

# THE SMARTER SUPPLY CHAIN OF THE FUTURE

GLOBAL CHIEF SUPPLY CHAIN OFFICER STUDY



LIFE SCIENCES INDUSTRY EDITION



**SURVEY SAMPLE**

Our survey sample includes supply chain executives from pharmaceutical companies, biotechnology firms, generic pharmaceutical makers, medical device and diagnostics companies, consumer healthcare product providers and medical distributors. Seventeen percent of respondents are based in Asia Pacific; 35 percent in the Americas; and 48 percent in Europe.

**INTRODUCTION**

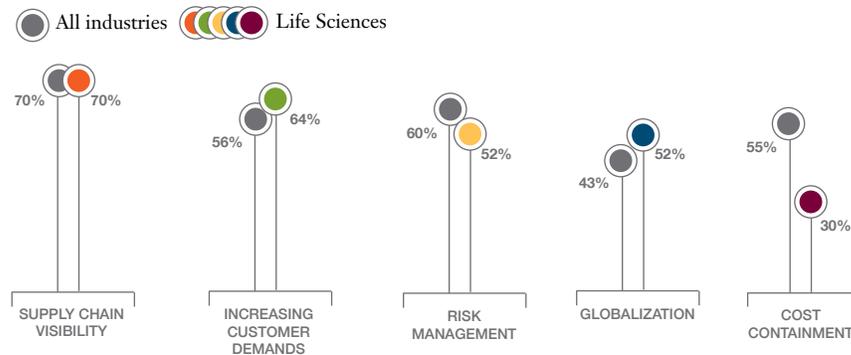
In the course of our research for IBM's inaugural Global Chief Supply Chain Officer Study, we conducted face-to-face interviews with nearly 400 senior supply chain executives from 25 countries and 29 different industries.<sup>1</sup> Here, we focus on the responses of the 23 supply chain executives from the Life Sciences industry (see sidebar, Survey sample).

Across industries and geographies, supply chain executives told us they struggle with five primary challenges: visibility, risk, cost containment, customer demands and globalization. Though the priorities vary slightly, the same five issues weigh on the minds of Life Sciences executives (see Figure 1).

While studying these high-ranking agenda items, we couldn't help but notice a common thread: the indisputable impact of the industry's migration away from the blockbuster model. Increasingly, Life Sciences companies are selling therapeutic offerings that target smaller patient segments

**FIGURE 1 THE TOP FIVE CHALLENGES FOR THE LIFE SCIENCES SUPPLY CHAIN**

Life Sciences executives' priorities vary somewhat from the full cross-industry sample.



– and comprise more than just drugs. These solutions include diagnostic tests, monitoring mechanisms, sophisticated delivery devices and a wide range of support services – all potentially supplied by different partners. The implications for the supply chain are dramatic.

To address this massive industry shift, Life Sciences companies will need a different kind of supply chain – one that is much smarter. By this, we mean a supply chain that is far more:



**Instrumented** – Using sensors and “smart” devices to gain greater visibility across the supply chain, mitigate risk, reduce cost and manage rising complexity.



**Interconnected** – Integrating the entire supply chain to share information, make decisions collaboratively and manage in realtime; connecting with suppliers and especially with customers; communicating not just between people, but among the billions of products, medical devices and smart objects across the supply chain network.



**Intelligent** – Relying more on advanced analytics, simulation and modeling tools to evaluate increasingly complex and dynamic risks and constraints and manage the supply chain more scientifically.

Although the decline of the blockbuster model involves a difficult transition for the entire industry, the smarter supply chain presents Life Sciences executives with a tremendous opportunity: a way to tailor their operations to meet the needs of different markets, customer segments, even individual patients.



# THE CASE FOR A SMARTER LIFE SCIENCES SUPPLY CHAIN



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“One of our biggest challenges is developing the ability to work together with supply chain partners, sharing access to our organizations. All have their own agendas.”

*Vice President of Supply Chain,  
pharmaceutical company, Europe*

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## VISIBILITY IS TOP CHALLENGE

Like their peers across industries, Life Sciences executives rank visibility as their foremost challenge. One contributing factor is the constant flux created by waves of merger and acquisition activity. Companies are struggling with a cumbersome patchwork of systems and tools – and, as a result, poor visibility.

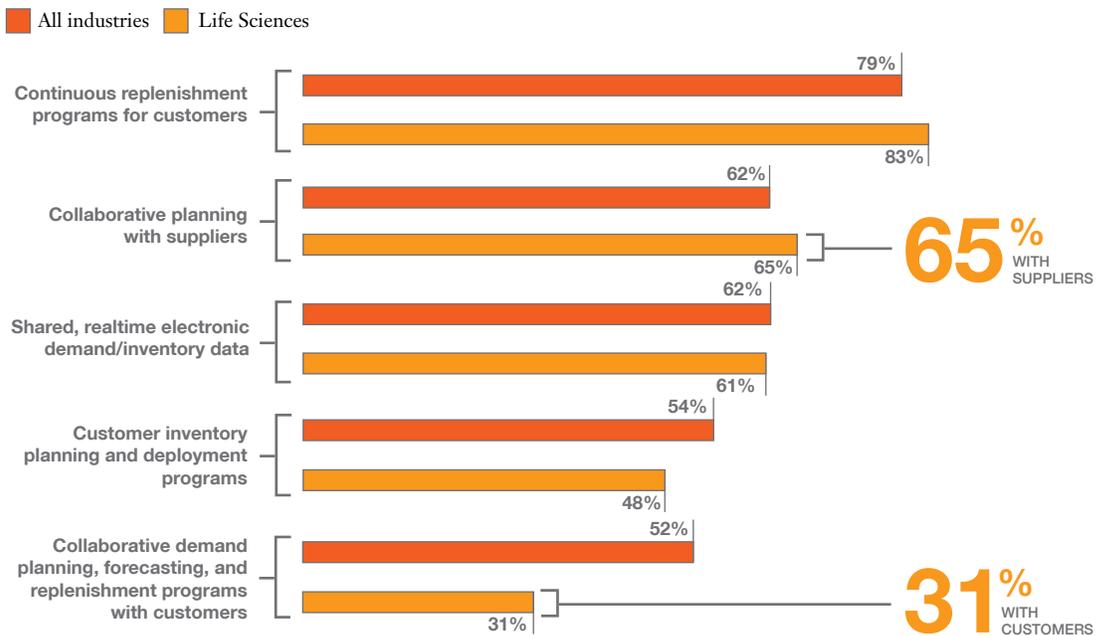
At the same time, supply chain networks are becoming much more global and complex. Increasing numbers of sourcing and outsourcing partners scattered around the world make it more and more difficult to maintain visibility.

A number of internal organizational barriers also limit collaboration and visibility. For example, 87 percent of Life Sciences executives say individuals in their companies are *too busy* to assist others in the management of the supply chain. That is a surprisingly high hurdle – even larger than the 75 percent total across industries. This is only made worse by inhibitive organizational silos and misaligned performance measures.

Arguably, the greatest visibility challenge for Life Sciences companies is the view downstream. While Life Sciences is ahead of other industries in terms of planning with suppliers, customer collaboration is less pervasive (see Figure 2).

**FIGURE 2 PLANNING WITH SUPPLIERS IS TWICE AS PREVALENT AS PLANNING WITH CUSTOMERS**

Although they generally rate customer collaboration as more effective than supplier collaboration, fewer Life Sciences supply chains are using those practices, with the exception of continuous replenishment.



For example, Life Sciences lags far behind other industries in implementing collaborative demand planning, forecasting and replenishment (CPFR) programs with customers, with only one-third of executives noting any initiatives in this area. Even customer collaboration methods acknowledged as highly effective are not broadly adopted. For example, 46 percent of Life Sciences executives consider vendor-managed inventory for their customers to be an extremely effective practice; but only 4 percent have implemented it extensively.



## VISIBILITY IN THE SMARTER SUPPLY CHAIN

The smarter Life Sciences supply chain keeps customers – wholesalers, governments, hospitals and pharmacies – stocked with the products they need to meet uncertain patient demand. It works to replace the inventory management guessing game with facts and realtime adjustments.

It does so by connecting with suppliers, manufacturing and distribution partners, and especially customers. With clear line of sight to the first paying customer, the smarter Life Sciences supply chain can better determine where to locate inventory and in what amount. Upstream visibility allows it to make realtime adjustments to production and distribution, optimizing inventory around the world and avoiding costly stockpiles in markets with little demand.

Interconnectivity also allows the smarter supply chain to synchronize production schedules across sites to minimize idle periods and shorten end-to-end cycle time. This is particularly important with increases in the number of complex treatment solutions that involve multistep, multisite, multipartner manufacturing and assembly processes.

In the smarter Life Sciences supply chain, sensors and other smart devices – not just people – communicate and share information. This allows companies to work around what Life Sciences executives cited as their top obstacles to collaboration: employees that are too busy to assist, organizational silos and misaligned performance measures. In some instances, smarter systems can even make decisions and take action automatically – increasing responsiveness and reducing the need for human involvement.

Automating baseline activities also has the added benefit of freeing time for employees to manage critical exceptions and focus on higher-value activities. For example, smart pallets could sense which products they are carrying, whether they contain the proper amount of that product and, if not, automatically send a replenishment signal.

## Case study

### ENDO PHARMACEUTICALS: TIGHT CONNECTIONS BRING GREATER VISIBILITY

Although Life Sciences companies are starting to outsource parts of their supply chains, executives still debate the potential risks – loss of control, loss of intellectual property (IP), loss of visibility into what’s happening with their operations. Perhaps because it is a relative newcomer to the industry, pain management maker Endo Pharmaceuticals has not succumbed to these fears. Sometimes referred to as a “virtual company,” Endo relies on third-parties for all of its manufacturing and distribution.<sup>2</sup>

This approach allows Endo’s supply chain to expand or contract in line with demand volumes, helping the company avoid obstacles and risks that could have derailed its rapid growth. Together, Endo and its supply chain provider (UPS Supply Chain Solutions) designed the two distribution centers UPS now runs for the company. They also collaborated on the 15 detailed performance metrics used to manage the operation.<sup>3</sup>

The two companies are interconnected not only in terms of facilities and process, but also through information systems. UPS employees work directly with Endo’s ERP system, which, in turn, is fed by the vendor’s warehouse management system.<sup>4</sup>

Trusting an external provider to manage its supply chain does not mean Endo has relinquished control or lost visibility. To the contrary, the extreme interconnectivity between the companies provides Endo with a hands-on view of its entire supply chain.<sup>5</sup>



## LIFE SCIENCES LACKS CUSTOMER INTIMACY

It's easy to understand why Life Sciences supply chain executives rank customer demands as their second highest challenge. The industry serves a diverse customer base – including wholesalers, governments, hospitals and retail pharmacies, each with very different requirements and expectations.

On another level, the industry is struggling to better meet the needs of individual patients, as it evolves from blockbuster drugs to include targeted treatment solutions and eventually gene-based therapies. Understanding patient needs can be even more challenging in markets where legislation blocks direct access to consumers.

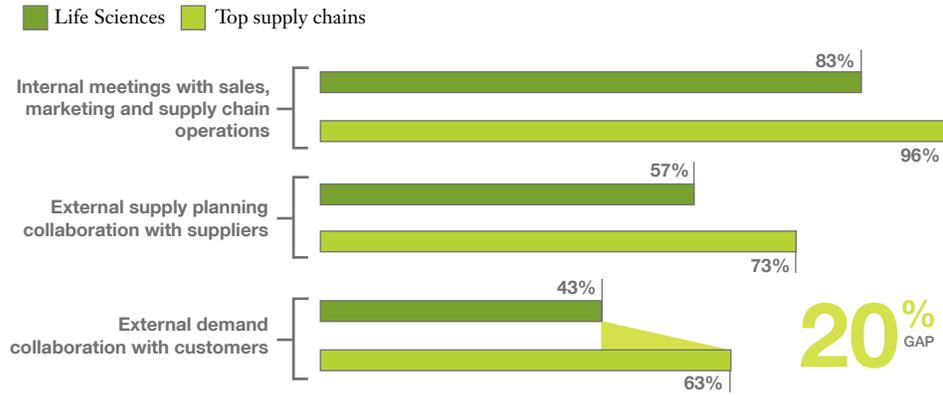
At the same time, globalization has introduced another layer of variability, with demand constantly varying across markets and some regions requiring market-specific solutions. To know *how much* product to make, *when* and *where* – and, increasingly, to even know *what* product to make – the Life Sciences supply chain needs greater customer insight.

However, despite Life Sciences executives' serious concern about rising customer demands – which far surpassed the cross-industry average – the industry is not moving toward customer intimacy very quickly. In terms of product development, the industry is still primarily R&D-driven, with more Life Sciences executives worried about reducing time to market (70 percent) than identifying customer needs correctly (57 percent). In the area of supply chain planning, 56 percent of the Life Sciences companies acknowledge that they only collaborate with customers on demand planning to a very small extent – nearly one-third do not collaborate with customers at all. When compared to top supply chains, Life Sciences companies show significant gaps in their ability to effectively synchronize supply and demand (see Figure 3).

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“Our major challenge is working with the business to align goals and agree on where we can be a competitive advantage in driving revenue, as opposed to just reducing costs... for example, in the design of new packaging and presentation options.”  
*President of Global Manufacturing, pharmaceutical company, North America*  
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**FIGURE 3 LIFE SCIENCES LAGS IN CUSTOMER DEMAND COLLABORATION**

In terms of supply chain planning, the largest gap between top supply chains and the industry is in the area of customer collaboration.



## CUSTOMER INTIMACY IN THE SMARTER SUPPLY CHAIN

Smarter supply chains help Life Sciences companies segment and serve a diverse customer base, proactively gathering and analyzing information to develop a deeper understanding of each segment’s specific needs. Close collaboration with wholesalers, governments, hospitals and retail pharmacies is critical to serve those customers better. But it’s equally important because these customers are important allies in understanding the end consumer – the patient.

With greater interconnectivity and instrumentation, the smarter Life Sciences supply chain can even tailor distribution systems to meet segment-specific needs. For example, reliable 24-hour delivery might be more important to hospitals since they tend to carry less inventory than wholesalers and large retail pharmacies. Better insights help the company decide on the best distribution approach for each product – for example, when to go through a wholesaler or directly to the patient.

While early adopters are using sensors and radio frequency identification (RFID) tags primarily for track-and-trace capabilities, the smarter supply chain uses them to understand customer needs as well. For example, RFID-enabled promotional displays might report on customer enthusiasm for a new over-the-counter product. Stents, pain pumps, pacemakers and other implanted devices could advise of their condition so they are replaced precisely when needed, rather than on a fixed schedule or, worse, upon failure.

To help synchronize supply and demand, the smarter Life Sciences supply chain uses sophisticated simulation models of customer behavior, buying patterns and market penetration. And unexpected shifts in demand are easily accommodated because of realtime connections and flexible relationships with suppliers.

## Case study

### THE GLOBAL PANDEMIC INITIATIVE: READY TO SUPPLY UNCERTAIN DEMAND

What if a company had to develop and distribute a new medicine immediately, but its customers could not specify what kind of drug they need or how much or where it needed to be shipped? Such is the case with a pandemic.

Established to confront this intractable problem, the Global Pandemic Initiative is a collaboration that spans private industry, academia, governments and public health agencies worldwide.<sup>6</sup> More than 20 partners are involved.

The Initiative aims to collect and analyze clinical data from hospitals and health organizations around the globe to identify and track emerging disease outbreaks. Sophisticated data modeling and simulation – for example, using travel patterns of humans, and in the case of avian flu, birds – help researchers predict the spread of disease.

By connecting all of these sources of information and leveraging advanced analytical tools, decision makers can more accurately assess risks and prepare. This, in turn, helps shorten response time and allows more informed decisions regarding patient isolation, school and business closures and travel bans.<sup>7</sup> The Initiative also works closely with pharmaceutical companies to help ensure global manufacturing and supply chain networks are prepared for rapid ramp-up and stockpiling of drugs. In a pandemic, the ability to respond rapidly and globally is a life-or-death matter of enormous proportions.



## RISK AVOIDANCE VERSUS RISK MANAGEMENT

As part of what is perhaps society’s most heavily regulated industry, Life Sciences companies take risk seriously. They do so not just for compliance reasons, but because safety, quality and trustworthiness are integral to their brands.

So, it’s not surprising that, when compared to other industries, more Life Sciences supply chain executives (75 percent versus 69 percent) are monitoring risk. Similarly, the IBM Global CFO Study found that twice as many Life Sciences companies say they are prepared to handle a risk event.<sup>8</sup>

Clearly, Life Sciences executives understand risk. But are they more likely to *manage* it or *avoid* it? In the past, the typical response to potential loss of intellectual property was: don’t partner. To risk of counterfeit or theft: exit that geographic market. To stock-outs: build a bigger buffer. For many companies, the objective is still to entirely eliminate any chance of a risk event occurring.

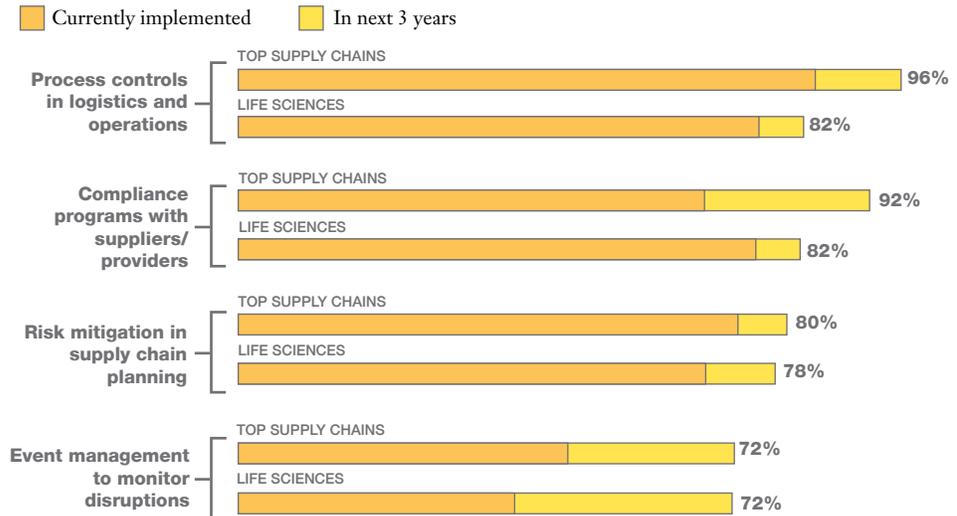
Risk avoidance, however, can be an expensive strategy. For example, consider the cost of excess inventory. The Life Sciences industry has a median inventory turnover of 3.4, which is significantly less than the market median (5.5) and a small fraction of the ratio achieved by leaders like Dell Inc. (47.1).<sup>10</sup> Additionally, the nearly four months it takes to move inventory through the Life Sciences supply chain consumes a substantial portion of these pharmaceutical products’ limited shelf life.

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“The trade-off between partner collaboration and risk management is one of our largest challenges.”  
*Supply chain executive, medical solution provider, Europe*  
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As margins become slimmer and supply chain complexity rises, Life Sciences companies will not be able to insulate themselves from all risks. Instead, Life Sciences supply chains must become more adept at managing risk.

**FIGURE 4 LIFE SCIENCES COMPANIES TRAIL TOP SUPPLY CHAINS IN IMPLEMENTING RISK MANAGEMENT<sup>9</sup>**

Although many companies are monitoring risk, the industry still has room to improve risk management practices.





## RISK MANAGEMENT IN THE SMARTER SUPPLY CHAIN

Smarter supply chains allow Life Sciences companies to adopt a much more scientific approach to identifying and managing risk. Instrumentation throughout the supply chain network provides realtime input for risk quantification. And sophisticated simulations and data models help companies calculate the probability of a particular risk occurring. Add revenue projections and it's possible to determine revenue at risk over any given time horizon.

Such intelligence also allows a more precise response. By modeling alternative mitigation strategies, the supply chain can prioritize, schedule and cost the actions required to reduce risk and manage its overall risk profile. Instead of avoiding risks at any cost, the smarter supply chain employs a fact-based, quantitative risk management approach.

The smarter Life Sciences supply chain also combats risk by building intelligence into its products and packaging. Barcodes, RFID tags and other emerging smart devices provide realtime visibility to thwart diversion and theft – and enable authentication to stem the flow of counterfeit drugs. Combined with end-to-end supplier integration, these track-and-trace capabilities help partners respond quickly and comprehensively in the event of a recall situation.

## Case study

### BILCARE RESEARCH: MANAGING THE PEDIGREE OF DRUGS

Counterfeiting is arguably the most ominous risk facing the Life Sciences industry today. According to the World Health Organization, approximately 10 percent of the worldwide drug supply is counterfeit.<sup>11</sup> This equates to nearly US\$74 billion in lost sales in 2008 alone – and the potential toll on human life is far greater.<sup>12</sup>

Bilcare Research – through its research and technology division, Bilcare Technologies – has developed a solution aimed at safeguarding the drug supply. Each package or product flowing through its supply chain has a tamper-evident, nonclonable tag made using nanotechnology. The tag’s “fingerprint” is virtually impossible for counterfeiters – or even Bilcare itself – to duplicate because of the random manner in which it is generated. To confirm authenticity, customers – such as retail pharmacies, hospitals and patients themselves – can simply swipe the packet across a scanner.<sup>13</sup>

Not only are the nanotechnology tags nearly impossible to clone, they are also less expensive than solutions involving electronic components.<sup>14</sup> In addition, these tags can be leveraged throughout the supply chain to provide track and trace capabilities and help stem the US\$1 billion lost each year to theft and diversion.<sup>15</sup> Even after delivery to the consumer, this solution can add value by helping monitor patient compliance.<sup>16</sup>

Applications of this technology extend well beyond pharmaceuticals. For example, the automobile industry – which struggles against bogus components – is another early adopter.<sup>17</sup>



## THE GOOD AND BAD OF GLOBALIZATION

Across the Life Sciences industry, global sourcing and relocation of manufacturing to lower-cost regions continues to grow at a rapid pace. Estimated at US\$39 billion in 2007, the global market for contract research and manufacturing outsourcing is expected to reach US\$52 billion by 2010.<sup>18</sup>

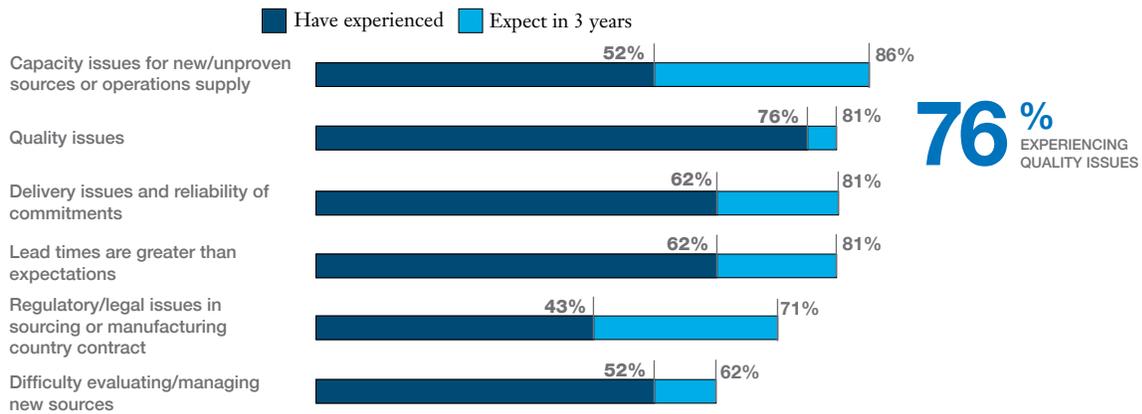
Our findings corroborate this trend. Three-quarters of the Life Sciences supply chain executives indicate they currently source materials from Western markets. But over the next three years, 60 percent plan to decrease sourcing from Western Europe, and 45 percent plan to source less from North America. Conversely, eight out of ten executives plan to increase the percentage of materials sourced from Asia and Asia Pacific. And 38 percent plan to source more from Eastern Europe.

Increased global sourcing, manufacturing and operations are not without challenges, however (see Figure 5). Life Sciences executives are particularly concerned about capacity and quality issues. Inconsistent quality – especially for the active pharmaceutical ingredients (APIs) that convey a drug’s medicinal effect – can lead to serious adverse effects, even death. For example, in 2008, Heparin manufactured in China was linked to four deaths and hundreds of allergic reactions.<sup>19</sup> That same year, the U.S. Food and Drug Administration issued import alerts for any APIs or finished products made at two Indian plants owned by Ranbaxy Laboratories, impacting 30 different generic drugs.<sup>20</sup>

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“Global supply chains face fundamental discontinuity around the world – we still don’t have a global standard for RFID and customer sophistication and adoption of advanced technologies varies widely.”  
*President of Supply Chain, healthcare services provider, North America*  
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**FIGURE 5 QUALITY ISSUES ARE A MAJOR CHALLENGE TO GLOBAL SOURCING**

Many Life Sciences executives have already experienced quality issues as a result of global sourcing and operations; even more are anticipating capacity issues in the near future.



With so many issues, why are Life Sciences companies going global? Obviously, they are hoping to lower costs in the face of rapidly declining blockbuster revenues. However, 25 percent of our Life Sciences respondents say their costs have actually increased as a result of global sourcing.

Perhaps an even stronger reason for expanding globally is to reach the growing population of consumers in these rapidly developing markets. Among Life Sciences supply chain executives, nearly half report increased sales from their globalization efforts.

And in the IBM Global CEO Study, Life Sciences CEOs indicated plans to increase investment in newly affluent customers in developing countries by 43 percent – more than double the global average – over the next three years.<sup>21</sup>



## GLOBALIZATION IN THE SMARTER SUPPLY CHAIN

Typically, global sourcing and outsourcing are focused on off-patent, mature product areas – where risk is deemed lower. But with a smarter supply chain, Life Sciences companies can better address the current challenges and risks that are impeding globalization and hindering expected cost savings.

Perhaps more importantly, smarter supply chains help companies capitalize on the tremendous revenue opportunity found in emerging markets. Through greater supply chain visibility, companies can synchronize supply with varying levels of demand around the world. And more advanced customer insight allows firms to tailor their products and distribution channels to meet market-specific needs.

The smarter Life Sciences supply chain establishes global “centers of excellence” in optimal locations – close to affordable talent, but also where local demand is high. These centers might be owned by the Life Sciences company, but could just as easily belong to one of its many outsourcing partners. Seamless integration blurs company delineations.

Through its highly instrumented network, the smarter supply chain constantly tracks and shares location information among partners to ensure product pedigrees and protect the world’s drug supply. This heightened degree of instrumentation and interconnectedness also provides the visibility needed to optimize and cooperatively manage its increasingly global supply chain network.

## Case study

### PFIZER GLOBAL MANUFACTURING: OPTIMIZING ITS GLOBAL FOOTPRINT

Pfizer Inc. has experienced a decade of explosive growth through both market development and acquisitions – most notably, Warner-Lambert in 2000 and Pharmacia in 2003. By 2008, rapid expansion had elevated revenues to more than \$US48 billion – but it also added tremendous operational complexity. Worldwide, the company's production network grew to over 100 facilities. And each acquisition brought different products, processes and technologies that needed to be integrated in order to deliver anticipated value.

In response, Pfizer Global Manufacturing (PGM) launched a focused strategy aimed at reducing both cost and complexity – without jeopardizing quality. The plan included simplifying its manufacturing network and standardizing processes and technologies globally. PGM also assigned vice-presidents to each Pfizer unit to better understand customer demand and avoid any adverse impacts to service levels.

This initiative put in motion a crucial shift in philosophy: instead of requiring that all products and materials be produced internally, Pfizer would now consider all viable alternatives. This included not just sourcing of raw and semi-finished materials, but also contract manufacturing.

Although its transformation is not yet complete, PGM is already realizing benefits. More than 20 percent of its production volume is now managed by partners, and plans are underway to increase this further. To date, the organization has reduced costs by 25 percent – more than half way to its aggressive target of 40 percent.



## TIME TO CUT COST

Compared to other industries, considerably fewer Life Sciences executives rank cost among their top challenges (30 percent versus 55 percent across industries). However, it’s important to put this in context; a few years ago, cost containment probably would not have figured in the top five at all. Historically, Life Sciences supply chain managers worried about two imperatives: complying with regulatory mandates and keeping products in stock. They did whatever it took to avoid these two issues – essentially at any cost.

However, even before the arrival of the new economic environment, the Life Sciences industry was already in transition – with the era of double-digit growth giving way to a decade of expiring patents, dry pipelines, generic-driven price erosion and high-profile safety withdrawals. As a result, Life Sciences executives have begun making drastic – arguably overdue – changes to their cost structures. For example, companies are shrinking their manufacturing footprints by eliminating plants, some of which operate at just 20 percent of their capacity.

In terms of cost reduction, though, most Life Sciences companies are still in the early stages. As obvious streamlining is accomplished, and global sourcing and outsourcing become routine, executives will need higher-precision methods for controlling costs (see Figure 6).

While cost dominates supplier relationships in other industries, cost and quality share equally as the top focus among Life Sciences executives. In many ways, the two are linked. Meeting the public’s high expectations for quality – not to mention regulatory requirements – can be costly. This is especially true when products that fail to meet standards have to be filtered out at the end of the manufacturing process after so much expense has been incurred.

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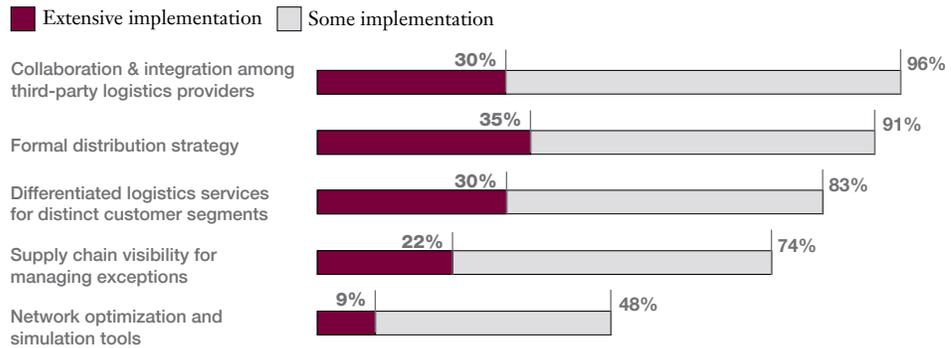
“Thirty percent of our SKUs give us 95 percent of our sales; the other 70 percent of our SKUs contribute only 5 percent. SKUs that have low sales and margins must be justified, withdrawn or consolidated. Retained product variants with low sales will have their standard costs adjusted to reflect more accurately the true cost of supply.”

*Vice President Global Supply Chain Operations, pharmaceutical company, Europe*

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**FIGURE 6 EXECUTIVES ARE CAPTURING EASY SAVINGS FIRST**

Third-party logistics collaboration is a relatively pervasive method of reducing cost, but more complex opportunities – like network optimization and simulation – are less penetrated.



## COST CONTAINMENT IN THE SMARTER SUPPLY CHAIN

To control costs, the smarter Life Sciences supply chain focuses on continuous process improvement through programs such as Six Sigma or Lean Manufacturing. Advanced analytics – applied against the wealth of information collected from sensors and other smart devices – help it identify opportunities to improve operational efficiency.

When making difficult decisions, such as which manufacturing facilities to retain or divest, the smarter supply chain has the ability to simulate the full effect of cost-cutting alternatives. By analyzing the impact on customer service levels, supplier pricing, logistics costs and more, the supply chain can make more intelligent trade-offs.

During manufacturing, greater instrumentation allows the smarter Life Sciences supply chain to use online process controls to make realtime adjustments that reduce impurity levels and increase yield. Instead of losing billions trying to inspect its way to Six Sigma levels post production, the smarter supply chain lowers the cost of quality by monitoring on a continuous basis, eliminating defects as soon as they appear or, even better, preventing them.

One of the most significant opportunities available to smarter supply chains is the chance to replace batch-based production with continuous manufacturing. For years, regulatory requirements for traceability compelled Life Sciences companies to stick with batch processing while other industries were rapidly switching to more efficient continuous manufacturing approaches.

But, with a smarter supply chain, that obstacle is gone. Extensive instrumentation provides the necessary visibility to track materials and products throughout the supply chain, enabling Life Sciences companies to finally take advantage of continuous manufacturing. Engineering principles suggest that by switching to continuous manufacturing processes, Life Sciences companies will be able to produce the same volume but with a much smaller manufacturing footprint, drastically reducing capital investments. Operations should be more efficient as well, with less waste, lower energy consumption and less time and expense involved in changeover.



# THE EVOLVING ROLE OF THE CHIEF SUPPLY CHAIN OFFICER

## A MANDATE FOR CHANGE

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“We struggle against the belief that the supply chain is an execution function versus a strategic capability.”

*Vice President Supply Chain  
Management, biotech company,  
North America*

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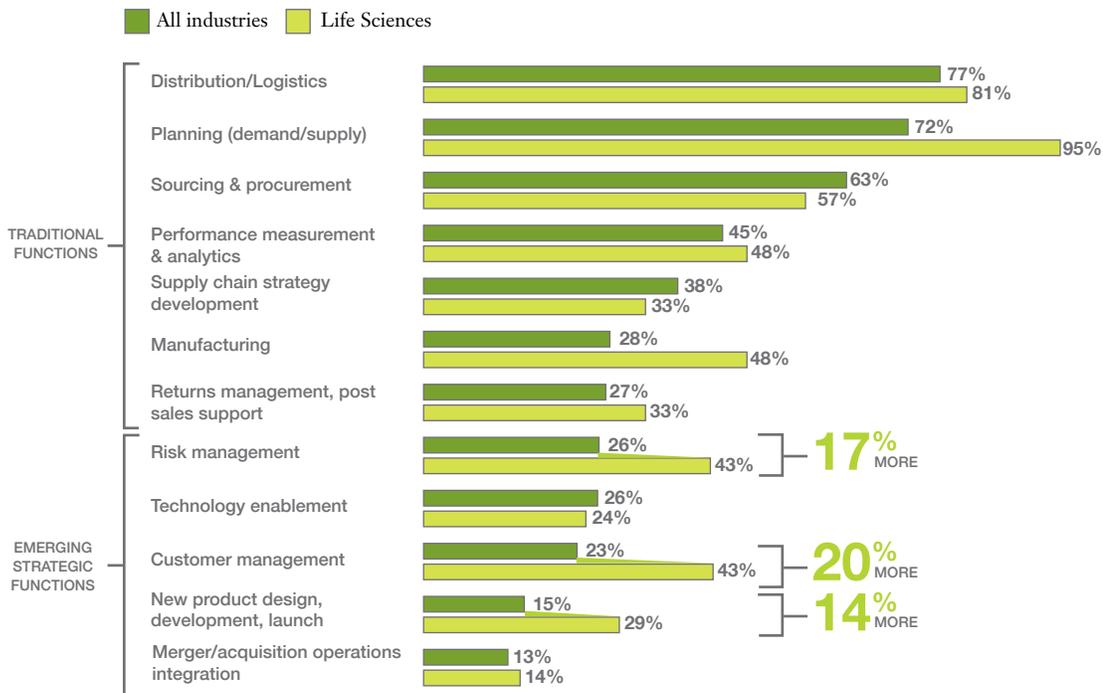
Regardless of actual title – Supply Chain Director, Vice President of Strategic Supply or Chief Supply Chain Officer, as we’ve called them – the executives in charge of supply chains are emerging as strategic cross-line-of-business leaders. Across industries, 46 percent of our respondents report directly to the CEO; within Life Sciences, even more (55 percent) are direct reports.

On balance, the role of Chief Supply Chain Officer seems to be more advanced among Life Sciences companies. More Life Sciences executives have assumed responsibility for strategic functions beyond the traditional scope of supply chain management (see Figure 7). In contrast to the overall sample, the leaders of Life Sciences supply chains are far more involved in risk management, customer relationships and new product introductions.

Perhaps this is out of necessity. As compared to other industries, the Life Sciences supply chain carries an inordinate amount of business risk – and a commensurate level of regulatory oversight. Safety recalls are devastating for any industry. But in Life Sciences, insufficient capacity, out-of-stocks or even late delivery can have fatal consequences.

**FIGURE 7 CHIEF SUPPLY CHAIN OFFICERS PLAY A BROAD, COMPLEX ROLE**

In Life Sciences, the position involves even more strategic responsibilities.



The very nature of the Life Sciences supply chain demands a more strategic role for its leader. That said, Life Sciences Chief Supply Chain Officers still have room to expand their leadership roles. Their companies are counting on them to provide the means to obtain deeper customer insights – to help them develop differentiated products and tailor their businesses to meet segment-specific needs. Through deeper involvement in new

product design, supply chain executives can interject manufacturing and distribution considerations. This allows them to influence the estimated 80 percent of product cost that is locked in during development, impervious to supply chain cost control.<sup>22</sup>

The success of Life Sciences companies has historically been based on the strength of their pipelines. However, this industry's Chief Supply Chain Officers now have the mandate to infuse their supply chains with just as much intelligence as their R&D functions. Supply chain visibility, risk management, global sourcing, cost control and customer insights demand a similar scientific rigor – and actions that are based on facts. In short, Life Sciences Chief Supply Chain Officers must team with their C-suite peers to build not just smarter supply chains, but smarter businesses.

## CONCLUSION

As their industry undergoes fundamental change – from a blockbuster-based business to one focused on targeted treatment solutions – Life Sciences supply chain executives are confronting many new challenges. The development and distribution of drugs is becoming just one part of a much larger and more elaborate supply chain.

Increasingly, customer insights and segmentation are driving operations. And targeted treatment solutions are bringing more partners, more and different kinds of manufacturing, more SKUs – and undoubtedly more risk. The question is: can a conventional supply chain adequately support such a dramatically different business?

Life Sciences supply chain executives already see signs of wear and tear. They are concerned about inadequate visibility across an increasingly complex global supply chain. Customer collaboration is still in nascent stages. Although executives agree global sourcing is necessary, and beneficial in most cases, it brings concerns about quality and capacity. Despite above-average risk management capabilities, Life Sciences companies are struggling against a rising tide. And after decades of comfortable margins and negligible cost pressure, Life Sciences supply chains must now get lean very quickly.

Yet, hidden in what may feel like forced change, there is a choice. Will Life Sciences executives answer this challenge by simply adding supply chain speed and capacity? Or will they use this time of transition to make their supply chains *smarter*?

We look forward to learning more about how your supply chain is adapting to these changing times – and working with you, as you build the Smarter Supply Chain of the Future.

## ACKNOWLEDGMENTS

We would like to thank the Life Sciences supply chain executives from around the world who generously shared their time and insights with us. We'd also like to acknowledge the contributions of the IBM team who worked on the Life Sciences edition of the Global Chief Supply Chain Officer Study: Tiffany Yu, Romas Pencyla, Heather Fraser and Philippe Cini.

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## IBM GLOBAL BUSINESS SERVICES LIFE SCIENCES CONSULTING PRACTICE

The IBM Life Sciences team has extensive industry knowledge and innovative solutions to assist clients with specific strategic and operational challenges facing the industry. Our expertise extends from strategy consulting to business transformation to technology platform implementation. For the supply chain function, our consultants combine business process and technology insights to help organizations across areas such as supply chain strategy, planning, product lifecycle management, sourcing and procurement, operations, asset management, logistics and enterprise applications.

## THE IBM INSTITUTE FOR BUSINESS VALUE

The IBM Institute for Business Value, part of IBM Global Business Services, develops fact-based strategic insights for senior business executives around critical industry-specific and cross-industry issues.

## FOR FURTHER INFORMATION

To find out more about this study, please send an e-mail to the IBM Institute for Business Value at [iibv@us.ibm.com](mailto:iibv@us.ibm.com), or contact Philippe Cini, IBM Global Life Sciences Supply Chain Management Partner, at [pcini@us.ibm.com](mailto:pcini@us.ibm.com).

## NOTES AND SOURCES

- 1 “The Smarter Supply Chain of the Future: IBM Global Chief Supply Chain Officer Study.” IBM Institute for Business Value. January 2009. <http://www.ibm.com/supplychainstudy>. As part of our study, we spoke at length with 393 supply chain executives across North America, Western Europe and Asia Pacific. These leaders head supply chains that serve a variety of industries, including Retail, Industrial Products, Food and Beverage, Life Sciences, Telecom, Electronics and Government.
- 2 Bowman, Robert. “Young Pharmaceuticals Offshoot Breaks the Mold With Outsourcing.” Global Logistics & Supply Chain Strategies. March 1, 2007. <http://www.supplychainbrain.com/content/headline-news/single-article/article/young-pharmaceuticals-offshoot-breaks-the-mold-with-outsourcing/>
- 3 Ibid.
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