EXECUTING A BOLD PLAN

PASCALE WITZ IS HELPING SANOFI DELIVER ON ITS AMBITIOUS NEW-PRODUCT BLITZ

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REINVENTING MANUFACTURING PAGE 34

ECOLAB CTO LARRY BERGER TALKS INNOVATION PAGE 42

ROBOTS ON THE RISE IN CHINA PAGE 48
At the heart of all execution is accountability. And accountability is only about one thing: What were your actions, and what were your inactions that gave you the outcome you ended up with. No circumstances, no stories, just actions.”

—JENNIFER ZIMMER, PARTNER, INSIGNIAM
The strategy may be brilliant, even breakthrough. But if it can’t stand up to competitive, technological and regulatory realities—as well as internal attitudes and processes—the plan’s objectives will most likely go unmet.

It’s all about the execution, which is the focus of this issue of Insigniam Quarterly. In our cover story, Pascale Witz, executive vice president of global divisions and strategic development at pharmaceutical giant Sanofi, discusses changes she’s engineered since joining the company in 2013.

Sanofi, currently in the early stages of a series of new product launches—the most ambitious in the company’s history—faces enormous executional challenges as it introduces six new medicines this year and up to 18 more over the next five years. In pharma, that’s light speed, and Witz will be at the center of the activity. Come 2016, Witz will lead Sanofi’s diabetes and cardiovascular global business unit.

Ramani Ayer, former chairman and CEO of The Hartford and now the member of two boards including Hartford HealthCare, knows the challenges of execution well. “A lot of organizations have great vision and great strategy,” says Ayer, this issue’s Boardroom interviewee. “But execution is what differentiates very successful organizations from those that have not been successful.”

You’ll see other examples in this issue of leading companies smartly executing their strategies amid complex, rapidly evolving business environments. I encourage you to borrow some of the lessons they’ve learned about execution.

Speaking of execution, we’re introducing an exciting new look for Insigniam Quarterly with this fall issue. To enhance your reading experience, we’ve developed a crisp, more modern feel: bolder graphics and photos, brighter colors, new headline treatments and a new selection of typefaces for enhanced readability. Also revamped to reflect these updates is quarterly.insigniam.com, which is now cleaner and better organized.

We’ve created a new department called “Browser History,” a roundup of reviews of topical books, websites and apps to help keep you abreast of the latest trends in business. Another new department, “Perspectives,” provides insights from leading scholars about the world of business.

We will, of course, continue to execute on our mission of transforming the world of business and the practice of leadership and management by creating thought leadership for executives, by executives.

I hope you like our new look, and I look forward to your feedback.
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By Richard Walker

“Our customers get to see directly the impact of innovation at our customer sites, and that excites them.”
—Larry Berger, Ecolab

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China’s One Belt, One Road project represents an almost unfathomable scale and level of ambition. It draws its inspiration from the historic Silk Road, a nearly 2,000-year-old network of trade routes established during China’s Han Dynasty that linked regions of the ancient commercial world. The modern route will run from China through Central Asia to Russia and Europe. A new system of ports will connect East Asia to Africa, and a new communications infrastructure will catapult the entire region into the third decade of the 21st century.

While the early focus is on building roads, railways, ports and airports, the vision also includes energy pipelines and communications networks. Caterpillar Inc., the largest construction equipment manufacturer in the world, is positioned to play a huge role in supplying the massive project—it has 29 factories, four research and development centers, and three logistics and parts centers across China. Tom Pellette, Caterpillar’s group president for construction industries, says the One Belt, One Road infrastructure investment will cost about $600 billion annually from 2015 to 2019 alone, a high-level estimate that he bases on initiative investment planning by the Chinese government.

The company must organize the infrastructure of people and resources to serve a large-scale, multicountry operation. There will be inevitable legal, political and cultural barriers to

Continued on page 6
ONE BELT, ONE ROAD
Costs and Impacts

$600 BILLION/YEAR
2015-2019, as estimated by Caterpillar’s Pellette

4.4 BILLION people affected

65 COUNTRIES
Asia’s current infrastructure funding gap

$8 TRILLION through 2020

Potential trade among countries touched by the project:

$2.5 TRILLION/YEAR within 10 years

Source: Foreign Affairs, April 19, 2015
overcome. The opportunity is enormous, and the risks and potential for failure, although daunting, do nothing to disguise what this could mean for the companies involved and for global trade throughout Asia.

China’s own statements describe the challenges of policy coordination, free-flowing trade, financial integration and people-to-people exchanges. Despite the inevitable challenges, Pellette and his teams intend to stay focused on long-term opportunities—and playing to their strengths. “Trust, teamwork, a global support base and keen knowledge of local conditions: These are what we think will be important for an initiative of this scale,” Pellette says.

One Belt, One Road represents an extraordinary opportunity, not only for Caterpillar, but also for the people it will reach. “What excites me personally,” Pellette says, “is that this initiative will help improve the lives of many millions of people with improved infrastructure and access to energy. That is something special to be a part of.”

MANAGING FROM AFAR

Pellette relies on his vice presidents and their leadership teams to plug into the local conditions around the world and report back regularly. Their success depends on understanding their respective customers, markets, competition and growth possibilities, and being accountable for results. “My role is to provide leadership and direction, and that means discussing the issues, agreeing on direction, ensuring the team has the resources they need and providing support when necessary.”

With the majority of his employees outside the United States, Pellette travels frequently. He expects to travel to China at least four times this year. (By June, he had already been there twice.) In the meantime, because the One Belt, One Road initiative in China is still in its early stages, Pellette is working with his staff to “define specific areas where Caterpillar’s customers and dealers can play a role and ensure that we are being considered.” That includes conversations with state-owned enterprises that will be engaged in many of the projects along the route.

With a companywide focus on trusting long-term partners, understanding different cultures, developing local talent and communicating regularly and openly, Pellette is convinced that he and his global team are well-positioned as One Belt, One Road takes shape. “Close collaboration among stakeholders will be critical to the success of a global initiative of this scale, and that aligns with our belief—and practice—that working together as a team is more powerful than what we can accomplish individually.”

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CEOs GET SOCIAL

Were you taking notes during that meeting, or were you tweeting? Be honest—it’s increasingly plausible that the answer is the latter. A 2015 study from Weber Shandwick showed that social engagement among global CEOs has doubled since 2010, with 80 percent of CEOs engaging socially via their company's website, YouTube channel and other social networks (up from 36% in 2010). Your peers and colleagues in the C-suite—eight in 10 of them—also say that it’s important for CEOs to have a visible public profile. And for good reason—social engagement has become an important tool for CEOs to increase their reputation and their company's external equity. In fact, companies that have strong reputations are more than three times as likely as those with weak reputations to have a CEO who actively uses social media.

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% of CEOs on social networks

<table>
<thead>
<tr>
<th>Social networks</th>
<th>2014</th>
<th>2013</th>
<th>2012</th>
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<tbody>
<tr>
<td>LinkedIn</td>
<td>16%</td>
<td>18%</td>
<td>28%</td>
</tr>
<tr>
<td>Twitter</td>
<td>4%</td>
<td>6%</td>
<td>8%</td>
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<tr>
<td>Facebook</td>
<td>2%</td>
<td>4%</td>
<td>10%</td>
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<tr>
<td>Google+</td>
<td>2%</td>
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Source: Weber Shandwick
SHARE, BUT CAREFULLY

The sharing economy, noted for its disruptive impact on mainstream industries, is now estimated at $15 billion in 2014 global revenue, with projections by 2025 of $335 billion in annual revenue. Such disruption comes with consequences, however, especially for companies that confront instead of collaborate with local norms.

Uber, one of the bellwethers of the so-called sharing or on-demand economy, in which businesses and consumers collaborate in online marketplaces to make better use of underutilized resources, has drawn the ire of politicians and regulators in countries such as Germany, Spain and France.

In France in late June, two of the top executives of the ride-hailing service were detained by police who accused Uber of violating the country’s transport laws by operating an illegal taxi service. Uber, whose long-rumored initial public offering is pegged at up to $50 billion, operates in nearly 60 countries and 312 cities, but it was suspending its UberPop low-cost car-hailing service in France until matters were resolved.

Another leader in the sharing economy, Airbnb, the home-sharing service, also operates in France, with more than 40,000 listings in Paris. In contrast to Uber’s confrontational style, Airbnb has taken a more collaborative approach with local officials, who have praised the company for driving innovation in Paris’ lodging industry.

The sharing economy is much more than rides and beds. The practice is taking hold in such industries as shipping services, construction equipment, office equipment, private jets and storage space.

DECIPHERING BIG DATA

As companies collect ever-larger amounts of data about customers’ browsing and buying practices, one leading academic says corporate leaders at the highest level of an organization naively misinterpret data that could boost revenue or lead to entirely new opportunities.

“Marketing and Analytics: What C-Suite Executives Should Know” was the title of a lecture hosted in April by Jean-Pierre Dubé, the Sigmund E. Edelstone professor of marketing at the University of Chicago’s Booth School of Business. Dubé told his audience that many corporate leaders mistake correlation for causation when interpreting big data. In other words, just because two variables coincide with each other doesn’t mean they are connected by a cause/effect relationship. That thinking can lead to overly broad—and potentially incorrect—conclusions. “Be careful that after using fancy computer science methods, your social science doesn’t boil down to a leap of faith,” Dubé said.

Dubé suggested that C-suite executives hire data scientists to do sophisticated data analysis by testing and retesting hypotheses and acknowledge that correlation is not causation.
STRATEGY AND EXECUTION IN AN EVOLVING ENVIRONMENT

A snapshot of global influences on business and the economy—and a look at how executives feel about their own worlds.

HIGHEST-PAID FEMALE CEOS

1. Marissa Mayer - Yahoo
2. Safra Ada Catz - Oracle
3. Marillyn Hewson - Lockheed Martin
4. Carol Meyrowitz - The TJX Companies Inc.
5. Ursula Burns - Xerox
6. Irene Rosenfeld - Mondelez International
7. Margaret Whitman - HP
8. Phebe Novakovic - General Dynamics
9. Indra Nooyi - PepsiCo
10. Virginia Rometty - IBM

TOO EXPENSIVE TO GET WRONG

$1.8 BILLION

The average amount that firing a CEO costs in shareholder value.
OUTSIZED TECHNOLOGY SHARE
The U.S. advanced industry sector, which includes jobs in technology R&D and STEM (science, technology, engineering and math)... 

Comprises 9% of the workforce
Employs 12.3 million people
But accounts for 17% of GDP

5.4% The annual growth of U.S. tech output since the 1980s ...

... 30% faster than the economy as a whole

EUROPEAN TRADE UP
The first estimate for exports of goods to the rest of the world from the euro area in February 2015 was €160.7 billion, a 4% increase over February 2014. Imports from the rest of the world reached €140.5 billion, nearly the same as a year earlier.

THE RESULT: The euro area reported a €20.3 billion surplus in trade in goods with the rest of the world.

LOOKING FOR A RAISE
5.8% The estimated increase in worldwide salaries in 2015, with the biggest increases in Latin America, the smallest in Europe.

Sources: S&P Capital IQ, USA Today, Bespoke Investment Group, The Brookings Institution, Eurostat, Bloomberg BNA
STORIES FROM THE SENTIMENT SURVEY
In 2014, Insigniam asked nearly 200 global executives from multiple diverse industries about their concerns, priorities and outlook for 2015. Here’s what they had to say about execution.

WHAT KEEPS EXECUTIVES AWAKE AT NIGHT?

- Talent: 23.6%
- Performance: 21.5%
- Culture: 20.8%
- Accountability and execution: 14.6%

WHAT IS CRITICAL TO SUCCESS IN A MAJOR CHANGE INITIATIVE?

- Collaboration and trust: 73%
- Communication: 43%
- Alignment: 42%

71% say poor performance and execution prevented successful deployment of change initiatives.

75% agree that efficiency and execution are critical to success.
According to a March 2015 Harvard Business Review article, *executional excellence is the No. 1 challenge facing corporate leaders across countries and industries* (based on the responses of 400 global CEOs). The article’s authors conducted an in-depth survey of nearly 8,000 managers across 30 industries.

**MANAGERS SAY CONFLICTS DURING EXECUTION ARE ...**

- Resolved after a significant delay: **38% of the time**
- Resolved quickly but poorly: **14% of the time**
- Left to fester: **12% of the time**

**SINGLE-GREATEST CHALLENGES TO STRATEGY EXECUTION:**

- **40%** Failure to **align**
- **30%** Failure to **coordinate** across units


Well-written and engaging, this second book by two professors at the Tuck School of Business at Dartmouth University points out the fatal flaw in most companies’ grand strategic plans: Having big ideas is more fun than executing them. The book is full of real-world examples of success and, refreshingly, failure. As one of the managers quoted says: “Most problems are not because people screwed up; they are because there is something happening that nobody anticipated.” The unanticipated is discovered only when you begin to execute, and that’s the other side of innovation.


Consultant Laura Stack’s five previous books are all how-tos. She struggles when she ventures into why-to territory, however. Young managers, unsure individuals promoted into the executive ranks, or anyone who’s never taken a business course will find this useful. Otherwise, it’s management 101. The book bristles with aphorisms that work on PowerPoint slides but are self-evident to anyone who’s ever had their feet held to the fire on failed deliverables. At times condescending, the book could nevertheless serve as a road map if you don’t already have one.


This is not a management book but a ripping good yarn about the University of Washington rowing team that won the gold medal at the 1936 Olympics in Berlin. Along the way to the podium, the book turns into one of the best you’ll ever read on teamwork and execution, not to mention leadership, commitment and determination.

Eight-man rowing shells are so long, thin and light that it’s amazing they don’t sink when fully loaded. Propelling one at top speed in perfect unison requires team unity, mental toughness and super-human physical effort—and the competition is never less than world class. Isn’t that the definition of corporate challenges: an impossible task performed with maximum efficiency at world-beating speed against the odds and the competition? An added bonus: You won’t find many management books that are this enjoyable.

—Rebecca Rolfes
A GOOD VIEW
Keep Your Eyes on the Stars With E-ELT

The European Southern Observatory’s European Extremely Large Telescope (E-ELT) is one of several scientific institutions competing to be the first to look into extremely deep space and get closer to the beginnings of the universe. The ambitious €1.083 billion, 19-year-long project relies on flawless, consistent execution to give scientists unprecedented access to space.

CHARTING THE LIFE OF THE E-ELT

- **2005** Research begins on building a telescope of this size and capability
- **2010** Cerro Armazones in Chile is chosen as the site for the telescope
- **2012** E-ELT program approved by the European Southern Observatory Council
- **2014** Construction begins in Chile of the telescope’s platform
- **2024** Projected date of “first light,” the telescope’s first view into space
A Man on Mars in 6 Steps: NASA.gov

Using near-term capabilities and resources to build long-term—and intergalactic—results, NASA’s Evolvable Mars Campaign is working to establish a base on Mars.

In its 2014 report, “Pioneering Space: NASA’s Next Steps on the Path to Mars,” the space agency outlined how it could make the project sustainable, using the following principles to guide planning and implementation. The project should…

1. [Be] implementable in the near term with the buying power of current budgets, and in the longer term with budgets commensurate with economic growth;
2. [Apply] high Technology Readiness Level technologies for near-term missions, while focusing sustained investments on technologies and capabilities to address challenges of future missions;
3. [Focus on] near-term mission opportunities with a defined cadence of compelling human and robotic missions providing for an incremental buildup of capabilities for more complex missions over time;
4. [Create] opportunities for U.S. commercial business to further enhance the experience and business base learned from the International Space Station (ISS) logistics and crew market;
5. [Employ] multiuse, evolvable space infrastructure;
6. [Encourage] substantial international and commercial participation leveraging current ISS partnerships.”

Read the full report, along with news regarding other extraterrestrial developments, at NASA.gov.
“We’ve had an amazing friendship for over a decade. We weren’t just partners working on a strategy. Naturally, I tried to talk him out of stepping down.”
—Bill McDermott, CEO of SAP, on the departure of his (now former) co-CEO, Jim Hagemann Snabe

“You have to be hard on issues, not hard on people.”
—Joyce Roché, board member, AT&T, Dr Pepper Snapple Group, Macy’s and Tupperware Brands, on life lessons she’s learned during her career

“Audacious ideas rarely spring from boardrooms and office cubicles. They come from getting out and about, and experiencing life in its most inspiring settings. Creativity doesn’t wear a uniform, nor should creators.”
—Richard Branson, founder, Virgin Group, on why he doesn’t wear a suit

“Space is hard.”
—Scott Kelly, astronaut, on SpaceX’s failed launch
CONNECTING THE DOTS

John Drzik of Marsh on how he navigated a complex organization—and found that many parts, when joined intelligently, can make a stronger whole.

By Kelly Caldwell

When John Drzik became president of Marsh Global Risk and Specialties in January 2014, his mission was to bring together disparate parts of a complicated worldwide enterprise. “What I had was, in many respects, a new job, configured by pulling together pieces of different roles that had existed previously,” Drzik says. Business leaders reporting to him had not previously worked as part of the same organization—making it a challenge to establish the identity of Global Risk and Specialties as a unit within Marsh.

Although there had been a Global Specialties business, it included only about half of the organization that Drzik now oversees. Other pieces were pulled in from the risk analytics, technology and consulting businesses.

Marsh is part of Marsh & McLennan Companies, which has a global team of 57,000 employees and annual revenue of $13 billion. As a matrix organization, Marsh, with 27,000 employees, has a very strong geographic axis, Drzik says. Each unit within Marsh faces the issue of trying to build a global business across a geographic P&L structure. “It was a question of trying to mold this into an organization that hadn’t previously been together before,” Drzik says,
“and that would help our business leaders to address their common challenges.”

Revising the structural framework of Global Risk and Specialties was only part of Drzik’s approach. For the unit’s brokerage specialty side, another goal was to strengthen connectivity among the people who work in global practices.

“We had practices like energy on the industry side and political risk on the product side,” Drzik says. “And these were businesses that could benefit in each geography by drawing on the full global capabilities of our team.”

To address these challenges, he set out to increase the degree of communication and best-practice sharing across regions, with the idea that financial growth would be a byproduct of bringing Marsh’s full array of global knowledge to each client situation.

Drzik cites the Global Energy team as a good example: “Our energy leaders across regions started to build a globally aligned plan. The goals included more teaming across geographies on client assignments, more knowledge transfer from one geography to another, and shared recruiting and marketing strategies.”

This new cohesiveness also manifested itself in qualitative ways.

“We want people to feel like they’re as much a part of the Global Energy team as part of their geography,” Drzik says. “They should say, 'I’m in Marsh Brazil, but I’m also part of Global Energy.'”

THE CYBER STORY

A similar approach to aligning companywide communication and execution was needed in

Calculated Execution

Developing Marsh’s leadership in the cyber risk space is a work in progress, John Drzik says, pointing to two key components in the development and execution of its most recent offerings, Marsh Cyber Monitor and Marsh Cyber View:

Alignment of key leaders. These include Marsh’s executive committee and the leaders of the business areas that are strongly connected to the offerings. Because cyber risk initiatives cut across many areas, multiple business and functional leaders at Marsh—whether in sales, brokerage, consulting, analytics, legal or compliance—all need to have a stake.

“We’ve had very active discussions on it. Many different people have contributed to the strategy and they feel like they’re fully tied into it,” Drzik says.

Communicating across divisions. As Marsh has entered the operational phase of implementing new products and services, Drzik has set up cross-company groups of business leaders that will help guide new products and services to market. “We set up weekly calls among the leaders of the different work streams,” Drzik says, “and there are people who populate the teams from different business areas. So you do get that cross-fertilization.”

Everyone has jobs that go beyond the initiatives in cyber, so there’s always competition for time. But with regular communication, Drzik says, “we can always uncover the things that seem to be derailing us and figure out which actions to take to address them.”
The Research Behind the Risk

The Global Risk Center, a research partnership and R&D entity formed by Drzik during his time at Oliver Wyman, now serves as Marsh & McLennan Companies’ (MMC) enterprise-wide innovation vehicle. Oliver Wyman originally housed the center, but when responsibilities were shifted over to MMC for a partnership with the World Economic Forum, the center was moved to the MMC level so that it could leverage a more robust range of resources across all of MMC’s operating companies and be positioned to help all of them.

“We took the opportunity to do that when I moved to Marsh, but this was a good move to make anyway,” Drzik says. Now, Marsh, Guy Carpenter, Mercer and Oliver Wyman all benefit from a coordinated research agenda.

To start the move, MMC formed an advisory board for the center, including people from each operating company who were actively involved in the risk business on both the commercial and research sides. The core team at the center is small.

“There are only four people who actually work within the Global Risk Center,” Drzik says, with the remaining resources coming from the operating companies.

“Really, the center can do very little on its own. And that’s by design. We wanted the operating companies actively engaged,” Drzik says. “We could have built a 25-person research center that did something all by itself, but then it would be an ivory tower separated from the businesses, instead of this thin but senior group of people who coordinate and energize the collaboration across the operating companies.”

another crucial growth area—cyber risk—and the rollout of new, innovative services.

Although Marsh has been a leader in the cyber risk market from the outset, it is becoming even more substantially involved as cyber insurance experiences explosive growth—between 50 and 100 percent per year, Drzik estimates. In 2014, there was a 28 percent increase in private and public-sector cyber breaches—783 total—over the previous year, according to the Identity Theft Resource Center. Through August 2015, organizations in the U.S. experienced 505 breaches, with 140 million records exposed.

“This is probably the No. 1 risk issue on the minds of boards of directors,” Drzik says. “They can’t insure all of the risk, but Marsh can provide services with respect to both [cyber] risk transfer and risk mitigation.”
There were three goals for the strategy, he says. First was to sustain Marsh's leadership in cyber insurance brokerage. The second was to expand into adjacent areas like analytics and advisory services. Third, when it didn't make sense for Marsh to build its own distinct set of services, it would partner with best-in-class companies to provide them.

In April, Marsh announced a partnership with Cyence, a cybersecurity analytics services provider, to create new services that will “help the risk management community effectively understand, measure and manage their cyber risk.”

“They had terrific technology, very unique cyber risk analytics,” Drzik says. “And we knew it would be highly beneficial for us in our core business of insurance brokerage and also in building out deeper advisory and analytical services for clients. They had analytics it would take us years to build ourselves.” Marsh is considering a few other partnerships to round out its offerings in the cyber risk space.

**PLACING THE PIECES**

“This is different than what I had to do before,” Drzik says, reflecting on the past year. “I've gained an appreciation for the complexity and scale of an organization like Marsh.” Oliver Wyman—where he spent most of his career, becoming chairman in 2006—focused on only one major business line, management consulting. Although it included different industry practices, they were all in the same business, and a similar management approach could be employed.

“In Global Risk & Specialties at Marsh, we have different business models which need different types of people and require different types of management,” Drzik says. Count them: There’s a specialty brokerage business, a software business, a data and analytics business, two consulting businesses—the list goes on. “You can’t manage them all the same way,” Drzik says, “but they still need to fit together.”

When asked how exactly to gather all the businesses under one umbrella, Drzik laughs. “I was hoping you could tell me! You know, when you’re faced with a large and complex organization like Marsh, it’s easy to feel that it’s very hard to have an impact, because the organization has a lot of moving parts. But while it is challenging and difficult to do it, as a business leader you can. It just takes more time and thought and care than in an organization with a single business model.” Drzik pauses. “I mean—this is definitely a more complex challenge, but it’s a good one, and one that is motivating for me.”

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*I’ve gained an appreciation for the complexity and scale of an organization like Marsh.*

—John Drzik

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**A Map of Marsh & McLennan**

New York-based Marsh & McLennan Companies comprises four operating companies:

- **Marsh**
  - Insurance brokerage and risk management
- **Guy Carpenter**
  - Risk and reinsurance intermediary services
- **Mercer**
  - Talent, health, retirement and investment consulting
- **Oliver Wyman**
  - Management, economic and brand strategy consulting
IMPLEMENTING CHANGE FROM THE BOARDROOM

How boards can enable the C-suite to successfully execute on strategy.

By Kelly Caldwell

“A lot of organizations have great vision and great strategy, but execution is what differentiates very successful organizations from those that have not been successful,” says Ramani Ayer, former chairman-CEO of The Hartford, a Hartford, Connecticut-based diversified insurance and financial services company, and former chairman of Hartford HealthCare, an integrated health-care system.

Now on the boards of global insurer XL Group and Hartford HealthCare, Ayer has shifted his role from management to supporting the management team in charting effective—and executable—strategies.

“When you talk about execution, it’s never, ‘Now, we’re only talking execution, and not strategy. Or, now we’re only talking strategy, not execution.’ It just never happens that way,” he says.

And execution isn’t as distant from the boardroom as one might think, Ayer says. Although execution “is the purview of management,” the board is responsible for aligning with the C-suite to set the course—and holding management accountable for results.

He insists that the board act as a single unit, and he is careful not to attribute successes to himself as an individual. As a rule, credit is due the CEO, he says, with an acknowledgment of support from the board as a whole. Providing that support depends on a synthesis of strategy and execution, and collaboration between management and board.

THE THEORY

The responsibilities of the board in sup-
Aligning on strategic direction. First, board and management agree on the strategic direction of the enterprise, as well as its mission and vision. To do that, Ayer says, both management and the board must understand the current context while analyzing the organization’s strengths and weaknesses. The board and management must also assess opportunities and threats it will be facing over a specific period of time within the broader business landscape. “Management and board must be able to clearly say, ‘By 2020 or by 2025, our organization will accomplish the following things in our space,’” he says.

2. Setting the balanced scorecard. With the company vision and strategy defined, management then selects the initiatives that will be critical to realizing that vision. Embedded in those strategic initiatives is a set of annual milestones to measure the company’s progress. Ayer says Hartford HealthCare uses the balanced scorecard technique, a strategic planning and management system frequently employed by organizations to develop and manage a portfolio of initiatives. “The reason the term ‘balance’ is used,” he says, “is so you embrace all your critical stakeholders in it beyond your own customers or clients. In the world of health care, that includes your distribution organization, your physicians’ organizations, your employee base, regulatory agencies, all of that. Your balanced scorecards articulate the critical areas and the progress against them for every year of the plan.”

In the absence of clear milestones and metrics from an execution perspective, the board will find it difficult to ensure that things are happening on pace or to determine whether there are serious shortfalls in performance, Ayer says.

3. Executing on the mission. At this stage, the board should be clear on organizational vision, major strategies and key initiatives. “You have established a balanced scorecard, and you have agreed on a management team,” Ayer says. He emphasizes that a balanced scorecard would include milestones and competencies that will be critical to real-

“The primary lesson was recognizing that the revenue landscape was shifting in a huge way.”

—Ramani Ayer, board member, XL Group and Hartford HealthCare
izing the organization’s vision. An organization may have those competencies in-house, or it may need to acquire them by attracting talent or offering internal education. The CEO is given the responsibility to lead this process, Ayer says, with regular communication to the board.

4. **Troubleshooting execution.** “You expect the CEO to come to the board meetings with a clear sense of what milestones are progressing well and which ones are not,” Ayer says. “Management usually has an analysis of the reason for a breakdown.” The problems could stem from any number of causes, from external factors—something changed in the regulatory environment or in the competitive environment—or it could stem from internal factors, such as management breakdowns, an inability to execute at a certain level, or shortfalls in capacity or competency. “The board expects to see that, in management’s recommendations, there’s a clear articulation of a path to rectify problems,” Ayer says.

“In our own case, at Hartford HealthCare, the externalities that we faced recently arose out of reductions from federal sequestration and state Medicaid reimbursements,” Ayer says. Between Medicare rate suppression and Connecticut’s Medicaid reimbursement reductions, the organization’s entire margin for the year was wiped out.

“Even though management was doing a great job of implementing against the strategic vision and against the balanced scorecard, suddenly we found that our bottom line was going to be impacted severely,” Ayer says. Hartford HealthCare’s management quickly brought forward a set of solutions.

“While they were swift in their response, they could not be swift enough, because these [new regulations] went into effect right away,” Ayer says.

5. **Responding rapidly to change.**
In the wake of a significant disruption, boards must have the capacity to rapidly make decisions and support management’s ability to adapt.

As employers shifted the risk of health care more heavily onto employees, huge deductible plans were causing employees to defer health-care services, impacting revenue. “Management, recognizing this, had to figure out how best to rationalize the organization structure, the services we provide and the technology that we might need to address these tectonic shifts,” Ayer says. “The primary lesson was recognizing that the revenue landscape was shifting in a huge way.” Over a few quarters, Hartford adjusted its organizational structure and staffing to address those issues.

**THEORY IN ACTION**
Anticipating and responding to change and ensuring accountability are major tasks for the board. Equally important, however, is supporting management in the implementation of new initiatives. When Ayer joined the Hartford HealthCare board as chairman in 2011—he retired as CEO of The Hartford in 2009—he had the “enviable opportunity” to
work with Hartford HealthCare CEO Elliot Joseph on a new initiative to restructure and integrate the organization.

“It was being run as a collection of hospitals instead of an integrated health-care system,” Ayer says. The board and Joseph worked to articulate a clear strategic vision of building an integrated health-care system that would have the kinds of capabilities, competencies and services to make it an attractive regional health-care provider. “The first order of business was to restructure governance and define a new vision,” Ayer says. “The second was to pull together a capable management team that had experience in integrated health-care systems. Third, we went through the process of developing strategy, balanced scorecards and accountability systems to address the health-care landscape.”

That landscape had been subject to massive shifts. As health care is a greater part of U.S. GDP, and as the country struggles to absorb the rising costs, “the U.S. is trying to find ways to challenge the health-care industry to arrest the progress of costs,” Ayer says. “So our strategies—and I give the CEO great credit—revolved around how to raise the quality of clinical care, raise the level of physician engagement, and control the cost of care through business restructuring and use of a technology platform that provides the right analytics.”

To that end, Ayer says, it was important first to establish a company culture that brought all the disparate organizations together more cohesively under the Hartford HealthCare umbrella. CEO Joseph adopted a culture called H3W, which stands for How Hartford HealthCare Works—a practice that was already being used in one of its hospitals. When Joseph heard of it, he took it enterprise-wide.

In H3W, regular monthly meetings take place at a unit level across the entire system. At these meetings, the leader of the unit shares major results of the organization’s performance, discusses the specifics of his or her own unit, brainstorms for ideas that can be further developed by the team, and discusses accomplishments and recognitions. “This practice of generating ideas all the way down to a local unit inside of a framework of a strategic plan creates enormous execution power,” Ayer says.

But that was only part of what helped Hartford HealthCare adapt to a more complex landscape. The board and CEO pulled together their critical strategies and translated them into a set of balanced scorecards every single year. The scorecards had very clearly articulated, measurable objectives that management tasked itself to deliver, with compensation systems aligned to recognize and reward management if it delivered against its milestones.

“Working that through was never a smooth journey. We had to make adjustments to keep fulfilling those milestones,” Ayer says. When it comes to giving credit, though, he is quick to point toward the team. “It was the board as a whole working with management, because at the heart of it is a question of everyday execution—having the right kind of people and the right kind of organization to achieve that vision.”

—Ramani Ayer

“Even though management was doing a great job of implementing against the strategic vision and against the balanced scorecard, suddenly we found that our bottom line was going to be impacted severely.”

—Ramani Ayer
Pascale Witz, executive vice president at Sanofi, shakes up pharma with a massive new-product blitz backed by a patient-centric approach.

BY PAUL GILLIN
PORTRAITS BY EMMANUEL FRADIN
Pascale Witz isn’t afraid to shake things up—even if it means looking at customers in a completely different way.

When she signed on as executive vice president of global divisions and strategic development at Sanofi S.A., the company was on the cusp of something big. Really big. It was prepping to launch 24 products over the course of five years. In pharma, that’s light speed.

But first, Witz had to reimagine people and processes at one of the world’s largest pharmaceutical makers.

After a 17-year career at General Electric focusing on the health-care business, Witz joined Sanofi in July 2013. She quickly shifted the emphasis away from the drugs and onto the disease and expanded the decision-making target from health-care providers and payers onto patients. Witz then took the astonishing step to think of patients as customers and ask them what they wanted.

Based on what she found, Witz decided to capitalize on Sanofi’s strong diabetes-care track record and make the chronic illness the test case for product launches going forward. There will be quite a few of those over the next several years. Yet rivals might be forgiven for not seeing much in the multinational company with a long-standing history. A 14-year drought between new-product launches seemed to signal a lackadaisical management approach. The patent on its hugely successful Plavix blood thinner had expired in 2012, and its blockbuster Lantus basal insulin medication is set to go off patent.

Expiring patents daunt the industry as a whole, prompting pharmaceutical companies to launch an estimated 400 new products between 2014 and 2017, a 14.6 percent increase from 2005. But such a crowded field—especially when the difference between one drug and another can be difficult to see—doesn’t bode well for launch success rates. Some two-thirds of new drug launches fail to meet their pre-launch sales targets, and payers—public, private and individual—are growing less able (or willing) to bear rising costs.

And that’s what makes Witz’s approach so intriguing.

New Regimen
The brutal competition to win a lifetime commitment to a drug regimen defines the diabetes-care category. With some 400 million diabetics in the world—and potentially another 179 million people still undiagnosed—the profit potential for drug makers is enormous.

That, of course, makes Sanofi’s shift of focus from health-care professionals to patients all the more interesting. When Witz brought in the challenge...
patients living with different chronic diseases, including diabetes and atopic dermatitis, and asked how they managed their disease, her peers in the executive ranks found themselves mostly inspired by these face-to-face interactions with the people whose lives they influence.

It was a watershed moment.

Many company leaders had rarely, if ever, interacted with the ultimate consumers of their products. All executive committee members participated in patient sessions, which were later replicated in Sanofi’s region and country organizations. As a result, thousands of Sanofi employees across the organization, including general managers and department heads, had the opportunity to better understand the needs of people who live with different chronic conditions.

Witz also convened teams of people with experience in and responsibility for diabetes and other diseases across a variety of functional areas, including clinical development, commercialization, market access and market analytics. All of these areas play important roles in a pharmaceutical launch, of course, but seldom work together.

Breaking down those silos resulted in new development and go-to-market processes that Witz reorganized in a matrix structure with patients at the center. By January 2015, she’d created transversal capabilities in key functions such as market access, marketing and strategic development—outgrowths of those cross-functional teams—to move Sanofi to an integrated care model. “It took six months to make this transition,” Witz says, “but it has completely changed the output, the behavior and the morale of the teams.”

And in a shot across the bow of the indus-

There are approximately 400 MILLION diabetics in the world... and potentially another 179 MILLION people still undiagnosed.
try as a whole, Witz hired pediatrician and public health specialist Dr. Anne Beal as the company’s chief patient officer. Serving as a liaison between patients and the company, the role is designed to infuse the patient perspective into everything from product development to marketing to patient outcomes. Sanofi was the first top-10 pharma company to create such a role. “Since then, many others have copied us,” Witz says. But it was a bold move, and one that has delivered real results.

Witz recruited Beal, in part, because she’d spent her career in patient advocacy and wasn’t a pharmaceutical industry insider. Beal “started from the top” in changing the mindset at Sanofi, says Witz, holding sessions where patients and doctors joined the company’s executive committee discussions.

Beal’s job is also helping to change people’s opinion about the industry. “Many people see the pharmaceutical industry as just trying to sell drugs,” Witz explains. “But we are very patient-centric.”

Upending the Traditional Rollout

Now comes the real test of the moves Witz has made to date. With new CEO Olivier Brandicourt at the helm, Sanofi is bringing six new vaccines to market this year, and 18 more products over the next six years—a pace of one rollout every three months. In pharma, that’s light speed.

“We have the opportunity to rewrite medical history,” Witz says.

In February, Sanofi launched Afrezza, the only inhalable insulin on the U.S. market. One month later, the company got a boost with the U.S. Food and Drug Administration (FDA)’s approval of Toujeo, a successor to a type of insulin called glargine that could be a game changer in diabetes treatment. And in July, the company obtained FDA approval of Praluent, a potential blockbuster cholesterol treatment that has had dramatic success in clinical trials.

As change rolls the pharmaceutical and health-care spaces, the once orderly rollout of new products has been upended. Yet that need for speed can undermine a solid strategy in the crucial execution phase.

“... I was always striving to beat my personal best.”
—Pascale Witz, EVP, Sanofi

New product rollouts traditionally consist of marketing to physicians, pharmacists and payers—once “the biggest decision-makers,” Witz says. “But in the end, all of these drugs are used by patients.”

That’s why Sanofi’s upcoming rollouts will look and feel so different.

Half of diabetics stop taking insulin within their first year of treatment—often because they don’t understand that the lack of immediate consequences can mask more serious long-term problems, Witz explains. Demonstrating the value of continuing therapy is good not only for patients, but also for drug makers.

So instead of simply pushing its new insulin drugs, Afrezza and Toujeo, into the sales channel, Sanofi will focus on raising patient awareness and transition to a partial pull model, in which patients request specific medications or information.

The Right Stuff

With so many new drug launches failing to make their projected numbers, companies need to excel at a few things during a launch instead of trying to do everything. For Sanofi, that means building a powerful team focused squarely on forging a true understanding of its customers.

To deepen Sanofi’s customer insight, Witz and her team are incorporating new tools such as real-life data analysis and mobile communications. Three years ago, for example, Sanofi became the first big pharmaceutical company to integrate glucose monitoring with the Apple iPhone so diabetics could share blood sugar information with their families and doctors. While that capability is routine today, it was an important early experiment in mobile integration.

In the areas of cardiovascular and other chronic conditions, the company is working on a huge integrated digital health application that combines quantified self-technologies and advanced computational models for potential early intervention if a patient’s vital signs deviate from normal. This approach has the potential to generate big data that would lead to better understanding of different factors influencing treatment outcome or risks. This might help...
ities, backgrounds and expertise. I believe this is a key success factor making a team capable of pursuing bigger goals and delivering results. You become better when you challenge yourself with people who are better than you are.”

Her success will also depend heavily on her team’s ability to collaborate. “I want the team to tackle problems together,” she says. But that doesn’t mean she’ll be entirely hands-off. “I spend time with them when they’re facing their most challenging problems,” Witz adds.

She doesn’t want to just hear happy news, either. “I strongly believe that when you manage a complex portfolio, it’s important to be able to flag things when they aren’t going well,” she says. “Leadership style has an impact on the culture and people’s behavior, and ultimately on business results. We get together to achieve bigger goals—this requires that we tackle hurdles and difficulties in a timely and open manner. Only an open, collaborative team that can challenge itself can succeed in the long run,” she adds.

A former national champion in the 400-meter hurdles, Witz still runs—and still draws on lessons learned as an athlete. Three years ago, she completed a marathon in three hours and 50 minutes, about nine minutes a mile. But her focus wasn’t on competition as much as doing her best. That’s what competitive sports are about, she says, and the same principles apply in business.

Witz, who has been appointed to lead Sanofi’s diabetes and cardiovascular global business unit in the company’s new structure, starting January 2016, is passing that core message onto her team.

“Our CEO Olivier Brandicourt is a leader with a clear vision for the future, and I am pleased to be part of the team shaping the future for Sanofi. However, you don’t make an impact by yourself,” Witz says. “You make it by the teams you lead—hiring great people and making them do more than they’d do by themselves. I’ve always been motivated by having an impact on people’s health. I hope 10 years from now, I’ll be able to say I developed great people and changed the lives of many people all over the world.”

Doctors in selecting the right treatment for patients and help empower patients to take better control of their health.

Data also plays a pivotal role in Sanofi’s upcoming series of product rollouts. Success will be measured not just by sales but also by leading indicators, such as the number of insurers offering coverage for new products.

Even with all that data, Witz knows when to trust her instincts. “I’m a strong believer in analytics,” she says, “but it will not replace experience—that gut feeling.”

Witz knows the company’s ambitious rollout means she and her team will have to perform at 100 percent—and then some.

“I’m proud that people sometimes say, ‘Pascale pushes you to deliver more than what you thought was possible,’” she says.

Witz has populated her team with both internal and external professionals from such fields as medical devices, diagnostics, market access and integrated care. “Diverse teams are more productive than teams where everyone thinks the same way,” she says. “At Sanofi, this diversity starts at the executive committee level, where we have people with different national-

Witz took the astonishing step to think of patients as customers and ask them what they wanted.
The New Math of Employee Accountability

Accounting offers a unique framework to consider employee accountability.

BY SHIDEH SEDGH BINA
ILLUSTRATION BY NEIL WEBB
Accounting is a system for keeping track of and reporting financial transactions. Everybody knows that. Accounting can be vastly complex, but at its core, it is a simple concept—a balance statement that reconciles debits and credits. Everybody knows that, too, right?

But what about “accountability” when it comes to performance? Not everyone would define that word the same way. And hardly any of us would associate accountability with financial accounting, even though they’re very similar—not just grammatically, but mathematically.

Mostly, we think of accountability as an assignment of blame. If you’re accountable, you take the blame for what goes wrong and the credit for what goes right. But, really, employee accountability is a system. It’s a way of weighing or reckoning behavior. Specifically, it is about giving a reckoning of the actions taken—and the actions not taken—that led to the final outcome. Just like in accounting, where your balance sheet must add up correctly, there also has to be a balance in performance accountability.

The Economy Is No Excuse for Performance

Think of it this way: If a salesperson comes to a manager and says, “I didn’t hit my sales goals, and that is because the recession is so bad and nobody is buying,” the salesperson is giving a reckoning of the circumstances. And the circumstances are something the salesperson doesn’t fully control. That conversation doesn’t end well because we are all hired to make things happen—not report on the circumstances.

All results are a function of actions taken. Period. Many people have cited this equation: A good story about the circumstances + no result = accountability. But that doesn’t balance, either. The story doesn’t give any access to better performance in the future. And a narrative about the circumstances puts the focus in the wrong place in the performance equation.

Insigniam also has an innovation equation for dramatic growth. To learn about it, visit insigniam.com/innovation.
reconciling actions and inaction that led to the result also allows for replication of success. And, after all, isn’t that the point of accountability? It’s not a method for placing blame and pointing fingers but a means for getting better results. So, next time, make sure the math is accurate, and solve the problem—don’t blame it.

Establishing Decision Rights

You can’t have accountability without ownership and clarity. Employees need to know exactly what they’re being held accountable for, and they need to know exactly how their success will be measured.

Clarity and ownership often boil down to decision rights. Unfortunately, most organizations don’t take the time to clearly establish a decision-rights process, which often results in finger-pointing, people tripping over each other and decisions floating unnecessarily to the top of the organizational hierarchy. Worse still are bottlenecks, in which decisions are delayed or simply not made at all.

The next time you talk about accountability, ask the following questions:

- What are we counting on you for? How will we measure that?
- What decision rights do you require to deliver what you are promising?
- Who do you need to consult? Who do you need to enroll?
- What decision do you need to be consulted on to deliver what you are promising?

In truly high-performing organizations, each person knows the specific outcomes he or she is being held accountable for, and decisions rights reside at the levels of the organization where they make the biggest difference. Organizations that fail to establish a decision-rights system will likely fail to create a sense of ownership and clarity—and will ultimately be challenged to execute on strategic goals.
Initiatives such as sustainability, predictive maintenance and 3-D printing require a reimagining of people and processes.

BY BILL BARNHART

$1.6 trillion.

That’s how much money was estimated to funnel into global R&D in 2014—three-quarters of which came from the private sector, according to research organization Battelle. Of that portion, it’s not health care, technology or energy industries that are responsible for most of the aggressive funding—it’s manufacturing. And it’s starting to pay off.

New technologies such as automation, 3-D printing and predictive maintenance are coming out of R&D labs and being applied up and down the supply chain. Admittedly, manufacturing still has a lingering reputation for stodginess and obsolescence. In a survey by Deloitte and the Manufacturing Institute, it ranked dead last when respondents ages 19 to 33 were asked which industry they’d like to work for. But
Anyone who has ever watched a 3-D printer spit layer after layer of plastic or metallic powder to create an object designed by a computer would not be surprised that Fairfield, Connecticut-based GE is spending millions on the technology in the name of speed and disruptive part design. GE, with its 400 global manufacturing plants, makes everything from light bulbs to jet engines, locomotives and power plants. And keeping up with customer demand means it must produce prototypes of new designs and swiftly translate high-potential prototypes into commercial products more quickly than ever.

“It can be very expensive and time-consuming to produce a new part conventionally—hundreds of thousands of dollars and three to six months,” says Christine Furstoss, GE Global Research’s vice president and technical director for manufacturing, chemistry and materials technology. As a result, “people can be very reluctant to change design.”

“We are using additive manufacturing to prototype things very quickly. We are learning, but also getting parts in our hands more efficiently,” she says. “If I can print a part, even if ultimately I’m going to make it conventionally by forging or casting, I get it in people’s hands to learn and test.”

A crucial element to GE’s success in this space is getting buy-in and participation from all levels of the organization, because ramping up additive manufacturing requires all hands on deck companywide. Plant managers skilled at conventional production methods, today known as “subtractive manufacturing,” must feel welcomed, not threatened by their addi-
structure change, Furstoss says. But “we’re not throwing a new tool at a factory that’s been established and is going well,” she says. “We don’t want to inundate people in a way that they can’t contribute.”

In this regard, additive manufacturing can sell itself internally, and encourage acceptance and adoption of the technology. “We put printers right down on the factory floor, where workers may have an idea for a new ergonomic rest for their arm” while they’re working, Furstoss says. “We print it up in hours. They like this idea of being more a part of the process than they ever have before.”

This team approach works in GE’s additive manufacturing operations because every member—from commercial development to engineering to factory operations to IT—understands the business objective behind their fairly free-form collaboration, Furstoss says. The same principles now direct the managers of GE’s many ventures worldwide.

The mindset even applies to fundamental research, which previously meant that the people working in lab coats were not as directly tied to business strategy. Even at the level of fundamental research, “we cannot separate ourselves from the business,” Furstoss says. “If what we’re working on makes it into a product that gives us share and margin, that’s what everyone cares about. It’s a value story. We are constantly relating what this means to quality control and quality assurance. We either kill a proposal quickly or get it into something that is going to give us productivity or margin or share.”

“We don’t want to do things by edict. That adds extra stress, a new layer that may inhibit openness.”

—Christine Furstoss, global technology director for manufacturing and materials, GE
Predictive Maintenance and 
Culture Shift at ThyssenKrupp

ThyssenKrupp Elevator, headquartered in Essen, Germany, serves customers all over the globe—from the 3.5 million people it lifts up 102 stories every year in New York’s One World Trade Center to the 5,500 office workers in Saudi Arabia’s 1,263-foot CMA Tower, the country’s tallest skyscraper. Such a vast volume of elevators—and the requirement that each ride be safe and swift—required ThyssenKrupp to devise a way to more efficiently monitor each elevator’s status and more quickly perform repairs.

With 1.2 million elevators in service around the world, Andreas Schierenbeck, chairman of ThyssenKrupp AG’s €6.4 billion business area elevator technology division, was frustrated that there seemed to be no way to systematically reduce repair costs. Yet there was no denying the urgency behind the costs.

“If the elevator starts, and you have that feeling in your stomach because the brake slipped, that’s probably not what you want,” he says. “I get a call from a customer who says, ‘It’s not working; send somebody.’”

His team had tried various sensors to anticipate mishaps, but the fact remained that each elevator was potentially its own problem. Then, in late 2013, Schierenbeck “bumped into” then-Microsoft CEO Steve Ballmer at the grand opening of a Microsoft business center in Berlin and told him about the maintenance problem.

“We chatted for about five minutes,” Schierenbeck says. “I’d been working on this for a number of years, and it was going nowhere. I was a little upset because we had too much of a hardware focus. Nobody was talking about software.”

Of course, Ballmer was. “We decided, let’s start something,” Schierenbeck says. “Maybe this will work out. And we started this big project.”

Schierenbeck partnered with Microsoft and CGI, a large Canadian IT firm, to create a cloud-based elevator monitoring system that would integrate with ThyssenKrupp’s elevators. In each of ThyssenKrupp’s million elevators are thousands of sensors and systems collecting massive amounts of data about everything
Today, ThyssenKrupp Elevator, working with Microsoft, is the bellwether of parent company ThyssenKrupp AG’s implementation of predictive maintenance—gathering vast quantities of data from discrete units for analysis that foresees trouble at any unit. For the first time at the €41 billion global provider of industrial materials and services, “the Internet of Things is playing a role,” says Schierenbeck.

It’s too early to assess precise cost savings of the elevator maintenance software innovations, he says. But ThyssenKrupp AG units—which include vehicle components and industrial engineering services for auto manufacturing, chemical plants and refineries—are watching closely. Within the elevator group itself, large-scale data gathering and analysis may find a role in maintaining equipment used in manufacturing ThyssenKrupp elevator components, especially in China and other high-growth regions, he adds.

from temperature and shaft alignment to door function and cab speed. The company’s new monitoring system, first implemented in Seattle-area elevators in the summer of 2014, connects all of the data gathered by those sensors and funnels it into a dashboard that tracks a variety of KPIs for each elevator.

The new system signaled a big shift from the company’s traditional focus on hardware instead of software. “We wanted to go beyond the industry standard of preventive maintenance, to offer predictive and even pre-emptive maintenance,” said Schierenbeck in a statement, “so we can guarantee a higher uptime percentage on our elevators.”

But the technology also meant that ThyssenKrupp’s technicians would begin doing their jobs in a new way. At an organization with 900 locations globally and a long tradition of executing mechanical and electrical solutions for elevator construction and maintenance, the arrival of Microsoft software experts was a bit jarring, Schierenbeck recalls.

“You have to have the foresight to imagine what technology can do for you, and you have to prepare the organization for cultural change,” he says. “It takes leadership from the top to drive that. It changes the way we are working, and nobody easily embraces change.”

Technicians at control centers and in the field can see all of that real-time information gathered in one place via the cloud. With up to 400 error codes possible on any given elevator, instead of waiting for a frantic call, technicians can pre-emptively assess and quickly react to what needs repairing. The system also permits technicians to remotely enable an elevator’s “diagnostics mode” or send it to a specific floor.

“You have to have the foresight to imagine what technology can do for you, and you have to prepare the organization for cultural change.”

—Andreas Schierenbeck, chairman, ThyssenKrupp Elevator
To streamline its operations and reduce waste, Ball Corp., the provider of metal packaging for beverages, foods and household products, is implementing sustainability practices across the entire organization. But when CEO John Hayes wanted to hire a U.S.-based global manager of sustainability to oversee the company’s energy and environmental programs at 62 plants around the world, he could not find a candidate. Instead, he chose the company’s sustainability manager in Germany, where environmental goals had been part of corporate management structures for at least 20 years.

The Broomfield, Colorado-based company has implemented sustainability-related programs throughout its 135-year history. The most comprehensive and high-priority initiatives began in 2007 and have become a leading responsibility of senior management under Hayes.

His persistence paved the way for the hiring of Bjoern Kulmann as global director of sustainability. Today, the company has a sustainability steering committee to ensure “that sustainability is fully aligned with and integrated into [Ball’s] strategies, as well as balanced with stakeholder expectations,” according to the company’s governance mission statement. The steering committee reports to the board of directors.

Ball approaches sustainability management under the overarching theme of risk management—risks of climate change, risks to the availability of materials and risks of government environmental regulations.

As the company continues its perennial campaigns for better recycling and energy efficiency, two problems loom larger than before: First, water conservation and availability. Second, the need not only to reduce factory waste in landfills but to eliminate production-induced waste altogether.

Senior management needed a way to put its employees, suppliers and customers on the same page, given the variety of issues and circumstances its sustainability strategy entailed. “Sustainability is a fairly complex...
concept,” Kulmann says. Reducing water consumption may be a high priority in one region, while boosting recycling rates dominates sustainability efforts in another region.

Ball calls its sustainability program The Big Six, Kulmann says, because it made the program “tangible for our folks on the shop floor. The tagline refers to electricity, natural gas, water, waste, volatile chemical emissions and safety,” he says. “That’s what managers have under their control at their plants everywhere.”

Each of the six elements already was being monitored periodically. Now, each is measured at least monthly using uniform metrics. The resulting data is gathered in both divisional and global reports. The data provides benchmarks that allow precise oversight of highly diverse operations. In addition to better cost-saving metrics, the data enables Ball to provide evidence of its effort to reduce its footprint in environmentally critical areas, such as greenhouse gases and threats to the world water supply.

In North America, Ball has eliminated hauls to the landfill for all but two packaging plants, Kulmann says. All metal scrap is turned over to suppliers and recycled. But the challenge is to eliminate the waste altogether and save on the cost of recycling.

Although reusing materials is environmentally friendly, “you’re running it through the production cycle again,” Kulmann notes. “The most sustainable solution is to avoid the waste in the first place. It’s a tricky topic, especially in the U.S., where we always had a strong focus on reducing waste to the landfill.”

Goals to eliminate waste seem a harsh reward for plant managers who felt proud to finally take the local landfill off their daily truck routes. The new solution may require costly alterations to long-standing production procedures. “It’s a cultural shift that will take a while,” Kulmann says.

The sustainability benchmarking effort, eliminating production waste and reducing water consumption are three companywide goals on senior managers’ plates. Solving such problems helped Ball obtain membership in the Dow Jones Sustainability Indices, traded stock portfolios that comprise companies highly rated in sustainability achievements.

**Results That Matter**

As companies like GE, ThyssenKrupp and Ball adapt to whirlwind innovation and ever-intense competition, they are upending the tight hierarchy that has ruled the industry since the invention of the conveyor belt. Additive manufacturing is driving cross-functional integration at GE. Service technicians at ThyssenKrupp Elevator have added a notch to their tool belts and now carry software analysis to the job site. Ball prompts its employees to think of output as more than products and go far beyond minimizing waste to eliminating it entirely. At all three companies, execution—how they do what they do—is being reinvented as surely as the strategic vision that started the process.
Leading Innovation in the War on Contamination: Q&A with Ecolab’s Larry Berger

The company’s CTO discusses teamwork and innovative problem-solving that translates to value for its customers.

BY EDMUND O. LAWLER
PORTRAITS BY DAVID BOWMAN
IQ: Could you tell us a little about your background and, in particular, which attributes have helped you develop and lead such an innovative company?

LB: My background in my early and mid-career at DuPont (the Wilmington, Delaware-based chemical company) was shaped by a combination of technology and business development roles. Later, there were more senior operating roles where I was responsible for managing technology and all facets of it in an end-to-end process—from discovery through development and deployment. Ultimately, I helped lead some technology-enabled new business startups.

I was managing some early-stage businesses. That was very helpful to see and understand how to position technology, how to solve problems that really mattered to customers and how to create value for them and ourselves.

IQ: It appears that much of Ecolab’s growth is directly attributable to your employees.

What kinds of principles do you instill in them to create a culture of innovation?

LB: We generally look for folks who have a lot of empathy for customers and interest in solving problems. We hire very creative, talented, smart, diligent people who are willing to translate insights in science and technology into unique solutions that serve our customers. We have folks who have a heavy application focus and who are tenacious in terms of problem-solving.

We like individuals who can lead projects as well as work collaboratively. When I say collaboratively I also mean cross-functionally. So within RD&E, as well as within sales and marketing, our teams generally collaborate very well. But we also like individuals who can collaborate with our customers’ technical teams.

IQ: How do you ensure these principles?

LB: We hire people who aspire to work for a company like Ecolab, which has a heavy predisposition around problem-solving. The cul-
ture very much rewards people and recognizes individuals who have that predisposition. But I’m afraid many people work in technology careers for a good part of their lives and never really see the direct impact. Fortunately, our teams get to see directly the impact of innovation at our customer sites, and that excites them.

IQ: What have you found to be critical in executing innovation opportunities?
LB: We have at Ecolab a mindset that outcomes matter. We build teams that are cross-functional, and the team is always focused on delivering the KPIs.

We also have very comprehensive metrics—both leading and lagging metrics. Lagging metrics are used primarily to ensure that we monetize our innovation. We learn from things that work, and, frankly, we learn equally well from things that don’t. Our leading indicators help us to think big, to think bold—to make sure that we’re driving innovation that moves the needle.

IQ: How do you feel Ecolab has internalized innovation as a core competency? What decisions have proven to be important points along the way?
LB: First of all, innovation is a team sport at Ecolab and is owned by RD&E, marketing and our corporate account sales teams. It’s a cross-functional team. The general managers are accountable. They feel a lot of pride about innovation as an integral part of growing their businesses.

Second, our innovation strategy is inextricably linked to our commercial strategy. We have ambitious growth goals in all of our businesses. Innovation helps deliver and drive our competitive advantage.

And third, the way we’ve organized the RD&E teams within Ecolab is somewhat unique. By way of design, about 75 percent of our team are core subject matter experts within our verticals. About 25 percent of our team focuses on what we call anchor technology platforms—our areas of core technology expertise—such as antimicrobials, hygiene and water chemistry. It’s quite an inclusive process in terms of setting the portfolio, setting the strategy and setting the priorities.

IQ: Is there a core set of guiding principles that have anchored Ecolab’s innovation over the years, and how have you enforced those guiding principles?
LB: We are not a technology push organization. We look to solve problems [and] create value for our customers. We are tenacious in demonstrating that, working collaboratively with customers and finding ways to scale our technology. We have a strong mindset around trying to demonstrate value creation. We spend a lot of time in our customers’ locations working in partnership with them to do that. That is a big part of how we innovate.

IQ: Much of your growth has been accomplished via acquisition. How do you execute those acquisitions to ensure that your company’s culture of innovation stays consistent and strong?
LB: We are very sensitive to cultural alignment. That’s always front and center in driving a successful integration. We’ve been able to bring together communities of innovators who have different perspectives and different experiences. But all of them can uniquely contribute to solving some big problems.

We’ve also worked to cross-pollinate the teams. If you look at us several years after two big integrations, you see an organization that is cohesive and seamless in how we man-
IQ: What lessons did you learn along the way that will help you innovate smarter in the future?
LB: We like a more open-ended approach upfront. But once we codify our objectives, we have a very disciplined process around execution. We test and retest all the critical success factors during the course of our development. And frankly, we’re willing to fail. But we don’t fail by addressing a problem that customers don’t care about. That almost never happens to us. If we fail, we fail to deliver a solution that meets all the cost and performance requirements on a problem that really matters. But we’re pretty tenacious, and we’re pretty stubborn. We’ll come back and give it another go until we get it right.

IQ: Is there anything you would do differently?
LB: One of the things that we have improved is including our supply chain earlier in the innovation process. Our supply chain has always been involved, but it’s important to involve it sooner as our businesses have become more globalized, and the enterprise has become larger and more complex. That
“If we fail, we fail to deliver a solution that meets all the cost and performance requirements on a problem that really matters. But we’re pretty tenacious, and we’re pretty stubborn. We’ll come back and give it another go until we get it right.”

early involvement has been critical to delivering on our innovation objectives globally. We were probably a little bit slow to do that, but I think we’ve greatly improved in the last several years.

IQ: What keeps you up at night?
LB: I’d say I sleep pretty well. But safety is the first concern. We always care about the safety of our employees and making sure that they’re in a good place.

A second concern is that we continue to use our privileged positions—where we’re often the leading provider in the industry—and not take our incumbency for granted. We need to continue to renew our innovation portfolio on a regular basis and continue to be the best provider of solutions to our customers. We constantly are searching for what are potentially disruptive technologies. We don’t want to be eclipsed. I’d say we have a healthy dose of paranoia. But we use that in a very constructive way to make sure we are never blindsided.

IQ: What are three things, lessons or best practices that you think every business leader must know and understand to fuel innovative growth?
LB: First, hire the best people you can, set clear objectives, coach them and let them run. Second, I think there is a constructive role for tension in the organization—not conflict—tension that ensures that all the voices are heard, and the best ideas rise to the top. Leaders need to be good listeners to cultivate an organization where you really draw out the best from your teams.

Third, make sure the RD&E team maintains a very strong partnership with the businesses and with our customers. Some of the strongest relationships we have with our customers are jointly owned by our sales teams and the RD&E technology team.

IQ: What are the key ingredients to great innovation at Ecolab?
LB: We like to set the industry standard, enabling our customers to run their businesses better with high-impact, reliable and embedded solutions. This includes both quantitative and qualitative value to the customer that he or she understands well.

Second, we like innovation that builds and strengthens the franchise. It leverages our unique assets—our people, our brand, our reach, the relationships we have, and the trust we have with our customers. And it makes our territory manager, who’s the interface to the customer, the hero.

Third, we work very hard on a great deployment plan that excites all the stakeholders. So we have aggressive marketing launch plans with local ownership and accountability.

Fourth, we like innovation that moves the needle. It drives operating income, drives margin and drives the topline. It also delivers on something we call the “credibility index,” which is the measure of performance versus the forecast for product launch. When we launch something, we will track it for 60 months from date of launch. And we will see how it’s doing versus forecast. Sometimes it’s doing better—we learn from that—and sometimes it’s off-track. We’ll intercept it and see what we can do to get it back on the growth curve.

Finally, there’s no substitute for a great project team. And a great project team really owns the outcome. Almost always, that requires active involvement from the general manager of the divisions. When the commercial teams are excited, we generally are very successful. IQ
Rise of the Machines
In a quest to boost productivity and reduce costs, China leads the world in the installation of industrial robots. 

BY RICHARD WALKER
If you happen to be in Harbin, a town in northeastern China, someone will inevitably point you in the direction of the Robot Restaurant. It’s a must-see attraction—a restaurant where the food is cooked and served and even the dishwashing is done by a team of 20 robots. None has ever called in sick or gone on strike or demanded a pay raise.

A gimmick? Perhaps, although the restaurant has now been joined by at least two other entirely automated restaurants in mainland China. At one, in the town of Kunshan, the restaurant’s owner, Song Jugang, recently told the local newspaper that with each of his more than a dozen robots costing $6,200 (CNY 40,000)—the equivalent of a year’s salary for a Chinese waiter or chef—replacing human staff with machines was a no-brainer.

As a result, a dozen Chinese workers are out of a job.

Wrenching Change Ahead
This is a pattern of workplace innovation some believe is about to be reproduced throughout China’s industrial economy in a quest to improve productivity and reduce costs. Programmable machines are replacing not only service staff but thousands of factory production employees and perhaps higher-ranking supervisory staff. Chinese pay rates are rising, while the cost of personal and industrial robots is falling. As those two trends intersect, the outcome is likely to be one of wrenching change.

Industrial robots make up the biggest segment of the robot market, and China is now by far the fastest-growing market for these machines. According to the International Federation of Robotics (IFR), which issues an annual report on the state of the global industrial robotics market, China took delivery last year of a quarter of all the 227,000 industrial robots purchased worldwide. That’s an increase of more than 50 percent from the year before, bringing the total of industrial robots installed and working in Chinese factories to 200,000.

That figure will grow, if evidence from China’s manufacturing heartland is anything to go by. The cradle of Chinese industrialization is the Pearl River Delta (PRD) in Guangdong Province, the enormous hinterland of Hong Kong, considered to be the world’s largest urban area, both in physical size and population. The PRD with its 120 million residents is where most of China’s advanced manufacturers are found, and it is also where automation is leading the transformation of the manufacturing economy.

“Automation is growing in automotive, in electronics, in food and beverages, metals processes, white goods and aerospace,” says Steve Wyatt, global head of marketing and sales for the largest robotics maker in China, ABB Robotics, a unit of Swiss industrial automation
powerhouse ABB, which has 150,000 employees and 2014 revenue of $40 billion. “In this context, China is just a version of what is happening everywhere else in the world economy.”

A Sign of the Times

In Foshan, one of the nine prefectures of Guangdong, the home appliance maker Midea Group Co. this year installed four robots that assemble the remote controls for products such as air conditioners. Building the remotes was previously the work of 14 production workers, plus two quality control supervisors. According to Midea, more robots will soon be installed to take over the work of the quality controllers. It’s a sign of the times. Chinese robots may not have ambitions of their own, but the companies investing in them plan to use machines to take over ever-more-sophisticated roles.

Midea has installed 800 robots in the last three years. Another 600 will join them this year. By the end of 2015, 20 percent of its workforce will have been replaced by machines.

For Midea, the business transformation is significant, but there are many other companies in China’s manufacturing heartland with even larger plans. Some are planning to reduce their reliance on human employees to a bare minimum of maintenance staff and rely on machines for all their value-added output.

Shenzhen Evenwin Precision Technology Co. in Dongguan, a manufacturer of electronic components for mobile phones and wireless network cards, has a workforce of 1,800. Soon that headcount will be reduced to 200, says the company, as it moves to a new factory where all production activities are automated.

Regional authorities in the PRD fully support and subsidize this shift to a robot economy. Guangdong province has said that over the next year of a quarter of all the 227,000 industrial robots purchased worldwide. That’s an increase of more than 50 percent from the year before.
three years, it will spend $152 billion (CNY 943 billion) to support automation and Chinese makers of industrial robots.

In Guangdong alone, the provincial authorities plan to achieve 80 percent automation in the Delta’s factories by 2020, through state subsidy of robot purchases at nearly 2,000 of the PRD’s largest factories, according to a report in Bloomberg View earlier this year. If Chinese purchases of industrial robots continue at the present rate (and the introduction of state subsidies suggests that purchases may actually grow faster), there will be more than half a million industrial robots installed in Chinese factories by 2020.

Meet the Mandarin Machine

China’s robotics industry has rapidly advanced since the birth of its first humanoid robot.

His name was Xianxingzhe, and he was born Nov. 29, 2000, at China’s National University of Defense Technology. He could never do much apart from walking at about two steps per second, and his greatest achievement was to spark a wave of satirical parodies and comedy computer games in Japan and Taiwan.

But Xianxingzhe was China’s first humanoid robot, and the laughs he generated are beginning to sound a bit hollow. China’s domestic robotics industry has come a long way in 15 years.

According to China’s State Engineering Research Center for Robotics, there are now more than 400 domestic robotics companies in China, with another 30 robotics factories under development. The center estimates a quarter of robots sold in China are domestically produced, although industry experts say many of those are small-scale personal robots such as household cleaning devices.

But domestic producers are also beginning to compete with the established Western and Japanese producers of larger-scale industrial robots such as ABB Robotics, which produces robots in China, Sweden and the United States. These Chinese entrants include companies such as Foshan Xinpeng Robotics Technology, which last year sold 100 robots that perform production-line ceramic glazing, and Rapoo Robotics Applications, a producer of integrated automated production lines for electronics products.

These Chinese-made products are not necessarily complicated. According to the definition used by the International Federation of Robotics, an industrial robot is simply a machine capable of performing tasks in three dimensions (a “three-axis” machine) and capable of being reprogrammed. Building such a machine is well within the capabilities of many engineering companies, and Chinese robots usually rely on the same internal motors and gears as those built elsewhere. What is new is that the Chinese market for robotics is changing as the economy gradually becomes more domestically focused.

When Chinese companies started to compete in Western markets, “they needed to demonstrate to their customers that they had the quality capability,” according to Steve Wyatt, head of marketing for ABB Robotics. “If they could say they used the same robotics as everyone else, that was a marketing tool for them. It showed they were serious. Now we have [another] phase, where Western companies are ‘re-shoring,’ and the Chinese are gearing up to serve their domestic markets. What effect this will have on the robotics market in China remains to be seen.”

That change is likely to mean that domestic producers will specialize in delivering cheaper robots to Chinese manufacturers producing for the domestic market. The State Engineering Research Center for Robotics believes production costs for domestic robotics companies have been falling by about 5 percent a year over the past decade, even while manufacturing wage costs for humans have been rising by around 10 percent a year over the same period.

Soon, it seems, the Chinese factory robot may become so cheap compared to human workers that it is the default choice for certain jobs. “In economies like China, the days of labor arbitrage are over,” Wyatt says. “Labor arbitrage is being replaced by automation.”
What is happening in factories in China today is only one reflection of a worldwide trend. The replacement of humans by machines for repetitive or dangerous tasks has already happened throughout other parts of the industrialized world. This can be measured in “robot density,” or the number of industrial robots per 10,000 human manufacturing workers. Robot density is already over 1,000 in Japan, France, Germany, the United States and Italy, according to a recent report by the Boston Consulting Group (BCG). In China, robot density is about 30, according to the IFR, but rising very fast.

The reason Chinese authorities are happy to encourage the robotization trend that is almost certain to result in blue-collar job losses is simple: Companies can no longer fill those jobs at economically competitive rates. China is no longer a low-wage economy but a medium-wage economy. Average monthly wages in China are now $613, according to the International Labor Organization, compared to $121 in Cambodia and $197 in Vietnam.

Companies in the PRD are finding it increasingly difficult to fill blue-collar jobs as workers seek higher-paying and higher-status employment. Early this year, the labor department in Guangdong reported the province had a labor shortage of between 600,000 and 800,000. That is down from a shortage of about 2 million workers in 2010, but it is still a considerable shortfall for the region estimated to account for around 35 percent of all Chinese trade.

**A Threat of Job Loss**

So, what will happen to humans when robots take their jobs? In some cases, it won’t happen: Industrial robots will do jobs that companies cannot fill with humans. But that is only part of the story. As Midea’s and Shenzhen Evenwin’s experiences show, Chinese manufacturers are also shedding existing human jobs.

Foxconn, the Taiwanese company that is the world’s largest contract manufacturer of electronic products, promised it would install a million robots in its factories in Taiwan and mainland China by last year. That projection proved overly ambitious, but the company says its factories have now achieved automation rates of between 40 and 70 percent, displacing workers from high-value manufacturing jobs. China is beginning a process that will see many real jobs disappear.

Erik Brynjolfsson is a professor of management at the MIT Sloan School of Management and co-author of “The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies,” an influential study of the impact of technology on employment and society. He believes the impact of automation may be bigger in China than in other countries.

“What our Chinese customers tell us is that they just can’t find enough people to do the work, especially in electronics. If they do find them, it is a struggle to keep them.”

—Steve Wyatt, global head of marketing and sales, ABB Robotics
than in more advanced economies. “Automation and robots will affect millions of jobs around the world, especially those involving routine information processing work and repetitive manual work,” Brynjolfsson says. “In many ways, China is even more in the bull’s-eye of this wave of automation than the United States and Europe. Many of China’s workers are still doing the kinds of simple tasks that have largely been automated already in countries with higher wages.”

To estimate how many industrial jobs will be lost to automation, Chinese companies use the rule of thumb that, at current costs, a single industrial robot takes the place of three workers. Assuming that is the case and given the current rate of Chinese industrial robot purchases, a reasonable estimate is that industrial robots will replace up to a million jobs over the next five years.

The total jobs lost may be somewhat higher, however, if automation grows more quickly. According to projections from BCG, global spending on all robots will have risen more than fourfold from 2010 to 2025, hitting $67 billion a year. Due to the falling price of automation products, it seems likely that the actual number of industrial robots purchased each year, including in China, will grow more than fourfold. Industrial robots will be the biggest part of the industry, accounting for about a quarter of all sales.

If the BCG forecasts of faster growth and wider application of automation are anywhere near correct, job losses in China attributable to automation could be more like 2 million by 2025. That may seem like a lot of jobs, but it is a very small proportion of the total working population in China. According to the Chinese National Bureau of Statistics, 769 million Chinese were in employment in 2013. The loss of 2 million jobs would represent no more than 0.26 percent of the country’s total employment.

What happens to those workers who do lose their jobs? Researchers have been puzzling over this for years, as fears of a jobless automated economy wax and wane. But China has been here before: In the 1990s as reforms of the state-dominated economy began to take hold, many of China’s state enterprises laid off workers in large numbers.

Something similar happened from 2003 to 2009 when market forces dictated large-scale job cuts in many Chinese businesses. Professor Hartmut Lehmann of the German Institute for the Study of Labor has col-
lated data on labor transitions in emerging economies, including China. He found that while in the 1990s many Chinese workers displaced by restructuring did not find new jobs, in the subsequent decade there was a better record of adaptation. In this second period, about two-thirds of urban displaced workers found re-employment within a year, suggesting that the Chinese labor market has become more flexible.

A Silver Lining

So while automation is set to change the Chinese economy quite dramatically, it is unlikely to create a serious unemployment problem. On the contrary: According to Steve Wyatt of ABB Robotics, the biggest problem that the Chinese manufacturing economy faces is not a shortage of jobs but a shortage of workers. “What our Chinese customers tell us is that they just can’t find enough people to do the work, especially in electronics,” says Wyatt. “If they do find them, it is a struggle to keep them. They might find that 10 percent or 15 percent of their labor force just don’t turn up after returning home for the New Year holidays. On top of that, there is wage inflation, which is continuing. Clearly, automation can help with all that.”

Brynjolfsson of MIT says the beneficial effects of automation in China can greatly outweigh the destructive impact on jobs and may help create more rewarding occupations—though a positive outcome will ultimately depend on cooperation between Chinese entrepreneurs, workers, educators and policymakers. “Technology will continue to advance up the complexity ladder, pushing people into new jobs, many of which have not yet even been invented, and also replacing many existing professional jobs,” he says. “However, there are other dimensions where humans have an edge, including interpersonal skills. So new opportunities will emerge for work involving caring for others, motivating, selling, leadership, negotiation and mentoring.”

Wyatt agrees. “People in China have very different expectations than before,” he says. “Is your dream for your child that he or she will spend 10 hours a day polishing mobile phone cases in a factory? Clearly not. And that’s why people are not lining up for those jobs anymore. I mean, would you?”

IQ

Global spending on industrial robots will have risen more than fourfold from 2010 to 2025, hitting $67 billion a year.

Average monthly wages in China

$613

Today

Compared to $121 in Cambodia and $197 in Vietnam

At current costs, one industrial robot takes the place of three workers, Chinese companies say.
BEEHIVE OR CLOCKWORKS: COMPLEXITY IN EXECUTION

Like bees in a hive, people within organizations are unpredictable, even as they work toward a shared goal.

By Allan Cohen and Nathan Owen Rosenberg Sr.

About half of strategic initiatives fail, according to data from The Economist Intelligence Unit and the Project Management Institute. Other studies suggest failure rates that are more dire, even catastrophic: Bridges Business Consultancy, for one, has found that nine out of 10 strategic plans fail.

There are plenty of theories as to why—lack of focus, accountability and resources, and poor execution are often blamed. But we think that failure rate often comes down to one key factor: complexity.

In our view, while executives are setting their strategic plans and executing them, they account for neither how their business environments are already evolving nor for the impact of their own organization on the marketplace. The boxing champion and great American philosopher Mike Tyson said, “Everybody has a plan until they get punched in the mouth.” The impact from a punch—from a competitor, from customers or even from employees who execute in less-than-predictable ways—is complexity in action.

Organizations can be thought of as living systems, and in this way of thinking, they cannot be treated like machines. A clock and a beehive both have many interdependent and moving parts, for instance, but a clock produces a predictable result from one second to the next. A clock keeps time whether it is spring or summer; if it is running and in good repair, it is completely predictable.

By contrast, a beehive is a living system. In a beehive, the bees work toward what seems to be a common goal. The queen bee does not direct the hive; the rules (DNA programming and stimulus-response) contained in each individual bee direct the hive. Action at the level of the entire hive has a very short prediction horizon. What will happen in one minute is fairly predictable, but action in the hive next week is unpredictable. A beehive is a prime example of a complex adaptive system, and it is nothing at all like a mechanical clockworks.

Vasant Honavar, professor and Edward Frymoyer Chair of Information Sciences and Technology at Pennsylvania State University, defines complex adaptive systems as “…[S]ystems [that] are characterized by apparently complex behaviors that emerge as a result of often nonlinear spatio-temporal interactions among a large number of component systems at different levels of organization.”

When dealing with complex adaptive systems, the extent to which plans are contingent on very specific predictions is the extent to which we are vulnerable to what, in fact, are inevitable surprises. And certainly
A successful enterprise of any significant size is a complex adaptive system, as are virtually all marketplaces.

Organizations work analogously to a living beehive. All of the individuals in an organization make their own choices about what they will do every day, and those choices will vary from day to day or even moment to moment. The behavior of all the people in an organization with all of their interactions is fundamentally unpredictable.

On top of that, successful organizations adapt to a constantly changing world. What is happening outside the organization, in its markets, in the larger economy and in the legal and regulatory environment, also has a short horizon of predictability, just like the beehive and its environment. Markets and economies are themselves complex adaptive systems constituted by independent decision-makers, all interacting in complex patterns. So a strategy that depends on long-term predictability will inevitably face a punch in the mouth from customers, competitors or a turn in economic cycles. In other words, if we fail to take into account complexity—the continual evolution of internal and external forces—our execution is all but certain to fail.

**A RIGHT WAY AND A WRONG WAY**

The wrong way to respond to uncertainty is to spend more time and money refining predictions and to increase the amount of control exerted during execution. We simply cannot control the unpredictable nature of our own people or the outside forces acting on them.

We can, however, build a strategic frame, one that still charts a course to a desired future but that also allows for our firms to be agile and adaptive along the way. A strategic frame treats the firm and the market as complex adaptive systems. It deals with the future as an emergent phenomenon.

In the book *Engaging Emergence*, author Peggy Holman defines emergence as “…higher-order complexity arising out of chaos in which novel, coherent structures coalesce through interactions among the diverse entities of a system. Emergence occurs when these interactions disrupt, causing the system to differentiate and ultimately coalesce into something novel.”

A strategic frame sets conditions for the organization to co-evolve with its complex environment and for the desired future of the organization to emerge. To create the conditions for the intended future to emerge—to in effect manage the beehive, which is unmanageable—you need these conditions:

1. **An empowering context for the future**
   
   Context is a frame of reference for the way people in an organization perceive, act, think and relate to one another. It is a generative commitment to an inspiring and challenging future, taken with no guarantee that the desired future outcome will happen. Context
shapes perceptions and actions, as well as what we can imagine, think and propose, and execute on. Establishing an inspiring, empowering context is crucial to executing on strategic plans that have been created with complexity in mind.

2. Coordination and alignment
Executing on a strategic framework—a broad directive to move toward a new future—requires employees at all levels and in all functions to share a commitment to an inspiring and challenging future, as well as new ways of working to fulfill that future. When we take complexity into account, it also requires some protocols that outline what workers should do when things fail to go according to plan.

Executives working with managers and employees establish accountabilities, decision rights and responsibilities: Who does each person communicate with, and what does he or she have the authority to do? Having some idea of this ahead of time allows an organization to be self-adjusting and self-correcting—committed to setting a revised course while still moving forward in the desired direction.

Planners may see this as giving people an excuse to not follow the plan. But the idea is to admit that there will be more than one punch, and that the plans will go out the window. New discoveries and changes will occur during execution, and adaptability to those developments must be built into the plan.

3. Integrity and accountability
When problems arise during strategy execution, implementers often hide them to shield themselves from blame. That leads to disaster. It is absolutely critical that those reporting shortfalls and breakdowns are not punished or blamed for what they are bringing forward. This was never going to go according to plan. Insisting that the plan is right and the reporting party is wrong only pushes implementers to pretend everything is fine.

When executives build a strategic frame that allows for flexibility, they must make a real commitment to their people. Their commitment allows people to either simply come forward when breakdowns and problems arise or admit that they have to adapt the plan. This is an issue of both integrity and accountability. It works in both directions—from executive to employee and employee to executive. Employees must be truthful when they see a need for change or are already making changes to the organization’s course of action. Without this kind of integrity and accountability, no strategic plan, even one developed with complexity in mind, can succeed.

With a strategic frame, strategy execution is about engaging the circumstances as they are, adapting when the circumstances shift, taking advantage of opportunities when they arise and accepting the unpredictable nature of the competitive environment. Executives give up tight control in favor of gaining extraordinary efforts from the people of the organization, allowing them to produce results that might have been considered unpredictable or even impossible at the time that the strategic frame was generated.

For the past 25 years, Allan Cohen has been an interdisciplinary management consultant, entrepreneur and executive. Focusing on the intersection of strategy and organization, he supports executive teams taking on seemingly impossible challenges. Mr. Cohen earned his MBA at UCLA’s Anderson School of Management and his B.S. at Rensselaer Polytechnic Institute.

Nathan Owen Rosenberg Sr. is a founding partner of In- signiam. Mr. Rosenberg leads the firm’s consulting and has worked with more than 70,000 people during his almost 30 years in consulting. He earned his management degree at the United States Air Force Academy.
Women on Corporate Boards
A Roadmap for Progress by the Committee for Economic Development

The Problem
The economic impact of women is high, yet their representation in leadership is low.

- Despite making up about 50% of the workforce, women hold under 20% of Fortune 1,000 board seats.
- Women account for 85% of all consumer purchases.
- Women account for over 50% of all stock ownership.
- Women have earned almost as many degrees as men since 1982.
- Of the workforce, women hold under 20% of Fortune 1,000 board seats. At the current rate of progress, it will take 75 years to reach gender parity on Fortune 1,000 boards.

The Rationale
Economic
Companies with greater board diversity are more competitive because they better connect with their constituents, employees, investors, and the communities in which they operate. Research from McKinsey & Company and Credit Suisse have documented greater:
- Return on equity
- Return on invested capital
- Return on sales

Good Governance
Business is an institution essential for American prosperity. Its makeup should thus more closely reflect society.

A high-performing board is one that generates and implements the best ideas. Those ideas arise when a diverse pool of thought is brought to the table.

The CED Solution
Fill every other vacant board seat with a woman. Do this while retaining existing female seats, and women can occupy nearly a third of board seats by 2018.

How We Get There
✓ Expand the Criteria for Board Directors
  - Extend beyond the conventional pool of current and former CEOs. Cast a broader net to include senior female executives with a strong business track record.

✓ Voluntarily Set Goals and Disclose Status
  - Build and support a pipeline to enable rising female managers.
  - Demonstrate responsiveness to stockholders.

✓ Accelerate Progress with Direct Contact
  - Meet with CEOs and nominating committees to explain the benefits of gender-balanced boards.
  - Share best practices

A Supply of Top Board-Ready Women
Nominating committees should expand their criteria to include:
- C-suite executives
- Divisional presidents
- Retired senior law firm attorneys
- Retired accounting firm partners
- Investment bankers and money managers
- Entrepreneurs
- Risk Management, compliance and governance officers
- Management consultants
- Nonprofit, academic and public sector executives

For more recommendations and information, see CED’s “Every Other One” report: www.ced.org/everyotherone
A WHOLE NEW WORLD

Breakthrough projects open up new realms of possibility.
By Christine S. Flouton

Imagine you’re on an uncharted island. There are strange plants you can’t identify, sounds you don’t recognize and phantom animals rustling in the foliage—maybe threats, maybe harmless. This is still Earth, but not as you’ve ever experienced it.

That’s what it’s like working on a breakthrough project. It happens in unknown territory. You don’t know whether you can achieve results because you haven’t even imagined them yet, let alone developed the language to describe them.

In a breakthrough project, the breakthrough happens as a paradigm shift in the attitude of a team. You enter a new realm or dimension of thinking that enables all sorts of possibilities. You break with the past and open to new possibilities for the future. That’s all the word breakthrough means. You break through the familiar to get to the undiscovered possibilities. It’s different from the world you’ve been living in.

When you’re trying to achieve a breakthrough, skeptics will say, “Well, that’s not possible because …” and they’ll point to the past as evidence that it can’t be done. But on a breakthrough project, teams begin to see that there are many ways to approach an issue.

A breakthrough project happens when the team switches from saying, “This isn’t possible, and here’s why” to “It is possible. Now—how?” It’s a leap of faith. You invent how to do it. You build the strategy, the goal, the pathway, the culture and the process. It’s like unlatching your foot from the floor.

Five Characteristics of a Breakthrough

1. Breakthroughs are demonstrated by specific and measurable outcomes. In a breakthrough, you’ll see quantifiable results. You’ll have brought products to market faster, created a new process, increased a company’s sales or reduced product cycle development time.

2. They produce unparalleled results. That will be unexpected, given the company’s history. If a company has brought 100 products to market every year, and next year it’s bringing 105, that may not be a breakthrough. If a medical device company has brought five products to market in two years, and next year they’re bringing 20—that’s a breakthrough. It’s a reinvention of every function and aspect of that business.

3. You don’t know how you’re going to produce the result. A breakthrough looks impossible in the context of the company’s current environment.

4. You’re committed to producing the result. A breakthrough won’t happen unless everyone on the team is wholeheartedly on board, and you have buy-in from all levels of the organization.

5. The result will be sustainable. Results are only breakthroughs when they don’t compromise quality, integrity or safety, or the team’s quality of life.

Time after time, we help make breakthroughs happen. And every time, it’s an exhilarating new world of possibility.