyone who arrives at the hotel in one of its cars.

2. What new product might boost demand for our core offerings? There may be opportunities to launch new complements that will expand the market for your core offerings — as the streetcar companies did when they pioneered the amusement park or as Michelin did with its *Guide*. A provider of cellular telephone service could work with retail chains to launch a text-messaging service that provides subscribers with customized "telecoupons" for use at local stores. The key here is to think beyond the current ways that customers use your products to see if new complements might spur new uses. Ask yourself if there are other contexts in which your products or services could be used. At best, this kind of brainstorming may lead to new products or services that become profitable businesses in their own right. It may also produce ideas for how you might reconfigure or reposition your existing offerings to be attractive to different sorts of customers.

3. Would our customers buy more if they had better information? As the Michelin brothers realized, information is itself a powerful complement to many products. To boost tire sales, they didn't go out and spend a lot of money to build their own restaurants and hotels; they simply provided information about the hotels and restaurants that were already out there. Although their guidebook was itself a complement, its greatest value came in promoting a broader set of complements. Your company may have a similar opportunity to boost sales by distributing information about the use and availability of complements. The opportunity might be very simple: A book publisher might provide a list of local reading groups on its Web site. Or it might be more complex: A window manufacturer might partner with local building contractors to give away a book of architectural drawings of common home additions. In either case, the focus should be on easing customers' access to information that is currently expensive or otherwise hard to come by.

4. Would we learn valuable lessons by innovating in complements? Remember that innovations in complements may help you operate more efficiently or design superior products and services as well as expand your sales. Hewlett-Packard's expertise in formulating ink, for example, enables it to manufacture better printers, and vice versa. Don't define complements in narrow terms. Follow the lead of the streetcar companies with their roller-coasters: Look for opportunities to enhance complements in ways that provide your employees with experience and know-how — whether in operations, marketing, or other functions — that they can use back in the core business.

5. Do we have competitors whose fortunes are tightly tied to the price of complements? The sales of complementary products usually move in tandem: Sell more of one, and you'll sell more of the other. But the profits earned from those sales may move in opposite directions. By turning Wi-Fi chips into a cheap commodity, Intel increased the unit sales of the chips but sucked the profits out of the market, removing a potential beachhead for Intersil and other rivals. You may have a similar opportunity to use a complementary innovation as a competitive weapon. Analyze your competitors to see if any of them earns a lot of money by selling products that are complements to your own. If so, innovations that drive down the price of those complements will give you a double benefit: They'll erode your competitor's profits while boosting your own sales. What could be better than that?

Of course, such strategies can cut both ways. Your own core products are probably complements to some other company's offerings. It would be wise, therefore, to think defensively as well as offensively. How vulnerable are you to innovations that would make your own products cheaper and more plentiful? If Microsoft had thought harder about the competitive dynamics of complements, it might have anticipated IBM's big investment in Linux. Rather than dismissing the Linux threat, as it did for some time, it could have begun reconfiguring its Windows operating system and related products to counter that threat. It might even have tried to commoditize some of IBM's core services by bundling free consulting services with big commercial purchases of Windows. After all, those services are complements to Microsoft's core software business.

IBM shocked the world by investing a billion dollars in Linux — and earned it back a year later through higher sales.

There are two kinds of innovation that pay off for companies: those that provide benefits to customers, and those that raise barriers to competitors. Thinking deeply about complements can lead to breakthroughs in both. Who knows? Innovating in complements could turn out to be your company's next core competence. ✚

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