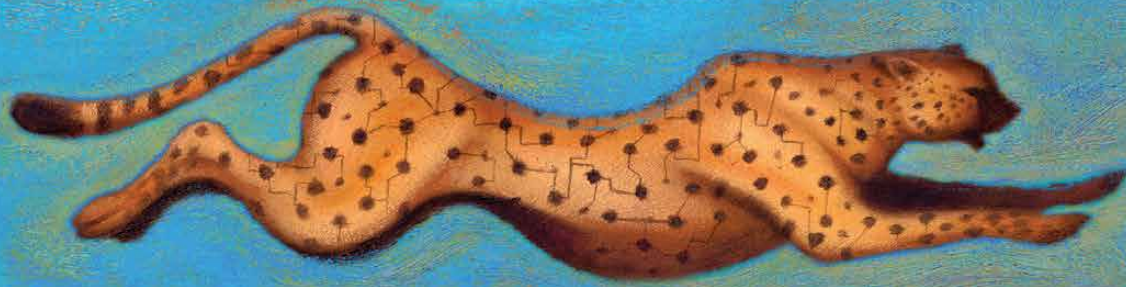FEBRUARY 2013

Jon Krause

BUSINESS TECHNOLOGY OFFICE

Competing in a digital world:
Four lessons from the software industry

Software is becoming critical for almost every company's performance. Executives should ask what they can learn from business models employed by software providers themselves—and consider the implications for their IT function.

Hugo Sarrazin and Johnson Sikes

About 20 years ago, software's use within organizations was largely confined to big transactional systems in the data center. Now, it underpins nearly every function in every industry. Software spending has grown accordingly, jumping from 32 percent of total corporate IT investment in 1990 to almost 60 percent in 2011.[1]

The allure is plain. On the front end, software-enhanced products and services can lead to entirely new offerings—for example, turning an ordinary running shoe into one that also tracks your mileage. And as the surge in social technologies shows, software permits a host of new marketing and communications channels that consumers have been quick to embrace. The back-end benefits are equally compelling. Greater automation, integration,

and standardization can lower cost and boost performance significantly, while social enterprise tools can facilitate collaboration and provide greater agility.

The strategic as well as operational challenge is that software is not static. Many have come to think of it like electricity—something that can be wired in and mostly forgotten about.[2] But software and the processes and applications it touches are, in fact, constantly changing.

That reality introduces new competitive dynamics. Managers have to worry about competitors leapfrogging them with ever-faster cycle times, courtesy of such software-enabled techniques as rapid prototyping and real-time testing. They must also be mindful of network effects, since customers can become accustomed to working

[1] "Private fixed investment in equipment and software by type," *Concepts and Methods of the US National Income and Product Accounts*, US Bureau of Economic Analysis, November 2011, table group 5.5.5.

[2] In fact, this is no longer true, even for electricity, as developments in smart grids and smart metering infrastructures are changing the power industry.

Takeaways

Software underpins nearly every function in every industry, but it is not static; the reality that it is constantly changing has created new competitive dynamics.

Organizations must find ways to broaden their ecosystems and become more responsive—managers would do well to study leading players in the software industry as they consider how software may transform their businesses.

Reflecting on four questions can help companies as they address their business and operating models.

with a certain platform and be slow to switch. That can be good news for incumbents but a major barrier for those trying to break into a certain category. Another challenge is that an organization may be swimming in data but exploiting only a fraction of available information.

To effectively respond to these new dynamics, companies must begin thinking about ways to broaden their ecosystems and revenue streams while becoming more responsive and agile. These are issues that software providers have been addressing for a number of years. Given the increasing importance of software for almost every company's performance, executives in all industries should consider how software may fundamentally change their businesses. Managers would do well to study leading software-industry players and discuss a set of questions to understand whether and how they can learn from the business and operating models that these companies employ. The answers will vary for different industries and companies, but we believe the exercise is a useful step toward making the most of large and rising software investments.

1. Moving from products to platforms

Success in the software industry has long been influenced, and often driven, by the ecosystem of developers, plug-ins, software-development kits and application-programming interfaces (APIs),[3] and add-ons that drive added value and increase stickiness for products. Similarly, companies in other industries need to think expansively and include upstream suppliers as well as downstream vendors or consumers, and focus on how each part of the value chain integrates into the new platform. Many companies still stick to the business models of the past,

where product development is almost exclusively an in-house activity and kept under strict control. But some, like consumer-goods giant P&G, have flung their doors open to include a wide range of partners in developing and tailoring the next big thing. Instead of "not invented here," the mind-set is shifting to "proudly found elsewhere." P&G, for instance, launched a "connect and develop" platform that has secured more than 1,000 partner agreements on innovation.

By opening innovation processes to outside voices, organizations not only gain a broader range of perspectives to enrich the innovation gene pool, they also gain valuable scale—more resources at a fraction of the price. And it's not just the front end that stands to gain: greater connectivity with suppliers and buyers can be a win-win situation when it comes to managing inventory, budgeting and forecasting, allowing organizations to access better—and more—real-time data, and refining production and supply-chain processes on the spot. In a *McKinsey Quarterly* interview,[4] Bob McDonald, P&G's CEO, said his organization looks to increase integration with retail partners because "getting the data becomes part of the currency of the relationship." In some cases, P&G is even using its scale "to bring state-of-the-art technology to retailers that otherwise can't afford it."

Question: *What new opportunities are unlocked if we move from products to platforms?*

• What is our industry equivalent of an API that will encourage involvement and increased interaction across the ecosystem (including suppliers, partners, vendors, and users)?

• How can we align the different parts of the ecosystem to adopt more points of integration?

[3]Software companies often provide software-development kits to external programmers to help better integrate systems and functionality. Application-programming interfaces are structured or prebuilt interfaces to help applications interact with one another (for example, allowing a dynamic map of local stores to be embedded on a Web site).
[4]Michael Chui and Tom Fleming, "Inside P&G's digital revolution," mckinseyquarterly .com, November 2011.

The right role for IT

IT will undoubtedly play a more significant role as software becomes a larger part of the company and the product. This will require structural changes for both leadership and operations. CIOs will increasingly have a greater voice in strategic discussions. Operationally, there will be more cross-fertilization among specialties, with IT employees placed directly in the line of business to help push through desired product and process changes.

Some executives are beginning to experiment with a new management model consisting of two categories[1]: "factory IT" and "enabling IT." Factory IT encompasses the bulk of an organization's IT activities. It applies lessons from the production floor on scale, standardization, and simplification in order to drive efficiency, optimize delivery, and lower unit costs. Enabling IT focuses on helping organizations respond more effectively to changing business needs and gain a competitive advantage by spurring innovation and growth.

Enabling IT also requires technology leaders to think more expansively about their role and how the systems they manage affect the business as a whole. They need to keep in mind that software assets are ubiquitous and span every part of their organization—and in some cases its business partners and customers—which influences the organization in not-so-obvious ways. The CIO of a social-media company recently told us, for example, that his role includes being the guardian of the company culture, which is characterized by speed, transparency, and flexibility, and making sure that the software the company rolls out supports these tenets.

[1] See Roger Roberts, Hugo Sarrazin, and Johnson Sikes, "Reshaping IT management for turbulent times," mckinseyquarterly.com, December 2010.

[5] As-a-service and consumption-based pricing leverages cloud computing to unbundle computing products and software so that users can economically purchase a subscription to online software (for example, e-mail services, customer-relationship-management systems, or productivity suites) rather than buying and operating the separate hardware and software components. This also allows these services to be "turned off" on demand and often shifts them from capital to operating expenses.

- Of the new value that is created with this integration, how are the gains shared across members of the ecosystem? What are the critical control points that we must own to protect our position and maximize rents?

- How can we create a cadre of evangelists (internally and externally) to encourage the adoption of our platform?

2. Accelerating revenue by creating new business models

Software and Internet companies have developed multiple avenues to generate revenue, going beyond a simple licensing model. Companies like LinkedIn and Skype have thrived using the "freemium" model. Both cultivated a large base of users with their basic, no-cost platform, and then introduced several paid-for options, ranging from recruiting services and tiered access and networking privileges in the case of LinkedIn and landline calling in the case of Skype. They were able to tap an audience that was loyal to their brand to boost revenues. Other revenue models include using as-a-service and consumption-based pricing[5] and creating new integrated services.

Innovative companies in other industries are experimenting with ways to combine products,

services, and data to create entirely new businesses—often with software playing a critical role in knitting together or enabling these new models. Industries from manufacturing to consumer goods have stitched information assets into their traditional product offerings and have come away redefining the category and raising the bar for competitors.

Nike took this approach with one of its shoe lines. It created Nike+, a sensor compatible with Apple iOS devices (for instance, the iPod or iPhone), to be used with its running shoes. The sensor allows the wearer to track mileage and running habits and upload data onto a Web site to manage workouts, connect with fellow runners, and share routes. The line not only launched a profitable new revenue stream but also helped boost Nike's market share and created a community of highly engaged users.

In addition to creating new revenue streams by amping up traditional product and service offerings, organizations have been mining "exhaust data"—information that is a by-product of normal business operations—for use in developing new products. Such by-products, for instance, allow credit-card companies to monetize transactional data from cardholders by analyzing and selling these data to merchants. Similarly, Intuit is beginning to use data amassed from its QuickBooks software to provide new benchmarking and reporting services for small businesses.

Question: What business model could we borrow from the software industry to accelerate adoption?

[6]Eric Ries, *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses*, first edition, New York, NY: Crown Business, 2011.

• How do we trade off one-time revenues (for example, a license fee or outright sale) to capture recurring subscription revenues?

• What is the real lifetime value of our customers, and how does this change our approach to setting prices?

• Are our internal systems able to handle these shifts? Are incentives in our organization (especially in the sales force and channels) in place to make the right trade-off?

• What are the ancillary assets our company has (for example, brands or data), and how could we deploy them without harming our core business?

3. Accelerating cycle time and cocreating with customers

Empowered by constant connectivity, the rise of social networks, and an increasing amount of software in products, companies are seeing new options in the way they interact with customers and develop and release products. They are speeding up cycle times and shortening learning curves by testing new products or ideas with consumers using mockups, computer-generated virtual products, and simulations.

The software world was one of the first to roll out new products before all the planned features and capabilities were built. It started with a basic model, or minimum viable product,[6] that customers could upgrade over the life of the product with just a few clicks. New features were introduced when ready rather than stalling the base product launch. This allowed companies to get to market faster, enable new features (or fix bugs), and improve their ability to respond to competitors' changes. Apple launched its first iPhone, for instance, without an app store or the ability to add new applications. It added those features in a software update one year later.
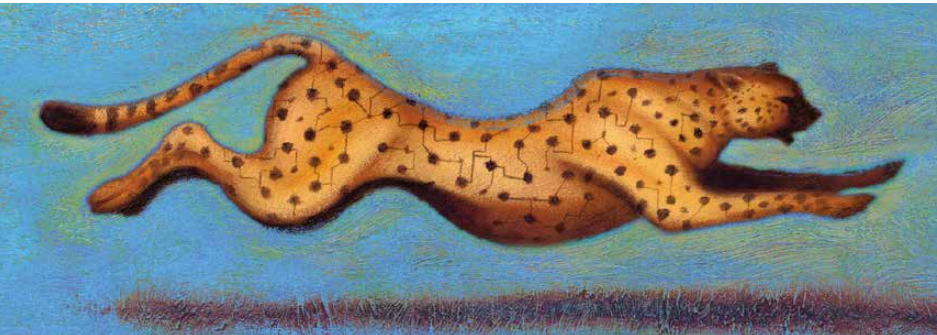
Other industries are learning from this example. Many digital cameras, for instance, can receive firmware upgrades to fix bugs or enable new capabilities. But this is not just a phenomenon for digital gadgets. In early 2012, Ford released an upgrade for its Sync communications and entertainment system[7] by mailing USB keys to customers eligible for an upgrade. No dealer visit is required.

Crowdsourcing is an example of cocreation: companies use social tools to engage customers or partners in solving problems, which reinforces engagement and a sense of community in the process. For instance, Coca-Cola used crowdsourcing to develop new designs for bottle crates in Germany and marketing ideas for Coke Zero in Singapore. GE has crowdsourced green business ideas under its "ecomagination" challenge. This engagement model has even been flipped, with companies like Kickstarter providing a platform for entrepreneurs to presell product ideas as a way to solicit funding based on early prototypes or ideas.

Question: What is the right way for us to engage with and learn from our customers?

• How can we embed test-and-learn and rapid-iteration principles in our product-development process? Where else can these principles be used in our company?

[7]"Ford Sync software upgrade adds new features to MyFord Touch," media.ford.com, January 2011.

• Should we establish a beta program with consumers? How else can we collaborate with them?

• What is too soon to ship? And how tolerant of potentially incomplete or buggy products will our customers be?

• What cultural changes are needed in our organization to encourage it not only to listen to customers but also to give them control?

• How much product control are we willing to give up?

4. Creating an agile organization

The three lessons above involve accelerating the clock speed of the enterprise and thinking differently about the structures across the business or boundaries with customers or users. Adopting these behaviors will require a more agile and flexible organization.

Software creation is inherently team based; as a result, the vast majority of software companies have built teamwork into their ethos. Teams assemble and reassemble based on specific projects, often resulting in flatter organizations than may be seen in other industries. To the uninitiated (and sometimes even to those in the industry), this way of working feels like barely controlled chaos. Companies that do this well depend on core organizational elements, including increased transparency, a laser-like focus on aligning culture and mind-set, and clearly defined, common goals.

In the past decade, many software organizations have built on these elements and further increased their productivity by using agile programming techniques—where teams run

in sprints of two to three weeks to develop a workable prototype or new functionality. It is very different from the traditional planning and budgeting model used by many organizations. IT shops are beginning to employ agile methodologies, but often their counterparts across the business still operate with traditional models. This causes friction and slows down the process. In the future, though, it's clear that accelerated cycles, increased transparency, and teaming outside the typical organizational boundaries (both within and outside the company) will have great impact on how executives organize and manage their teams. There are already tools ready for this challenge. Rypple, for example, is a software platform that allows companies to take a new approach to HR management and performance evaluations by using ongoing feedback, more public recognition, and social goals such as more dynamic team or individual objectives that change or evolve organically rather than through an annual top-down process.

IT and business have tended to operate as separate functions in many organizations, making it harder for those groomed in one discipline to cross over to the other. The software shift described in this article has the potential to force greater fusion in executive capabilities. In more traditional companies, IT employees will need to become business managers, while product-development and business unit leaders will need to become software savvy. A base level of software fluency will be a requirement for all levels, including upper management, in order to understand not only the core technologies but also the dynamics of working in a quick-turn, massively more connected, and digitized market-

place, in which economic value is driven increasingly by information-based services.

Question: What new organization models can we adopt from software to support a more agile, flexible business?

• How do we create flatter and more fluid organizations?

• How must we change our organizational processes to account for increased collaboration, transparency, and new behaviors within teams?

• Organizationally, how should we prepare for more porous company boundaries and increased partnering or sourcing across the value chain from R&D to delivery?

• What is the best way to incorporate new behaviors (like an increased tolerance for failure) into our corporate culture?

●　　●　　●

Almost every company is becoming a software company. By considering business and operating models pioneered by the software industry and tailoring them to their own needs, organizations can lower their costs, boost performance, and turn software into a competitive advantage. ○

For additional thinking, please see the following articles:

David Kirkpatrick, "Now every company is a software company," forbes.com, November 30, 2011.

Marc Andreessen, "Why software is eating the world," *Wall Street Journal*, August 20, 2011.

Hugo Sarrazin is a director in McKinsey's Silicon Valley office and **Johnson Sikes** is a consultant in the New York office. Copyright © 2013 McKinsey & Company. All rights reserved.