

CASE STUDY



Health Canada



PROJECT

Document Workflow Automation for Health Products Regulator

OVERVIEW

Health Canada's Health Products and Food Branch (HPFB) faced significant challenges in managing the inflow of medical device reporting forms, which were manually processed, leading to inefficiencies and potential health risks. To address this, Improving developed an Automated Medical Device Reporting Solution, leveraging machine learning and AI to streamline and automate the entire data ingestion and processing workflow. This robust system significantly improved the speed and accuracy of data processing, providing Health Canada with a scalable and efficient solution.

BUSINESS PROBLEM

Health Canada's HPFB was overwhelmed by the manual processing of medical device reporting forms, which manufacturers are obligated to submit in the case of adverse events. The forms were non-standardized and emailed to a central address, where they were manually triaged and entered into the system. This labor-intensive process led to a significant backlog, delaying the detection of potential health risks associated with medical devices. The lack of standardization and the manual nature of the process created inefficiencies, increased the risk of human error, and posed a threat to the timely identification of device-related health hazards.

OUR APPROACH

We approached this challenge by developing an automated system that utilized a combination of a front-end web application, back-end systems, and machine learning models. These components worked together to ingest, process, and analyze the forms rapidly and accurately. By implementing Google Cloud services and integrating Document AI, we created a solution that could handle vast amounts of data efficiently. The system included an interface for analysts to review automatically extracted data and provided an API endpoint for seamless integration with Health Canada's existing systems.

CASE STUDY



BUSINESS BENEFITS

- **Enhanced Efficiency:** The automated system reduced the form processing time from weeks to hours, significantly clearing backlogs.
- **Improved Accuracy:** Machine learning models ensured high accuracy in data extraction, reducing the risk of human error.
- **Scalability:** The solution is scalable, enabling Health Canada to handle increasing volumes of data without a proportionate increase in manual labor.
- **Cost Savings:** Automation reduced the need for temporary data entry personnel, leading to long-term cost savings.
- **Regulatory Compliance:** The system ensured compliance with data protection regulations, including the handling of protected B information.
- **Data-Driven Insights:** Structured and standardized data allowed for better analysis and quicker identification of patterns indicating potential device issues.

TECHNOLOGIES AND METHODOLOGIES USED

- **Google Cloud Platform:** Hosted the entire solution, ensuring scalability and reliability.
- **Document AI:** Used for extracting data from diverse and non-standardized forms.
- **BigQuery:** Stored and processed large datasets quickly.
- **Machine Learning Models:** Enabled the automated and highly accurate extraction of data from forms.
- **API Integration:** Facilitated seamless data transfer to Health Canada's internal systems.
- **Agile Methodology:** Ensured iterative development and quick adaptation to client feedback.

PARTNERSHIPS

The project's success relied on close collaboration with Google Cloud's public sector customer engineering team and the Document AI product team. Their expertise was instrumental in overcoming implementation challenges. Additionally, we worked with Health Canada's corporate IT and security teams to ensure the solution complied with all privacy and security regulations. Partnering with iFathom also facilitated the contracting and procurement processes, ensuring that the necessary security clearances were obtained for personnel involved in accessing government data.

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LESSONS LEARNED

1. **Data Centrality:** The availability and consistency of data are critical; early access to representative data sets is essential.
2. **Scope Management:** Changes in data sets can significantly impact timelines and project scope, underscoring the importance of a well-defined scope.
3. **Client Collaboration:** Continuous and open communication with the client ensures alignment and facilitates quicker resolution of issues.
4. **Iterative Development:** Agile methodologies are effective in managing and incorporating client feedback and iterative improvements.
5. **Government Sector Navigation:** Understanding and patience with bureaucratic processes are vital for successfully navigating public sector projects.
6. **Comprehensive Documentation:** Ensuring all system documentation and compliance requirements are meticulously met is crucial for project approval and implementation.

CONCLUSION

Improving's automated solution for Health Canada's HPFB transformed a cumbersome and error-prone manual process into a streamlined, efficient, and scalable workflow. Leveraging machine learning and cloud technologies, we significantly reduced processing times and improved data accuracy, ultimately enhancing Health Canada's ability to monitor and respond to medical device issues quickly. Our approach, combining technical innovation with deep collaboration, highlights our unique capability to deliver impactful solutions in the public sector, ensuring safety and regulatory compliance while driving operational efficiency.