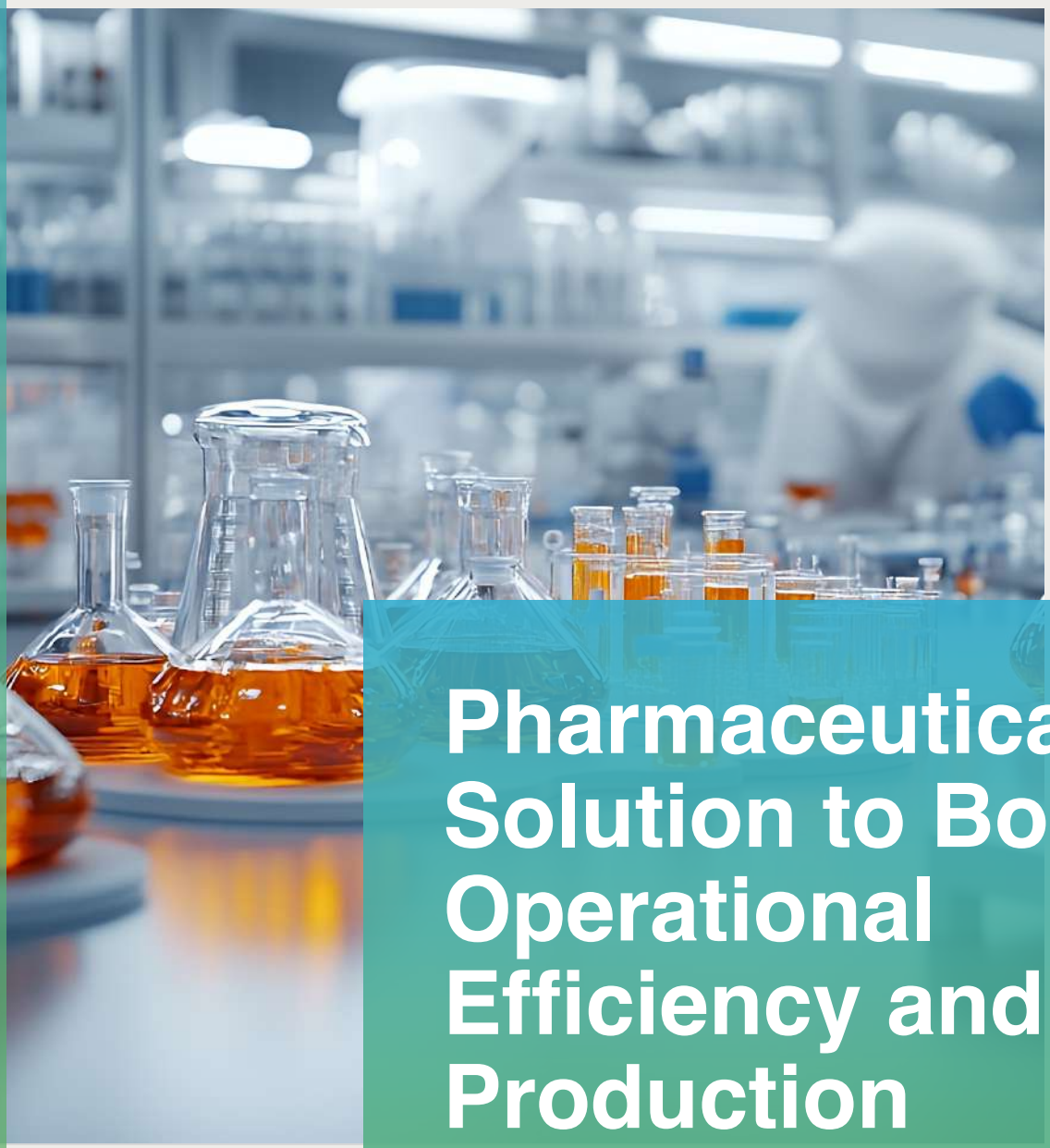
QBurst



Pharmaceutical Solution to Boost Operational Efficiency and Production

Pharmaceutical solution leveraging modern PKM and QRM applications to streamline drug development. These solutions digitize and organize critical data to improve efficiency and reduce time-to-market.

Overview

A project to enhance software solutions for pharmaceutical companies and streamline the lengthy process of drug development by digitizing and organizing critical data with Process and Knowledge Management (PKM) software. PKM software creates an electronic repository to capture recipe-related decisions made across the product development lifecycle. We enhanced the PKM and Quality and Risk Management (QRM) applications using agile methodologies.

Client Profile

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

Business Challenges

As a leading provider of software solutions designed to overcome current good manufacturing practice (cGMP) challenges, the client helps pharmaceutical companies bring the latest drugs to global customers. Introducing a new drug to the market is a lengthy process involving extensive research and clinical studies before manufacturing. The data collected during these stages is stored and transmitted manually by pharmaceutical companies in unstructured forms, making the process challenging. The client used PKM software to digitize, store, and transmit this information.

Business Requirements

The client wanted us to manage development and enhance the technical build of their new releases apart from maintaining their PKM and QRM applications. The services we provided encompass UI/UX design, UI development, backend API development, unit testing, DevOps support for packaging and deployment, and quality assurance.

QBurst Solution

Using agile methodology, we collaborated with the client to enhance the web applications, fix bugs, develop unit test cases, and deliver PKM version 11. Post-development, the team supported validation and release to ensure timely delivery.

Feature Development

- Created user experience screens and prototyped user flows with the client team
- Designed technical solutions, developed web UIs, updated PKM components, and created APIs

- Executed test cases, including unit, performance, and integrity tests
- Provided DevOps support, documentation, final packaging, and handover

Maintenance/Bug Fixing

- Conducted Root Cause Analysis (RCA) and planned bug fix implementations
- Developed UIs, updated components, and modified APIs to fix bugs
- Performed peer reviews, unit testing, and supported CI/CD
- Documented bug fixes, performed sprint reviews, and retrospectives

Key Features

PKM Enhancements

Variant Recipe: A new recipe type created from site or other variant recipes and stored as a delta. This can sync with the parent recipe.

Recipe Import: A plugin to create and import recipes from one environment to another, useful for site recipes.

Configurations - Bulk Import/Export: Enables the export and import of configurations between environments with the ability to cancel/reject/accept, and generates success/failure reports.

Annotation Hyperlinks: Allows hyperlinks in recipe annotations with validation and cybersecurity measures.

Technical Stack Upgrade: Updated Python, MongoDB, Angular, Bootstrap, PKM, and QRM packages to the latest versions; modified impacted internal libraries and services.

Recipe Categories: Introduced searchable categories for recipes that are configurable in the master data.

Config Pull Enhancement: Improved the Config Pull feature to retain recipe step template data with additional enhancements based on configuration flags.

QRM Enhancements

Export CSV: Allows export of study details as CSV files for Cause and Effect (C&E) and Failure Modes and Effects Analysis (FMEA) studies.

Color Coding: Adds color to canvas cells based on parameter value ranges for C&E and FMEA studies.

Advanced Filter: Enables filtering of the study canvas with up to 15 rows based on recipe data, study inputs, outputs, and attributes, with global OR/AND conditions between filter rows.

Technologies Used


Angular


Python


Python Flask


MongoDB


Azure DevOps


Jenkins


Docker


Kubernetes

AWS


OpenCost

PingIdentity


Grype


Figma

Business Benefits

- **Improved Efficiency:** Agile methodology allowed faster iterations and quick adjustments, leading to a more efficient development process and timely delivery of PKM version 11.
- **Enhanced Quality:** Rigorous testing, including unit, performance, and integrity tests, ensured high-quality software with fewer defects, improving overall user satisfaction.
- **Better User Experience:** The creation of user experience screens and prototyping user flows enhanced the application's usability, leading to better adoption and user engagement.
- **Seamless Deployment:** DevOps support for final packaging, documentation, and deployment streamlined the release process, reducing downtime and operational disruptions.
- **Robust Maintenance:** Proactive maintenance and efficient bug fixing, supported by root cause analysis and CI/CD, minimized system downtime and improved system reliability.
- **Scalability:** Technical stack upgrades and enhancements prepared the system for future growth, ensuring it can handle increased demand and new features efficiently.