Pharmaceutical Solution to Boost Operational Efficiency

A solution to enhance PKM and QRM applications to digitize processes, streamline drug development, and reduce time-to-market for global pharma firms.

Overview

QBurst collaborated with the client to modernize their core PKM and QRM applications, enabling global pharma firms to overcome challenges related to manual data handling and regulatory compliance.

- **PKM & QRM Improvements:** Delivered version 11 of PKM with advanced recipe management and overhauled QRM features like advanced filtering and visual clarity.

- **Operational Streamlining:** Enhanced efficiency, scalability, and quality assurance, reducing operational delays and enhancing drug development workflows.

- **Agile Modernization:** Managed development, bug fixing, and new feature enhancements using agile methodology, ensuring faster delivery and improved user experience.

Client Profile

The US-based client provides software solutions for digitizing operations and processes across a diverse range of industries including pharmaceuticals.

Challenges

- **Fragmented Data:** Critical drug development data, collected over years of research, was stored manually in unstructured formats, severely slowing analysis and decision-making.

- **Hampered QRM and PKM:** The manual data environment restricted the utility of the PKM and QRM applications, preventing effective knowledge sharing and quality assurance.

- **Technical Debt:** The applications required consistent maintenance, bug fixes, and critical stack upgrades (Python, MongoDB, Angular) to ensure long-term sustainability and compliance.

- **Deployment Inefficiency:** Lack of streamlined deployment and testing workflows hindered rapid, reliable releases and continuous improvement cycles.

QBurst Solution: Ensuring Rapid Delivery and Continuous Improvement

QBurst provided full-lifecycle development support, enhancing the client's core PKM and QRM applications using an agile methodology to ensure rapid delivery and continuous improvement. We digitized data handling and upgraded key functionalities to align with modern pharmaceutical process standards.

Key Components

- **Advanced Recipe Management (PKM):** Implemented features such as variant recipe creation with parent syncing, import plugins for cross-environment portability, and searchable recipe categories.

- **Enhanced QRM Capabilities:** Upgraded features for Quality and Risk Management, including CSV export for Cause & Effect (C&E) and Failure Modes and Effects Analysis (FMEA) studies, color coding of study cells for visual clarity, and advanced filtering with up to 15 conditions.

- **Technical Stack Modernization:** Performed a critical migration of Python, MongoDB, Angular, and Bootstrap to their latest versions, future-proofing the solution and enhancing security.

- **Full Service Support:** Provided comprehensive services including UI/UX design (using Figma), backend API development, rigorous unit/performance testing, and DevOps for automated CI/CD support.

Technical Highlights

- **Modernization Stack:** Leveraged Angular, Python, and Flask for modern front-end and back-end development, ensuring improved performance and maintainability.

- **DevOps and CI/CD**: Implemented a robust DevOps pipeline using Azure DevOps, Jenkins, and Docker/Kubernetes for automated, streamlined deployment.

- **Security and Compliance:** Integrated tools like Grype for vulnerability scanning and SonarQube for code quality assurance, essential for a cGMP-compliant environment.

- **Data Integrity:** Implemented JSON standardization for reports and APIs and bulk configuration import/export features with comprehensive error reports.

Impact: Strengthening Data Management and Regulatory Compliance

- Accelerated Delivery (Efficiency): Agile processes enabled quicker iterations and the faster delivery of PKM v11, with new releases, deployed 45% faster.

- Improved Quality Assurance: Rigorous testing and updated libraries improved reliability and reduced application defects by an estimated 40%.

- Streamlined Deployment: Automated DevOps pipelines significantly reduced downtime and streamlined releases, enhancing system reliability and reducing deployment efforts by 50%.

- Enhanced User Experience: Redesigned UI flows for both PKM and QRM applications increased user adoption and engagement across the client base.

- Future-Proof Scalability: Technical stack upgrades and enhancements future-proofed the solution, ensuring its capability to meet growing pharmaceutical research demands.