Biogen

COMPANY: Biogen

FOUNDED: 1978

EMPLOYEES: 5,000+

REVENUE: $13.45 Billion (2018)

INDUSTRY: Biotechnology

MISSION: To discover, develop, and deliver worldwide innovative therapies for people living with serious neurological and neurodegenerative disease

WEBSITE: www.biogen.com

Helping a Major Biotechnology Company Improve Customer Care

The Medical Information Department (MID) at Biogen Japan, a major biotechnology company, fields and responds to questions from patients, physicians and others. When a person calls into the MID, their calls are routed to operators who draw on a large Frequently Asked Questions (FAQ) spreadsheet, product information brochures (PIBs), Summary of Product Characteristic (SmPC) documents, and other resources.

After 1 minute, calls are automatically escalated to expensive medical directors. Biogen wanted to reduce this cost through better and faster customer service. But they knew that jumping to an automated system would be extremely expensive and risky. Instead, Biogen turned to Lexalytics for a solution to empower, not replace, their human operators.

The Lexalytics team worked closely with Biogen to understand their problems and how we could help. Then we planned a staged Proof of Concept and got to work, maintaining constant communication and adjusting our approach based on what we learned along the way.

1. **"Semi-custom" search application for Biogen Japan's Medical Information Department**
2. **Uses NLP and machine learning to deliver best-fit answers and resources**
3. **Empowers operators to respond more quickly and reliably**
4. **Results in fewer calls escalated to medical directors**

> **"We've worked with Lexalytics for years on programs surrounding Voice of the Patient, Voice of the Key Opinion Leader (KoL) and social media monitoring... They've always been a key partner."**
>
> — Keith Ho
> *Director of Customer Focus and Medical Digital, Biogen*

TECHNOLOGIES USED

DATA INGESTION

Database Hookups

PROCESSING & ANALYSIS

Machine Learning

Low-Level NLP Configuration

Categorization

Entity Extraction

REPORTING & EXPORT

Custom UI with Elasticsearch

Helping a Major Biotechnology Company Improve Customer Care

First, we configured our core **natural language processing (NLP)** to identify relevant conditions, ailments, drugs, issues, therapies, and other entities and products within Biogen's FAQ and other resources. Where needed, we used Biogen's data to train and deploy **custom machine learning models** into the underlying NLP. The resulting system understands complex relationships between conditions, ailments, drugs, issues, therapies, and other entities and products.

Then, we combined all of this technology with open source **search capabilities** and wrapped it up in a **custom user interface**. MID operators can type in keywords or exact questions and get back best-fit answers and related resources in seconds. Early testing by Biogen Japan already shows faster answers and fewer calls sent to medical directors. And this first phase of the Lexalytics-Biogen Proof of Concept also shows promise in easing their customer service talent troubles by enabling new hires to work at the same level as experienced operators.

Semi-Custom Applications: Summary

When you need to solve a data-related business problem with unique requirements, such as custom data processing, specific technology integrations, or internal database hookups, general-purpose data analytics tools tend to fall short.

Lexalytics draws on a unique combination of technology and experience to solve these problems. First, we sit down with you to understand your business, your challenges and exactly what you're trying to accomplish. Then we customize our **natural language processing, semi-structured data parsing** and **machine learning** technologies with features and integrations suited to solving your exact business problem.

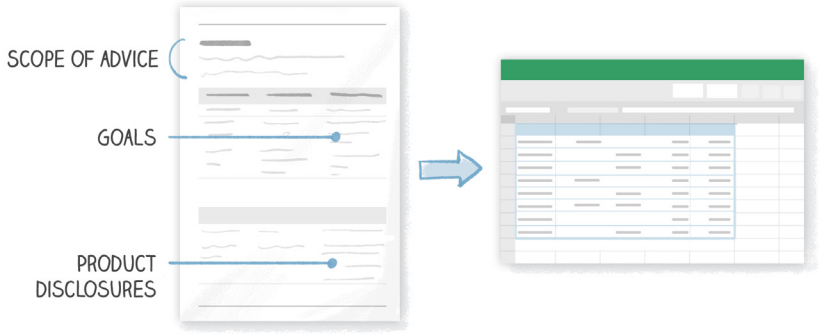

Figure 1 | *Example of a semi-custom application: identifying, analyzing and structuring data from financial documents*

Through a staged Proof of Concept, we build you a **"semi-custom" business intelligence application** that delivers tangible outcomes across your organization, faster and with less risk than other providers.

TECHNOLOGY COMPONENTS

NATURAL LANGUAGE PROCESSING FEATURES

- Sentiment Analysis
- Theme Analysis
- Entity Recognition
- Categorization
- Intention Extraction
- Summarization

SEMI-STRUCTURED DATA PARSING

MACHINE LEARNING

ADD-ONS AND INTEGRATIONS