Five Steps toward a Revitalized Pharmaceutical Supply Chain

Global drug companies are facing disruption. One powerful strategic response is to rethink their manufacturing and operations footprints.

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Soon or later, every industry faces a moment of truth, when its leading companies must fundamentally rethink their supply chain. In many cases, the old practices have held sway for decades. Isolated decision makers pursue transactional arrangements with their suppliers. There is minimal communication, little effort toward mutual improvement, and no real desire to pursue efficiency gains. Regulatory constraints and favorable tax structures in a limited number of manufacturing locations work in the industry’s favor. Steady profits are derived from captive customers dependent on the industry’s products. All this has made changing the status quo unpalatable, or at least unnecessary.

But then a disruption comes. Perhaps it takes the form of breakthrough technology; or changes in customer demand patterns; or new, more nimble and innovative rivals. To respond — to cut costs and become more agile — industry leaders rationalize their sourcing and distribution, and add operational efficiencies. Although they are reluctant to make these moves at first, companies soon discover that seemingly modest shifts in supply chain strategy can transform their industry and dramatically boost performance. Haltingly at first, and then in a great wave of activity, the prevailing practices of the industry change. It happened to automobiles and chemicals in the 1980s and 1990s and to consumer packaged goods in the 1990s and 2000s. Now it’s the turn of pharmaceutical companies.

Virtually every major pharma company is confronting a far different and more troubling business environment than it faced even a few years ago. (See “Big Pharma’s Uncertain Future,” by Alex Kandybin and Vessela Genova, *s+b*, Spring 2012.) And like companies in other industries before them, established pharmaceutical companies must manage this disruption in a way they perceive as unfamiliar and unorthodox. They must view their supply chain in a new, strategic light, as a potential competitive advantage rather than an unavoidable cost center embedded in day-to-day operations. In the process, they must discard age-old attitudes that once drove nearly uninterrupted success.

The biggest disruption is the new influence of a familiar presence: generic drugs. In the past, patent protection ensured that multinationals faced little competition for blockbuster drugs, which in turn allowed the drug manufacturers to maintain high price points and margins on each pill, ointment, or liquid sold. Now, that is changing. Although over-the-counter and other generic pharmaceuticals have been around for many years, their impact is more unyielding now than it has ever been, and it will become even more pronounced in the next few years as big-name drug patents expire. Of the 20 highest-grossing drugs in the world today, 18 will lose patent protection before 2015 — among them Lipitor, Plavix.
and Nexium. All told, drugs worth about US$400 billion in revenue will be open to generic competition by 2015, according to the IMS Institute for Healthcare Informatics, a market analysis firm; that will represent about 40 percent of the pharmaceutical market worldwide, up from 27 percent in 2010.

The pharmaceutical companies have responded to generics in the past by developing new blockbuster drugs, but that will not be an option this time. Few such drugs are left in the R&D pipeline, primarily because the science of drug development has become extraordinarily complex. Much of the low-hanging fruit in the pharmaceutical world — remedies that effectively address health problems for large markets — has already been plucked. In addition, regulatory approval for new products in many parts of the world has become much stricter and less favorable to big pharmaceutical investments. The impact of this product development slowdown is reflected in ballooning R&D costs and declining R&D productivity.

As government leaders try to hold down healthcare costs, pharmaceuticals are a primary target.

Globally, pharmaceutical companies spent about $130 billion on R&D in 2010, up from $54 billion 10 years earlier, yet the total number of new drugs approved by the U.S. Food and Drug Administration fell to 28 from 33, according to market analyst EvaluatePharma.

The rise of generics, coupled with the high cost of drug development, places tremendous pressure on products made by multinational pharmaceutical companies. In developed countries, the old distribution model — a relatively simple chain consisting of drug companies, wholesalers, retailers, and, in some places, insurers — faces an onslaught of new competitive systems. Public and private health plans increasingly rely on third-party pharmacy benefits managers or cost-conscious reimbursement policies to favor less expensive generics over branded drugs. At the same time, more direct and more efficient alternatives to traditional pharmacy dispensing options, such as the Internet and mail order, have been adopted with noteworthy success. Moreover, pharmacy consolidation and the rise of big chains such as CVS and Walgreens in the United States have enhanced the negotiating power of the drug retailers, forcing down the price of some medicines and making generics appear to be a better choice in many categories. Meanwhile, in emerging markets, financially strapped consumers tend to gravitate toward lower-priced drugs, and generics and startup local pharmaceutical companies are eagerly targeting this demand.

In addition, hospitals and other large purchasers, including payors and pharmacy chains, are increasingly negotiating contracts directly with pharmaceutical companies to buy drugs at set prices for a specific period of time (anywhere from a few months to a few years). Globally, about 30 percent of all drugs, including 15 percent of on-patent drugs, are now purchased through this so-called tender process. Not only does competitive bidding ramp down prices, but this approach also greatly affects the fluidity of supply chains and capacity management by driving the need for operational agility to deal with the fluctuating (all or nothing) demand associated with tenders.

Policymakers are also bedeviling drug companies with new pricing and reimbursement requirements. As government leaders take steps to hold down healthcare costs around the world, the cost of pharmaceuticals is one of their primary targets. In the United States, the Obama administration supports controlling the prices of prescription drugs sold through the Medicare program by negotiating purchasing contracts directly with pharmaceutical manufacturers; in the United Kingdom, the National Health Service has already implemented mandatory generic drug substitutions and price cuts of as much as 5 percent on branded pharmaceuticals; and in Turkey, a recent proposal would discount patent-protected drugs by as much as 24 percent, up from 13 percent currently. In addition, changes in tax laws, such as legislation passed in Puerto Rico that would impose a 4 percent tax on companies that conduct manufacturing on the island but are headquartered elsewhere, could eliminate some of the cost benefits pharmaceutical companies have traditionally enjoyed.

With this raft of industry disruptions, it’s little surprise that profit margins at global pharmaceutical giants are coming under increasing pressure.
Reinventing the Supply Chain

In taking on these challenges, one of the most powerful strategies available to multinational pharmaceutical companies is reinventing the supply chain. Most pharmaceutical supply chains were originally set up to produce items in high volume, in factories not noted for agility. Consequently, supply chains were structured to avoid stockouts and to meet regulatory requirements, even if that meant maintaining high inventory levels and carrying costs, and eventually taking substantial write-offs.

As they tackle the issues that threaten their future, multinational pharmaceutical firms must strategically transform their supply chain to facilitate revenue and profit growth. This means streamlining the supply chain and making it more flexible, so it can produce and deliver drugs efficiently to meet the needs of a variety of product and market segments at competitive cost levels. Depending on a company’s current and future product portfolio and marketing strategy, the supply chain must be designed for several activities: to compete with generics at low price points for mature, off-patent products; to take advantage of higher margins for critical drugs with low demand; and to handle the increased complexity of the new sales channels.

A Five-Step Path

When a traditional pharmaceutical supply chain evolves into a flexible, cost-efficient, and functional system, an entirely new set of capabilities is needed. Formerly, pharmaceutical companies needed to focus their skills on research and development and on sales and marketing. For the most part, managing costs and operational excellence didn’t matter as much. But as the competitive landscape has shifted, so have the required operational capabilities. Today, operational capabilities are critical, and these five strategic steps provide a path for developing them.

1. Adopt tailored business streams. Big pharmaceutical companies today tend to embrace a one-size-fits-all approach to the supply chain, maintaining high levels of inventory and high service levels for virtually all their drugs, no matter what the demand patterns (or volatility in consumer demand) may be. This can be an acceptable model for high-margin products in a homogeneous market, but it will not suffice in today’s lower-margin segments and disparate environments.

   Instead, pharmaceutical companies need to implement a series of individual supply chains, each tailored toward its own product, market, and customer groups. For high-volume products with steady demand under intense pressure from generics, the supply chain should be built around cost competitiveness, which can be achieved by manufacturing in low-wage countries and producing sufficient volume for lean inventories based on historical and forecasted demand. With relative stability in demand planning, companies can weather long production lead times and enjoy significant savings from high utilization levels combined with low wages.

   By contrast, sales of high-margin drugs that are under patent protection or formulated for less-common medical conditions may be more difficult to predict, and the potential earnings justify a more high-touch supply chain. These drugs may be manufactured in sufficient volumes in factories close to their market (often in developed countries), allowing short lead times yet avoiding expensive stockouts in any markets. In addition, a second source of production may be warranted to ensure product continuity in case of a disruption, such as an earthquake, fire, or other natural disaster in the primary factory.

2. Add flexibility to product design and packaging. Pharmaceutical companies should manage product demand volatility in low-margin drugs by implementing pack-to-order strategies. This involves manufacturing, for example, one version of a pill that could be shipped efficiently to numerous global markets, instead of multiple versions, each for a separate region (as drug companies operate now with their less-than-efficient, widely dispersed factory and supply chain footprints). Or this approach could take the form of so-called postponement strategies, in which drugs are packed to order in late stages of manufacturing on the basis of regional demand; this would reduce overall inventory levels and SKU complexity and also improve reaction time to market needs and supply chain agility.
Greater flexibility minimizes inventory write-offs and working capital required for production.

3. **Reconfigure the supply chain footprint.** Typically, pharmaceutical production networks are characterized by large-scale factories and low productivity. Indeed, average industry asset utilization levels are below 40 percent. Continuing that level of performance will only put pharmaceutical companies farther and farther behind in global markets.

Instead, established drugmakers must consider a complete overhaul of their factory footprint based on carefully constructed forecasts of regional and local customer demand and product requirements, as well as production and logistics cost and lead time trade-offs. In addition, local rules must be taken into account. For example, in some countries only domestically produced pharmaceuticals can appear on insurance reimbursement lists; in those cases, local manufacturing is *de rigueur* to avoid a significant competitive pricing disadvantage.

There is no single blueprint for plant network design; the precise approach depends on each company’s existing footprint, its product portfolio, and its future growth strategy, for example, which types of products it plans to focus on and in which markets. Possible footprint designs include the following:

- **Product life-cycle model:** Production of items originally made in a single launch plant is shifted to other, perhaps lower-cost, factories (or outsourced) as demand requires or as drugs lose patent protection.
- **Technological model:** Manufacturing centers of excellence are formed around new production or process technologies and innovative practices.
- **Geographic model:** Plants are set up in numerous regions around the world on the basis of local demand for products.
- **Complexity model:** Some plants are dedicated to high-volume/low-complexity products and others to low-volume/high-complexity products, with resources allocated according to demand, competition, and whether high-margin pricing opportunities exist.
- **Product and therapeutic area model:** Plants are designed for certain product groups or therapeutic areas to better share R&D, manufacturing improvements, and strategic marketing efforts for similar products and brands.

By restructuring their factory footprint into its most efficient and economical configuration, pharmaceutical companies can turn their supply chain into a source of ongoing competitive advantage, delivering mature products efficiently to compete head-to-head with makers of generics and producing innovative drugs in manufacturing networks that can respond quickly to volatile market demands.

4. **Create a network of third-party suppliers.** To be prepared for market dips, a thoughtful make-versus-buy strategy is essential. If they outsource production of specific products, companies can better deal with slowdowns in demand by simply reducing procurement from a supplier rather than curtailing factory capacity utilization and taking on the expense of idle fixed assets.

But drawing up a make-versus-buy strategy requires a set of clear product and market criteria to determine when third-party suppliers are more beneficial than, for example, a streamlined and flexible factory footprint. Typically, if volume is low — and, importantly, if the drug is not a high-priority innovation that requires diligent intellectual capital safeguards — having someone else produce it is a desirable choice. However, when manufacturing scale and efficiency are achievable (usually the case for top-selling products) or the drug is a distinctive item in the company’s portfolio, in-house production should be favored.

5. **Significantly improve planning capabilities.** Large-scale shifts in the competitive landscape have escalated the importance of successful product launches and have increased demand volatility and SKU proliferation. All of these conditions require strong planning capabilities to properly navigate these shifts. For example, a new product launch depends upon an accurate assessment of expected demand so that sufficient manufacturing capacity is available to provide for the anticipated customer base and for potential demand spikes. Moreover, as generics enter the marketplace, company planners must correctly gauge their impact on individual branded drugs. This will guide the business side in managing inventory size, returns liabilities, and write-offs if sales drop.
And as patents approach expiration, multinationals often try to extend their control of the drug’s revenue stream by developing new forms and delivery approaches for the product, while generics attempt to keep pace with their own version of the drug. In turn, planners are the front line in analyzing the rash of new SKUs that will surely follow.

To meet these challenges, pharmaceutical companies must deploy a disciplined business planning process that supports the company’s portfolio management strategy and product transition plans. Input from marketing, sales, and finance departments is combined with the latest marketplace intelligence and historical demand data to create a consensus forecast for individual drugs and families of drugs. This process allows senior management to evaluate various financial scenarios and business trade-offs. Companies with well-run planning processes experience substantial reductions in inventory levels, supply chain volatility, and manufacturing costs, and also see improved supply chain resilience.

This is not a unique challenge for the pharmaceuticals sector; virtually every industry these days has to reconsider the makeup of its supply chain in the wake of competitive transformation, and turn what were once routine operations into strategic capabilities. But because multinational pharmaceutical companies are coming to this challenge facing deep disruptions in their industry, the tactics they choose to use in remaking their supply chains could serve as a particularly valuable model for companies in other industries facing their own moment of truth.