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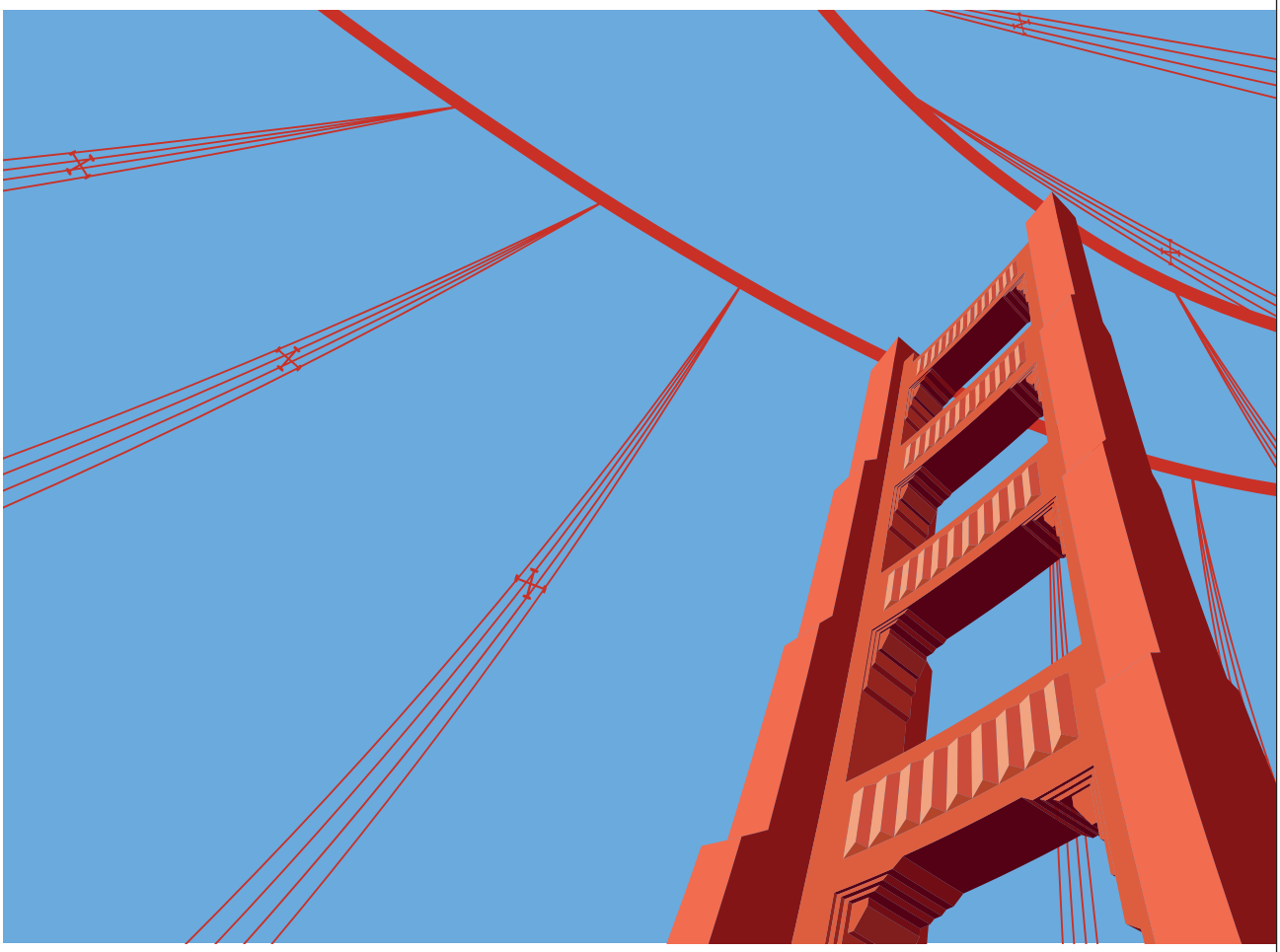

January 2011

McKinsey on Supply Chain: Select Publications

Introduction

As companies around the world try to fully define and settle into the "new normal," supply chain is coming to the forefront as a critical lever. It is more important than ever to have a flexible and nimble supply chain that can work with new and innovative products, emerging markets, new manufacturing bases, new suppliers, etc. It is a critical time for supply chain leaders not only to create such flexibility and keep costs down but also keep an eye on the horizon when the strategy won't only be about cutting costs. Thus the balancing act of decisions for short-term gain without long-term impairment.

As companies head down this path, we at McKinsey would like to share some of what we have learned from the past few years as well as our thinking and global perspectives on what may come and how to approach those challenges.

"Building the supply chain of the future" gives our perspective of what the future may hold for supply chains, how to maintain the supply chain as a competitive advantage and plan ahead.

"The challenges ahead for supply chains" takes that perspective one step further with results of a global survey asking leaders what they have on their minds and some key aspects of the change toolkit.

"Is your top team undermining your supply chain?" specifically addresses how cross-functional leadership will have to change and collaborate to make sure companies can fully reach their potential

"Supply chain yoga" digs a little bit deeper into a case example to bring to life the value of a flexible supply chain.

"Lessons from Haiti: Applying world-class supply chain practices when disaster strikes," shares our learnings from the front lines of a horrible natural disaster when supply chains had to be created from scratch overnight. The team learned what was truly important and how to build the most efficient supply chain possible with minimal resources.

"What successful transformations share" brings it all down to the bottom line—we may know where we are going but we need a detailed roadmap to get there. This article talks about many of the pitfalls and approaches for successful transformation.

We hope you find these articles helpful and thought-provoking, we look forward to discussing these and other topics of interest to you.

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Building the supply chain of the future

Getting there means ditching today's monolithic model in favor of splintered supply chains that dismantle complexity, and using manufacturing networks to hedge uncertainty.

Yogesh Malik, Alex Niemeyer, and Brian Ruwadi

Yogesh Malik and Brian Ruwadi are principals in McKinsey's Cleveland office; Alex Niemeyer is a director in the Miami office.

Many global supply chains are not equipped to cope with the world we are entering. Most were engineered, some brilliantly, to manage stable, high-volume production by capitalizing on labor-arbitrage opportunities available in China and other low-cost countries. But in a future when the relative attractiveness of manufacturing locations changes quickly—along with the ability to produce large volumes economically—such standard approaches can leave companies dangerously exposed.

That future, spurred by a rising tide of global uncertainty and business complexity, is coming sooner than many companies expect. Some of the challenges (turbulent trade and capital flows, for example) represent perennial supply chain worries turbocharged by the recent downturn. Yet other shifts, such as those associated with the developing world's rising wealth and the emergence of credible suppliers from these markets, will have supply chain implications for decades to come. The bottom line for would-be architects of manufacturing and supply chain strategies is a greater risk of making key decisions that become uneconomic as a result of forces beyond your control.

Against this backdrop, a few pioneering supply chain organizations are preparing themselves in two ways. First, they are "splintering" their traditional supply chains into smaller, nimbler ones better prepared to manage higher levels of complexity. Second, they are treating their supply chains as hedges against uncertainty by reconfiguring their manufacturing footprints to weather a range of potential outcomes. A look at how the leaders are preparing today offers insights for other companies hoping to get more from their supply chains in the years to come.

Twin challenges

The stakes couldn't be higher. "In our industry," says Jim Owens, the former chairman and CEO of construction-equipment maker Caterpillar, "the competitor that's best at managing the supply chain is probably going be the most successful competitor over time. It's a condition of success."[1] Yet the legacy supply chains of many global companies are ill-prepared for the new environment's growing uncertainty and complexity.

A more uncertain world

Fully 68 percent of global executives responding to a recent McKinsey survey said that supply chain risk will increase in the coming five years.[2] And no wonder: the financial crisis of 2008 dramatically amplified perennial sources of supply chain uncertainty—notably the trajectory of trade and capital flows, as well as currency values—even as the crisis sparked broader worries about the stability of the financial system and the depth and duration of the resulting recession. While many of these sources of uncertainty persist, it's important to recognize that new, long-term shifts in the global economy will continue to pressure supply chains long after more robust growth returns.

The increasing importance of emerging markets tops the list of these uncertainties. Economic growth there will boost global energy consumption in the coming decade by about one-third. Meanwhile, the voracious appetite of China and other developing countries for such resources as iron ore and agricultural commodities is boosting global prices and making it trickier to configure supply chain assets. Worries about the environment are growing, too, along with uncertainty over the scope and direction of environmental regulation.

These long-term trends have knock-on effects that reinforce still other sources of uncertainty. Growth in developing

[1] Jim Owens made this remark in an interview conducted by Hans-Werner Kaas on September 20, 2010. For more from that interview, read "My last 100 days," on page 104.

[2] For more, see "The challenges ahead for supply chains: McKinsey Global Survey results," mckinseyquarterly.com, November 2010.

countries contributes to volatility in global currency markets and to protectionist sentiment in the developed world, for example. What's more, different growth rates across various emerging markets mean that rising labor costs can quickly change the relative attractiveness of manufacturing locations. This past summer in China, for example, labor disputes—and a spate of worker suicides—contributed to overnight wage increases of 20 percent or more in some Chinese cities. Bangladesh, Cambodia, and Vietnam experienced similar wage-related strikes and walkouts.[3] Finally, as companies in developing markets increasingly become credible suppliers, deciding which low-cost market to source from becomes more difficult.

Rising complexity

Manufacturing and supply chain planners must also deal with rising complexity. For many companies, this need means working harder to meet their customers' increasingly diverse requirements. Mobile-phone makers, for example, introduced 900 more varieties of handsets in 2009 than they did in 2000. Proliferation also affects mature product categories: the number of variants in baked goods, beverages, cereal, and confectionery, for instance, all rose more than 25 percent a year between 2004 and 2006, and the number of SKUs[4] at some large North American grocers exceeded 100,000 in 2009.

Meanwhile, globalization brings complexities as rising incomes in developing countries make them extremely desirable as markets, not just manufacturing hubs. Efficient distribution in emerging markets requires creativity, since retail formats typically range from modern hypermarkets to subscale mom-and-pop stores. In Brazil, for example, Nestlé is experimenting with the use of supermarket barges to sell directly to low-income customers along two tributaries of the Amazon River.[5]

Meeting the challenge

In such a world, the idea that companies can optimize their supply chains once—and for all circumstances and customers—is a fantasy. Recognizing this, a few forward-looking companies are preparing in two ways. First, they are splintering their traditional monolithic supply chains into smaller and more flexible ones. While these new supply chains may rely on the same assets and network resources as the old, they use information very differently—helping companies to embrace complexity while better serving customers.

Another uncertainty

Protectionism could change the economics of a supply chain at the stroke of a pen. Our research suggests, for example, that the total landed cost of making assembled mechanical products such as washing machines in a given low-cost country could plausibly swing up to 20 percent given different tariff scenarios.

Second, leading companies treat their supply chains as dynamic hedges against uncertainty by actively and regularly examining—even reconfiguring—their broader supply networks with an eye toward economic conditions five or ten years ahead. In doing so, these companies are building diverse and more resilient portfolios of supply chain assets that will be better suited to thrive in a more uncertain world.

From one to many

Splintering monolithic supply chains into smaller, nimbler ones can help tame complexity, save money, and serve customers better. Let's look at an example.

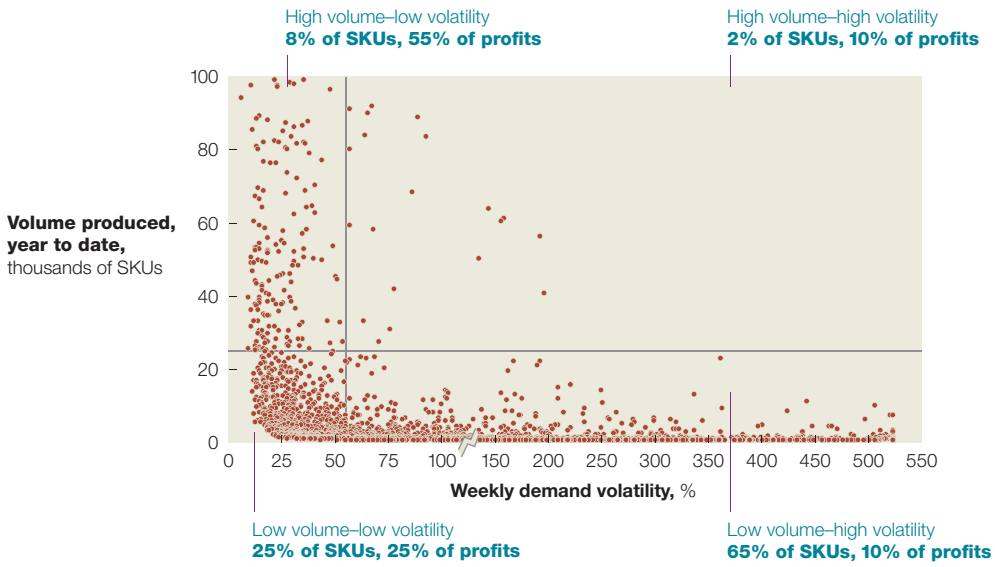
Splintering supply chains: A case study

A US-based consumer durables manufacturer was losing ground to competitors because of problems with its legacy supply chain. Years before, the company—like many global manufacturers—had sent the lion's share of its production to China while maintaining a much smaller presence in North America to stay close to the majority of its customers. One legacy of the move: all of its plants, relying on a unified production-planning process, essentially manufactured the full range of its thousands of products and their many components.

[3] Tim Johnston, "Striking Cambodian workers reflect Asia trend," *Financial Times*, September 13, 2010.
[4] Stock-keeping units.
[5] Tom Muiler and Iuri Dantas, "Nestlé to sail Amazon Rivers to reach emerging-market consumers," *Bloomberg News*, June 17, 2010.

Grouping products by demand volatility and overall volume can shed light on how to optimize the supply chain.

Volume and demand volatility by finished-good SKU,[1] example of US-based consumer-durables company



[1] Stock-keeping unit.

Now, however, increasingly volatile patterns of customer demand, coupled with product proliferation in the form of hundreds of new SKUs each year, were straining the company's supply chain to the point where forecasting- and service-related problems were dissatisfying key customers.

In response, the company examined its portfolio of products and components along two dimensions: the volatility of demand for each SKU it sold and the overall volume of SKUs produced per week. Armed with the resulting matrix, the company began rethinking its supply chain configuration.

Ultimately, the company decided to split its one-size-fits-all supply chain into four distinct splinters. For high-volume products with relatively stable demand (less than 10 percent of SKUs but representing the majority of revenues), the company kept the sourcing and production in China. Meanwhile, the facilities in North America became responsible for producing the rest of the company's SKUs, including high- and low-volume ones with volatile demand (assigned to the United States) and low-volume, low-demand-volatility SKUs (divided between the United States and Mexico). Ramping up production in a higher-cost country such as the United States made economic sense even for the low-volume products because the company could get them to market much faster, minimize lost sales, and keep inventories down for many low-volume SKUs. Moreover, the products tended to require more specialized manufacturing processes (in which the highly skilled US workforce excelled) and thus gave the company a chance to differentiate itself in a crowded market.

However, the company didn't just reallocate production resources. In tandem, it changed its information and planning processes significantly. For the portfolio's most volatile SKUs (the ones now produced in the United States), the company no longer tried to predict customer demand at all, choosing instead to manufacture directly to customer orders. Meanwhile, managers at these US plants created a

radically simplified forecasting process to account for the remaining products—those with low production runs but more stable demand.

For overseas operations, the company continued to have its Chinese plants produce finished goods on the basis of long-run forecasts, as they had done before. The forecasts were now better, though, because planners were no longer trying to account in their models for the "noise" caused by the products with highly volatile demand.

Together, the changes helped the company reduce its sourcing and manufacturing complexity and to lower its cost of goods sold by about 15 percent. Meanwhile, it improved its service levels and shortened lead times to three days, from an average of ten. Quality also improved across the company's full range of products.

How many splinters?

The first question for organizations exploring multiple supply chains is how many are needed. Answering it requires a close look at the way the supply chain assets that a company uses to manufacture and distribute its products matches up against the strategic aspirations it has for those products and their customers.

This requirement seems obvious, but in practice most companies examine only the second half of the equation in a sophisticated way; they can, for example, readily identify which products they see as leaders on cost, service, innovation, or (most likely) some combination of these. Fewer companies seriously examine the operational trade-offs implicit in such choices, let alone make network decisions based on those trade-offs.

Oftentimes, a good place to start is to analyze the volatility of customer demand for a given product line against historical production volumes and to compare the results against the total landed cost for different production locations. This information provides a rough sense of the speed-versus-cost trade-offs and can even suggest locations where supply chain splinters might ultimately be located. A global consumer-packaged-goods maker, for example, quickly saw that two-thirds of the demand associated with a key product line (about 40 percent of the company's product portfolio) could be moved from a higher-cost country to a lower-cost one without hurting customer service.

Of course, companies must carefully check these broad-brush analyses against customer needs. The consumer goods company, for instance, found that packaging innovation was a differentiator for some of its products and thus configured a single production line in the new, lower-cost location to make packaging for several markets quickly. By contrast, in automotive and other assembly-based industries, we find that the customers' responsiveness and the complexity of individual products are important inputs that help determine where supply chains might be splintered.

Second-order benefits

While dividing a supply chain into splinters may seem complicated, in fact this approach allows companies to reduce complexity and manage it better because operational assets can be focused on tasks they're best equipped to handle. At the same time, the added visibility that a splintered approach offers into the guts of a supply chain helps senior managers more effectively employ traditional improvement tools that would have been too overwhelming to tackle before.

After the consumer durables maker divided its supply chain into smaller ones, for example, it was able to use formerly impractical postponement approaches (producing closer in time to demand to keep holding costs low). The company's US plants now combined various SKUs into semifinished components that could quickly be assembled into products to meet customer orders. Indeed, the lower inventory costs this move generated partially offset the higher labor costs of the US factories.

Likewise, the global consumer-packaged-goods maker found that after splintering its supply chain, it was more successful at applying lean-management techniques in its plants. Among the benefits: much faster changeover times in higher-cost production locations, enabling them to handle product-related complexity more effectively.

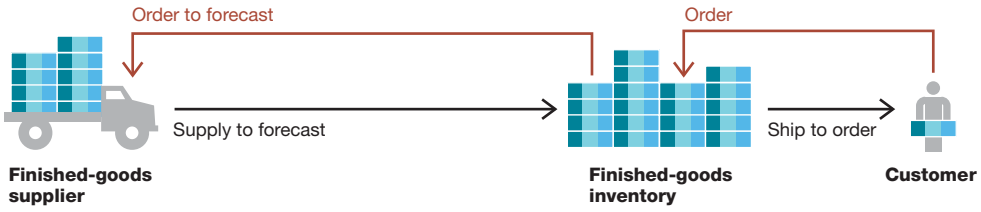
Use your network as a hedge

The advantages that multiple supply chains confer are most valuable if companies view them dynamically, with an eye toward the resiliency of the overall supply chain under

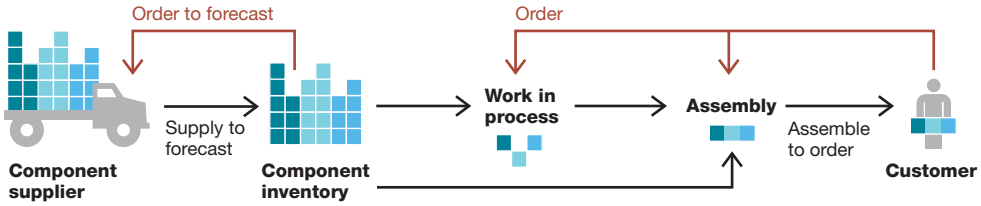
With better visibility into supply chain operations, companies can achieve bigger efficiency gains.

Example: a consumer durables maker lowers its inventory costs by moving production closer to customer demand

Before



After



a variety of circumstances. Will the various strands of a particular global supply network, for example, still make sense if China's currency appreciates by 20 percent, oil costs $90 a barrel, and shipping lanes have 25 percent excess capacity? It's critical for organizations to determine which of the many questions like these are right to ask and to invest energy in understanding the global trends underpinning them. Some companies are already thinking in this way. Nike, for example, long a leader in emerging-market production, manufactured more shoes in Vietnam than in China for the first time in 2010.6

In fact, we believe that the ability of supply chains to withstand a variety of different scenarios could influence the profitability and even the viability of organizations in the not-too-distant future. In light of this, companies should design their portfolios of manufacturing and supplier networks to minimize the total landed-cost risk under differ-ent scenarios. The goal should be identifying a resilient manufacturing and sourcing footprint—even when it's not necessarily the lowest-cost one today. This approach calls for a significant mind-set shift not just from operations leaders but also from CEOs and executives across the C-suite.

At the consumer durables manufacturer, for example, senior executives worried that its reliance on China as a hub could become a liability if conditions changed quickly. Consequently, the company's senior team looked at its cost structure and how that might change over the next five to ten years under a range of global wage- and currency-rate conditions. They also considered how the company could be affected by factors such as swinging commodity prices and logistics costs.

The company determined that while China remained the most attractive manufacturing option in the short term, the risks

associated with wage inflation and currency-rate changes were real enough to make Mexico a preferable alternative under several plausible scenarios. Consequently, the company has begun quietly building its supplier base there in anticipation of ramping up its manufacturing presence so that it can quickly flex production between China and Mexico should conditions so dictate.

Similarly, the global consumer-packaged-goods manufacturer is examining where dormant capacity in alternative low-cost countries might help it hedge against a range of labor cost, tariff, tax, and exchange-rate scenarios. The company is also factoring in unexpected supply disruptions, including fires, earthquakes, and labor-related strife.

A North American industrial manufacturer chose to broaden its footprint in Brazil and Mexico to hedge against swings in foreign-exchange rates. In particular, the company invested in spare capacity to make several innovative, high-end components that it had formerly produced only in Europe and the United States because of the advanced machining and engineering required. The investment is helping the company hedge against currency swings by quickly transferring production of the components across its global network to match economic conditions. Moreover, the arrangement helps it better support its supply partners as they serve important growth markets.

• • •

Making these kinds of moves isn't easy, of course, since any alterations to a company's supply chain have far-ranging implications through-out the organization. For starters, such changes require much more cooperation and information sharing across business units than many companies are accustomed to. Indeed, the organizational challenges are so significant that for many companies, a hands-on effort by the CEO and others across the C-suite is needed for success (see the accompanying article, "Is your top team undermining your supply chain?" on the following page).

Nonetheless, the rewards are worthwhile. By creating more resilient and focused supply chains that can thrive amid heightened uncertainty and complexity, companies will gain significant advantages in the coming years.

The authors wish to acknowledge Sebastien Katch for his valuable contributions to this article.

The challenges ahead for supply chains

Senior executives say their companies manage key trade-offs well, yet see barriers to better performance: rising risk, lack of collaboration, and low CEO involvement.

Trish Gyorey, Matt Jochim, and Sabina Norton

Contributors to the development and analysis of this survey include Trish Gyorey, an associate principal in McKinsey's Chicago office; Matt Jochim, an associate principal in the Atlanta office; and Sabina Norton, a consultant in the Seattle office. The contributors would like to thank Andreas Brinkhoff, a consultant in the Cologne office, for his exceptional contributions to this work.

As economies around the world step back from the financial brink and begin adjusting to a new normal, companies face a different set of supply chain challenges than they did at the height of the downturn—among them are rising pressure from global competition, consumer expectations, and increasingly complex patterns of customer demand. Executives in this McKinsey survey[1] are divided on their companies' preparedness to meet those challenges, and fully two-thirds expect supply chain risk to increase. What's more, the survey highlights troubling signs of struggle associated with key, underlying supply chain processes and capabilities, including the ability of different functions to collaborate, the role of CEOs in supply chain planning, and the extent to which companies gather and use information.

Emerging from the downturn

As companies have managed their supply chains over the past three years, the challenges they faced and the goals they set have reflected a single-minded focus on weathering the financial crisis. The most frequently cited challenge of the past three years is the increasing volatility of customer demand (Exhibit 1). This is no doubt a result of

[1] The online survey was in the field from October 12 to October 22, 2010, and received responses from 639 executives representing the full range of regions, industries, and tenures. At the C-level, the range of functional specialties is also represented.

Exhibit 1

New challenges lie ahead

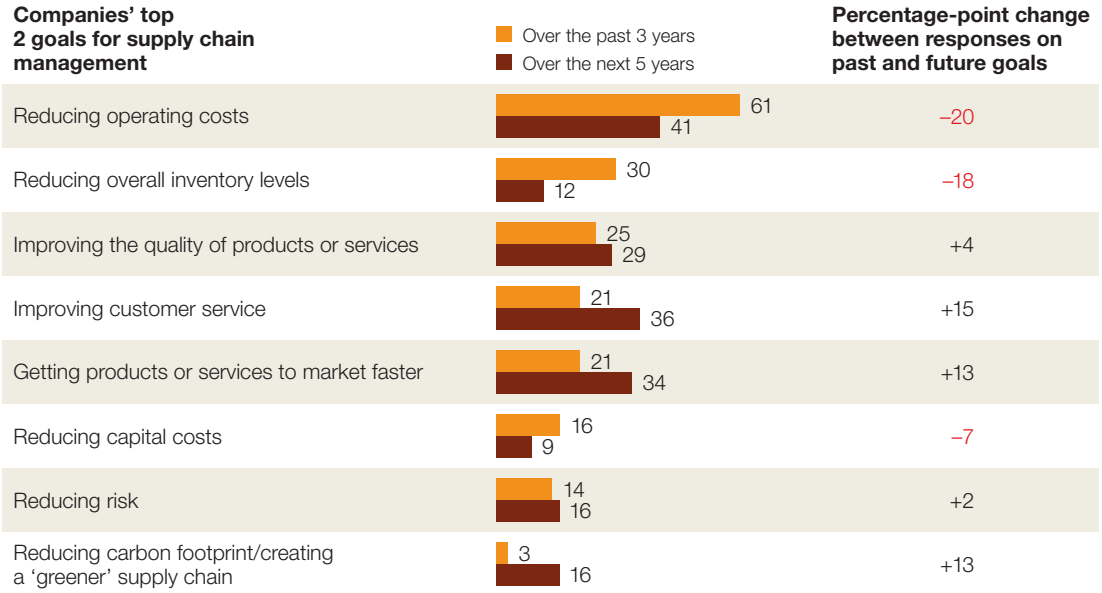
% of respondents,[1] n = 639

[1] Respondents who answered "other" or "don't know" are not shown.

Exhibit 2

Shifting priorities

% of respondents,[1] n = 639



the sharp drop in consumer spending that has reverberated throughout all sectors across the globe. Looking at challenges over the next five years, though, the focus shifts: respondents most frequently cite increasing pressure from global competition. Some issues that receive a lot of public attention, such as climate change and natural-resource use, have remained a low priority since our 2008 survey.[2] Still, the share that identify environmental concerns as a top challenge in the next five years nearly doubled, to 21 percent, over the proportion saying it was a top challenge during the past three years. This suggests that companies anticipate returning to a new normal,[3] wherein they can focus on issues other than cost at least some of the time.

With regard to goals for supply chain management, the results show a similar shift between past and future, perhaps another indicator that companies are focusing on pursuing growth in addition to cost containment (Exhibit 2). Of course, executives are not ignoring supply chain costs altogether; after weathering a downturn, they know their companies can manage and control future expenses, now that this issue has been on their radar consistently. Indeed, reducing operating costs remains the most frequently chosen goal over the next five years—as it was over the past three—followed by customer service. In a 2008 survey, 43 percent of respondents said improving service was one of their companies' top two goals for supply chain management, and though it fell as a priority during the crisis, it is now number two for the next five years.

Executives also indicate that many of their companies have met past goals, with supply chain performance improving in both efficiency and effectiveness as they come out of the downturn. For example, nearly half say their companies'

[2] "Managing global supply chains: McKinsey Global Survey Results," mckinseyquarterly.com, August 2008.

[3] For example, since April 2009, McKinsey Quarterly's research on economic conditions has tracked executives' thoughts on customer demand, and the share of those expecting an increase in the next six months has fluctuated greatly over time, from 12 percent to 60 percent. However, expectations for customer demand have held steady since June, with about half expecting an increase. The data suggest that expectations for demand are beginning to stabilize.

service levels are higher now than they were three years ago, 39 percent say costs as a percentage of sales are lower, and 45 percent have cut inventories.

What hasn't changed much, though, is the amount of supply chain risk that executives foresee (Exhibit 3). More than two-thirds say risk increased in the past three years, and nearly the same share see risk continuing to rise. Respondents in developed Asian countries report more concern than those in any other region: 82 percent say their companies' supply chain risk will increase in the next five years.[4]

Managing challenges and trade-offs

Though the strategic goals executives are setting suggest a hope that more predictable busi-ness conditions will prevail over the next five years, respondents are divided over how well their companies can manage the challenges (Exhibit 4). This finding holds true for large and small companies alike and among executives in different functions.

The good news is that on the three challenges cited most frequently (global competition, rising consumer expectations, and complex patterns of customer demand), the highest shares of executives say their companies are prepared to meet those challenges. The bad news is that the shares saying their companies are well prepared are still below half.

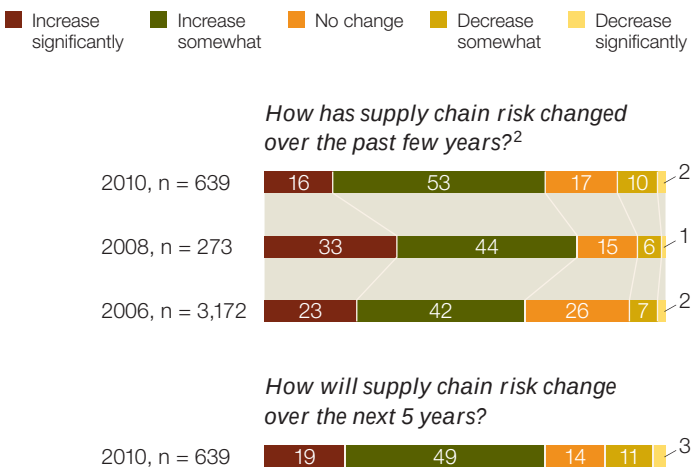
Most executives recognize the importance of managing the functional trade-offs related to these challenges and think that their companies are effective at doing so. Among trade-offs, the highest share of respondents—85 percent—say balancing cost to serve and customer service is important to their companies' supply chain strategy. The lowest share (59 percent) say balancing centralized production against proximity to customers is important. Respondents also report that the managers who make decisions about supply chain trade-offs are well informed.

[4] Respondents in the Asia-Pacific region work at offices in the following countries, regions, and territories: Australia, Hong Kong, Japan, New Zealand, the Philippines, Singapore, South Korea, and Taiwan.

Exhibit 3

Continued risk

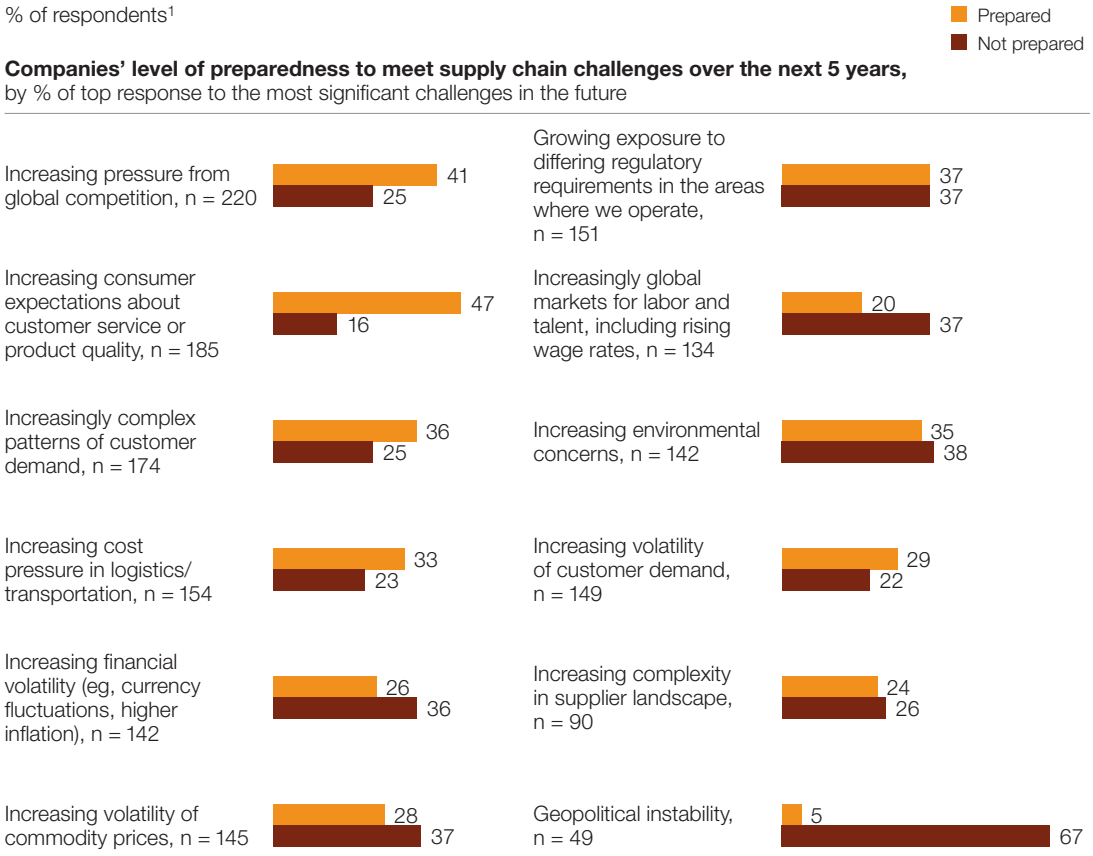
% of respondents[1]



[1] Respondents who answered "don't know" are not shown.
[2] In the 2006 and 2008 surveys, respondents were asked how the amount of risk has changed in the past 5 years; in 2010, over the past 3 years.

Exhibit 4

Facing the future



[1]Respondents who answered "neither prepared nor unprepared" or "don't know" are not shown.

Yet the cross-functional discussions that companies need if they are to make informed decisions are not happening often. For each of the six trade-offs the survey explored, regular cross-functional meetings are cited as the most common process for making decisions, but between 31 and 40 percent of respondents say their operations teams never or rarely meet with sales and marketing to discuss supply chain tensions. Furthermore, respondents across functions say sales/marketing has the most difficulty collaborating with other functions, with 23 percent citing a problem between that group and manufacturing, and 21 percent between it and planning. Additionally, one-third of respondents say the biggest barrier to col-laborating when managing trade-offs is that functional areas don't understand their impact on others.

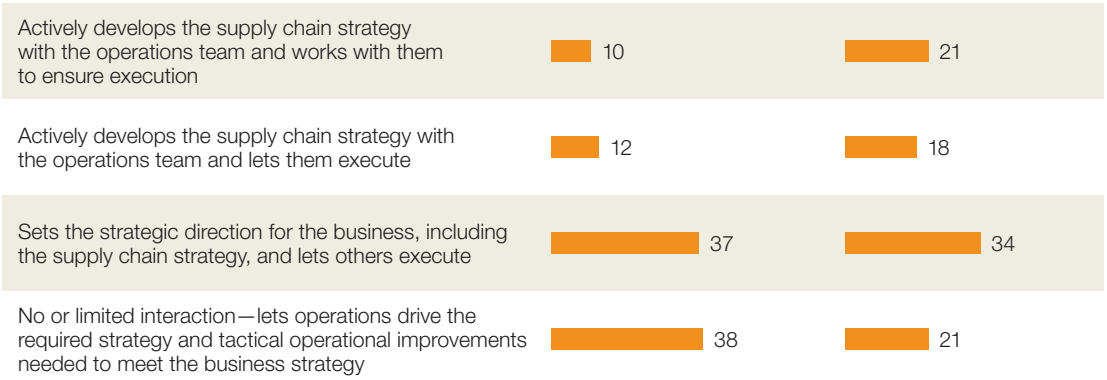
This disconnection is likely exacerbated by the relatively low levels of CEO involvement reported: the vast majority of CEOs do not actively develop supply chain strategy or work hands-on to execute it (Exhibit 5). Respondents do, however, expect more CEO involve-ment over the next five years—a hopeful sign for companies aspiring to mend key cross-functional disconnections.

Exhibit 5

CEO involvement

% of respondents,[1] n = 639

What role, if any, does the CEO of your company play in managing supply chain today? Over the next 5 years, what do you expect the CEO's role to be?



[1]Respondents who answered "don't know" are not shown.

Knowledge is power

The results show a similar disconnection between data and decision making: companies seem to collect and use much less detailed information than our experience suggests is prudent in making astute supply chain decisions (Exhibit 6). For example, customer service is becoming a higher priority, and executives say their companies balance service and cost to serve effectively, yet companies are most likely to take a one-size-fits-all approach when defining and managing service-level targets. Half of the executives say their companies have limited or no quantitative information about incremental costs for raw materials, manufacturing capacity, and personnel, and 41 percent do not track per-customer supply chain costs at any useful level of detail.

Many of the future supply chain challenges will require companies to keep better information on individual costs and customers. Yet only about a quarter of respondents expect their companies will invest in IT systems over the next five years, and only 10 percent of respon-dents say their companies currently use social media to identify customers' service needs.

Looking ahead

- In our experience, senior-executive involvement, including hands-on attention from the CEO, is pivotal in managing the cross-functional trade-offs that underpin many supply chain decisions. Yet the role of CEOs at many companies we surveyed is limited or nonexistent. Companies that can bridge the functional divides that thwart collaboration will have an edge in creating competitive supply chains capable of fulfilling business strategy requirements.

- Addressing the challenges companies have identified—improving service and responding to new expectations and patterns of customer demand—requires more and better information, regardless of the geographical scope or the length of supply chains. As the marketplace becomes increasingly fragmented, keeping better track of customer information and costs, which can inform and support interpersonal, cross-functional discussions, will help companies prepare for the supply chain uncertainties that lie ahead.

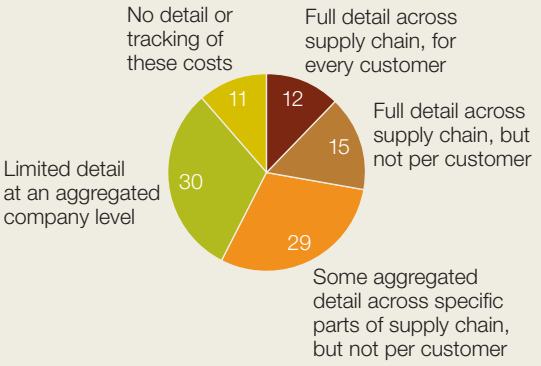
Exhibit 6

The information gap

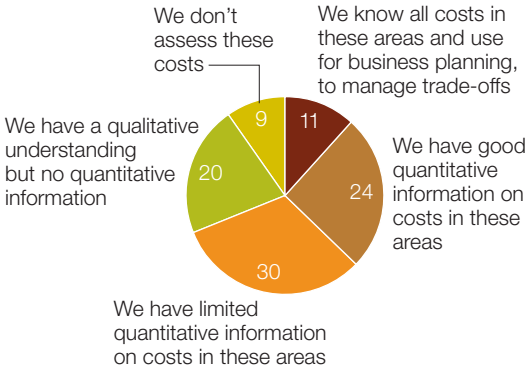
% of respondents,[1] n = 639

Level of detail for each type of information gathering

Tracking the supply chain costs associated with serving individual customers



Assessing incremental costs including new sources of supply/raw materials, manufacturing capacity, and personnel associated with adding new products or variants to company portfolio



[1]Respondents who answered "don't know" or "other" are not shown.

- Despite the importance of volatile commodity prices as a supply chain challenge, just 28 percent of respondents say their companies are prepared to manage that volatility. One way to cope with this uncertainty: view supply chain assets as a hedge. By considering investment in production resources that aren't necessarily lowest-cost today (but soon could be), companies can position themselves for greater flexibility in the future.

- Executives expect environmental concerns to be a more significant issue for supply chains in the years ahead, yet relatively few consider it a priority today. Given that up to 60 percent of a company's carbon footprint can reside upstream in its supply chain,[5] companies would be wise to pursue economically attractive opportunities that address environmental impact in the near term and prepare to respond quickly to any sudden shifts in environ-mental expectations and requirements

[5]Chris Brickman and Drew Ungerman, "Climate change and supply chain management," mckinseyquarterly.com, July 2008.

Is your top team undermining your supply chain?

Building bridges between senior managers is a critical step in constructing tomorrow's global supply chain.

Christoph Glatzel, Jochen Großpietsch, and Ildefonso Silva

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Creating a global supply chain that is equipped to thrive in a world of rising complexity and uncertainty involves more than reconfiguring operational assets and making long-term strategic bets about production-and supply-related risks. Significant organizational challenges are involved, too, since the decisions and activities of a company's supply chain group influence (and are influenced by) the sales team, marketers, and product developers, among others.

The result is a host of thorny trade-offs. Should a company, say, move a product to a low-cost manufacturing facility to save money if that means lengthening delivery times? What if trimming the company's product portfolio to reduce manufacturing complexity and costs could stifle marketing efforts to reach new customers? When do the benefits of improved customer service warrant the additional operating expenses required to deliver it?

Supply chain, sales, and marketing managers invariably view such trade-offs through the lens of their own responsibilities—and this perspective often leads to disagreements or misunderstandings. Indeed, a recent McKinsey survey of global executives cited the inability of functional groups to understand their impact on one another as the most common barrier to collaboration for resolving the major supply chain trade-offs.

Ineffective collaboration has long been a supply chain sore spot, but its costs are set to rise drastically. If it's hard to agree on the right response to a disruption in a supply chain today, it will be more difficult still when companies deal with multiple interconnected supply chains, each possibly requiring a different solution. And consider the short- and long-term supply chain trade-offs executives must balance in a world where one business unit might be asked to shift its manufacturing lines to a more expensive near-shore location today to build capacity as a hedge against potential future spikes in labor or transport costs.

Finding mechanisms to solve these and other difficult supply chain questions will require hands-on attention from the CEO and other company leaders. The process begins when executives work together to identify places where better information sharing and teamwork will generate the most impact. Let's look, then, at three of the biggest collaboration tensions we routinely observe and see how companies are bridging these organizational divides to create more flexible and capable supply chains.

Tension 1: **Supply chain versus sales**

Supply chain organizations wage a constant battle against volatile demand, and for good reason. An unexpected spike in orders, for example, has expensive consequences in labor and distribution costs. Similarly, inaccurate sales forecasts can lead to stock-outs, lost sales, or excess inventory that must be sold at a discount. Sales and supply chain groups therefore devote significant energy to creating sophisticated planning and forecasting processes in an attempt to predict demand volatility—and blame each other when things go awry.

When these groups work together more closely, they can move beyond the traditional planning-cycle blame game, discover the root causes of volatility, and ultimately begin to influence it. This approach brings tangible business benefits—often quickly. Crucially, over the longer term, the experience that groups gain from flexing their collaborative muscles heightens the ability to react quickly, and in a concerted way, to unforeseen events. That skill will be even more necessary given the increasing uncertainty in the supply chain environment. Here are two examples that illustrate the potential.

The first involves an automotive supplier whose sales teams often scrambled to meet quarterly targets that would guarantee them better performance bonuses. Customers recognized this behavior and, in some cases, were gaming the system by withholding orders until the end of the quarter to secure deeper discounts—creating supply chain headaches and hurting the company's bottom line. The vice president of sales and the supply chain head collaborated to fix this problem and make demand more predictable. One key step: substantially trimming end-of-quarter

discounts and instead using a price and discount structure based on sales volumes, product loyalty, and participation in promotional efforts. The company also created new incentives to encourage sales teams to spread sales more evenly across the quarter.

Our second example involves a global manufacturer of consumer packaged goods. This company discovered that promotional activity in just five customer accounts drove most of its demand volatility. Although it carefully planned the promotions to maximize revenues, its marketers hadn't thought about the impact on the supply chain. By staggering the promotions over several months and aligning them carefully with baseline demand patterns, the company reduced the overall volatility of demand by 25 percent.

When the company rolled out the new promotions plan, its managers identified another problem: many customers lacked the resources to manage their order levels efficiently and therefore sporadically placed unnecessarily large orders. The company responded by bringing together its sales and supply chain personnel and working with these customers to create better ordering processes for them. In this way, it smoothed the flow of orders—a move that benefitted both parties.

Problems like these are endemic in many supply chains. By tackling these problems, companies often enjoy immediate benefits while building collaborative capabilities that will be crucial over the long term in the more complex and uncertain supply chain environment of the future.

Tension 2: **Supply chain versus service**

A second important tension that has long existed, but will become even more acute as companies seek to create more resilient global supply chains, involves the setting of customer service levels. How speedy should deliveries be? Should some customers receive orders faster than others? What levels of product availability should be guaranteed? In our experience, companies traditionally leave these decisions to the sales function, which often makes service-related decisions without understanding the operational implications or costs involved.

When these groups work together to analyze the full impact of a service decision, they avoid this pitfall—a lesson learned by a chemical company whose sales personnel were pushing its logistics team to reduce delivery times to two days, from three. The company achieved this goal, but only by using more warehouse space and labor and by loading its delivery trucks less efficiently than it otherwise would have. All this increased distribution costs by 5 percent.

While this trade-off might have been acceptable under the right circumstances, a closer examination by the heads of the supply chain and sales groups revealed that most customers didn't mind if deliveries arrived in two, three, or even five days. The real breakpoint when service was most highly valued was 24 hours. By extending the delivery window for normal orders back to three days, the company returned its distribution costs to their original levels. Meanwhile, it launched a special 24-hour express service for critical deliveries, for which it charged a premium. The move ultimately raised the company's costs slightly, but this was more than offset by the new business it generated.

As supply chains splinter and companies diversify production to hedge against uncertainty, the importance of making smart trade-offs about service levels and speed can only grow. Companies seeking to cope will have to strengthen partnerships between the leaders of the supply chain, sales, and service.

Tension 3: **Supply chain versus product proliferation**

Remedying some of the root causes of growing supply chain complexity will be another important benefit of enhanced collaboration in the C-suite. Take the complexity associated with product portfolios. Sales and marketing organizations work hard to create new products, explore new market opportunities, and respond to emerging customer needs. As they do, products and variants tend to proliferate, creating portfolios with long tails of niche offerings. A consumer goods maker we know, for example, recently found that nearly one-third of the 6,400 SKUs[1] in its product portfolio together represented just 1 percent of total revenues.

This complexity comes at a cost, since low-volume products cost more to make per unit than high-volume ones (because of economies of scale). The consumer goods maker, for example, found that production costs for low-volume products were 129 percent higher than

those for its best sellers. Low-volume products also require disproportionate effort in sales and administrative processes. Finally, they drive up supply chain costs: a company must hold higher inventory levels to meet agreed service levels across a broad range of low-volume products than it does over a narrow range of high-volume ones. When all these extra costs are taken into account, the impact can be eye opening. One company we studied found that 25 percent of its SKUs actually lost money.

In the face of these numbers, companies might be tempted to take an ax to the long tails of their product portfolios. Yet blind cutting based on sales figures alone often does more harm than good. Some low-volume products have benefits that outweigh their costs, and only through close collaboration across functional boundaries can companies make the right decisions. Such collaboration won't eliminate the need for more carefully segmented supply chain strategies, but it should help ensure that such efforts are well targeted.

Putting it all together

The top of the organization is the right place for most companies to begin negotiating the functional trade-offs we've outlined. But many senior-management teams give precious little attention to supply chain issues. Across the trade-offs our survey explored, for example, no more than 26 percent of the respondents said that their companies reach alignment among functions as part of the supply chain decision-making process. Moreover, 38 percent say that the CEO has no or limited involvement in driving supply chain strategy.

This is a mistake. CEOs set the agenda for their leadership teams, and it is up to CEOs to encourage and facilitate meaningful discussion of important cross-functional supply chain issues. CEOs can go further too. In some of the most impressive supply chains we've seen, the chief executive promotes collaboration and performance improvement with missionary zeal. The CEO of an apparel company, for example, would always make a point, during store visits, of asking shop floor staff how its recent commercial decisions had affected store operations, including logistics. He would bring up this feedback in meetings with purchasing and supply chain teams and continually encouraged his managers to follow up themselves and engage with shop floor staff on similar topics.

CEOs looking to get started can benefit from asking themselves five questions, which in our experience can help leaders begin to ferret out situations where faulty collaboration may be preventing supply chains from reaching their full potential.

1. Is production capacity being developed in the right locations—both for today and the future?

2. Is the sales group doing all it can to make demand smooth and predictable?

3. Are customers offered the service levels they really need?

4. Is my marketing department calling for too many niche products that may be too costly to supply?

5. Are our purchasing and sourcing decisions being made with their supply chain implications in mind?

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Poor collaboration and silo thinking have long thwarted the efforts of companies to get more from their supply chains. In a future characterized by rising complexity and uncertainty, solving this perennial problem will change from a valuable performance enhancer to a competitive necessity.

Supply Chain Yoga

Sticking to the current pharma supply chain model will be strategically and financially costly. A more flexible approach can produce competitive advantages in five areas.

Marco Ziegler, Ulf Schrader, and Thomas Ebel

For many years, the pharmaceutical supply chain was relatively simple: companies relied on a few patented drugs with more or less stable demand. Today, generic and "me-too" drugs are winning share from patented products. Line extensions and niche drugs are raising supply chain complexity, and global growth is shifting to emerging markets, where distribution channels are more opaque and demand can be highly volatile. Meanwhile, tender business is on the rise; companies must fill large orders for vaccines and other products on short notice.

The traditional pharma supply chain model is strategically and financially unsuited to the new business environment. Companies that can move quickly are more likely to capture new market opportunities, such as sudden demand for a vaccine, even without superior drug profiles. We estimate that a pharma company with only average performance could boost EBIT by 25% by adopting flexible supply chain processes—and could do so without major investments. It could lower the cost of goods sold by optimizing product/plant allocation, extending shelf life to cut expiry costs, stabilizing production schedules, and entering new contracts that make it easier to switch suppliers. A more flexible supply chain can also help companies cut inventory by around 40%, launch new products sooner, and suffer fewer stock-outs.

Many industries, from computers to apparel, have proven the value of supply chain flexibility. Companies in these sectors have become more efficient and more responsive to changing customer needs and market conditions. But drug manufacturers still manage supply chains in terms of months and years, rather than days and hours; a typical drug can take 400 days to go from raw materials to finished product. And 50-70% of an average company's sourced volume is still under fixed annual volume commitments.

Pharmaceutical manufacturers can change this—while meeting regulatory and quality commitments—by adopting approaches used in other industries. We have identified five areas—assets, suppliers, people, process, and strategy—where increased flexibility produces competitive advantage.

Asset flexibility

Companies with high asset flexibility boost asset utilization while meeting service and cost goals, and achieve a higher ROIC than their peers. They use a variety of approaches:

- **Flexible scheduling within plants:** Dedicate lines to high-volume products and keep 20-40% capacity for unpredicted demand. Flexible packaging equipment and pack-to-order capabilities help them fill small orders on short notice.
- **Balancing capacity:** Shift volumes between in-house and external facilities. A monthly S&OP process helps determine opportunities by line, technology or product. Mothballing plants can help manage variability.
- **Structural regulatory flexibility:** Adopt flexible regulatory strategies to shift volumes more easily to sources in low-cost regions, freeing capacity to launch new products.

Supplier flexibility

Few drug companies obtain the levels of supplier flexibility seen in auto manufacturing and other industries. Pharmacos continue to make minimum-volume commitments, sign fixed annual delivery contracts, and accept long lead times for call-off orders. Building more flexibility into supplier contracts using the following steps can yield savings throughout the system:

- **Strategic sourcing plans:** Enlist backup or dual sources for critical products and define supply contingency measures with preferred suppliers.
- **Contracting for flexibility:** Add contractual terms for supply flexibility. Products with an unstable production process might require additional safety stock, for example, and products with erratic demand profiles a very short order lead time.
- **Integration and lean processes:** Jointly forecast and set targets with suppliers to improve efficiency. In some cases, suppliers can be fully integrated into plants' planning and budgeting processes.
- **Supplier development and renewal:** Use dedicated resources and processes for new supplier screening, auditing, and development to create a constant stream of options in the supplier base and enable continuous improvement.

People flexibility

People flexibility is a key to meeting changing demand on the shop floor and developing and managing a wide range of suppliers, factories, logistics hubs and sales organizations:

- **Multi-skilling and labor flexibility:** Train multi-skilled operators and introduce flexible staffing across departments to keep machines running during breaks, speed changeovers, and perform maintenance during idle times. Introduce annual time accounts and flexible shift systems, and use more temporary staff to manage ups and downs without raising costs. In some cases, especially for cyclical products like vaccines, cross-company resource-sharing may be an option.

- **Global innovation task force:** Enlist a group of strong, internationally deployable project managers to establish best practices, ensure a fast rollout across local units, and provide ongoing performance monitoring, coaching, and support.

Process flexibility

Driven by the need to minimize inventory risk and avoid losing orders to competitors, companies in consumer electronics and other fast-moving fields continuously refine their supply chains. Drug manufacturers may not face the same pressures, but they can benefit from the same kinds of end-to-end process improvements:

- **Platforming and postponement:** To minimize the impact of complexity, harmonize product shapes and specifications and postpone customization to reduce the need for large batch sizes.

- **Lean fulfillment and replenishment:** By introducing a two-week scheduling window in plants, one pharmaco reduced lead times from 75 to 25 days, speeding the quality release of finished goods and cutting dispatching and goods issue times.

- **Fast time to market:** Implement a fast-track process for design, printing, packaging and distribution. One pharma company used this approach to cut time-to-market after FDA/EMEA approval from 100 days to 20; its generics launch the day they win approval.

- **Fast supply issue resolution:** Make S&OP more responsive to the market by clearly communicating changes across the chain (e.g., forecast uptake, breakdowns), escalating significant issues to top management quickly, and instituting a 24-hour resolution process.

- **Event-based forecasting:** Automate transactional forecasting using statistical methods, and focus forecasting resources on major events.

Strategic flexibility

Companies can customize their flexible supply chain approaches based on product type. High-volume drugs with steady demand, for example, require a stable, cost-optimized replenishment process. Those with variable or seasonal demand, such as vaccines, need faster reaction times. To accommodate these differences, companies may need three or four supply chain variations:

- **Deep understanding of customer needs:** Answer critical questions about customer demand. For example, how do patient consumption, channel structure, number of customers, ordering process, and commercial incentives drive demand? What is the optimum delivery frequency and order lead time? Does a wholesaler with an average stock of two weeks require an order line fill rate of 99.8%?

- **Demand-driven segmentation:** Categorize products by customer demand and apply appropriate supply chain strategies for each. One company split its products in two categories. Those with stable sales and little weekly variation were replenished with a simple pull system, reducing inventory by 40% and limiting manual planning and forecasting. Those with erratic, hard-to-forecast sales, such as medium-volume SKUs in markets with few wholesalers, were replenished within two weeks through a pack-to-order process and rapid printing technology.

In recent years, most pharmaceutical companies have focused on reducing manufacturing costs and inventory levels. These improvements, while valuable, will be less differentiating in the years ahead. Supply chain can be a true differentiator, improving top- and bottom-line performance. Industry leaders are now looking beyond manufacturing costs to adopt a supply mindset and measure total cost of supply rather than COGS alone. Building flexibility into multiple facets of the supply chain will be critical to maintaining competitive advantage.

Lessons from Haiti: Applying World-Class Supply Chain Practices When Disaster Strikes

Even the most efficient organizations are often ill-prepared to respond after major natural disaster. Priorities shift suddenly from "business as usual" to disaster response, which requires new management styles, processes and networks. Working closely with NGOs in Haiti and elsewhere, McKinsey & Co. has learned seven lessons in supply chain best practice that can make a difference when lives are on the line.

David Chinn

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On January 12, 2010, a magnitude 7.0 earthquake struck near Haiti's capital, Port au Prince, unleashing one of the worst humanitarian crises in recent history. About 230,000 people died as a direct consequence of the quake, another 300,000 were injured, and a million lost their homes.

The doctors and nurses who survived the quake provided the first medical support, setting up basic field hospitals in tents and undamaged buildings. Relief teams had to build an entire supply-chain infrastructure in days—with untrained volunteers. The challenges were enormous: clearing runways and roads for relief supplies; finding places to store food, water and medicine; and setting up clinics where they were needed most. Even before the quake, Haiti was the poorest country in

the Americas. State institutions were incapable of responding effectively to the catastrophe.

McKinsey & Company has worked pro bono in Haiti since the earthquake, helping to manage the immediate response and long-term reconstruction. The firm has drawn heavily on its experience following the terrorist attacks in New York on September 11, 2001, the tsunami that struck Indonesia and Sri Lanka in 2005, Hurricane Katrina in Louisiana, and the 2008 earthquake in China's Sichuan province.

In this article, we focus on NGOs that were working in healthcare in Haiti before the quake and how that made the transition from "business as usual" to disaster response. The changes they made offer broader lessons for organizations—commercial enterprises included—whose must adapt their supply chains to meet major, unexpected changes in supply and demand or quickly set up supply chain operations in emerging economies. The principles that should guide an organization's response to a crisis show striking similarities to those that make any challenging supply chain successful.

A challenge of unprecedented size and pace

In the immediate aftermath of the disaster, McKinsey worked with leading health NGOs with substantial and mature operations in Haiti. Although some had experience with hurricanes, these were not disaster relief specialists: they were unprepared for the extreme logistical challenges the earthquake presented. Inside a month, they had to mobilize and transport supplies equivalent to a year of pre-earthquake volumes, deploy and extract hundreds of medical volunteers, and manage over 100 privately operated flights.

These NGOs suddenly found themselves caring for hundreds of additional people in clinics and running parts of a major hospital in Port au Prince, with 30 medical staff operating around the clock. On top of the extra volume, quake injuries presented special challenges. Crush wounds, for example, require speedy amputation to stem bleeding and prevent infection. The staff had performed little or no orthopedic surgery before the quake; they were now doing such operations continually.

What can the rest of us learn from that experience? How does a public health or development NGO transform, quickly and temporarily, into a disaster response agency? How can other enterprises be most effective if they have to be? And can does it all happen against a backdrop of severely constrained and overburdened people, infrastructure and services?

Several practices that normally drive supply chain performance remain important, with some modification and shifts in emphasis. Starting with our research on supply chain best practices, we have tested which were relevant to the Haiti experience and which need to change. Seven lessons stand out:

Lesson 1: Set up a "war room" with a clear command and control structure

In a disaster, decision-making lead times are compressed, the need for real-time communication is acute, and problem-solving must happen on the fly. The key operational players must therefore be in the same room with the right tools.

It is hard to overemphasize the value of a war room: face-to-face conversations across a table or around a whiteboard are almost always quicker and discussion by e-mail or phone. A central location also provides the broader organization a place to go with questions and proposals.

Ambiguity and confusion are inevitable as people are pulled out of their normal roles to manage the response. Quickly defining an organizational structure is essential, including clear roles, responsibilities, lines of communication and—perhaps most important—decision-making authority.

Few NGOs have rigid hierarchies or command and control structures; most rely on a mix of volunteers, permanent staff and partners. The war rooms where we worked were run by a few senior managers but staffed mostly by executive assistants, volunteers and people who could postpone their daily duties and lend a hand. The largest of these started with 30 people and gradually shrank to a handful of staff as they clarified processes and the chaos subsided.

One NGO created a war room just one week into the disaster after the leadership recognized that management by e-mail and phone calls was simply not working. The group's COO oversaw the crisis response in a daily "all staff" meeting that included each department. Three team leaders coordinated the war room, meeting twice daily with the COO to make decisions and synchronize activities.

The most difficult decisions they faced had to do with requests for medical staff, planes and equipment. Relationships and goodwill were precious resources they had to manage carefully. Many decisions required long discussions, but the benefits included strong alignment among the three executing teams: People, Planes and "Stuff"—supplies and medications.

These teams found space in a building under repair, set up trestle tables, got out their laptops and got to work. They used a simple whiteboard scheduling system that team members revised at the end of each day as they reflected on the lessons they had learned and tried to make their work more efficient. Team members, many of them talented student volunteers from nearby universities and medical schools, insisted on looking for better ways to do things and refused to accept inefficiency. Most team leaders welcomed and encouraged the spirit of improvement.

One example: The teams adopted a standard management approach so the person overseeing each flight did not have to stay at the airstrip until the plane landed, and a single person could handle all night flights. As the work was streamlined and simplified, and especially once scheduled flights resumed in mid-March, the work volume dropped and teams shrank naturally as volunteers returned to work or studies. But there was still a need to decide on a long-term structure. Ultimately the entire operation was run by three to five people.

The NGO staff coped with long hours, juggled constant changes to supply and demand, and learned to manage a small airline, demonstrating a culture of resilience. People's friendliness, concern for others' feelings and collaborative spirit survived. Where command and control might have seemed natural, the staff simply continued to work together as they always had and the volunteers naturally adopted that style.

Many "management experts" might assume that a soft, collaborative style wouldn't work in a disaster situation, where decision cycles are short and confusion reigns. Indeed, people were frustrated when they had to discuss many decisions multiple times. But the organization's leaders are committed to their missions, have worked together for many years, and depend on an extended web of relationships with other people and organizations. They could not conceive of abandoning that model, even in extreme circumstances.

Lesson 2: Focus relentlessly on reducing complexity

In the private sector, leading companies actively manage product and service complexity. They design multiple supply chains within a network to capitalize on complexity that delivers competitive advantage and ruthlessly eliminate complexity where it does not. And they segment customer groups to identify specific product and service demands.

A disaster magnifies complexity. The immediate loss of communications is paralyzing, for example. Any functioning channels of communications are inundated with people just trying to find out what is happening. In Haiti, after the mobile network came back on line within a few days in most areas, many people received over a thousand Blackberry e-mails a day.

Since everyone on the ground is working to save lives, head office requests are low priorities. In practice, all efforts to improve communications, processes and systems are diversions from treating patients and hunting for the resources that may save another life. In Haiti, leaders struggled to address complexity because they were mired in it. It took outsiders to step back, see the complexity and then hack it away.

Reducing the complexity of relief flights, for example, meant establishing a rhythm and schedule as quickly as possible. In Haiti, one NGO strived to use the same aircraft for the same landing slot on the same day each week. So instead of rescheduling each flight several times a day (and sometimes losing track of the plane), they scheduled each flight only once. This avoided the need to inform passengers of changes.

Many NGOs worked with institutional partners to establish standard deployments and rotations for medical and surgical teams as quickly as possible. Each team received a standard detailed brief and a time and location to board their plane.

One NGO team supporting the relief effort from the neighboring Dominican Republic quickly learned how to minimize complexity. They initiated a regular "push" system to distribute the bulk commodities, such as fuel and water, where demand was relatively predictable.

At first, NGO workers were frustrated to find clinic storage tanks full when they arrived, but they quickly realized that clinic staff were too busy to report commodity levels. The drivers noted the levels, and back in the war room, the supply chain manager calculated how much to send. This turned out to be quicker, cheaper and required less management; it is less work to run a spreadsheet than to call a dozen sites several times a week. Using this approach, it took only about three truck trips per week to supply 12 sites in with food, water and fuel.

Lesson 3: Invest heavily in "last-mile" logistics

The best organizations decide where to place new supply-chain assets using a comprehensive network strategy. After a disaster, the need is most acute in the "last mile." It does no good to deliver vital supplies to the affected country if they never make it to the people who need them the most.

In Haiti, everyone's storage, inventory management and transport capacity was severely stretched by a tenfold increase in supply volume (including a large proportion of unfamiliar material), by new operations, collapsed infrastructure, and constrained communications, and because some staff or their family members had gone missing. Before the disaster, one NGO had shipped most of a year's supply of drugs to its central clinic and distributed them to pharmacies as needed. Now, with truckloads of supplies arriving daily, the staff had to rent, fit out and staff a warehouse on short notice. None of the staff had experience handling fast-moving warehouse operations, pallet stacking, or similar storage and distribution activities.

Essential supplies found their way into Haiti and then became difficult to trace. Many facilities relied on visiting surgical/medical teams that managed their own inventory. They alternative would have been investing time and effort sifting through chaotic storage depots to find what was needed. In one case, life-saving surgical equipment took two hours to find because it had been hidden behind crates of much less critical dehydration salts.

In the general hospital in Port au Prince, the pharmacy team, with the support of volunteers, had to reorganize the entire pharmacy twice weekly to handle the volume of supplies moving through. Since tracking consumption rates was difficult, supplies of essential drugs dwindled with little or no warning. In one case, plane seats had to be filled with boxes of warfarin, an anti-coagulant drug essential to post-operative care of amputees.

Investing in last-mile logistics may include acquiring more storage space and locations; bringing on additional human resources to physically handle larger volumes and manage unfamiliar supplies; establishing a simple paper or Excel-based inventory management system if the existing system is no longer up to the task; and arranging transport from storage hubs to sites.

Network strategy is a testing exercise in an environment with no consumption data, few choices of infrastructure, and no ability to predict demand. Questions abound: Where will tent camps form? Will epidemic diseases appear? Will people return to their families in the countryside or flood back into the city? We built simple demand models for the NGOs we worked with, estimated volumes for warehousing, and tested options for hub-and-spoke or milk-run distribution systems. Staff revisit the reasonably robust network design monthly and make changes where necessary.

Lesson 4: Establish structured processes to synchronize supply and demand

In responding to disasters, organizations tend to optimize supply chain functions locally at the cost of overall efficiency. An NGO head office may not want to turn away a single material donation, for example; a stock manager may look to fill every square meter of available warehouse space; and a medic may want to ask for more that she actually needs, "just in case." Supply requests from Haiti were often duplicated and occasionally contradictory; they came from multiple sources, were fielded by many recipients, and invariably were characterized as urgent.

Recognizing these challenges, one organization moved quickly to establish communications discipline and a system to synchronize supply and demand. Its liaison staffer for Haiti took responsibility for all communications between headquarters and the Haiti war room—though this quickly led to communications bottlenecks and was adapted to a collection of one-to-one HQ-to-field communications channels. Other measures included routing requests and responses through specific e-mail addresses, dedicating an employee to triaging requests, and establishing a daily "needs and response" rhythm. For a short period, the NGO had someone from its headquarters in Haiti act as the in-country liaison and share local information with the war room staff.

Each clinic site manager sent one daily e-mail about the site's needs, which encouraged them to pause for a moment to "take stock," literally and figuratively, and prioritize their demands. The NGO war room in turn sent the site managers a daily "flight tracker" e-mail summarizing the movements of aircraft, cargo and people.

This form of structured communication, which should include the status of each request, reduces "noise" within the organization and helps to stabilizes the operation. Although the nature of demand may remain unpredictable, the organization can at least communicate and respond to it in a predictable way.

Lesson 5: Carefully manage offers and donations

In the aftermath of disaster, many NGOs are constrained not by money or material but time and management capacity—often the opposite of the norm. After the earthquake, many NGOs in Haiti received the equivalent of an entire annual pre-earthquake budget in the course of a few weeks, in addition to a deluge of material donations. Some arrived at U.S. headquarters offices, clogging hallways. Donation spreadsheets covered 120 square feet of wall space.

An avalanche of donations and offers can be a liability. If managed effectively, they can support a potent response and help ensure the sustainability of a longer-term recovery effort. If not, they can drain time and effort, clogging the supply chain with low-priority material. In the Port au Prince general hospital, we moved hundreds of boxes surgical scrubs, rehydration salts, condoms and other low-priority supplies while essential supplies were hidden or unavailable.

When responding to disasters, organizations must be work hard to manage the flood of support, using many channels to communicate vital needs to established and prospective donors. They need to quickly set up a donation/offer database; triage offers based on value, flexibility, duration and donor importance; establish a standard communications protocol for different "classes" of donors; and develop a system to estimate the true price of "free" offers in terms of opportunity cost, administration needed, management time, etc.

The procurement and supply management team needs clarity of demand (even if team members must create the demand picture themselves) and some sense of inventory levels. In Haiti, everyone spent nights in pharmacies counting stocks. Those receiving donations and offers also need accurate facts and the confidence to tell donors: "We don't really need that, thanks, but would you be able to get some…?"

Lesson 6: Establish a system to gather and disseminate intelligence

An agency responding to a disaster will be challenged by limited situational awareness—a humanitarian "fog of war." It must quickly establish a system to collect, collate, analyze and disseminate important information to drive planning and decision-making. This must include both internal intelligence (on the state of the organization's operations), and external intelligence (on other developments in the organization's sphere of operations).

One person should have overall responsibility for this task, and he or she must find accurate, credible information sources. One NGO gathered external intelligence by periodically scanning online updates from the U.S. Agency for International Development, the U.S. military's Southern Command, UN Office for the Coordination of Human Affairs, the UN Logistics Cluster and other sources, including people on the scene.

The challenge is that while the standard disaster response system of clusters for different disciplines (health, shelter,

water, food, camp management, and logistics) provides a good forum for sharing information, gathering information this way requires too many meetings.

In Haiti, an intern developed an effective intelligence setup with no experience but lots of enthusiasm and good listening skills. She collated and synthesized the most relevant information such as sea, air and land logistics, humanitarian operations, and population movements and distributed updates periodically to guide decision-making.

Gathering useful internal intelligence may involve revising (and often stripping down) an existing monitoring and evaluation system. For instance, an electronic medical records system focused on HIV and tuberculosis may have to be supplanted by e-mail or SMS updates on in-patient caseload, surgical capabilities, and referral needs. In Haiti, superior intelligence-gathering often included identifying one good source in each supported site, such as a scrub nurse with an eye for supply levels, or a pharmacist with data-management skills, and then calling or e-mailing them each day. Over time, as patient loads became more manageable, site managers gained more capacity and took over the reporting.

Lesson 7: Keep an eye on emerging talent

Crises often force people to take new responsibilities. Some thrive in their new roles—and may be less than thrilled to return to their old jobs. This represents a valuable opportunity for acquiring and developing talent for the supply chain function, and for the organization as a whole.

As the acute phase of the Haiti response wound down, one organization had to think hard about how to make the best use of the talent that had emerged. Many staff and volunteers who coordinated relief flights, sourced vital supplies or managed inventory had no background in these roles. A volunteer who coordinated early airline operations was hired to continue the job as the acute phase finished up. Executive assistants demonstrated real management talents. Others were happy to return to a more structured environment where they had all the skills to do their jobs.

In the field, many medical staff who had never worked outside a North American academic medical center discovered a talent for organization and improvisation. One young resident took on three jobs: site coordinator for a hospital, logistics manager for over 30 medical professionals, and ward doctor for post-op care.

To retain new institutional knowledge, and the talent itself, someone in the organization must think about career paths and tie people development in the supply chain function with that of the wider organization.

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Unfortunately, other disasters will hit poor countries with weak institutions and feeble infrastructure. Even in wealthy countries, man-made and natural disasters will occasionally put local organizations in the position of first response and sometimes force them to lead longer-term responses.

For supply chains facing such extreme challenges, simple principles and best practices can make the difference between success and failure. And lessons learned in extreme situations are valuable for any supply chain, where inefficiencies can be obscured by high inventories, long lead time and little flexibility.

We hope this article provides some basic principles to guide the supply-chain decisions of those who must respond to extraordinary situations. And perhaps it can encourage supply chain professionals everywhere to improvise, streamline and take advantage of their hidden talent.

Further reading

"Management Practices That Drive Supply Chain Success," McKinsey Quarterly, February 2009

"Segment and Succeed," Supply Chain Europe, November/December 2009 (also available at https://operations-extranet.mckinsey.com/html/home/home.asp)

"After the Tsunami: Lessons from Reconstruction," McKinsey Quarterly, February 2006, Number 1

What successful transformations share

When organizational transformations succeed, managers typically pay attention to "people issues," especially fostering collaboration among leaders and employees and building capabilities.

Scott Keller, Mary Meaney, and Caroline Pung

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Over years of research and client work, we've identified a few tactics that help drive successful transformational change—any large-scale change, such as going from good to great performance, cutting costs, or turning around a crisis. These tactics include setting clear, aspirational targets; creating a clear structure; maintaining energy and involvement throughout the organization; and exercising strong leadership.[1] In this latest survey of executives from around the world,[2] we've dug into just how companies apply some of these tactics. We found that a few approaches in each area are most tightly correlated with successful transformations of both short-term performance and long-term corporate effectiveness, or "health." In addition, the approaches most used by successful companies tend to complement and reinforce one another.

The survey asked executives about types of transformations (what types their companies had undertaken and why), goals for the transformation (what the goals were, how they were defined, and how successfully they were met), and implementation (how companies structured and carried out the transformation).

By looking at the approaches used by companies that executives describe as most successful in transforming themselves, we found evidence suggesting the importance of engaging employees collaboratively throughout the company and throughout the transformation journey. Another major theme was the importance of building capabilities—particularly leadership capabilities—to maintain long-term organizational health. In addition, a focus on strengths and achievements, not just problems, throughout the entire transformation process is strongly tied to success.

Building a clear structure collaboratively

This survey reconfirms the importance of some basic best practices to successful transformations. Strong majorities of extremely successful companies define the targets, role, and structure of the transformation clearly, respondents say.

Furthermore, this survey allows us to identify some approaches for creating a change plan that are closely tied to success: assessing a company's present situation rigorously, identifying the current state of corporate capabilities as well as problems, and explicitly identifying the underlying mind-sets that must change for the transformation to succeed (Exhibit 1). In addition, nearly three-quarters of companies that were extremely successful in meeting their transformational goals broke down the process of the transformation into specific, clearly defined initiatives. Other structural approaches, such as a robust risk-management process or a project-management office, are less often correlated with successful transformations.

Notably, employee engagement as early as the planning process emerges as a key success factor. Indeed, in successful transformations, executives say that identifying underlying mind-sets that would need to change was the

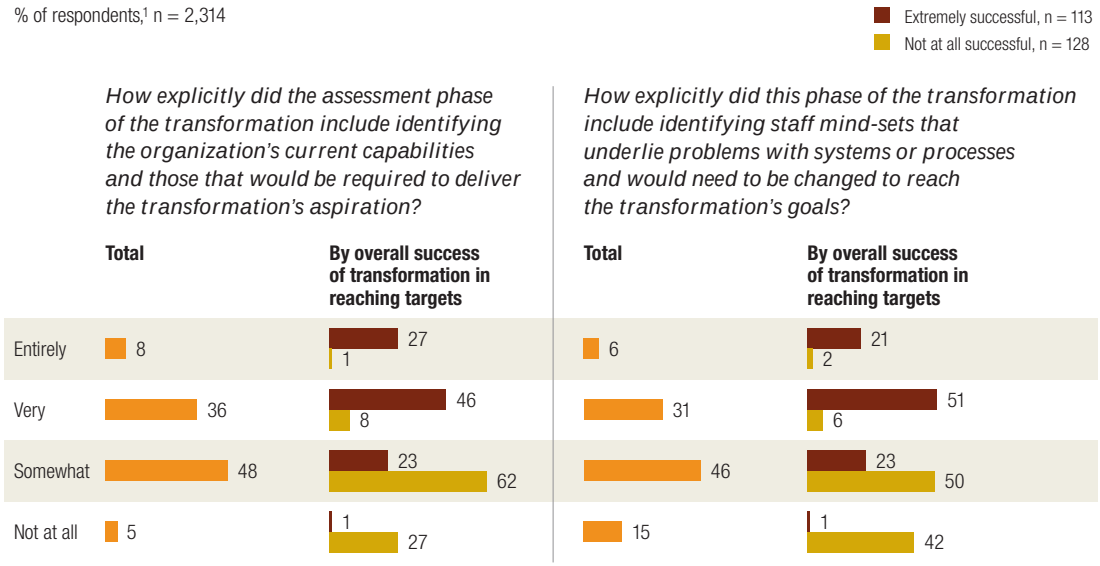
[1] See, for example, Josep Isern and Caroline Pung, "Driving radical change," mckinseyquarterly.com, November 2007; Josep Isern, Mary C. Meaney, and Sarah Wilson, "Corporate transformation under pressure," mckinseyquarterly.com, April 2009; and "Creating organizational transformations: McKinsey Global Survey Results," mckinseyquarterly.com, August 2008.

[2] The online survey was in the field from January 19, 2010, to January 29, 2010. We received responses from 2,512 executives representing the full range of regions, industries, functional specialties, and seniority.

Exhibit 1

Transformation assessment

% of respondents,[1] n = 2,314

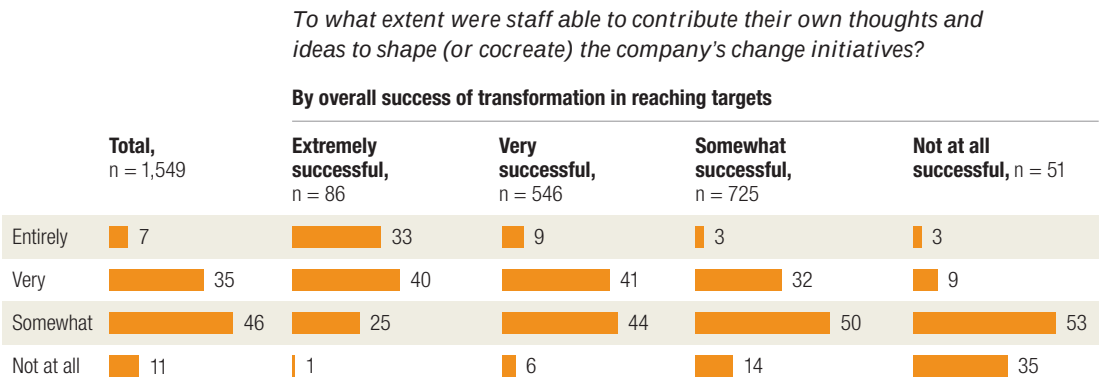


[1]Respondents who answered "don't know" are not shown.

Exhibit 2

Staff's contributions

% of respondents whose companies broke down the transformation into specific, smaller change initiatives[1]



[1]Respondents who answered "don't know" are not shown.

Exhibit 3

Keys to success

Actions taken by the companies of at least 70% of respondents who say their company was "very/extremely successful" in reaching the transformation's targets

Approaches that enable employee engagement

- Leaders ensured that frontline staff felt ownership for the change.
- Roles and responsibilities were clear, so people felt accountable for delivering results.
- The organization was engaged and energized through ongoing communications and involvement.
- Our best talent was deployed to carry out the most critical parts of the transformation.
- Leaders role-modeled the desired changes.
- The transformation was organized into a clear structure with readily understandable sections.
- Clear, unambiguous metrics and milestones were in place to ensure that progress and impact were rigorously tracked.
- The right information was available at the right time for managers to monitor the transformation's progress and troubleshoot where required.

approach used most often. Moreover, three-quarters of the respondents whose companies broke down their change process into clearly defined smaller initiatives and whose transformations were "extremely successful" say that staff members were entirely or very able to participate in shaping those change initiatives (Exhibit 2). Collaboration and cocreation also are important: nearly a quarter of the extremely successful transformations were planned by groups of 50 or more, compared with just 6 percent of unsuccessful transformations.[3]

Engaging employees

Strong leadership and maintaining energy for change among employees are two principles of success that reinforce each other when executed well. For example, when leaders ensure that frontline staff members feel a sense of ownership, the results show a 70 percent success rate for transformations. When frontline employees take the initiative to drive change, transformations have a 71 percent success rate. When both principles are used, the success rate rises to 79 percent.

Among all of the structural and executional approaches to change we asked about, five of the eight used in strong majorities of successful transformations relate to ensuring that employees are engaged, often by leadership initiatives (Exhibit 3). Furthermore, among the respondents whose companies used small-scale initiatives to roll out their change programs, 60 percent of the extremely successful ones focused some initiatives entirely or mostly on changing mind-sets, compared with only 12 percent of the unsuccessful transformations.

Leadership and capabilities

Eighty-three percent of all respondents say their companies' transformations focused wholly or in part on changing the organizations' long-term health by building capabilities, changing mind-sets or culture, or developing a capacity for continuous improvement. Transforming leadership capacity seems to be particularly significant in transformations that succeeded in improving long-term health: 63 percent of executives who say their companies' transformations had a significant impact on leadership capacity indicate that the transformation improved both short-term performance and long-term health. By contrast, a third of those who say their companies' transformations had no significant effect on leadership capacity nonetheless succeeded in transforming short-term performance—a rate of success almost as high as the rate for any transformation.

Further, 69 percent of respondents who have an opinion say their companies' transformations led to a greater capacity for continuous improvement.[4] One of the two main reasons, chosen by 61 percent, is that staff gained new skills through the transformation. The other reason, chosen by an equal share, is that the companies' cultures became more supportive of innovation and improvement.

[3] Of the transformations rated "not at all successful," 70 percent were planned by ten or fewer people.

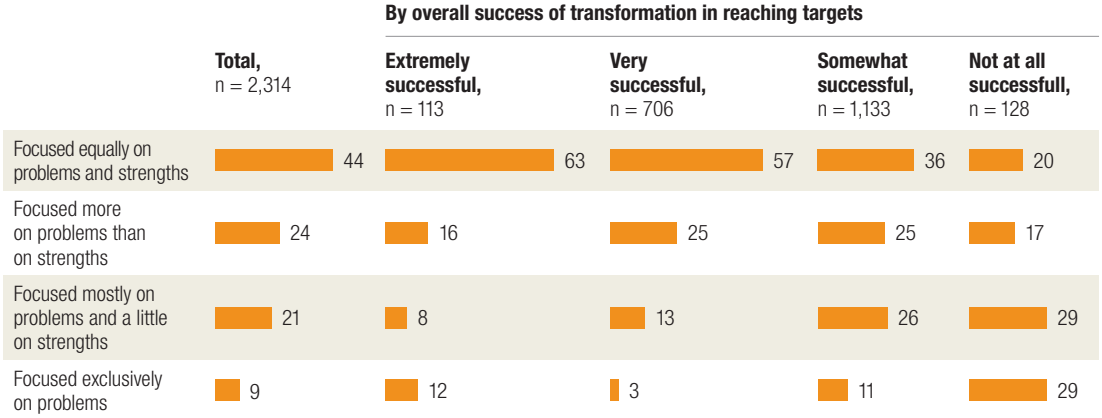
[4] Fifty-four percent say they don't know yet.

Exhibit 4

Assessing strengths, opportunities, and problems

% of respondents[1]

In assessing the situation before beginning a transformation, some companies focus on identifying their strengths and opportunities, while others focus on understanding problems that need to be addressed. To what extent did your company's assessment balance these two approaches?



[1]Respondents who answered "don't know" are not shown.

Accentuate the positive

We found in earlier work that when communications about an organization's transformation celebrate success as well as discuss reasons for change, the organization tends to be more successful in driving the transformation than when communications focus solely on reasons for change. In this survey, we've found that focusing on the positives early in the process—during the assessment of a company's current position—also correlates strongly with success (Exhibit 4).

Looking ahead

- Companies that undertake transformational change have to succeed at the basics, such as creating clear, stretching targets and defining a clear structure. In addition, this survey suggests that the more companies also focus on their employees' mind-sets and behavior, the more successful they will be.
- It can be hard to find time to pay attention to mind-sets and behavior, given all the other work of a transformation. Companies that focus on the few approaches this survey shows to be frequently tied to success can use their limited resources wisely.
- Given the importance of collaboration across the whole organization, leaders at companies starting a transformation should put a priority on finding efficient and scalable ways to engage employees.

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