

Uncovering the hidden value in Pharma business processes



An IBM Institute for Business Value executive brief

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Introduction

We are entering an era where many core business processes in the pharmaceutical industry (Pharma) will need to be reassessed and redesigned to better align with the changing economic environment. Processes that are slated to be redesigned need to be done in a way that helps ensure the optimum value is realized. The challenge when transforming any process – especially one that has been in operation for a number of years – is to identify exactly where in the process existing and potential value lie. This is a challenge that Pharma must successfully address if it is to remain competitive and grow revenue.

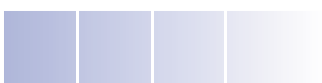
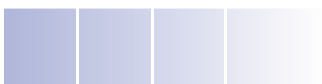
Today's pharmaceutical industry is experiencing increased pressure to change at fundamental levels. This pressure is caused by several issues:

- Customers and payers are demanding more innovative pharmaceutical products at more competitive prices.
- The cost of doing business is rising, jeopardizing Pharma's aggressive revenue growth targets.
- Patents on existing blockbuster drugs are expiring.
- There are insufficient new drugs in the pipeline.

Recognizing this challenge, IBM developed an approach for identifying value within Pharma processes. We used this approach to uncover major potential sources of value within Pharma and tested it with industry experts. This paper discusses this approach and provides recommendations for ways Pharma can identify and leverage the hidden value of its business processes.

Examining Pharma's core processes

Pharma has developed a strong body of knowledge about its core processes and how to design and implement them. However, Pharma has had various levels of success in transforming its core processes, and, increasingly, many of Pharma's core processes are not meeting today's market requirements. For example, it takes just as long to develop a drug today as it did a decade ago. Also, in research and development (R&D), the probability of success in identifying, developing and launching a new molecular entity remains unchanged. Therefore, knowing how to identify value in an existing or anticipated process is critically important if Pharma is to reach its goals.



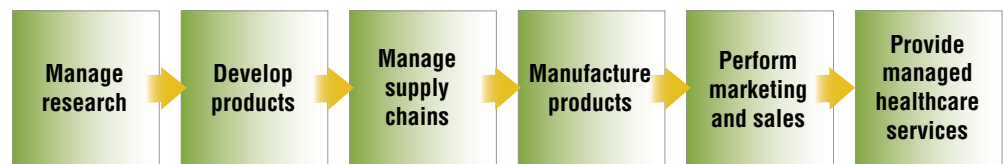
A process is a series of related activities linked by inputs and outputs.

To uncover value that Pharma can leverage to create a competitive advantage, it is useful to model the company as a chain of value-creating processes. We can use the *value chain model* developed two decades ago by Professor Michael E. Porter, who taught the model to a generation of managers. Professor Porter demonstrated that an identified set of interrelated generic activities was common to a wide range of firms.¹ His model covers design, production, marketing, delivering and supporting products, and services. There is a perfect correlation between Professor Porter's findings and the IBM view of the Pharma industry today, which is that it comprises the following six core processes:

- Manage research
- Develop products
- Manage supply chains
- Manufacture products
- Perform marketing and sales
- Provide managed healthcare services.

These Pharma core processes are shown in Figure 1.

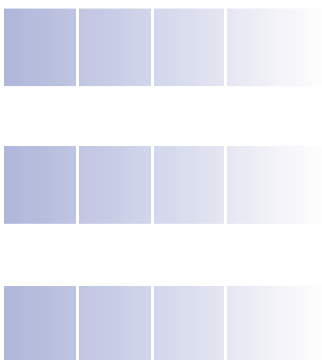
Figure 1. Typical value chain of Pharma processes.



Source: IBM Business Consulting Services analysis, 2004.²

IBM believes that the greatest amount of future value will come from these core processes. We selected these core processes because they directly impact the product or service and are mainly operational in nature. We recognize the importance of supporting processes, such as those involved in managing financials or human resources, but supporting processes were not analyzed for this study.

The goal of these processes is to create value that exceeds the costs of making a product or providing a service, to generate a profit. We define value as a combination of three factors: quality, service and price. All business organizations are concerned with realizing value. However, value must first be created before it can be realized.



Value can be described as the combination of three factors: quality, services and price.

Finding current hidden value

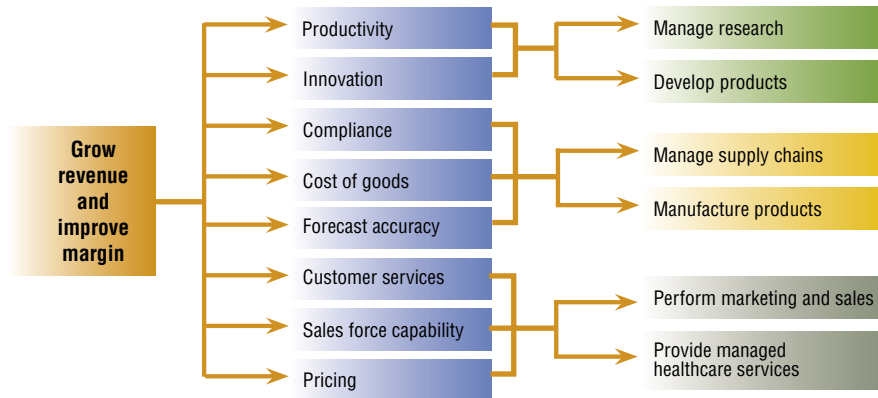
All processes have value, but this value is not always fully understood. That is why we use the term “hidden value.” Much like a treasure chest hidden in a field, you know it’s there but do not know its exact location or the total value of the cache.

It is not enough, then, to have a conceptual view of value in relation to core processes. To harvest the benefits of this value, you need to confirm, understand and quantify actual hidden values.

Identify the value drivers

The initial step in uncovering current hidden value is to understand what drives value in a process. Each core process has inherent strategic or operational drivers that generate value. Therefore, IBM developed a value driver tree that Pharma can use to begin uncovering the hidden value in its processes (see Figure 2).

Figure 2. Core drivers of value for Pharma.



Source: IBM Business Consulting Services analysis, 2004.

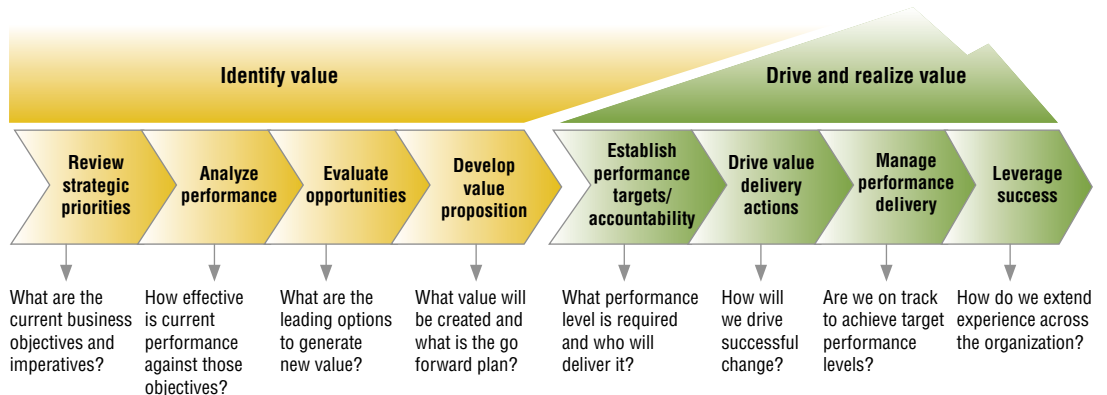
The value driver tree, which is geared to drive value across Pharma business processes, starts with a particular business objective, such as *grow revenue* or *improve margin*. This business objective is supported by several strategic and operational drivers of values, which are inherent within specific core processes. So, for example, if a company decides to grow revenue by improving productivity, in general it can expect to focus on managing research and product development. Also, at times business objectives are influenced by external factors, such as the FDA initiative “GMPs for the 21st Century”;³ this would cause companies to focus on compliance, so management would look to effective supply chain management and manufacturing processes to deliver this value.

Looked at from a different perspective, the value driver tree can help pharmaceutical companies identify what type of core value a process should return to the firm. Thus, in the case of marketing and sales, a company should expect improved customer service, more effective salesforce capabilities and effective pricing strategies. Furthermore, we see that multiple processes working in tandem – such as “perform marketing and sales” and “provide managed healthcare services” – can collectively contribute groups of core drivers of value; in this case, customer services, salesforce capabilities and effective pricing strategies. In turn, these value drivers contribute to the overall objective of growing revenues and improving margins. This may seem obvious and intuitive, but being clear about the relationship between specific drivers of value and their supporting processes is essential in setting expectations for performance and also for managing any process transformation efforts.

Apply a value realization roadmap

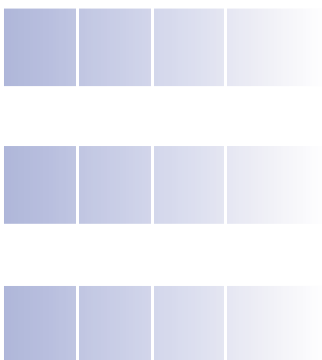
Armed with perspective on the value drivers at work within Pharma, a company can test the effectiveness of existing processes and begin to design and implement value-driving business solutions that are designed to yield sustainable benefits. Figure 3 illustrates a value realization roadmap that IBM developed to catalog and help initiate process transformation in Pharma.

Figure 3. Value realization roadmap for Pharma.



Source: IBM Business Consulting Services analysis, 2004.

This roadmap should be viewed as a journey of change. The roadmap shows steps Pharma companies can take to identify and prioritize opportunities to improve processes across an entire value chain as well as to catalog tangible business benefits.



Apply a value driver framework

IBM also developed a value driver framework for Pharma (see Figure 4) to help enable management to identify business issues and pain points specific to core processes and address them in a value-driven manner in support of a particular business objective. This framework also enables Pharma to realize costs and benefits generated by multiple processes.

Figure 4. Value driver framework for Pharma.

Areas of the value chain impacted	Business issue/ challenge	Potential solutions and resolution	Business objective	
			Revenue growth	Operating margin
All	<ul style="list-style-type: none"> Sharing of knowledge and collaboration (internally, locally and globally and externally, with partners) 	<ul style="list-style-type: none"> Data and knowledge management solutions 	✓	
All	<ul style="list-style-type: none"> Ever increasing volume of complex data which needs to be integrated and queried at this stage <i>In Silico</i>* data is acquired to assist in design of experiments 	<ul style="list-style-type: none"> Solutions that enable efficient combining and querying of large amounts of data residing in multiple sources into knowledge 		✓
All	<ul style="list-style-type: none"> The priority of products in the development portfolio is unclear/keeps changing 	<ul style="list-style-type: none"> Solutions that involve creating and managing a balanced commercial portfolio aligned to corporate objectives 	✓	
All	<ul style="list-style-type: none"> Tracking and modeling of resources Balancing demand for product against capacity 	<ul style="list-style-type: none"> Integrated supply chain planning, hosting, technology deployment and alliance/partnership strategies 	✓	
Manage research Develop products Manage supply chains Manufacture products	<ul style="list-style-type: none"> High cost of R&D, distributions and logistics and verifying consistency of product quality 	<ul style="list-style-type: none"> R&D, compliance and distribution channel strategy development, Six Sigma 	✓	✓
Perform marketing and sales Provide managed healthcare services	<ul style="list-style-type: none"> Managing contacts and relationships within a multichannel sales environment 	<ul style="list-style-type: none"> Customer relationship management 		✓

* Virtual experiments to design, test and formulate drugs that run on a computer.

Source: IBM Business Consulting Services analysis, 2004.

Analysis of the core pharmaceutical processes yields several important findings. In the area of revenue growth, the table in Figure 5 shows several business challenges and corresponding potential solutions.

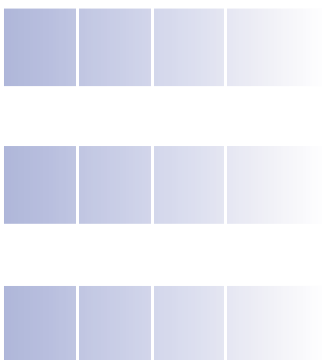
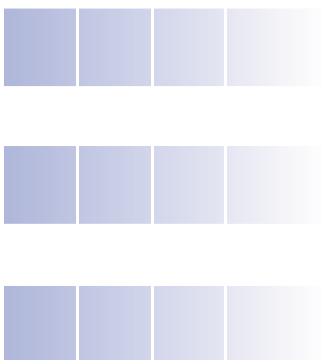


Figure 5. Business challenges and potential solutions.

Business challenge	Solution
All areas of the value chain deal with data from multiple sources (internal and external to the company) in increasing volumes and with greater complexity.	By focusing on solutions that enable efficient data integration and querying facilities, a company can optimize value across research, development, marketing and sales.
Currently knowledge management and collaboration are ineffective as the Pharma industry has a natural tendency to limit sharing of information and is traditionally secretive.	A company that implements data and knowledge management solutions can greatly improve collaboration both internally (locally and globally) and with external partnerships. To be most effective, technology should be used in tandem with process and organizational cultural practices that foster collaboration.
Unclear portfolio priorities and targets, when coupled with uninformed decision-making, can prove very costly in the Pharma development processes.	To significantly increase its ability to grow revenue, a company can implement solutions that facilitate realtime decision-making and handle complex and non-heterogeneous data across the value chain.
Pharmaceutical companies need to better manage their resources, have more accurate forecasting ability, and to better control and manage inventory. Better management of inventory especially is becoming a major issue as pharmaceutical companies expand their product offerings in response to changes being initiated; expanded product offerings include targeted treatment solutions, that is, products and therapeutic healthcare packages that include diagnostic tests, drugs and monitoring devices and mechanisms.	Companies can implement solutions that are designed to enable complex tracking and modeling of resources so they will be better able to manage resources, make more accurate forecasts and efficiently manage inventory.
The high cost of investments in technology and infrastructure required to maintain current processes and practices is an issue in many areas of the value chain and will become more critical in the future. For example, in the supply chain area, an integrated technology and facilities architecture is required between development and manufacturing to ascertain that product lifecycle management is possible from developed drug through launch to market.	Companies can adopt a technology architecture and solutions that better integrates processes, enabling companies to manage processes more effectively and efficiently throughout the product lifecycle.
Pharmaceutical companies need to have better knowledge of their customers, because that knowledge affects sources of cost and value in existing processes. For example, as targeted treatments and increased clinical trial reporting affect processes, getting closer to customers and weaving a deep appreciation of their issues and needs into existing processes will become more important and will influence the effectiveness of how the work is done.	Companies can implement downstream solutions that allow them to become more customer intimate so they can better align their product offerings with their targeted markets.



Pharma management can use the value driver framework discussed here and apply it to their company.

When R&D is the major value driver

The problem: A top 20 Pharma company that had undergone two mergers in the last few years wanted to prevent “Merger Devaluation Syndrome” and also to achieve double-digit top-line growth.

The solution: The company undertook a review of its processes and found R&D productivity to be a major value driver. It then used multidisciplinary teams with representation from all areas of the value chain to develop an innovative transformation program that incorporated newly designed processes and tools, new ways of working, a consolidated IT infrastructure and an outsourcing strategy. By almost any measure, the initiative proved to be a success. The company was able to identify and resolve development resource issues, reduce cycle times, improve cost-effectiveness and raise customer satisfaction without sacrificing quality.

When product development is the major value driver

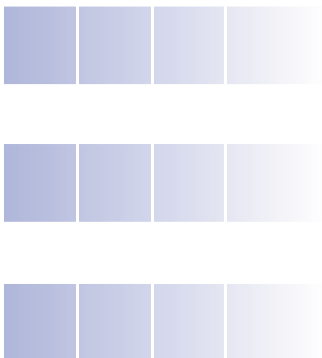
The problem: A pharmaceutical firm wanted to create the fastest and highest quality clinical value net (from first-in-man to market) within five years. It also wanted to increase productivity and reduce cycle time.

The solution: The firm optimized processes and tools through cross-functional teams structured to address the various components of the drug development value chain. It also developed innovative process enhancements and synchronized technologies globally. This allowed them to successfully meet their goals.

Putting it all together

Pharmaceutical companies should apply the value driver framework discussed here to build a detailed picture of the flow of information across core Pharma processes. Then the impacts on core drivers of value, such as revenue, costs and capital, can be analyzed.

Companies can use the process maps they build to identify how a business objective links to key business issues within each of the six core processes. Companies also can allocate key performance indicators that enable them to measure themselves against their objectives. These indicators also will enable companies to identify potential strategies and solutions to overcome any pain points or obstacles to achieving their objectives. By consolidating these findings in a value driver framework, pharmaceutical companies can better understand cross-process and cross-organizational issues.



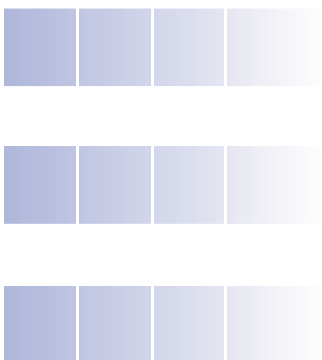
IBM identified major business issues, challenges and potential solutions inherent or achievable in each core process to arrive at a strategic plan that established what must change within Pharma, how and when. This allowed us to determine which value drivers would be affected by a proposed transformation.

In consultation with industry experts, we went through each of the six core Pharma processes identified in this paper and applied the Pharma value driver framework. The benefits of such an approach quickly became obvious:

- It provides a format for identifying companywide value-producing opportunities.
- It provides a business framework specific to the organization, which enables management to determine their pain points.
- It improves decision-making by facilitating appropriate business process discussions within an organization that help identify solutions that improve both business responsiveness and operational resilience.
- It helps enable the management and prioritization of major transformations and innovative initiatives by linking them to specific desired benefits for the organization.
- It allows performance to be benchmarked with competitors.

When IBM improved its own supply chain

IBM decided to take its own recommendations in 2001 when it started a major transformation to become a process-driven, customer-value focused enterprise. The global supply chain was identified as one of the first processes to begin innovating. IBM took a very broad view of its supply chain, realizing that if traditional supply chain functions were not seamlessly integrated with customer-facing processes, and if these did not interact effectively with product development and support, IBM would only capture a fraction of potential benefits. So IBM implemented a new supply chain, which had rapid benefits and drove value across the company's entire value chain. As a result, IBM reduced costs of products in the supply chain by approximately US\$3 billion in cash. Field sales and customer satisfaction also improved.⁴



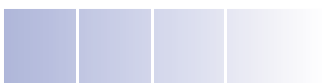
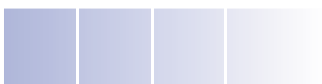
To start the value initiative process today, we recommend that Pharma do the following:

- Map your company's existing core processes and value drivers and analyze the impacts
- Verify that you understand your company's core processes, and make sure that these processes remain productive
- Improve the efficiency of your processes by continuing to transform them in line with the realities of the business
- Prepare your organization for transforming and maintaining processes in the targeted treatment solution environment of the near future.

Note that applying the framework presented in this paper to uncover the hidden value in Pharma processes is not just a one-time exercise. Pharma management will need to update their findings as the Pharma landscape changes.

To further understand where value is being hidden in Pharma processes, management must regularly ask themselves and their organization these questions:

- Have we mapped our core processes formally and consistently across the company?
- Are our core processes up-to-date?
- Have processes been mapped by department and function, or have we taken a cross-functional approach (e.g., project management process, processes supported across functions by IT)?
- What am I doing to identify and prioritize issues?
- Are there cross-functional issues or problems that I need to address, and how will I address them?
- What is driving value in my processes that I can leverage even more?
- Are there any opportunities that we have missed to leverage findings across different parts of the value chain?
- To what extent do I understand my processes and how to fix any problems and leverage opportunities?
- How do we know when we have reached our optimal performance for a process? For example, are key performance indicators (KPIs) in place? Do we benchmark our performance internally and externally?
- What is the anticipated impact of our planned initiatives and projects on the drivers of value?



This list of questions will prove valuable to address and should be asked periodically as needs dictate in the changing Pharma environment.

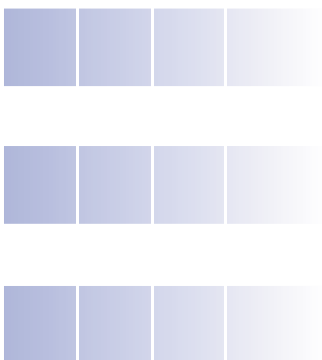
Finding hidden value in the future

Transformations are already underway in Pharma. As the IBM report, *Pharma 2010: The Threshold of Innovation*, predicted, Pharma is moving toward high density drugs and targeted treatment solutions geared to specific patient groups.⁵ As Pharma moves toward the future, it will not only manufacture drugs, but also sell a variety of products and therapeutic healthcare packages that include diagnostic tests, drugs and monitoring devices and mechanisms as well as a wide range of patient support services.

The shifts in Pharma will require a totally new way of thinking and working in the near future. Pharmaceutical companies will need to manage more complex networks of disease areas and product types, which will require diverse research, development, manufacturing, marketing and sales techniques and processes in order to serve a wider market.

This shift will require sophisticated partnership networks consisting of information channels which determine that people in different locations and from a variety of disciplines can share data in realtime. Doing so will increase the probability that the “right” information is available to the “right” people at the “right time” – when they need it.

The requirement for each pharmaceutical department or division to understand its processes and determine the value that is hidden within them will become more pressing as the industry moves from its current focus on enterprisewide transformations to optimization of partnerships and alliances. Working in the rapidly emerging “on demand” environment, business components (people, policies, practices, processes and information) will increasingly be connected end-to-end in order to focus and respond rapidly in a variable and resilient manner to opportunities and threats. This is not just theory; it is happening today.⁶



Becoming a highly flexible and adaptive enterprise is a journey. It will require a fundamental shift in the way a Pharma company operates and thinks about four main areas:

- Design of business models and processes
- Effective acquisition of processes and technologies in a timely manner
- Implications for supporting information technology infrastructures
- Implementation of a systematic review of processes within an organization.

Concentrating on these four areas will make it possible to shed light on unexploited areas of value and also serve as a catalyst for future changes required.

Pharmaceutical companies will be transforming their core processes across the entire value chain to a much greater degree than ever before if they are to deliver the kinds of products and services that the market will demand and if they are to return to, or indeed exceed, the profit and revenue growth results Pharma enjoyed in the 1990s.

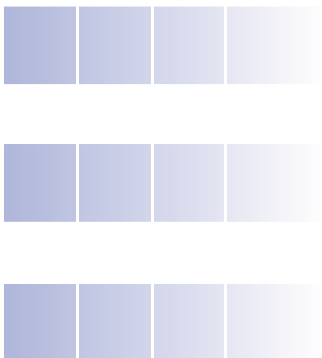
Conclusion

As Pharma continues to address its present challenges, it will need to look for new and smarter ways to squeeze value out of all core processes. Development of “targeted treatment solutions” will require a fully integrated business model never before seen in the industry, where the boundaries between discovery, development and the marketplace will blur and where competitiveness and requirements of regulatory compliance will require firms to have a clear understanding of those processes that drive value within an organization.

In the short term, however, Pharma management can use a value driver framework, such as the one described in this paper, to identify values hidden in existing processes. This will help enable management to identify opportunities that can be leveraged across the entire Pharma value chain.

To explore the ways in which IBM can assist you in finding hidden value in your processes, contact us at iibv@us.ibm.com. To browse other resources for business executives, visit our Web site at

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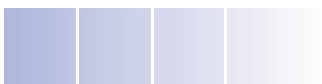
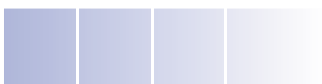
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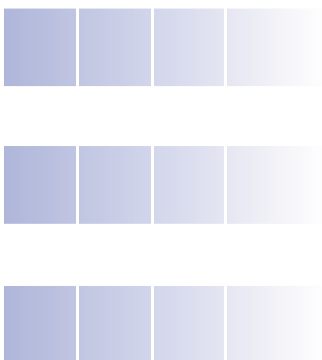


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References

- ¹ Porter, Michael E. "Competitive Advantage: Creating and Sustaining Superior Performance." New York: Free Press. 1985, pp. 11-15.
- ² IBM Business Consulting Services based this model on Professor Michael E. Porter's Value Chain model, which the professor developed two decades ago. Professor Porter demonstrated that an identified set of interrelated generic activities was common to a wide range of firms. His model covers design, production, marketing, delivering and supporting products, and services.
- ³ U.S. Food and Drug Administration, "A Risk-Based Approach to Pharmaceutical Current Good Manufacturing Practices (cGMP) for the 21st Century." <http://www.fda.gov/cder/gmp>
- ⁴ Thomas, Brian. "Transforming at IBM" *Supply Chain Management Review*, Volume 7, No. 6. December 1, 2003.
- ⁵ IBM Business Consulting Services. "Pharma 2010: The Threshold of Innovation." Somers, N.Y. IBM Global Services. November 2003.
- ⁶ IBM Institute for Business Value. "On Demand Business: The New Agenda for Value Creation." Somers, N.Y. 2003. IBM Institute for Business Value. "Beyond Mere Survival: Pharmaceutical Firms Adapting and Thriving Through On Demand Operations." Somers, N.Y. IBM Global Services. 2003.





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