**Tools**

Jenkins for CI add Jenkins Link

W3C for Accessibility

<http://ww.w3.org/WAI/intro/wcag>

Github – off DITI code repositiory

<http://github.com/LandRegistry/cases-api>

GitLab – on DITI code repository

<http://git.lr.net/casework>

Relish for User Stories

<http://relishapp.com>

Cucumber for acceptance tests

**Reviews**

* 3 Amigos meeting for each story
* Pair programming
* All code peer reviewed before merging into master repositories in Github or GitLab
* All completed stories to be demo’d, to and then signed off by, Product Owner

No Lint validation errors

All acceptance tests passed

**Approach**

**Quality is “Team responsibility”  
“User stories are an invitation to a conversation”**

**Pre Development**

* Identify **user stories** from needs not wants
* **3 Amigo** meeting to create test scenarios and clarity on ‘what’ to develop
* Be clear on **acceptance criteria** to sign off

**“Work together to review and avoid duplication of tests”  
“Automate as much as possible”**

**Development test levels**

* **Unit test** – Developer responsibility
* **Acceptance test** – QA responsibility
* **Integration test** – Developer and QA
* **Exploratory test** – QA led but all to be involved
* **Non-functional test** – QA responsibility but working with infrastructure

Any **defects** should be resolved within the lifespan of the story. If the defect is the only thing preventing completion of the story then a task should be raised and added to backlog

**Focus Areas**

**High Medium Low**

Focus for Development In/Out scope

Functionality

Business Process

Security

Regression

Maintainability

Accessibility

Auditability

Focus for Service In/Out scope

Continuity of processing

Reliability

Portability

Operability

Performance

Usability

**Continuous Integration (CI)**

* Controlled by Jenkins
* Automated deployments from code repository on merging of code into master branch in Guthub/GitLab
* As in private beta no deployments to Live until end of phase

**Development pipeline**

After manual tests with no issues found

Release code

(manual control)

Release code

(manual control)

No Lint validation errors

>80% code coverage

All unit tests passed

Deploy to Production

Deploy to pre-prod

Infrastructure checks

Shippable code

Exploratory tests  
Non-functional tests

Acceptance tests

Unit Test

Linting

**(P336 Casework for Digital Mortgage - Private Beta) Quality Strategy**

**Risks**

* Refactoring not undertaken at appropriate time leading to delays to correct technical debt
* Team does not have the necessary skills to develop the service
* Environmental and technical issues may delay development and impact on quality

**Exceptions**

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| **Focus for development -** This service will provide a casework User Interface for a new web based service that will link to the new Digital Mortgage service as well as existing legacy services  **Functionality - HIGH**  Verification that each function operates as expected   * Unit Test - identity defects early * All code should be written clearly and easily understood, comments should be used where necessary * 80% coverage of code * Acceptance Test - automated (BDD where possible) * Cucumber/ruby(off DITI)/jruby(on DITI to connect to DB2) * All high/medium frequency flows * All high/medium risk flows * Avoid duplicating unit tests * Integration Test - automated (BDD where possible) * Check tables have correct number of rows and data in correct format * Exploratory Test – manual testing * Target areas not covered by automated tests * identify and test around ‘defect clusters’, high risk and high complexity areas * include areas outside of story * involve whole team * Details of areas covered to be recorded and stored in Team folder in Google Drive * Defects * **defects** should be resolved within the lifespan of the story. If the defect is the only thing preventing completion of the story within a sprint then a task should be raised and added to backlog |
| **Business Process - MEDIUM**  Assurance that all aspects of the end to end service operate as expected. This may involve a combination of manual or automated systems and support functions   * Create suite of (automated where possible) tests of high risk/high business importance legacy systems that could potentially be impacted by changes to the architecture – to be run towards the end of the private beta phase * Create visible dashboard for team to show availability and state of the service * Create plan for Team to maintain service and handle incidents - Service Desk will be informed to forward any enquiries and incidents directly to the Team. * Establish what metrics/analytics are required and provide mechanisms to collect them |
| **Security - HIGH**  Assurance that the system and data will be protected against accidental and/or intentional modification or misuse  This is a high risk area as this web based service will be writing directly to DB2   * Liaise with Security Team to discuss and confirm measures required to ensure compliance to LR security rules - including need for external penetration tests before the end of private Beta phase * Liaise with Fraud Team to ensure correct systems are in place to conform to RFIU requirement * Team to be made aware of issues that constitute a security risk (eg: copying sensitive data to open web based repositories like GitHub) |
| **Regression - HIGH**  Ensure existing services and functionality are not adversely impacted by any new changes   * Continuous Integration * All automated tests to be run on merging of code into repositories in Github and GitLab * Manual testing of legacy systems to be undertaken when required – details documented in Google Drive |

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| **Maintainability - MEDIUM**  Ensure code (both test and development) can be easily understood and maintained so changes can be made with confidence.   * All code to be peer reviewed before merging into master copy in Github and GitLab * Code should be consistent across the development team – variables and functions managed in a consistent way * Comments should be clear to enable clear understanding for future developments * All code should be refactored as part of the development process to avoid technical debt * Tests to be kept in same repositories as application code so location is always known * Readme files in repositories to be kept up to date regarding the setup, use of the repository code and how to run the tests. Dependencies should also be listed |
| **Accessibility – HIGH (Due to legal requirements)**  Enable the site for use by someone who is visually impaired and assistive devices like screen readers. As a government agency W3C AA compliance is a legal requirement   * The casework frontend User Interface will be tested to ensure W3C AA compliance whenever a change has been made to it * W3C page validator at http://validator.w3.org for an instant indicator and SOATEST will be used * Manual checks will also be made * All details recorded and stored in Team folder in Google Drive * Before the end of private beta service, perform accessibility testing with actual end users to highlight any issues with the site * Ensure testing with Dragon users before end of public beta phase |
| **Auditability - MEDIUM**  The ability to trace the accessing and processing of data: who has accessed the system, when it was accessed and what was done   * Agree an audit solution and identify the data required for logging - check it is fit for purpose across different servers |

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| Focus for service  **Continuity of processing - HIGH**  Ability to continue processing following the failure of a sub-system or component   * Test that data is not lost if a component in the new service fails or is inaccessible * Test that processing can continue when service is returned * Test that any applications lodged through the new Digital Mortgage frontend can be processed in CORA |
| **Reliability – MEDIUM (rating given as number of applications expected to be lodged and the availability of processing these applications through CORA if problems occur)**  The extent to which the system will provide the intended function without failing   * Limited load and soak testing will be undertaken, however the traffic on the new service is not expected to be high during private beta (100 max applications a day), so more extensive testing and scalability will be considered during public beta phase |
| **Portability – LOW (The casework service will only be available to users in LR Office networked locations, therefore the type of OS and devices that will access the service is limited)**  Validate the ability for a system to operate in multiple operating environments   * Although access to the casework service will currently only be through LR networked DITI devices, it may be wise to do some limited testing across different operating systems and devices for future proofing |
| **Operability - MEDIUM**  Verify the ability to install, monitor and back out the target solution   * Work with the Infrastructure Team to provide a Jenkins Continuous Integration environment that will provide a consistent approach of delivering tested code to Live on completion of private beta phase and provide a dashboard to monitor the deployments   Using Jenkins CI will enable previous versions of code to be deployed if there is a need to back out any changes |
| **Performance – MEDIUM (Due to low user numbers in private beta)**  The ability of the system to perform under load within a prescribed time   * The number of users for private beta is low (potentially just 1 apprentice) potentially processing around 100 (max) applications a day * Investigate tools such as jmeter * Liaise with performance test to discuss how best to conduct performance testing |
| **Usability – HIGH**  Usability is the measure of a service's ability to accomplish the goals of the user   * User Research undertaken during the Alpha phase has delivered a prototype which delivers a solution that meets the user’s needs. This will be iterated throughout the public beta phase to ensure that the best solution is being delivered to the customer * Designed in line with GDS design principles: <https://www.gov.uk/design-principles> |