2016 European Digital Health Solutions and Smart Drug Delivery Systems Product Line Strategy Leadership Award
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Background and Company Performance

Industry Challenges

Global societal trends such as changing demographics, policy-making, and healthcare shifts have made the pharmaceutical and medical device industries notably more complex over the past five years. An ageing population, growing middle class, and the rising disease burden associated with chronic diseases such as diabetes care, cancer treatment and monitoring, therapeutics for autoimmune disorders, and control of metabolic diseases, represent just a few of the healthcare implications that need to be urgently addressed.

Healthcare providers are reshaping delivery care models by moving towards a value-based concept of medicine, which strives for cost- and time-efficient tools and digital instruments. The overall structure of the healthcare industry, including the long process from product innovation to commercialization, turns market access into a challenging mission. However, with the advent of digital technologies across a broad spectrum of industries, users are becoming more confident with the use of digital equipment and connected healthcare notions, which lower the market entry barriers for novel technology developments.

Notably, in many cases, the delivery of a novel product demands strategic associations between large multinational corporations providing new drugs and small and medium enterprises, or even startups, who are innovating the construction of biomedical devices. Therefore, the access to new technologies may be complex, especially when considering the potential risks and safety issues associated with the healthcare sector. On that note, design quality is a key criterion for healthcare stakeholders, from regulators to manufacturers, thereby avoiding costly recalls while ensuring faster regulatory approval. The great challenge lies, then, on balancing cost reductions with guaranteed quality. Furthermore, devices need to be designed to prevent or reduce user errors and patient data needs to be protected by taking advantage of connected health solutions and mobile health applications. However, these challenges can be turned into huge opportunities thanks to the greater conjunction between informatics applications and drug delivery and administration devices, especially regarding the needs for patients to adhere to medication protocols, and the controlled release and self-administration of medication.

Product Line Strength and Customer Impact

Criterion 1: Breadth

BIOCORP has excelled in the development of a vertically-integrated connected health technology platform, based on 3 main units: medical devices manufacturing, research and development, and informatics technology.
BIOCORP strategically combines its traditional, core business of innovating in the area of medical plastics—as an alternative to aluminum capsules, syringes, and vial administration systems—with its solid expertise and capacity in informatics to develop new connected health products. Such versatility and flexibility in the product line have allowed BIOCORP to introduce three of the most innovative and competitive products in the industry.

DataPen is a refillable, smart injection pen capable of automatically transmitting data to mobile applications to improve treatment management. DataPen is a smart injection pen connected to a smartphone app by Bluetooth 4.0. EasyLog is a smart sensor that converts all insulin delivery devices, both reusable and disposable, into Wi-Fi connected communicating devices, which also allows data to be collected on automatic insulin injections, including doses injected, time and date of injection, and stock of consumables. Easylog can be adapted to any injection pen.

Diabetes Monitor is an application that helps patients and clinicians make decisions about treatment parameter options, thereby increasing medication adherence and comfort. Information, comprising logbooks, charts, and statistics, can be accessed in real time, and many informatics applications can be added to optimize and customize the patient experience.

**Criterion 2: Scalability**

BIOCORP offers products at a variety of price points and functionality levels. Indeed, BIOCORP has worked with leading pharmaceutical companies including Sanofi, Norgine, Baxter, Bayer, Biogen, GlaxoSmithKline (GSK), and West Pharma, amongst many others in the pharmaceutical and medical devices industries for many years.

BIOCORP’s capabilities include a 3,000 square meter, state-of-the-art manufacturing plant, operating according to the latest ISO norms and Good Manufacturing Practices (GMP) guidelines. The manufacturing unit comprises two cleanrooms certified as ISO 7 and ISO 8, respectively. The plant is capable of producing more than 35 million parts per year for multiple clients from the pharmaceutical industry.

**Criterion 3: Technology Leverage**

BIOCORP has demonstrated commitment to incorporating leading edge technologies into product offerings for greater product performance and value. As such, Frost & Sullivan has identified BIOCORP as a key participant at the forefront of personalized, precise, and decentralized medicine. Healthcare is increasingly moving out of the clinic and into the home. Self-administration is often more cost-effective and comfortable for patients, and will dramatically help serve an ageing population and chronic conditions. Nevertheless, as companies move into this space, leaving drug delivery devices in the hands of patients, significant technological, business, and ethical challenges are arising. To name a few, diverse factors such as size, strength, dexterity, vision capacity, overall state of health,
lifestyle factors, education, literacy skills, culture, gender, physical limitations, and cognitive impairments of the end user may potentially impact the successful adoption of the technology.

On that note, BIOCORP has succeeded in the healthcare industry, overcoming all of these challenges and turning them into extraordinary opportunities for business development and technology convergence by embracing a human-centric design approach that connects industrial design, cognitive sciences, and bioengineering disciplines to design safer and more effective tools for patients.

BIOCORP has also demonstrated outstanding management principles early in the design process, thereby saving time and resources in manufacturing, while ensuring excellent performance and safety. Such capabilities are remarkable, given the numerous factors involved in drug delivery processes, which are of great concern in uncontrolled environments such as the home or work spaces. The devices are optimized to perfectly adapt to drugs’ molecular size and viscosity, stability, and storage concerns, thus avoiding potential side effects and reactions. The devices also ensure the most suitable selection of delivery type, administration location, and volume and rate of delivery, which are crucial hurdles to overcome for commercial success.

By matching engineered drug delivery needs with major advances in informatics and connected health, BIOCORP is providing a better experience for end users. Smarter, fully-automated, and well-connected devices are manufactured for a variety of therapeutic applications. Patient data can be collected by and stored on the medical device, or even transmitted to an application on a smartphone or storage location, resulting in a timely, personal, and effective care delivery system for patients. On that note, companies like BIOCORP need to provide the highest levels of confidentially and data recovery to patients in order to meet stringent cybersecurity standards.

BIOCORP hopes that all of its devices will be connected with smartphones, tablets, and other IT tools, to follow the real-time treatment of patients and deliver the tools necessary for real-time information. Oncology and immunology will be two therapeutic areas with important needs that will shift from inpatient protocols to outpatients ones.

**Criterion 4: Features**

BIOCORP’s products offer a comprehensive suite of features to serve customers at multiple levels of functionality, ease of use, and applications.

A lack of medication adherence has tremendous consequences. More than 300,000 patient deaths and nearly four million hospital admissions each year are likely due to poor patient compliance globally. The economic impact of this is tremendous. Globally, the non-adherence costs for pharmaceutical companies is roughly USD 600 billion annually in lost revenues, without considering lost development costs and future sales due to clinical trials
approving potentially beneficial drugs. Additionally, unnecessary and avoidable medical expenditures occur due to chronic conditions spiraling out of control.

BIOCORP is highly committed to resolving these concerns. In fact, BIOCORP’s innovations are inspired by real-world clinical needs. By working closely with pharmaceutical companies to better understand their needs and requirements, BIOCORP develops devices up to the functional prototype phase to demonstrate the technical basis of the work. Next, the devices go through a customization program with the pharmaceutical partner, to address and personalize specific needs. This strategy also enables BIOCORP to leverage the proprietary development activities of some pharmaceutical companies; hence, collaboration brings the company insights on specific designs.

**Criterion 5: Supply Chain Reliability**

Aiming to achieve an in-depth understanding of customers’ real needs, BIOCORP works closely with pharma companies by developing devices up to the functional prototype phase. Customization programs and collaboration projects with large companies’ development activities are also strategies employed by BIOCORP to create innovative solutions in the industry.

BIOCORP has also gained solid proficiency in the development, production, and marketing of medical devices for the pharmaceutical industry. The company has sufficient control over the supply chain to ensure the availability of key components and, thereby, the availability of products in the product line. Indeed, BIOCORP’s activities are not limited to biomedical design. It also develops innovative solutions for drug packaging and secured syringes. With two contracts signed with Japanese Nipro and Italian Ompi, the company expects to reach USD 22 million revenues by 2018. The target price for BIOCORP until September 2015 was communicated as USD 19.57 per share.

**Criterion 6: Price/Performance Value**

One critical unmet need in healthcare is the lack of contact and interface between patients and clinicians during homecare treatments. To address this, companies need to develop new technology in relation to the equipment that is already part of daily life, such as smartphones and tablets. BIOCORP’s ultimate goal is to increase patients’ level of treatment adherence and their overall comfort.

With the aim of accelerating new product development adoption, BIOCORP has incorporated add-ons to integrate electronic components into disposable medical devices in a cost- and time-effective manner. Therefore, the company can connect existing medical devices by adding sensors to them with the aim of gathering substantial information for treatment management. According to the company, this technology may potentially help to reduce the gap between the pace of innovation in healthcare and major technological advancements in other industries. Hence, real-world innovations could be
delivered in a reasonable timeframe to meet patients’ demands for new solutions. Thanks to this strategy, BIOCORP’s products offer the best value and price compared to similar offerings in the market.

**Criterion 7: Brand Equity**

BI CORP’s strategy is to be the first to innovate, to not be a simple follower. Being a relatively small company, BIOCORP nurtures innovative mindsets with the aim to be ahead of its competitors with breakthrough innovations. The first step for initiating a new project is to understand patients, relatives, and clinicians, to then translate their needs into technical solutions. BIOCORP is open to collaborations with medical technology companies and healthcare centers and facilities to bring the best possible solutions to patients.

BIOCORP’s product line addresses the full range of customer needs and applications in drug administration systems. This is reflected in the over 20-years of experience that BIOCORP has as a key participant in the industry. In addition, the company’s strong market position is clear from the numerous accolades it has won. By pioneering connected health and smart drug delivery systems, BIOCORP won the 2nd-Prize Exhibitor Innovation Award for its innovative injection pen, the DataPen, at Pharmapack Europe 2015, as well as, the Best Exhibitor Innovation Award for its smart sensor, EasyLog, at Pharmapack Europe 2016. BIOCORP was also considered for an award in the category of “innovative company” by the French public investment bank Bpifrance.

**Conclusion**

Founded in 2004 in Issoire, France, BIOCORP specializes in the development and manufacturing of medical devices for the pharmaceutical industry, thus being a pioneer in digital health transformation and smart drug delivery systems. BIOCORP has addressed several global healthcare delivery concerns, finding markets enthusiastically waiting for its solutions. BIOCORP has accurately amalgamated novel and emerging technologies to dramatically increase the access to new product developments by combining the latest innovations in digital transformation with advanced therapeutics’ delivery and administration systems. BIOCORP has made the difference by providing a more automated, less-invasive, more personalized, and precise therapeutics administration technology, along with more comfortable and easier-to-use devices for both patients and clinicians.

With its strong overall performance, BIOCORP has earned Frost & Sullivan’s 2016 Product Line Strategy Award.
Significance of Product Line Strategy
Ultimately, growth in any organization depends upon customers purchasing from your company, and then making the decision to return time and again. A full, comprehensive product line that addresses numerous customer needs and preferences is therefore a critical ingredient to any company’s long-term retention efforts. To achieve these dual goals (customer value and product line strength), an organization must be best-in-class in three key areas: understanding demand, nurturing the brand, and differentiating from the competition.

Understanding Product Line Strategy Leadership
As discussed above, driving demand, brand strength, and competitive differentiation all play a critical role in delivering unique value to customers. This three-fold focus, however, must ideally be complemented by an equally rigorous focus on building a superior and comprehensive product line.
Key Benchmarking Criteria
For the Product Line Strategy Leadership Award, Frost & Sullivan analysts independently evaluated two key factors—Product Line Strength and Customer Impact—according to the criteria identified below.

Product Line Strength
Criterion 1: Breadth
Criterion 2: Scalability
Criterion 3: Technology Leverage
Criterion 4: Features
Criterion 5: Supply Chain Reliability

Customer Impact
Criterion 1: Price/Performance Value
Criterion 2: Customer Purchase Experience
Criterion 3: Customer Ownership Experience
Criterion 4: Customer Service Experience
Criterion 5: Brand Equity

Best Practice Award Analysis for BIOCORP
Decision Support Scorecard
To support its evaluation of best practices across multiple business performance categories, Frost & Sullivan employs a customized Decision Support Scorecard. This tool allows our research and consulting teams to objectively analyze performance, according to the key benchmarking criteria listed in the previous section, and to assign ratings on that basis. The tool follows a 10-point scale that allows for nuances in performance evaluation; ratings guidelines are illustrated below.

RATINGS GUIDELINES

The Decision Support Scorecard is organized by Product Line Strength and Customer Impact (i.e., the overarching categories for all 10 benchmarking criteria; the definitions for each criteria are provided beneath the scorecard). The research team confirms the veracity of this weighted scorecard through sensitivity analysis, which confirms that small changes to the ratings for a specific criterion do not lead to a significant change in the overall relative rankings of the companies.
The results of this analysis are shown below. To remain unbiased and to protect the interests of all organizations reviewed, we have chosen to refer to the other key players as Competitor 2 and Competitor 3.

**DECISION SUPPORT SCORECARD FOR PRODUCT LINE STRATEGY LEADERSHIP AWARD**

<table>
<thead>
<tr>
<th>Measurement of 1–10 (1 = poor; 10 = excellent)</th>
<th>Product Line Strategy</th>
<th>Customer Impact</th>
<th>Average Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Product Line Strength</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOCORP</td>
<td>9.7</td>
<td>9.6</td>
<td>9.7</td>
</tr>
<tr>
<td>Competitor 2</td>
<td>6.9</td>
<td>7.8</td>
<td>7.2</td>
</tr>
<tr>
<td>Competitor 3</td>
<td>5.5</td>
<td>6.0</td>
<td>5.8</td>
</tr>
</tbody>
</table>

**Product Line Strength**

**Criterion 1: Breadth**
Requirement: Product line addresses the full range of customer needs and applications

**Criterion 2: Scalability**
Requirement: Product line offers products at a variety of price points and functionality levels

**Criterion 3: Technology Leverage**
Requirement: Demonstrated commitment to incorporating leading edge technologies into product offerings, for greater product performance and value

**Criterion 4: Features**
Requirement: Products offer a comprehensive suite of features to serve customers at multiple levels of functionality, ease of use and applications

**Criterion 5: Supply Chain Reliability**
Requirement: There is sufficient control over the supply chain to ensure availability of key components and thereby the availability of products in the product line

**Customer Impact**

**Criterion 1: Price/Performance Value**
Requirement: Products or services offer the best value for the price, compared to similar offerings in the market

**Criterion 2: Customer Purchase Experience**
Requirement: Customers feel like they are buying the most optimal solution that addresses both their unique needs and their unique constraints

**Criterion 3: Customer Ownership Experience**
Requirement: Customers are proud to own the company’s product or service, and have a positive experience throughout the life of the product or service
Criterion 4: Customer Service Experience
Requirement: Customer service is accessible, fast, stress-free, and of high quality

Criterion 5: Brand Equity
Requirement: Customers have a positive view of the brand and exhibit high brand loyalty

Decision Support Matrix
Once all companies have been evaluated according to the Decision Support Scorecard, analysts can then position the candidates on the matrix shown below, enabling them to visualize which companies are truly breakthrough and which ones are not yet operating at best-in-class levels.

DECISION SUPPORT MATRIX FOR PRODUCT LINE STRATEGY LEADERSHIP AWARD

<table>
<thead>
<tr>
<th>Customer Impact</th>
<th>Product Line Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td></td>
</tr>
</tbody>
</table>

- BIOCORP
- Competitor 2
- Competitor 3
The Intersection between 360-Degree Research and Best Practices Awards

Research Methodology

Frost & Sullivan’s 360-degree research methodology represents the analytical rigor of our research process. It offers a 360-degree-view of industry challenges, trends, and issues by integrating all 7 of Frost & Sullivan's research methodologies. Too often, companies make important growth decisions based on a narrow understanding of their environment, leading to errors of both omission and commission. Successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices, and demographic analyses. The integration of these research disciplines into the 360-degree research methodology provides an evaluation platform for benchmarking industry players and for identifying those performing at best-in-class levels.
Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Frost & Sullivan Awards follow a 10-step process to evaluate award candidates and assess their fit with select best practice criteria. The reputation and integrity of the Awards are based on close adherence to this process.

<table>
<thead>
<tr>
<th>STEP</th>
<th>OBJECTIVE</th>
<th>KEY ACTIVITIES</th>
<th>OUTPUT</th>
</tr>
</thead>
</table>
| Monitor, target, and screen | Identify award recipient candidates from around the globe | • Conduct in-depth industry research  
• Identify emerging sectors  
• Scan multiple geographies | Pipeline of candidates who potentially meet all best-practice criteria |
| Perform 360-degree research | Perform comprehensive, 360-degree research on all candidates in the pipeline | • Interview thought leaders and industry practitioners  
• Assess candidates’ fit with best-practice criteria  
• Rank all candidates | Matrix positioning all candidates’ performance relative to one another |
| Invite thought leadership in best practices | Perform in-depth examination of all candidates | • Confirm best-practice criteria  
• Examine eligibility of all candidates  
• Identify any information gaps | Detailed profiles of all ranked candidates |
| Initiate research director review | Conduct an unbiased evaluation of all candidate profiles | • Brainstorm ranking options  
• Invite multiple perspectives on candidates’ performance  
• Update candidate profiles | Final prioritization of all eligible candidates and companion best-practice positioning paper |
| Assemble panel of industry experts | Present findings to an expert panel of industry thought leaders | • Share findings  
• Strengthen cases for candidate eligibility  
• Prioritize candidates | Refined list of prioritized award candidates |
| Conduct global industry review | Build consensus on award candidates’ eligibility | • Hold global team meeting to review all candidates  
• Pressure-test fit with criteria  
• Confirm inclusion of all eligible candidates | Final list of eligible award candidates, representing success stories worldwide |
| Perform quality check | Develop official award consideration materials | • Perform final performance benchmarking activities  
• Write nominations  
• Perform quality review | High-quality, accurate, and creative presentation of nominees’ successes |
| Reconnect with panel of industry experts | Finalize the selection of the best-practice award recipient | • Review analysis with panel  
• Build consensus  
• Select winner | Decision on which company performs best against all best-practice criteria |
| Communicate recognition | Inform award recipient of award recognition | • Present award to the CEO  
• Inspire the organization for continued success  
• Celebrate the recipient’s performance | Announcement of award and plan for how recipient can use the award to enhance the brand |
| Take strategic action | Once licensed, company may share award news with stakeholders and customers | • Coordinate media outreach  
• Design a marketing plan  
• Assess award’s role in future strategic planning | Widespread awareness of recipient’s award status among investors, media personnel, and employees |
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Frost & Sullivan, the Growth Partnership Company, enables clients to accelerate growth and achieve best in class positions in growth, innovation and leadership. The company's Growth Partnership Service provides the CEO and the CEO's Growth Team with disciplined research and best practice models to drive the generation, evaluation and implementation of powerful growth strategies. Frost & Sullivan leverages almost 50 years of experience in partnering with Global 1000 companies, emerging businesses and the investment community from 31 offices on six continents. To join our Growth Partnership, please visit http://www.frost.com.