Functional And Automated Regression Testing For The Replacement Of A Casework System

Client: Historic England

Industry: Public Sector

Technologies: Microsoft Dynamics, 365, C#, Selenium, SpecFlow, MS Azure DevOps

Ten10 Services: Managed Test Services: Agile Testing, Functional Testing

Historic England is a public sector organisation tasked with protecting historical sites and environments in England. It specialises in assessments, processing grants, giving advice to owners, developers and local authorities, as well as identifying and designating historic sites, providing heritage data, and helping to shape government policy and communications. It opens up heritage for everyone using digital resources.

What We Did

Concase GIS is the main legacy casework planning system. It controls, validates, processes and manages the information required for over 80 planning process/work type areas.

After a review, it was decided that Microsoft Dynamics could be a possible replacement, so a proof of concept (POC) project was agreed. The project would aim to successfully replicate several Concase GIS functions and embrace an agile methodology approach to project delivery.

Objectives

- Prove that Microsoft Dynamics 365 meets the requirements of the two representative workflows.
- Create an integrated and comprehensive view of the casework interactions when a user seeks advisory services and the integrated functionality to manage, investigate and report these interactions.
- Confirm the suitability of project delivery using the Agile methodology.
- Create and maintain an automation framework for the Microsoft Dynamics POC that would be used as a working model/template across future projects.

Goals

Ten10 assisted Historic England's development team in achieving a successful POC casework system and in developing future casework management systems utilising an Agile methodology.

Approach

The key activities delivered through Ten10's functional testing included:

- Black box testing conducted early and in parallel with incremental development

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- A rigid test management approach using Microsoft Azure DevOps; ensuring in-house team members understood the increment(s) that were being developed
- Gathering incremental requirements from relevant Business Analysts, Project Managers, Product Owners and Developers
- Providing valid testing inputs in team meetings, retrospectives, demos and all Agile ceremonies
- Utilising daily test reports to monitor and manage progress.
- Preparing and maintaining manual regression tests while liaising with remote automation testers to understand increment requirements and increments execution steps.

In addition, the key activities delivered through Ten10's automation engineers included:

- Setting up a test automation framework using C#, Selenium, SpecFlow
- Working on a continuous integration pipeline to find defects immediately when new builds are pushed to the central repo
- Ensuring the most business-critical functions were tested daily
- Integrating the central repository with Azure DevOps to provide Historic England stakeholders and developers with critical feedback of incremental pass/fail rates
- Enabling multi-browser testing by setting up an onsite virtual machine and enabling remote access
- Integrating HTML report sheets to provide efficient and effective feedback and specific details regarding test failure, allowing for collaboration across the delivery team to evaluate, prioritise and assign defects.

Challenges

As this was Historic England's first time working with the Microsoft Dynamics platform, there was limited knowledge in house about how it may integrate and work with the other systems. Ten10 suggested an investigative approach using Spike tests to identify and explore issues.

Benefits

- Achieved in scope POC objectives of replicating representative casework workflows proving that Microsoft Dynamics was a good replacement
- Successfully establishing an automated regression framework and documentation which would be used as a testing model in future projects saving time and money
- Achieved a consistently high pipeline pass rate reducing the time and expense of the project.