Business Intelligence and Pharmaceuticals

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Major applications of business intelligence software in the pharmaceuticals industry

With the increasingly competitive environment in the pharmaceuticals industry and the many challenges the industry currently faces, pharmaceutical companies need to use all the tools at their disposal to operate more efficiently and increase revenue. Working to keep up with an expanding drug market, pharmaceutical companies need information management solutions that allow them to make better business decisions.

With such a far-reaching scope of functions and concerns in the pharmaceuticals industry, companies handle immense amounts of information. It’s hard to keep track of important information and even to know which information is valuable, and pharmaceutical companies need the tools to take advantage of the myriad information at their disposal. The information technology available today allows pharmaceutical companies to make better business decisions and to better target performance goals. MicroStrategy offers the pharmaceuticals industry the business intelligence software to report on, analyze, and monitor the vast amounts of data through a business intelligence architecture that helps companies reduce costs, increase revenue, and maximize the value of information.

The Pharmaceuticals Industry: R&D and Marketing Lead the Way

Pharmaceutical companies need to keep up with their constantly changing industry to stay viable and competitive. These companies face the challenge of not only developing new drugs, but also trying to lead the market in the drugs they already manufacture. Scientific advances are allowing pharmaceutical companies to develop new drugs for previously untreated conditions. In addition, the patents on many companies’ banner drugs have already or are about to expire. As a result, pharmaceutical companies are now facing growing competition from an expanding generic drug market, forcing them to implement strategies to compete with generic drugs. At the same time, as their competitors’ patents are expiring, these same companies are rushing to develop generic-brand drugs to compete with the brand names. The race to develop new drugs, compete with generic drugs, and put forward their own generic drugs puts companies under incredible pressure to focus efforts on the next big thing.

All these changes in the drug market are forcing pharmaceutical companies to increase their investments in research and development and in their marketing efforts. However, R&D costs have nearly doubled in the past five years, making it even more important for these companies to streamline their costs and increase their profit margins. Additionally, pharmaceutical companies are focusing their efforts on marketing directly to consumers while still trying to drive increased physician adoption. The proliferation of generic drugs and of information available to consumers through the Internet—as well as the pressure by insurance companies and HMOs to fill prescriptions with generic drugs—is making it increasingly important for companies to target their marketing strategies to strengthen consumer loyalty to the brand-name drugs that previously led the market. In fact, industry estimates indicate that pharmaceutical companies are now spending more than twice as much on marketing and administration than they are on research and development.

Pharmaceutical companies are responding to market pressures by joining forces—with each other and with biotech companies. A large amount of merger activity in the pharmaceuticals industry is enabling companies to reduce costs...
by integrating their manufacturing and R&D infrastructures and by eliminating redundancies in their administration, sales, and marketing functions. Many large drug companies are also joining forces with biotech companies by forming research alliances, allowing them to take advantage of the biotech industry's scientific advances and expertise in drug delivery. Finally, the pharmaceuticals industry is increasingly outsourcing the manufacture of drugs, thereby enabling greater allocation of funds to R&D and marketing while also raising the stakes for ensuring the quality of outsourced production.

As a result of all these mergers, alliances, and outsourcing initiatives, pharmaceutical companies are inheriting a wealth of information on consumer and corporate activity, as well as new systems and networks that require quality control. These companies are now dealing with overwhelming amounts of information from many sources thrown together into one giant pool—a pool that's becoming increasingly difficult to manage. All this merger activity also gives companies the opportunity to greatly reduce overhead costs by integrating operational processes. To make the most of this opportunity, these companies must identify areas where they can increase efficiency and reduce redundancies, and they must figure out the most cost-effective ways to integrate their R&D and manufacturing infrastructures.

Amidst these scenarios, companies must also keep up with changing regulations and compliance issues. Pharmaceutical companies face the challenges of simultaneously reducing costs, increasing revenue, improving operational efficiencies, getting new products to market more quickly, lowering supply chain costs, driving brand awareness and consumer loyalty, and meeting regulatory and security requirements.

### Industry Factors Driving Business Intelligence Solutions at Pharmaceutical Companies

To stay ahead of the competition, it is essential for pharmaceutical companies to be proactive in managing and utilizing enterprise data. That's where Business Intelligence comes in. Business Intelligence software gives pharmaceutical companies the ability to analyze the vast amounts of information they already have to make the best business decisions. The software allows these companies to tap into their huge databases and deliver easy-to-comprehend insight to improve business performance and maintain regulatory compliance.

The applications of business intelligence in the pharmaceuticals industry are far-reaching. First, pharmaceutical companies must manage large volumes of data from many sources, including their research and development, marketing, sales, manufacturing, and distribution departments, as well as patient care and prescriptions. MicroStrategy's integrated architecture allows companies to easily pull and correlate vast amounts of information from multiple sources, identify relationships among the information, and learn how different factors affect each other and the company's bottom line. MicroStrategy offers support for complex pharmaceutical data schemas, characterized by their large number of elements, requiring a higher degree of analytical flexibility that only MicroStrategy provides.

In addition, a pharmaceutical company will have many people in different locations with different skills who need to use this information for varying purposes—everyone from executives who need high-level customized summary data with drill-down capabilities to power users who need to create and design custom reports to data analysts who must identify and communicate market trends. MicroStrategy offers a single, easy-to-use Web interface that allows multiple users to access the information relevant to them. MicroStrategy's intuitive analytical capabilities allow different users to manipulate the data to glean the most from the information that
affects their decision making. MicroStrategy’s extensive reporting capabilities also enable multiple users to easily run queries to meet rapid reporting requirements.

Finally, pharmaceutical companies must work to increase revenue while maintaining or reducing costs. Business intelligence software allows these companies to analyze profit and loss, identify trends, monitor pipeline information, and track the success of their marketing efforts. Companies can grow revenue by increasing physician and consumer loyalty, speeding the time to market for new products, and maximizing sales performance. At the same time, companies can reduce costs by monitoring the clinical trial process, managing their supplier networks, and improving operational efficiency.

Pharmaceutical companies must strive to better serve their customers, increase profitability, and meet corporate governance requirements while experiencing increasing amounts of data and changing user requirements. MicroStrategy facilitates regulatory reporting, vigorous compliance and risk analysis, and monitoring of clinical trial and other critical data for these companies. MicroStrategy’s Business Intelligence architecture simultaneously accesses all this information, enabling analysis from many sources at once and providing the most thorough and integrated reporting. MicroStrategy then presents this information in user-friendly reports, scorecards, and dashboards and allows users to look at the information in different ways, offering the simplest and most useful ways to analyze the information to get the desired results—business strategies that increase profits.
Applying Business Intelligence to the Needs of Pharmaceutical Companies

Pharmaceutical companies can use business intelligence in many ways, creating smart business solutions across the myriad challenges in the pharmaceuticals industry.

Marketing and Sales Analysis

With huge expenditures in their marketing efforts, pharmaceutical companies must closely track sales performance and consumer behavior to better target their marketing strategies and ensure the proper allocation of marketing funds. MicroStrategy’s BI platform allows companies to identify which products are most profitable, monitor consumer behavior in terms of prescription renewal and product purchases, track the success of marketing campaigns, and analyze profitability by product, customer, geographical area, or other factors.

Relevant KPIs:

- Demographic analysis
- Customer Segmentation
- Campaign Analysis
- Payer Analysis
- Prescriber Analysis
- Sales Force Analysis

- Sales Force Support
- Detailing Analysis
- Samples Analysis
- Factory Sales
- Market Share Analysis
- Competitive Market Analysis

Sample Report:

Drug Market Share Analysis

<table>
<thead>
<tr>
<th>Month</th>
<th>Area</th>
<th>Region</th>
<th>Drug Group</th>
<th>Product</th>
<th>Metrics</th>
<th>Drug Market Share</th>
<th>% Change in Drug Market Share</th>
<th>Avg Number Prescriptions per Prescriber</th>
<th>% Change in Avg Number Prescriptions per Prescriber</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-03 USA West Liboofarins Peroxeral</td>
<td>73.00%</td>
<td>1.25%</td>
<td>24</td>
<td>2.40%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006-03 USA West Tribuferinol</td>
<td>64.43%</td>
<td>-3.43%</td>
<td>13</td>
<td>-8.00%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006-03 USA West</td>
<td>19.02%</td>
<td>-25.45%</td>
<td>2</td>
<td>-60.70%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006-03 USA West Alutriflourinide</td>
<td>48.52%</td>
<td>4.50%</td>
<td>28</td>
<td>13.48%</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2006-03 USA West Dichlorooxine</td>
<td>62.09%</td>
<td>56.00%</td>
<td>24</td>
<td>24.54%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006-03 USA West Methylflourinide</td>
<td>24.10%</td>
<td>13.45%</td>
<td>29</td>
<td>41.23%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006-03 USA West Sartropans Trisargcin</td>
<td>84.56%</td>
<td>14.50%</td>
<td>54</td>
<td>9.30%</td>
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<tr>
<td>2006-03 USA West Sarlipinide</td>
<td>11.45%</td>
<td>-57.23%</td>
<td>6</td>
<td>-72.43%</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2006-03 USA West Luoxx</td>
<td>45.68%</td>
<td>2.40%</td>
<td>24</td>
<td>9.45%</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

As part of their ongoing analysis of the market and the competitive landscape of the industry, pharmaceutical companies will regularly track the market share of individual drugs and drug groups. As the above report shows, extra focus is applied to how the market share or number of prescriptions has changed period to period, showing changes and possible trends in the market.
REGULATORY COMPLIANCE

Pharmaceutical companies have extensive security and reporting requirements, necessitating repeated and reliable collection and presentation of information. MicroStrategy’s analytical and reporting capabilities allow companies to gather and integrate information from across the enterprise and present it in easy-to-run and easy-to-understand reports. In addition, MicroStrategy’s bullet-proof security protects sensitive corporate and customer information as required by law.

Relevant KPIs:

- Government Drug Standards
- US FDA Standards
- Clinical Trials Reporting
- Insurance Billing Compliance
- Government Payment Compliance
- Internal Reporting Compliance
- Clinical Trials Fast Track
- Drug Compliance Limits

SAMPLE REPORT :
SCORECARD OF BILL COMPLIANCE

<table>
<thead>
<tr>
<th></th>
<th># BILLS RECEIVED</th>
<th># BILLS QUALIFIED</th>
<th># BILLS CONVERTED</th>
<th>CONVERSION EFFECTIVENESS</th>
<th># UNIQUE BILLS RECEIVED</th>
<th># UNIQUE BILLS QUALIFIED</th>
<th># UNIQUE BILLS CONVERTED</th>
<th>UNIQUE CONVERSION EFFECTIVENESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECT COMPLIANCE</td>
<td>5,970</td>
<td>841</td>
<td>329</td>
<td>39.12%</td>
<td>2,156</td>
<td>586</td>
<td>288</td>
<td>49.15%</td>
</tr>
<tr>
<td>DIRECT RX</td>
<td>21,547</td>
<td>13,184</td>
<td>1,859</td>
<td>14.10%</td>
<td>7,970</td>
<td>5,764</td>
<td>929</td>
<td>16.12%</td>
</tr>
</tbody>
</table>

Pharmaceutical companies, in addition to being in compliance regarding drug testing and health certification, must also comply with often rigid insurance and government standards for payment and billing. The above dashboard is an example of a tracking dashboard focused on bills received and those that needed to be converted for compliance.
Other Application areas in the Pharmaceuticals Industry where Business Intelligence enables enhanced competitive standing:

**CLINICAL DATA ANALYSIS**
With intense pressure to speed products to market while keeping costs down, pharmaceutical companies must monitor and effectively manage the clinical data process. MicroStrategy's in-depth analytical capabilities enable companies to track the large amounts of information stemming from clinical trials, identify the most efficient practices, and optimize resource allocation. By integrating data from multiple sources, MicroStrategy also helps companies identify trends and anomalies and analyze risk during product development and launch.

**FINANCIAL ANALYSIS**
Closely monitoring financial performance is essential for pharmaceutical companies to maintain costs and create effective budgets. MicroStrategy's BI platform integrates both financial and operational information, enabling companies to monitor and forecast financial performance and produce statutory financial reports from the same platform that enables clinical data and quality control analyses.

**OPERATIONAL ANALYSIS**
To increase profit margins, pharmaceutical companies must monitor huge amounts of information from across the enterprise and turn it into useful, actionable knowledge. MicroStrategy enables companies to track their supplier networks, inventory stocks, product quality, and production levels. In addition, MicroStrategy's ability to simultaneously analyze information from multiple sources allows companies to monitor costs and operational efficiency across the enterprise, examine employee productivity, and allocate resources more effectively.
PHARMACEUTICAL ORGANIZATION SNAPSHOTS

Reducing Administrative Costs at AmerisourceBergen

AmerisourceBergen, one of the largest pharmaceutical services companies in the U.S., uses MicroStrategy to support its Enterprise Business Intelligence program, which provides reporting and analytics for multiple areas across its enterprise.

Using MicroStrategy’s technology, thousands of users perform reporting and information analysis related to sales, suppliers, customers, supply chain management, finance, and other critical areas. MicroStrategy was selected for its ability to handle large database environments and provide real-time analytics.

“With MicroStrategy, we will have a true enterprise view across our value chain, providing management with greater operational insights and actionable data to help us more effectively navigate through our dynamic industry. We have been highly productive using MicroStrategy for several years and found MicroStrategy’s single metadata and object reuse has reduced our administrative costs. MicroStrategy is a natural fit for our analytic reporting environment at the enterprise level.”

High-Volume Reporting at AstraZeneca

London-based AstraZeneca is using MicroStrategy to report on and analyze data in its sales prescriber data warehouse. Approximately 250 employees use MicroStrategy’s Web-based analytical tools to determine market share, easily explore cost and profit data, and track the performance of new products. As a result, employees are making more effective business decisions that increase sales and drive market share gains.

The global pharmaceutical company uses the MicroStrategy platform to distribute 70,000 reports within a 24-hour window each month. AstraZeneca employees can pull up reports through a sales force portal or run queries, with 20-second average response times, against a one-terabyte Oracle data warehouse. As a result, end users can view critical pharmaceutical sales information in a matter of seconds and quickly make decisions that seek to optimize market share with a particular HMO or prescription benefit management organization.

“MicroStrategy business intelligence gives us a better understanding of the market and helps us meet expected market share goals for our products. In addition, the performance and scalability of our MicroStrategy-based application is remarkable, allowing our users to be more productive and efficient.”
Enhanced Data Analysis and Reporting at ImpactRx

ImpactRx, a leading provider of market and sales force effectiveness insight to the pharmaceutical industry, has selected MicroStrategy for reporting and analysis of pharmaceutical data for top drug companies and Wall Street firms. ImpactRx account service analysts use MicroStrategy as a reporting and analysis tool to enhance the quality of data they provide to customers. The analysts tap into the data warehouse using MicroStrategy to ensure quality control of data and to improve turnaround time on special information requests. ImpactRx selected MicroStrategy for its ability to handle large, complex analytical models and its product suite integration.

“We evaluated other business intelligence products, including BusinessObjects and Cognos, and we chose MicroStrategy because of its advanced technology, integrated platform, and data scalability. ImpactRx delivers timely, accurate, and sensitive market intelligence data to the pharmaceutical industry, and MicroStrategy enables us to work more efficiently and to promptly respond to customers’ complex data requests with improved data quality and consistency.”

Widespread Information Distribution at Roche Pharma España

Roche Pharma España selected MicroStrategy to deliver mission-critical information on sales and profitability to employees every day. A wide range of employees—including sales, marketing, production, and credit and collections personnel—are using MicroStrategy technology to perform intuitive query and reporting analyses against a SQL Server data warehouse. The solution provides Roche end users with needed sales analysis, statistical information, and financial reports to more effectively manage debt. Roche Pharma España is also relying on the MicroStrategy platform to proactively deliver personalized information to its employees and sales force.

“Roche Pharma España was able to easily develop and deploy three business intelligence applications on the MicroStrategy platform in record time, and we expect to deploy additional BI applications in the coming months. The MicroStrategy platform offers Web-based query and reporting capabilities, intuitive and rapid access to critical information, and personalizes and distributes relevant information to all of our employees. The company's outstanding services and its commitment to perfecting its platform are additional reasons we chose to work with MicroStrategy.”
MicroStrategy: The Choice of Leading Pharmaceutical Companies

At MicroStrategy, we are fully dedicated to helping pharmaceutical companies stay competitive in a challenging industry. We believe that business intelligence properly applied to corporate data provides pharmaceutical companies with the insight they need to increase revenue, reduce costs, and comply with industry regulations and standards.

Today, nine of the top ten global pharmaceutical companies rely on MicroStrategy’s business intelligence architecture for their reporting, analysis, and monitoring of corporate data. MicroStrategy’s BI platform offers pharmaceutical companies far-reaching opportunities for ever-expanding business intelligence. Whether starting with one or several applications, pharmaceutical companies can evolve to utilize MicroStrategy’s unique capabilities: a unified Web interface with access for thousands of users, reporting and analysis of tremendous amounts of data across multiple sources, graphical dashboards and boardroom-quality reports, unconstrained analytical flexibility, and industry-leading security.

With the increasing challenges the pharmaceuticals industry is facing, pharmaceutical companies need to stay one step ahead of the competition. MicroStrategy equips companies with the software platform they need to make the best use of the vast amounts of information available to them, allowing them to operate more efficiently and increase revenue. At MicroStrategy, we are committed to helping your company increase its competitive advantage by devising smart business solutions and making better business decisions every day.