QUALITEST™

Continuous Testing Evolves UK High-street Retailer into Global Omni-channel Sales Expert

When this global retailer encountered challenges unifying vast and disparate sales data, they turned to Qualitest to deliver integration quality at speed.

Challenge

To support the delivery of global omni-channel retail, the Client needed to deliver a unified Order Management System.
Vast data exhausts from incongruous, disparate and uncoordinated sources presented complex integration challenges.

Solution

Qualitest designed, integrated and delivered a comprehensive solution for continuous testing and end-to-end testing.
Streamlined coordination was delivered with alternative testing methods, structured test creation and automated data validation.
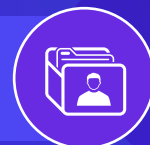
Results

The implementation of our comprehensive end-to-end test plan improved efficiency of validation for the Client's complex data flow across 21 integrations.
Time spent on manual validation of XML files was reduced by 60% and over 500 defects were identified and addressed.

Client overview

Our Client is a leading UK high-street fashion retailer known for offering affordable and trendy clothing, footwear, and accessories for women, men and children. With an additional international distribution channel online, our Client needs the best tech stack possible to serve its global demographic of fashion-conscious consumers. It continues to evolve its product offerings and to enhance its shopping experience both in-store and online with a focus on innovation and multi-channel customer satisfaction.

The retailer sought a single source of truth for all sales across all channels

To consolidate orders from all sales channels into a unified Order Management System (OMS), the client had embarked on a transformation journey, with Manhattan OMS the chosen third-party solution.

This integration required management of a complex data exhaust between multiple upstream and downstream systems and applications. Further, new integrations were required through an Integration Platform as a Service (IPaaS) using Azure Logic Apps and Web Apps. Multifaceted and interdependent challenges presented themselves within this process:

Data flow required validation
Significant challenges were encountered balancing the intricate data flow across 21 integrations (13 inbound and 8 outbound). Each integration included Producer and Consumer Logic Apps, which required rigorous validation to ensure data accuracy.

No end-to-end test design
Encompassing various source systems, comprehensive end-to-end testing was necessitated including Hybris SAP Commerce, Oracle RMS, ReSA, Selektron, Location Management System, and an Enterprise Data Warehouse (IBM – DB2 Database). The testing requirements also included seamless interfacing with IPaaS layers and the MAO.

Lack of early-stage testing
The Client encountered complexity around test case creation and execution when it became apparent that testing needed to begin before some source systems (inputs to Producers) were fully prepared.

Complex interface requirements
Interface Requirement Specifications were particularly complex and so the Client required the creation of a vast range of test cases that covered all possible scenarios comprehensively.

Missing data validation

The Client faced a challenge to maintain accuracy and efficiency in defect triage with such an extensive volume of XML and JSON files to be validated across multiple integrations.

Coordination challenges

Coordination was made more difficult because of the Client's OTP sharing issues across multiple teams, which complicated management of CyberSource authentication and decision-making for orders on hold.

Shift-left test plan designed, integrated and delivered

Qualitest implemented a comprehensive and strategic approach to address these challenges:

Integration testing plan

By categorizing the 21 integrations into distinct groups, Qualitest developed a detailed plan for integration testing. The plan allowed for multiple integrations simultaneously and independent testing of non-dependent interfaces. This greatly improved overall efficiency.

End-to-end testing approach

Qualitest designed an end-to-end testing plan and divided it into two phases. The approach was to ensure thorough coverage of all source systems and their interfaces within IPaaS layers and the MAO. The goal, as always, was to facilitate earlier issue identification and streamline efforts across various systems.

Alternative testing methods

When cases where the source system was not ready for testing were encountered, the Qualitest team suggested using Postman and manually created files to generate the required input data for IPaaS Integration. This ensured testing continuity.

Structured test case creation

To create a test matrix, a structured approach was adopted which considered factors such as order channel, delivery type, and payment method. Solution architects and business analysts were consulted to ensure the plan was reviewed and refined iteratively and accurate test cases were developed.

Automation for data validation

To automate data extraction from XML and JSON files, Python scripts were implemented to convert them into Excel format. It was this automation that massively streamlined the validation process, dramatically reducing the time required for the triage f defects.

Streamlined coordination

To implement push messages, Microsoft Power Automate was used. This resolved the Client's OTP sharing issues and simplified cross-team coordination. The solution also reduced the effort required for authentication and decision-making.

Key benefits

Qualitest's strategic continuous testing, integration testing and automation solutions led our Client to substantial benefits, both in terms of efficiency and quality:

Validation efficiency enhanced

The implementation of our comprehensive end-to-end test plan improved efficiency of validation for the Client's complex data flow across **21 integrations.** This facilitated seamless communication and data flow between systems.

Testing accuracy improved

Systematic categorization of the integrations and strategic prioritization of testing, based on dependencies, enhanced the accuracy of testing. This ensured all scenarios were validated thoroughly.

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Unified coordination

Unified and seamless coordination among the Client's different teams was facilitated by the clear guidelines for simultaneous testing and the use of automation tools. This significantly reduced the effort and time required for cross-team collaboration.

Comprehensive system test coverage

Qualitest's end-to-end testing approach ensured comprehensive coverage of all source systems and interfaces. This also better aligned systems with business requirements and more frequently validated the functionality of the entire system.

Efficiency gains made in test initiation

The deployment of Postman and manual file creation as alternative testing methods allowed testing to begin even when source systems were not ready. This meant momentum could be maintained in the testing process.

Significant time saved

The validation process was expedited by the implementation of Python scripts. **Time spent on manual validation of XML files was reduced by 60%.** Efficiency in defect triage and data validation was also enhanced.

Operational efficiency boosted

Our implementation of Microsoft Power Automate for push messages streamlined the CyberSource authentication process significantly. This saved considerable effort that would have otherwise been spent on team coordination.

Defects fully identified

During testing, over **500 defects were identified** and addressed. This underscored both the thoroughness and targeting of the quality assurance process. It also continues to contribute to the overall reliability of the system.

The success of the project was characterized by the completion of 21 integrations via IPaaS, the successful execution of extensive test phases, and the regression pack's development to ensure future-proof system stability.

The solutions Qualitest deployed not only met the Client's immediate business needs but also added long-term value by enhancing the Order Management System's ongoing robustness.

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