The CIO’s Guide
to Developing an
Innovation Strategy
for the Digital Age
Executive Summary

There are many companies today who are pursuing digital or mobile products, or capitalizing the efficiencies these technologies can bring to their operations, but few who have a strategy for their approach. As digitally innovative disruptors threaten business models and market share, CIOs must take an active role in crafting the strategy for digital innovation, but with a strategy framework and approach that fits today's business environment.

Key Takeaways

• CIOs need to develop an innovation strategy that fits their culture and company—and not rely on traditional strategy development methods.

• Leaders and organizations evolve their posture toward the role of information technology, which is essential to consider as the “context” for innovation strategy development.

• A successful innovation strategy relies heavily on user insights to power the design of the user experience and an agile factory to develop a product with iterative releases.

• CIOs must not solely rely on user feedback for driving innovation for products and business lines and instead augment user feedback with ethnographic research.

• Only one in four software projects is successful.[1] CIOs need to make triaging their current process and strategy a top priority.
Introduction

When will the Uber of your industry start to threaten market share?

This is the question that should keep C-suite executives up at night. Digital transformation and disruption—harnessing data, pioneering technology and user experiences to unlock efficiencies and engineer new digital products and markets—thwart nearly every industry. And yet, many companies effectively bring a butter knife to a shootout without an innovation strategy.

The actions of telecommunications companies after the industry crash in the early 2000s exemplify how an innovation strategy has become a requirement to compete. Nortel Networks, Inc., once Canada’s largest and most successful technology company, pioneered many innovations in the technology industry, including the fiber optic equipment that now pulses with today’s Internet data.

In the heyday of the telecommunications industry, Nortel ranked as the ninth most valuable corporation in the world. For the year 2001, Nortel was the only stock to show up on international recommended lists from both Salomon Smith Barney Inc. and Merrill Lynch & Co. [2] That year turned out very differently for the telecommunications industry: Lowered barriers to entry into the market with the Telecommunications Act of 1996 caused a rush of capital, creating an environment of intense competition and commoditization. [3] What followed was a downward spiral of revenues and unethical leadership cover-ups—all of the makings of a bust and boom. Corning, Inc. faced the same market conditions as Nortel after the industry crash as a major player in the fiber optics market. After the crash, the company saw a 95 percent dip in stock price and sales down by more than half—a long fall from its $7 billion in sales and $100 billion valuation two years earlier. [4]

“We must remember that technology and innovation are at the heart of this company’s future, a future we will never allow to be jeopardized,” CEO and Chairman James R. Houghton told shareholders at the annual meeting on April 25, 2002. He also noted that the company faced a “serious challenge.” [5] In late 2002, stock traded at $1.10 per share and massive layoffs made many question if the company would survive that challenge. [4]

Corning Inc. and Nortel both restructured in the early 2000s. Yet, only Corning was successful, trading at a year-high of $25.42 in February 2015, while Nortel sold off the last of its patent portfolio in 2011 for $4.5 billion. [6]

The difference: Corning Inc. had an innovation strategy when it restructured. A few years later, [7] when mobile phone manufacturers asked Corning for a glass more durable than soda-lime glass or plastic, their ironclad innovation strategy enabled them to bring Gorilla Glass to market in three months. [8] Nortel took a different approach by betting heavily on mergers and acquisitions and shortchanging innovation. The company had broken apart their unit for innovation and research, the Bell Northern Research platform it jointly owned with Bell Canada when it acquired Bell in the mid-1990s. After restructuring, many R&D staff reported senior leadership failed to listen to their recommendations, especially during a vacancy in the Chief Technology Officer position. The cooperative nature of their product development and sales teams also disintegrated. [9]
Digital technologies are driving a dramatic shift in nearly every industry—and an uncertain future for many companies, who may find themselves losing ground to disruptors and facing similar conditions to Nortel and Corning. Heed the lessons of their responses to those conditions: the company who invests in innovation survives. The key is to generate the innovations within your company to insulate yourself from the market disruptions and cycles.

Technology is moving faster now: Moore's law has accurately dictated that technology doubles every two years and now applies to business models. A top-performing company in the 1950s had a life expectancy of 53 years. In 2010, that dwindled to 17 years. [10] Sensors, context, BLE beacons, NFC, virtual reality, Internet of Things—these are driving rapid changes in seamlessly connecting physical and digital worlds for users. The businesses that develop products and adapt business lines to these changes will survive. In order to get there, companies need to fully invest in innovation and develop a path for how the firm will ideate, prioritize, research, design, test, develop and bring to market these new innovations.

Companies should not set out to map what products and strategies these new technologies will bring, but rather, how to synthesize concepts and products across disciplines to capitalize on the new technologies and stay ahead of competitive threats.

Consumers now expect this level of innovation and the firms who stay ahead of customers’ needs for mobile and digital interactions will gain strategic competitive advantage—but the focus on consumer needs must be present at all levels of leadership. Blockbuster CEO John Antioch illustrated how a leader can lose sight of anticipating customer needs in 2000 when he turned down Netflix CEO Reed Hastings’ offer of partnership for $50 million. Blockbuster betted heavily on its brick-and-mortar locations and the spontaneity of the video rental customer purchase, dismissing Netflix’s idea that people would ‘browse’ for movies online and not in a store and receive the DVD within days, not minutes. Netflix’s digital-only model disrupted the industry, allowing them to lower costs with a subscription service that also eschewed late fees. Blockbuster did make a play at altering its business model to compete after Netflix threatened market share, but it was too little, too late. [11]

Consumers today are not as loyal to brands as they once were—just ask Nokia, the company who led the hardware mobile phone industry and betted on consumers returning once their software system caught up. The problem: consumers were busy marveling at the new iPhone and had moved on from the hardware value proposition Nokia once claimed. Late innovations are failed innovations. [12] Chief Innovation Officers at companies who are serious about breakthrough innovations throw out existing frameworks for strategy development at their organization. Innovation strategy requires a new playbook because of the fast pace of innovation and revolutionary mindset required.
Effective innovation strategy requires:

• **Working backwards from the future as a starting point.** Instead of building upon today as a starting point with incremental steps to your goal state as with traditional strategy, innovation strategy demands that the future state be the launch point (because of ongoing disruption) and planning work backward. Blockbuster Inc. made this mistake: the company focused on improving the in-store experience and expanding the gaming selection—an incremental improvement—when Netflix began to take market share with its subscription model.

• **Ethnographic research of user needs.** As tempting as it is to make assumptions about users, every disruption needs to be carefully timed to meet the market needs. Disruptive players develop a fine-grained understanding of how their users and future customers operate in order to anticipate user needs for products and technology. Ethnographic research—task flow analyses, user interviews, contextual inquiries—provide the crucial insights to forecast and meet future customers’ needs in an uncertain future. It’s not enough to conduct surveys and do market research. To mitigate the risk of a product or service not meeting the needs of users or employees after deployment, companies need to invest in developing a finely tuned, detailed assessment of their users’ behaviors, thought processes and situations.

• **A change in approach.** In a world dominated by software and digital experiences, most companies are not in a position to compete. The latest research indicates that 25 percent of software development projects fail outright and 60 percent produce substandard or ineffective products, [13] two statistics that do not bode well for companies’ chances of survival in an era of digital innovation. Companies need to assess the resources and frameworks currently in place for incorporating technology advances and understand how to mitigate risk.

For many companies, not taking the time to understand the end-user—essential for digital innovations—caused software development projects to fail.

• **Accepting risk.** A revolutionary posture toward the market engenders a high-risk approach. Abandoning the incremental changes model and trying to transform the business model carries more risk—and that has to come with a cultural and business process change to reward the attempts at daring and bold innovation. As part of the post-crash restructuring, Nortel Inc. made a crucial misstep by removing the financial controls that encouraged high-risk innovation with a new structure that favored small improvements to legacy applications. [9]

### The Digital Innovation Evolution

“Innovation” and “strategy” often elicit groans as empty corporate buzzwords at many companies. Implementing a digital innovation strategy—when done correctly—catalyzes major process and cultural changes, specifically with the value of information technology.

Companies move from treating information technology as a service function for employees and a cost center to viewing information technology as a business enabler and agile response to competitive threats. This evolution typically follows five stages [14]:

**Stage 1: Information technology as utility.**

IT is treated as a customer service and cost center. The goal is to keep costs low while maintaining a high level of service to employees. Challenges are controlling the use of ‘DIY’ or ‘shadow’ IT where
employees, used to working with personal devices, circumvent IT policies and problems arise. Budget is tied up maintaining legacy systems, which due to outdated languages, fragile spaghetti code and years of patches, becomes increasingly more expensive to maintain.

Stage 2: Information technology as siloed project. As mindsets start to open to the role of digital business, the company pilots a few information technology-centric projects, for example, launching a consumer mobile app and collecting insights from users to inform product development. The challenge here is that the IT department is still expected to act as a service, even while these projects need resources as crucial proofs of digital innovation. Information technology practitioners in this stage need to start to understand the inner workings of the business to prepare for later stages when information technology plays a strategic role in the business. Most companies start their digital innovation strategy process in this stage.

Stage 3: Information technology as participant. Information technology becomes a part of the business strategy. Companies in this stage recognize the value of information technology and innovation, and are beginning to bring information technology leaders out of their silos—but it’s only on a per project or invite basis. The value of information technology is still not widespread; most companies may begin with marketing and sales functions before examining operations and competitive positioning.

Stage 4: Information technology as partner. Information technology is a crucial point of leverage for all business lines in this stage and the company is starting to see benefits from a competitive advantage with information technology. The business line and information technology leaders share ownership of the infrastructure for digital innovation, which is now seen as crucial to the company’s future.

Stage 5: Information technology as enabler. Ownership of information technology has migrated into the business lines, which are now strategically using information technology to increase revenues and market share. As competitive threats and new user needs arise, the information technology infrastructure is agile enough to respond quickly and effectively, just as Corning Inc. was able to in 2007 when Apple CEO Steve Jobs called with their request for what became Gorilla Glass. [8] The CIO and information technology leaders are responsible for managing the migration and ownership by staying on top of emerging technologies, coordinating requirements and standards, and heavily informing business strategy.

As companies move through these stages, their competitive advantage multiplies as their new products, playing fields and competitive spaces transform their value proposition to customers.
Gartner estimates that a lack of digital business competence will cause 25% of businesses to lose competitive ranking by 2017. [15]
Digital Innovation Strategy Building Blocks: The People

Companies today approach innovation in many different ways to fit their culture and business models.

- **Co-creation with customers.** Companies in the ideation phase will develop a co-creation community of users whom they hope will buy the product or service. This is market research made actionable; instead of testing the product and collecting feedback later, co-creation brings customers into the development phase. This process needs to be carefully curated with the right projects and customers. Companies who are in the later stages of their digital innovation journey can augment their user experience research with these communities. [16]

- **Cross-functional teams.** Many companies who have realized the strategic value of mobile and digital technologies try to capitalize by bringing business, operations and IT managers together as a formal innovation group, often called a “center of excellence,” to identify opportunities for streamlining with technology and implement solutions for business lines. These teams are often at the mercy of the budget of the business lines. In times of struggle, the budget for this team can dwindle and threaten the effectiveness of this initiative.

- **Competitive showcases.** Rather than placing the responsibility for innovation in the hands of the few, innovation becomes a democratic, participatory process for all members of the organization. Every month or quarter, employees share their ideas for innovation in a showcase. This process favors large companies with a strong culture of loyalty from employees—but can also work well for companies who are trying to move past viewing information technology as a service as many companies’ business technology lags behind what employees use at home. Companies who are attempting to mature into later stages need to abandon this model and make a stronger investment in capitalizing on information technology.

- **Innovation mentors.** Whirlpool has seen strong results with its Certified Innovation Mentor program. These 350 employees worldwide go through a rigorous training and review by a certification board before becoming a mentor and then work with business lines to seek and expand new business ideas. Whirlpool has a “seed money” fund to receive funding, which Innovation Mentors also help navigate.[17] This is ideal for companies who are in the final stage of their evolution and trying to manage the infiltration of information technology into all aspects of business lines.
Digital Innovation Strategy Building Blocks: The Processes

Every company needs to shape the digital innovation strategy framework to their culture and business, as well as color the strategy with the specific people and processes that will provide the most efficient route to breakthrough innovations.

As CIOs and CEOs begin to develop their strategy for digital innovation, they need to concurrently develop a foundation to provide the standards, policies and processes to manage ongoing innovation at the company. Attempting to prioritize ideas without this crucial background will generate unfocused teams that will quickly delve into tactical, rather than strategic, efforts, or worse, spend too much time building the administration aspects of the application from scratch with each project.

- **Innovation, Emerging Technology and Scouting.** How will you analyze emerging technologies’ potential? How will you evaluate the lifecycle of suppliers?

- **Project Governance.** Do you have a project charter and steering committee in place? What are your minimum KPIs? Who will handle training and what are the expectations?

- **Application Portfolio Management.** How will you handle updates to the enterprise architecture? What are your security protocols? How often will you issue new versions of the application? What about middleware? How will the devices themselves be managed?

- **Innovation center of excellence.** What standards must every application meet? How will new applications be evaluated?

- **Business framework.** What changes to the organizational framework need to happen? What compliance and regulatory requirements do applications need to meet?
Opportunities and challenges with mobile and digital innovations occur continuously for business—it’s up to the CIO to determine the structure of how to identify and ideate on those opportunities. The organizing structure of people plays a central role in defining this process.

In order to prioritize the ideas and needs for mobile and digital innovation, companies need to invest in a robust research engagement to identify which opportunities will generate business impact and return on investment, as well as collect the insights to get to the true nature of users’ needs, illustrated in the graphic above. All too often, the stakeholders in mobile and digital innovation make assumptions about end-users that cause such serious issues the ROI drops dramatically; the application fails to meet users’ needs, resulting in frustration, workaround solutions or complete abandonment. Users often fail to articulate their own needs and processes, creating a chain reaction of failure with untrained designers attempting to interpret those false needs and hand them over to developers.

At most agencies or companies, the designers of mobile applications become improvised researchers who are making educated guesses on the sequence and content of mobile and digital interactions. When those guesses turn out to be wrong, they zap the return on investment that businesses want to see. Companies who are serious about ROI of these projects conduct contextual inquiries, task flow analyses, process observations, and user interviews to determine the content and interactions that will actually improve user productivity, efficiency, satisfaction and delight.
Why You Can’t Rely on User Interviews

<table>
<thead>
<tr>
<th>What the user says</th>
<th>What they really mean</th>
<th>Reframe the problem</th>
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<tbody>
<tr>
<td>“I want to check this report while I am out in the field”</td>
<td>“I need access to four or five data points from the report to make decisions.”</td>
<td>The user receives just the data they need to take action.</td>
</tr>
<tr>
<td>“I need to pull up our customer manager system when I go out on a sales call.”</td>
<td>“When I am in front of a customer, I need data points on their order history to provide better service.”</td>
<td>The mobile interaction mirrors the information needs of the physical interaction.</td>
</tr>
<tr>
<td>“I want to fill out this health and safety compliance form on my phone, so I don’t have to carry paper out in the field.”</td>
<td>“I need to use my mobile device to capture and communicate data points from the field to the database.”</td>
<td>Eliminate double data entry for forms by fully mobilizing the process.</td>
</tr>
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Data on users needs to serve as validation for every design decision as part of the user-centered design framework. As design creates new prototypes and wireframes, users need to see and articulate their thinking process with each one. Design and development work in tandem to complete iterative releases, rather than a waterfall approach where the entire application launches at once after a complete cycle of development. With an agile factory, end-users are able to provide feedback on releases and changes are easier to incorporate.

After the launch, the mobile or digital innovation is never complete. Companies need to invest in a path for maintaining the app with regular updates and patches.

Conclusion

CEOs today know that investing in digital and mobile innovation—whether in their products, operations or both—is a prerequisite to play in today’s crowded market. It’s up to the informed CIO to develop an innovation strategy that fits the company’s culture and environment for the business to remain competitive.
Authors

Rachel Nitschke
Rachel Nitschke is the Content Marketing Specialist at ChaiOne. After graduating with a degree in journalism, she worked in nonprofit communications before landing at ChaiOne to focus on demand generation and content marketing.

Kevin Ong
Kevin Ong is an Interaction Designer at ChaiOne. He graduated from the University of Texas in Austin with a BFA in Design where he participated in the GAMMA Program as a video game artist and a member of the Core77 award winning team that published the zine 512stew.
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Want to discuss your innovation strategy?

Contact us at:
sales@chaione.com or 888-316-0357