

Every company is a software company: Six ‘must dos’ to succeed

As software transforms every industry, leaders must turn to a new playbook.

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Marc Andreessen’s observation from more than ten years ago that “software is eating the world”¹ needs an update: software *is* the world. The software industry continues to grow at a massive clip. More and more traditional companies are realizing that to compete and grow in a digital world, they must look, think, and act like software companies themselves.

Per McKinsey research from June 2022, nearly 70 percent of the top economic performers, compared with just half of their peers, are using their own software to differentiate themselves from their competitors.² Fully one-third of those top performers monetize software directly.

The pressure to evolve is building thanks to three fundamental shifts. First, the accelerated adoption of digital products is driving an effort to embed software in the product and purchase experience through everything from personalization to seamless omnichannel delivery. Second, more of the value in more products and services from more industries is coming from software. For example, the average industrial company expects its share of revenue from software to double over the next three years. Finally, the growth of cloud computing, platform as a service, low- and no-code tools, and AI-based programming assistance are putting unprecedented power into the hands of billions of workers.

Yet while companies might already accept the importance of software (research shows that nearly two-thirds of companies have invested in software as a service or modern

¹ Marc Andreessen, “Why software is eating the world,” *Wall Street Journal*, August 20, 2011.

² “Three new mandates for capturing a digital transformation’s full value,” McKinsey, June 15, 2022.

commercial software), they still tend to look at software as a capability that they can bolt onto their existing business. That just doesn't work. Becoming a software business requires foundational change with different skill sets, practices, leadership, and organizational structures.

It is hard to become a software company—less than 7 percent of all software revenue in the world accrues to nontech companies.³ But models for successful transformation do exist (see sidebar, “Three ‘switch to software’ models”). To understand what works, we analyzed more than 20 software transformations and spoke with a dozen senior executives who have led successful software transitions. The result: six principles that are at the core of any successful effort to become a software company.

Commit to a software culture

Every leader we spoke with underlined the fact that building a software-centric business means building a software culture. This goes way beyond adding a few software veterans and implementing DevOps (software development and IT operations). It requires building a culture that deeply values the creativity and artisanship of great engineering, elevates product leadership and a customer-first focus, and empowers a leadership team with a strong understanding of software business models and tech. Building that culture is challenging, but the CEOs and business leaders we spoke with highlighted three keys to success: leadership, communication, and investment.

Leadership

In our experience, one-third to one-half of a leadership team should be deep software experts. This might require radical steps depending on the makeup of the leadership team currently in place.

The board should have at least two directors with software experience and should also keep the pressure on management by monitoring progress against specific software KPIs. The CEO of one company felt compelled to light a fire under its emerging progress in software when one influential board member added a review of the software business to the top of the agenda at every board meeting.

At many leading software companies, CEOs' direct reports include tech visionaries and AI scientists to stimulate thinking and push the organizations. Marc Andreessen urges companies to be even bolder: “Find the smartest technologist in the company and make them CEO,” he told *McKinsey Quarterly* in 2022.⁴

Besides hiring software leaders, most companies must educate their existing senior team. This means getting past basic training sessions and visiting start-ups. Real learning comes from building relationships and interacting closely with software companies. Some CEOs told us that they gain expertise both by inviting software leaders to join their boards and by joining the boards of software companies.

³ Analysis is derived from 2019 IDC data.

⁴ “Find the smartest technologist in the company and make them CEO,” *McKinsey Quarterly*, June 22, 2022.

Three ‘switch to software’ models

There are three archetypes for companies moving toward a software business model.

- 1** **Archetype one: embed software into the core of the business.** For companies facing significant external business threats or looking to take a big leap in growth, becoming a software business at the core is a go-big strategy. While the company’s business model remains consistent, its operating model shifts to put software at its core. One leading global bank, for example, realized that to respond to fintech companies and changing customer expectations, it needed to become a digital-first bank. It created 25 general-manager roles to operate like CEOs and be fully responsible for leading high-priority software initiatives.¹ It also hired hundreds of engineers, product managers, and other technical team members to help pivot its tech organization and operate with the speed and agility of a start-up.
- 2** **Archetype two: build a new software business.** When companies face a fundamental disruption or find highly attractive adjacencies, they often launch new software businesses. The new business typically has its own profit-and-loss (P&L) account and operates differently from the core business. This archetype can be a good way to learn while starting new revenue streams with the potential to overtake the incumbent business over time. Rockwell Automation, for example, realized that it needed to diversify its revenue streams by building out a richer set of software products to complement its hardware offerings. The company made an explicit pivot to establish a software business unit with experienced software leaders and sufficient autonomy and P&L responsibility.
- 3** **Archetype three: bring internal software ‘gems’ to market.** This archetype is about turning the software developed to manage internal problems into products to sell externally. These software products can coexist with core offerings, but each needs its own product management, engineering, and go-to-market capabilities. In a few cases, companies launch the products as independent companies. DBS, which focuses on solving customer pain points within the banking journey, is in the early stages of selling some of its internal solutions (such as financial planning) and platforms to other global banking institutions.



Some companies pursue multiple archetypes if they have the capabilities and sufficient market demand. And companies may transition through different archetypes as their capabilities mature and the market evolves. The six principles of software transformation described in this article apply to all three archetypes.

¹Bianca Chan and Carter Johnson, “Inside JPMorgan’s appointment of 25 ‘mini-CEOs’ and new strategy to operate more like a startup, which the bank says was straight out of Google’s playbook,” Insider, April 26, 2022.

For example, Latin American bank Itaú Unibanco established a space for an informal incubator of 120 start-ups. Chief information officer Ricardo Guerra credits the informal networks that have sprung up between the bank and these start-ups as being instrumental in raising the bank's software IQ. "The best way to understand what's happening is to spend real time with software businesses," says Guerra.

Communication

The strategy, value proposition, and progress of a software business need to be communicated consistently. One challenge is to do so in a way that prioritizes the software business while keeping the core business and its people performing and feeling valued.

Some companies we spoke with address this issue by reinforcing the idea that all employees, whether in the software business or not, are part of a single culture. For example, all employees at Keysight Technologies, a leader in electronic testing and measurement, have a certain portion of their pay tied to overall performance of the company. Some CEOs we spoke with also emphasize being intentional about spending time with business leaders in the legacy business and ensuring that those leaders' priorities continue to have a place at the top of the corporate agenda.

External communications about the software effort are equally important, especially given the impact of software initiatives on valuations. The CEO of a large industrial company told us that half of all the questions it had faced on a recent investor call were about the company's new software business.

Investment

Software-centric businesses can be highly valuable franchises, but they require sustained investment. Most of these new businesses need to invest an average of 25 to 35 percent of revenues over three to five years before they start to generate profits.

Given the significant operating-expenditure requirement to maintain this level of investment, many companies turn to acquisitions to accelerate the process. The IT company Hexagon, for example, acquired more than 25 software companies over ten years. In many cases, a single major acquisition is the key to accelerating the development of a software-centric business. McKinsey experience suggests that a big software acquisition is often a key indicator of success.

Invest in empowered product managers

You can't build world-class software capabilities without world-class software product managers. They turn the creative force of engineers and designers into winning software products and services. They have end-to-end accountability and, in some cases, even full profit-and-loss responsibility for a specific product. In the tech world, the ascendancy and importance of product managers are well established. But few nontech companies give them commensurate responsibilities or influence. That's a big mistake.

Leaders we spoke with identify two key characteristics of a great product manager. First, such managers obsess over usage data and leverage it to do everything from knowing

customers and informing the product road map to making product retirement decisions and helping users capture value more quickly. They embrace active field testing and experimentation to get data so that they can continuously improve the product.

Second, a great product manager has great “product sense” in the same way that a top horse trainer has “horse sense.” Based on years of experience and a mindset unconstrained by norms, successful product managers have an intuitive ability to understand how tech can address an issue in a new way. They involve designers, engineers, and data scientists early in the ideation phase to tap a wide range of unconventional thinking.

When Walgreens wanted to develop its health business, the company gave product managers leadership roles so that they could rethink how customers interact with pharmacies. This shift has expanded the range of interventions (including medical tracking and testing, medication monitoring, and the role of genomics in specialty medication treatments) that the pharmacy considers. “You really start seeing the future on behalf of the consumer, and then you intervene much earlier in that journey,” says Vish Sankaran, former Walgreens chief innovation officer.

Drive engineering excellence through autonomous teams and flexible architecture

Good software development can't thrive in a hierarchical organization. CEOs we spoke with are clear that providing product teams with the autonomy to experiment, try new tech, and develop their own solutions is critical. As mentioned, this starts with providing product managers with the freedom and accountability to lead their cross-functional teams as they see fit to deliver on a given goal. This autonomy can be supported with key mechanisms (such as objectives and key results) to drive accountability for outcomes and with automated functions (such as testing) that not only speed up development but also put in place guardrails to limit risk.

For software teams to work autonomously, they need a flexible tech architecture. Core components of this architecture include APIs that can access the underlying data, algorithms, and processes in legacy systems; a set of microservices (essentially self-contained units of code that execute a specific function) that are modular and connect into APIs, eliminating the dependencies that plague legacy systems where a change in one part of the code typically requires multiple changes in others; and a common data platform that knits disparate data sources into a single accessible pool that developers can easily access.

BlackRock's Aladdin is an example of a technology business that brings together all aspects of the investment workflow onto a common system. To support scaled development within BlackRock and at Aladdin's external clients, Aladdin features an open architecture that helps both internal and external developers create applications easily. “The way people are interacting with software is changing,” says Sudhir Nair, global head of the Aladdin Business at BlackRock. “Today, at BlackRock and at our Aladdin clients, a meaningful portion of the organization self-identifies as technologists, and a big chunk of those people don't sit within the part of the business formally

recognized as the tech org. We enable these 'citizen developers' with access to the building blocks of our underlying tech, in addition to underlying microservices—giving them the ability to innovate without sacrificing scale and controls.”

Win at software by playing the ecosystem game

The software ecosystem is a mix of independent tech companies and 30 million to 40 million full-time and independent developers, some of whom are “citizen developers” (essentially, businesspeople using no- and low-code tools to develop software). Software companies increasingly need to tap into this broad ecosystem to access the developer talent that they need to compete.

Acquiring or accessing software developers, nurturing them, and delivering a great experience for them is critical to winning in software. Leading companies tap into this developer ecosystem through two strategies.

Joining an existing ecosystem

Within the broad software ecosystem are many booming ecosystems operated by the leading cloud providers, which have made enormous investments in building out their platform capabilities and services. Nearly all the leaders we spoke with say joining these existing ecosystems is a great way to access top developers.

Döhler, a global producer, marketer, and provider of tech-based natural ingredients and ingredient systems headquartered in Europe, joined the SAP Business Network for Logistics for access to services and talent (it has more than 22,000 partners in its ecosystem). Building off of this network, Döhler digitized intercompany logistics for delivery planning and fulfillment, which its 50 global locations use to connect with their business partners.

Building an internal ecosystem

Another way that companies can compete is to develop their own software ecosystem either through partnerships with their customers or with cloud providers (or both). SLB, the energy services and technology company formerly known as Schlumberger, built its DELFI platform as a way to attract both developers and customers. DELFI, which makes applications and workflows accessible to upstream oil and gas companies, has a community of more than 1,500 developers from 50 oil companies. These developers, who have created more than 3,000 new exploration and production applications and plug-ins, access DELFI's developer portal, which provides a rich and easy-to-use API library, among other developer-friendly tools.

Build a specific software go-to-market capability

Selling software at scale is very different from selling most other products. To cite just one example, most nonsoftware companies sell on a cost-plus-pricing basis, with a focus on margins, for example. But since software has low marginal costs (after development), pricing needs to be based on the value that it generates for the customer.

Another difference: selling software requires deeper engagement with the customer. Sellers do everything from communicating upgrades and tracking how customers use the software to providing technical experts who can teach customers how to use the software.

Asking your existing salespeople to drive sales of something so different can be challenging. While upskilling, retraining, and providing incentives can help, selling software is so complex and so focused on different outcomes and impact that several CEOs told us they feel compelled to recruit software veterans from outside the company to bolster their existing capabilities.

Hexagon brought in outside software sales experts to serve as its regional sales leaders. Rockwell Automation made a software veteran its chief revenue officer. Software experts bring a deep understanding of how to use telemetry and data to understand customer behaviors and needs better. For example, they use software as a tool in the sales process to demonstrate capabilities, which leads to much deeper and richer conversations with clients.

In addition to bringing in software talent, top companies typically create a separate software sales force. The most effective companies provide these software teams with the rights to go after new customers among existing clients. While that can sometimes be disconcerting for the established sales force, the reality is that the customers who software sellers seek out tend to be more technically oriented buyers who are higher up in the client's organization.

Keysight Technologies transformed its sales model by hiring more than 1,000 salespeople, many of whom have deep software-selling expertise. Additionally, it redesigned and integrated its entire sales force into a go-to-market approach built around three models: solution value (selling integrated hardware and a software value proposition), continuous value (adoption and retention via subscription and customer success), and transaction value (e-commerce and digital sales). To support this model and encourage the growth of recurring revenues, the company shifted its performance metrics to emphasize annual contract value. More than one-third of its revenue now comes from software and services.

Find and keep talent by focusing on mission and work environment

While the competition for top tech talent is fierce, companies with attractive missions or work that allows developers to build key software skills have an easier time recruiting top talent. Rockwell Automation, for example, has been able to use its focus on industrial automation to become a top destination for many electrical engineers and other tech talent passionate about the Internet of Things and digital twins.

Companies looking to attract software talent will likely need to rethink their recruiting practices. This realization drove Keysight Technologies to open new software development and design centers closer to prospective talent, including on the Georgia

Institute of Technology campus. That decision was instrumental in helping Keysight Technologies increase its number of employees by 50 percent in just a few years, driven heavily by growth in software-focused staff.

Companies often undercut their success in wooing top talent by shortchanging the employee experience, resulting in significant retention issues. Top software engineers, for example, want autonomy, opportunities to grow, and the ability to build their skills. One crucial measure to focus on is developer experience. We have found that if the developer experience is good and software engineers are happy, they will stay and do good work. Developer experience is so important to the CEO of one tech company that he uses a dashboard to track developer satisfaction scores. Keysight Technologies addressed developer experience by developing structured trainings and co-innovating cutting-edge solutions with customers to build its developers' skills.

More and more companies looking to stay relevant and compete in the digital age are attempting to become software businesses. It's an extremely challenging shift to tackle. Leaders can engage the effort with a transformation mindset and a commitment to make significant changes across the organization. Business leaders can use the six principles enumerated in this article as the foundation for their own companies' enduring software transformations. [Q](#)

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