

Deriv

Process Description - Engineering Solution

CONTENTS

1. VERSION CONTROL	3
2. OVERVIEW	4
3.1 INITIAL DESIGN CRITERIA	5
3.1.1 OVERVIEW	5
3.1.2 TEAMS	5
3.1.3 PROCESS DESCRIPTION	5
3.1.4 INPUT	6
3.1.5 PURPOSE, KEY ELEMENTS, OUTPUT	6
3.2 ALTERNATIVE SOLUTION & ANALYSIS	7
3.2.1 OVERVIEW	7
3.2.2 TEAMS	7
3.2.3 PROCESS DESCRIPTION	8
3.2.4 INPUT	9
3.2.5 PURPOSE, KEY ELEMENTS, OUTPUT	9
3.3 DESIGN SELECTION	10
3.3.1 OVERVIEW	10
3.3.2 TEAMS	10
3.3.3 PROCESS DESCRIPTION	10
3.3.4 INPUT	11
3.3.5 PURPOSE, KEY ELEMENTS, OUTPUT	11
3.4 DEVELOPMENT & MODULE TESTING	12
3.4.1 OVERVIEW	12
3.4.2 TEAMS	12
3.4.3 PROCESS DESCRIPTION	13
3.4.4 INPUT	13
3.4.5 PURPOSE, KEY ELEMENTS, OUTPUT	14

3.5 INTERFACE IDENTIFICATION	15
3.5.1 OVERVIEW	15
3.5.2 TEAMS	15
3.5.3 PROCESS DESCRIPTION	15
3.5.4 INPUT	16
3.5.5 PURPOSE, KEY ELEMENTS, OUTPUT	16
3.6 INTEGRATION	17
3.6.1 OVERVIEW	17
3.6.2 TEAMS	17
3.6.3 PROCESS DESCRIPTION	17
3.6.4 INPUT	18
3.6.5 PURPOSE, KEY ELEMENTS, OUTPUT	18
3.7 VERIFICATION AND VALIDATION	19
3.7.1 OVERVIEW	19
3.7.2 TEAMS	19
3.7.3 PROCESS	20
3.7.4 INPUT	20
3.7.5 PURPOSE, KEY ELEMENTS, OUTPUT	21
3.8 PRODUCT RELEASE	21
3.8.1 OVERVIEW	21
3.8.2 TEAMS	22
3.8.3 PROCESS	22
3.8.4 INPUTS	22
3.8.5 PURPOSE, KEY ELEMENTS, OUTPUT	23
4. RACI MATRIX	24

1. VERSION CONTROL

Version No.	Date of Last Change	Preparer	Approver
0.1	28/09/2021	Syeda Bariya Haq, Prince Coching, Mohammadreza Ghorbani	

2. OVERVIEW

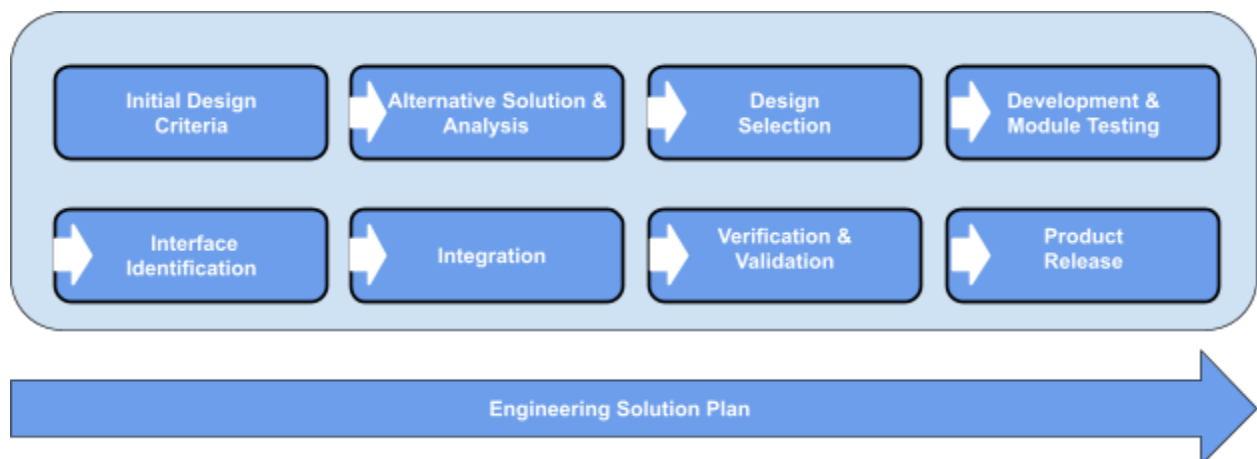
OVERVIEW

Technical solution gives details regarding the design which is focused not only to give the solution to meet requirements but also, it introduces to alternative solutions, criteria for design decisions which targets optimal results, and the information needed to meet all those customer, functional, and quality requirements. This document provides a process flow and execution of the technical activities performed in an Agile environment to get the best and most optimised design solution delivered to the customer. The technical solution process area is applicable at all the level of the product architecture and to every product, product component or services and related life cycle process.

Following are focused under technical solution:

- Analysing, evaluating and selecting the solution that is potentially satisfying the set requirements.
- Developing detailed designs for the selected solutions stating all the dependencies and information related to it.
- Implementing the design solution as a product or product component.

The above mentioned points can be divided into the following phases

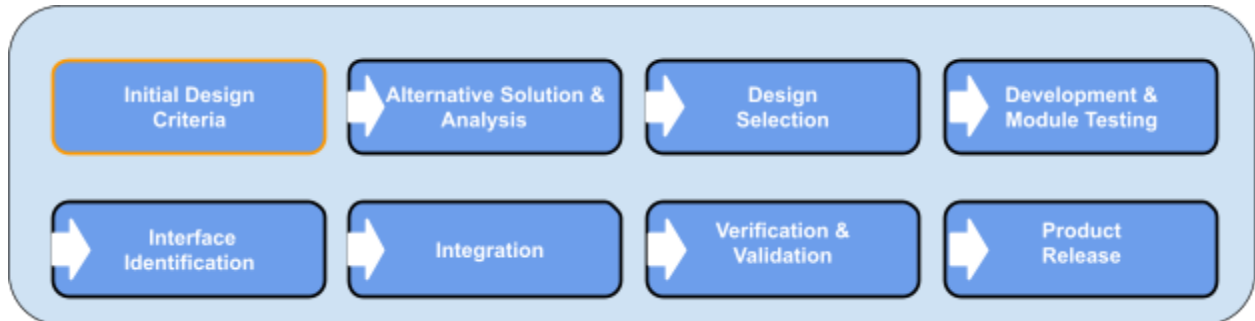


Each of the phases is described in detail below.

3.1 INITIAL DESIGN CRITERIA

3.1.1 OVERVIEW

For getting an optimal solution, we need to set relative merits and criteria on which we assess those solutions.



3.1.2 TEAMS

The following teams will be involved at this stage:

- Project Management
- Product Owner
- Design
- Development

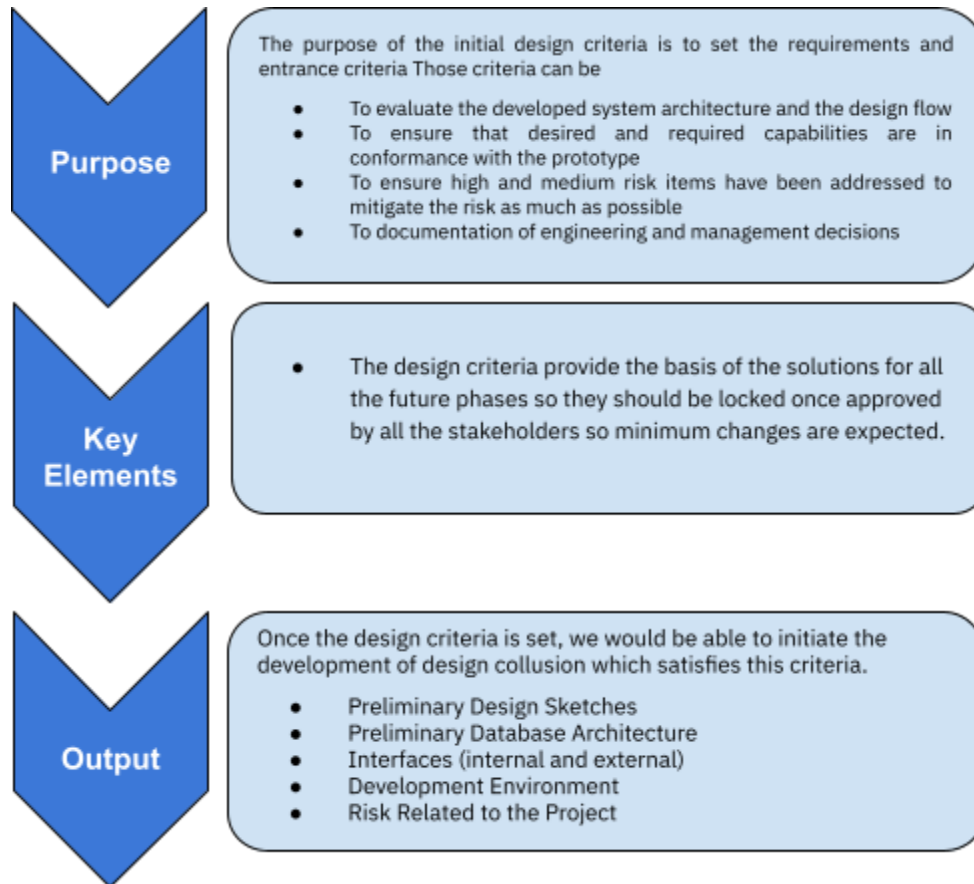
3.1.3 PROCESS DESCRIPTION

- A meeting would be held with the relevant stakeholders from the above mentioned teams.
- The relevant stakeholders will then come up with criteria on which the designs will be selected in the later phase.
- These criteria could be costs (e.g., time, people, technology, and budget), benefits (e.g., performance, complexity, maintainability, capability, and effectiveness), and risks (e.g., technical and non-technical both).

3.1.4 INPUT

- Requirements
- User Stories/Epics as Work Breakdown Structure (WBS)

3.1.5 PURPOSE, KEY ELEMENTS, OUTPUT

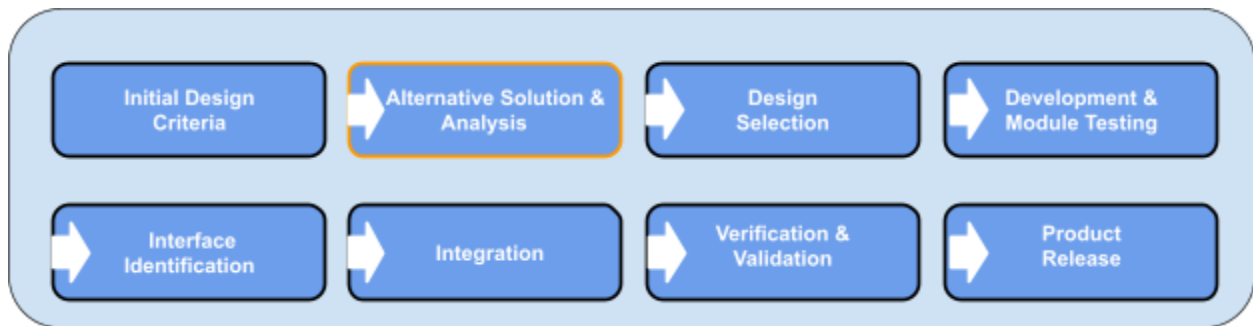


3.2 ALTERNATIVE SOLUTION & ANALYSIS

3.2.1 OVERVIEW

The activity is conducted in order to evaluate the multiple choices and options available to get the solution. These options can lead to different complexity levels and hence, would require different resources count as well in order to implement it.

The analysis activity comprises comparing different alternative solutions which best encompasses the initially set criteria. This needs to be first done by the project manager as per the proposals of the solutions given by all the teams (i.e., designs, development, QA) and come up with the best combined solution.



3.2.2 TEAMS

The following teams will be involved at this stage:

- Project Management
- Product Owner
- Design
- Development
- Quality Assurance

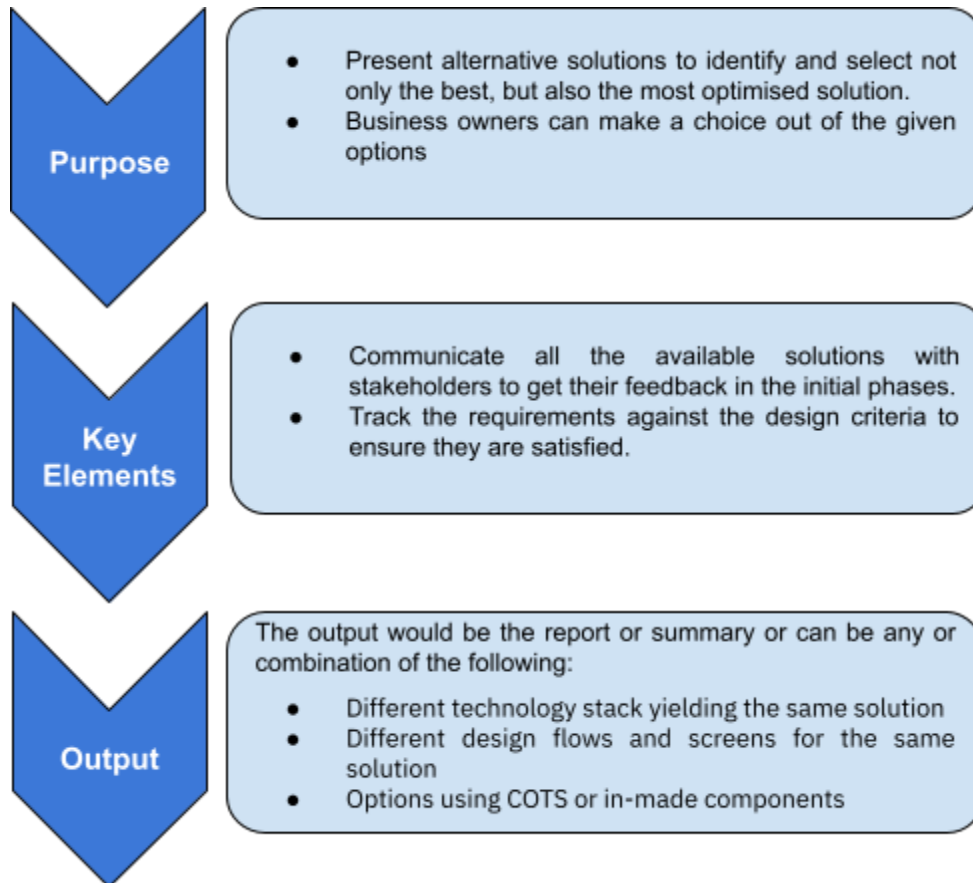
3.2.3 PROCESS DESCRIPTION

- The product owner and designers need to come up with multiple solutions that are aligned with the design criteria set previously.
- These solutions give the same output for the set design criteria and can include different design flows, use of different technology stack, any externally provided solutions and/or internally reusable components, etc.
- As the teams are working in an agile manner so it is not always possible to have everything recorded or conveyed in a documentation, instead, agile ways for communication are used like sprint retrospectives, white boards, video calls, and Miro boards for making design and architecture decisions and sharing the alternative solutions.
- At the stage of analysis, the project manager and all relevant stakeholders need to perform an analysis of the presented solutions.
- The analysis would be about purchases made like COTS products or in-made components would be better.
- The products or technology stack which can be used again or any new technology should be considered for better cost and handling.
- The designs which are presented need to consider user experience and are worth the effort of the developers.
- Risks involved with using the proposed solutions
- Capabilities and limitations of the end user and operators

3.2.4 INPUT

- Preliminary Design Sketches/Workflow
- Set Design Criteria

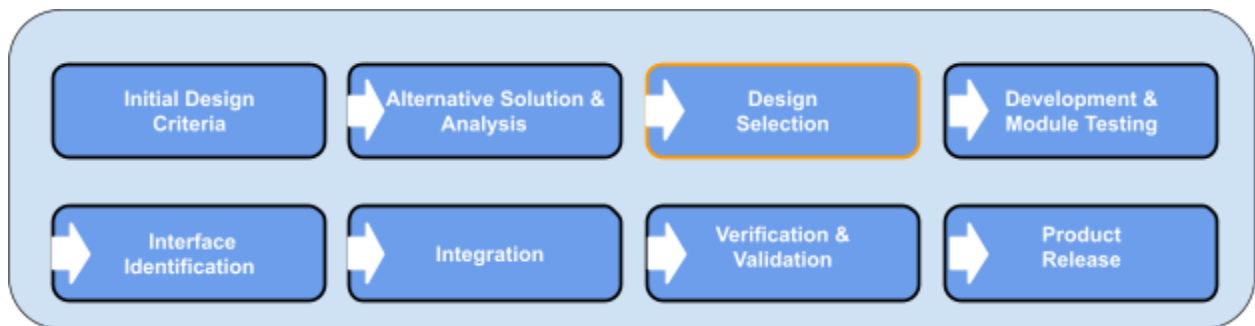
3.2.5 PURPOSE, KEY ELEMENTS, OUTPUT



3.3 DESIGN SELECTION

3.3.1 OVERVIEW

As per the evaluation and analysis of the different design solutions presented, the project manager and product owner should be able to propose the solution that best satisfies the criteria established.



3.3.2 TEAMS

The following teams will be involved at this stage:

- Project Management
- Product Owner
- Design
- Development
- Quality Assurance

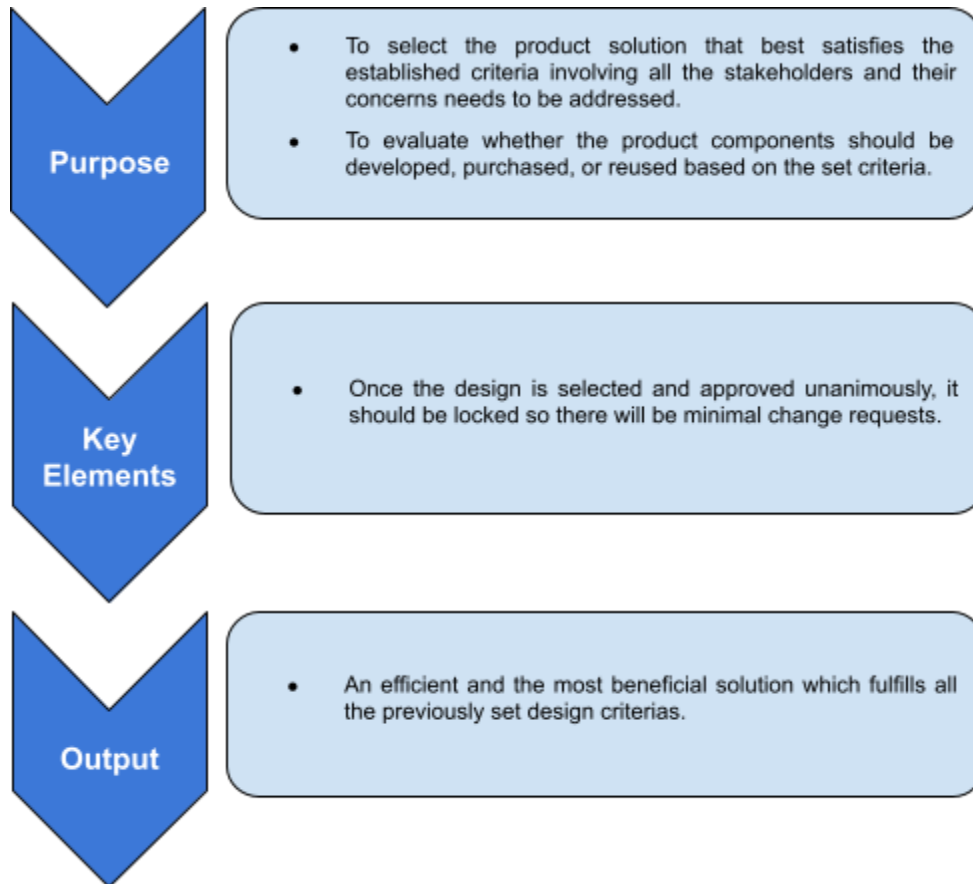
3.3.3 PROCESS DESCRIPTION

- Project manager will be asking for a meeting to discuss the selected design solution.
- The solution needs to be presented by the project manager and product owner.
- All the stakeholders from the above mentioned team should present any dependencies or questions, if any, regarding the solution.
- All stakeholders need to accept the solution unanimously.

3.3.4 INPUT

- The reasons/report generated after the analysis of different design options.

3.3.5 PURPOSE, KEY ELEMENTS, OUTPUT

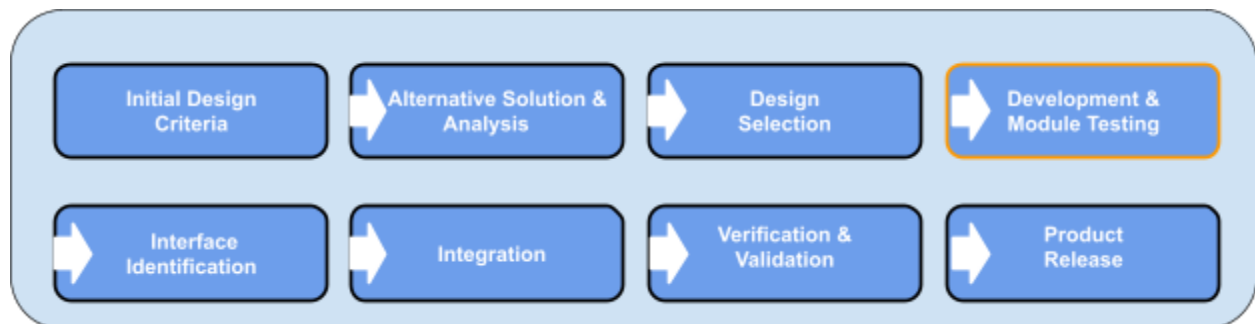


3.4 DEVELOPMENT & MODULE TESTING

3.4.1 OVERVIEW

Development and module testing phase discusses the development process of any feature using the selected design. This phase will start as soon as the design solutions are finalized and delivered to the development team. On an individual level, developers will be doing the research for the tasks to initiate the coding. The coding will be done following the best practices and company set standards. As soon as any changes are made in the designs or business logic, the related documents and components need to be updated accordingly. While implementing, developers should keep revising the information to design the solution whenever needed.

In order to provide the users with material on how to use the products, some support documentation needs to be created as well which should be available all the time for the users.



3.4.2 TEAMS

The following teams will be involved at this stage:

- Project Management
- Product Owner
- Development

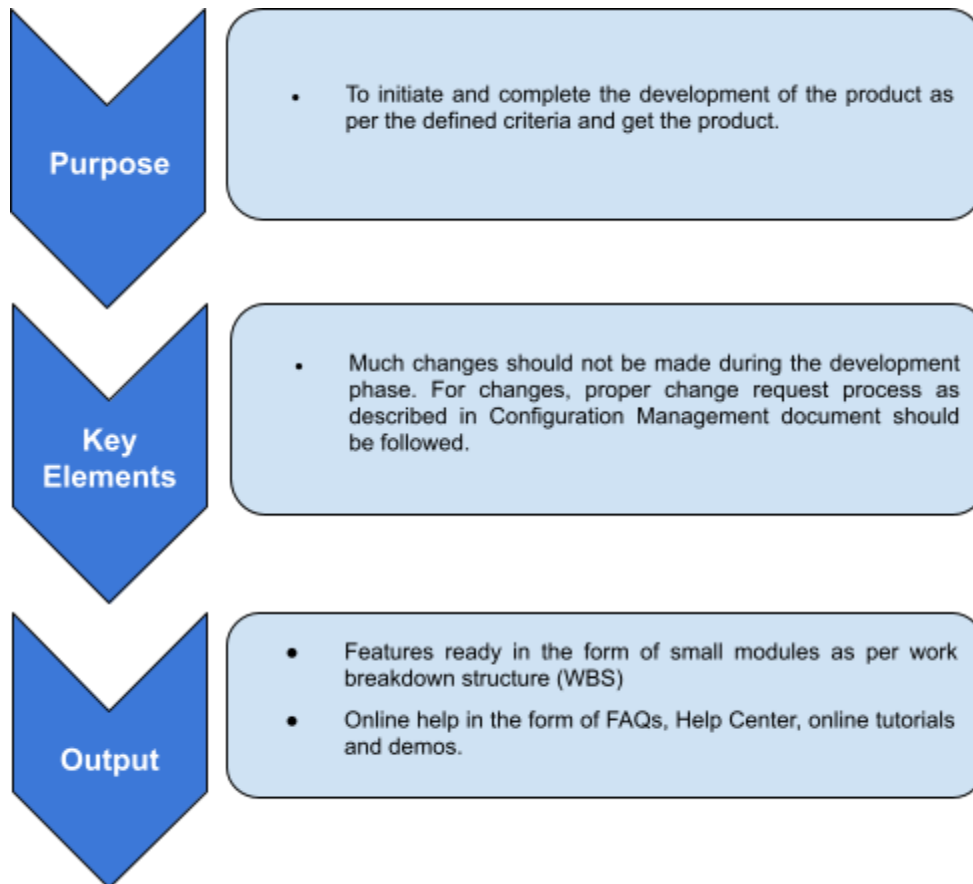
3.4.3 PROCESS DESCRIPTION

- Development team will be providing the task work breakdown structure (WBS) for the implementation of the design solution.
- Developers need to do the required R&D for the given tasks and initiate the coding.
- After coding, the development team needs to perform unit testing and share the coverage of their test results.
- Once unit testing is done, the developers will get the work reviewed by their peers as per the peer review process.
https://docs.google.com/document/d/11a8PYYlBE_M3DcOev_nynn2lNuF6qcJ6/edit?usp=sharing&oid=114073244909975916167&rtpof=true&sd=true
- The peer reviews should be recorded and used for providing data later for measurement and control.
- Once the peer reviews are done, then the tasks will be moved for testing which is described in the topic: **Verification and Validation** process.
- In case of bugs, the task will be moved back to developers and once fixed, again it'll be moved for testing and once testing is completed, only then the feature will be moved to Ready.
- After the feature is completed, a support document needs to be created for the user to which they can refer anytime. This should be readily available to them in the shape of either a user manual for the products or an onboarding-tutorial, online help center or demo on the website, linked to each of the products.

3.4.4 INPUT

- Finalized designs and architecture

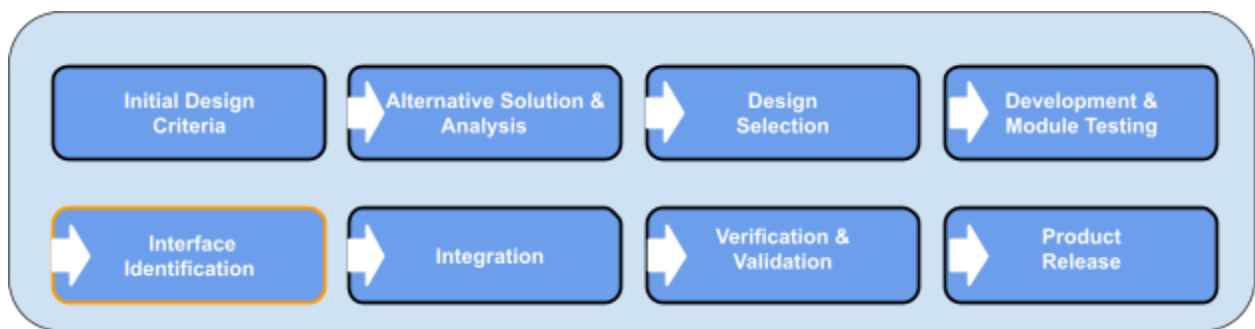
3.4.5 PURPOSE, KEY ELEMENTS, OUTPUT



3.5 INTERFACE IDENTIFICATION

3.5.1 OVERVIEW

Interfaces would be the interactive components within the solution, which when merged as a whole, give a system level information. This also includes identification of user interfaces or connections which were part of the development.



3.5.2 TEAMS

- FrontEnd
- BackEnd
- Mobile Development
- Design
- QA

3.5.3 PROCESS DESCRIPTION

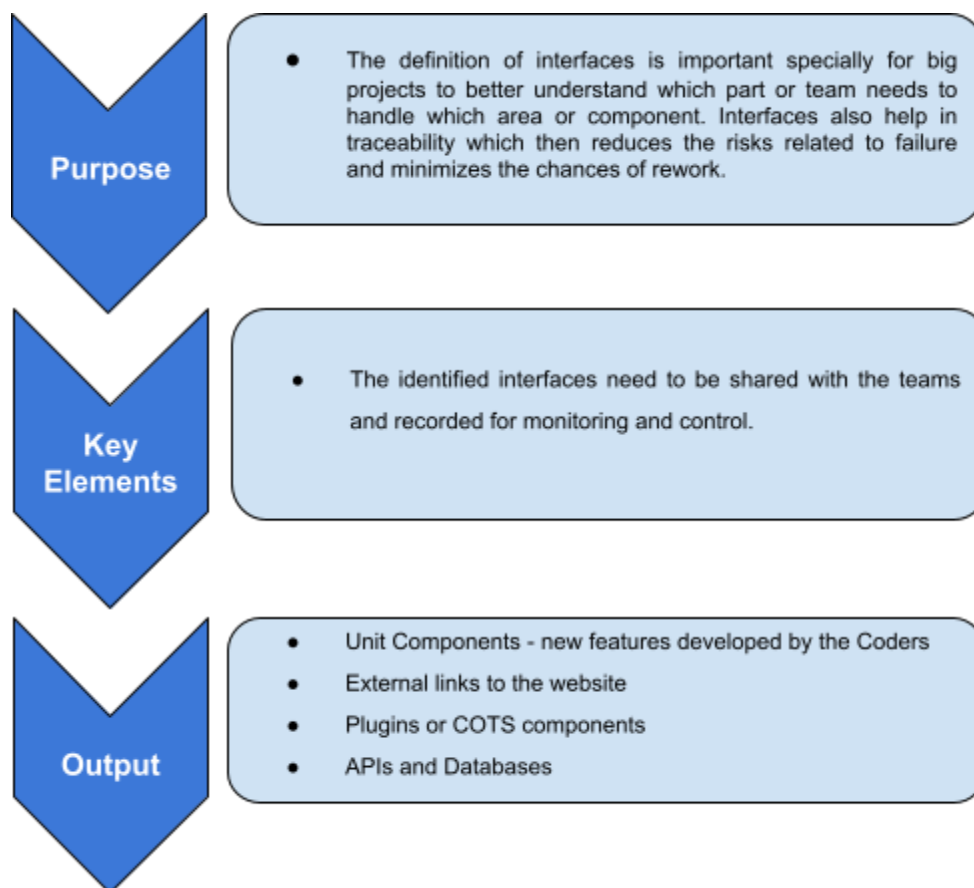
- Solution interfaces needs to be identified on the basis of any or all of the following quality attributes:
 - Performance
 - Standards
 - Complexity

- Risks
- Selection of interfaces needs to be recorded and updated with progress in the project by the relevant stakeholders.
- The reason and rationale of selecting the interfaces should also be recorded.

3.5.4 INPUT

- Developed modules - the unit components which are developed by the coders
- External interfaces - links referring to external sites or 3rd party sites
- Teams working together - Design, Development, QA

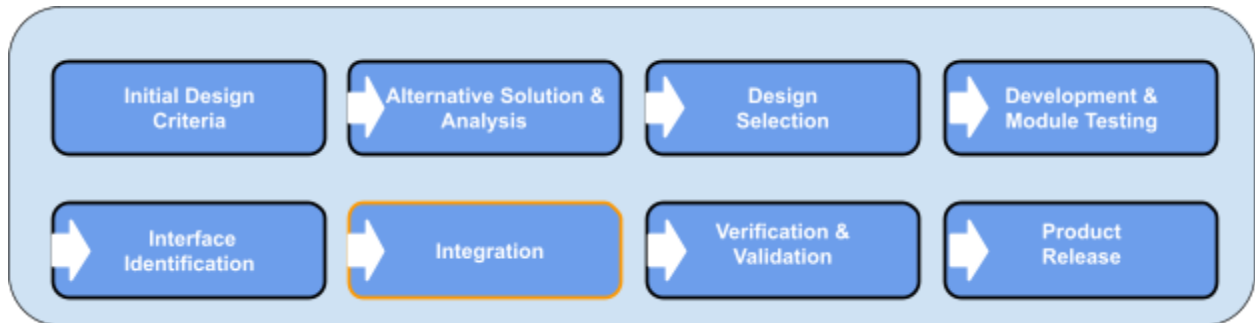
3.5.5 PURPOSE, KEY ELEMENTS, OUTPUT



3.6 INTEGRATION

3.6.1 OVERVIEW

Separate interfaces such as APIs, widgets and components are combined in this process. Testing environments are used to connect these interfaces to become a one working solution.



3.6.2 TEAMS

- DevOps
- FrontEnd
- BackEnd
- Mobile Development
- QA

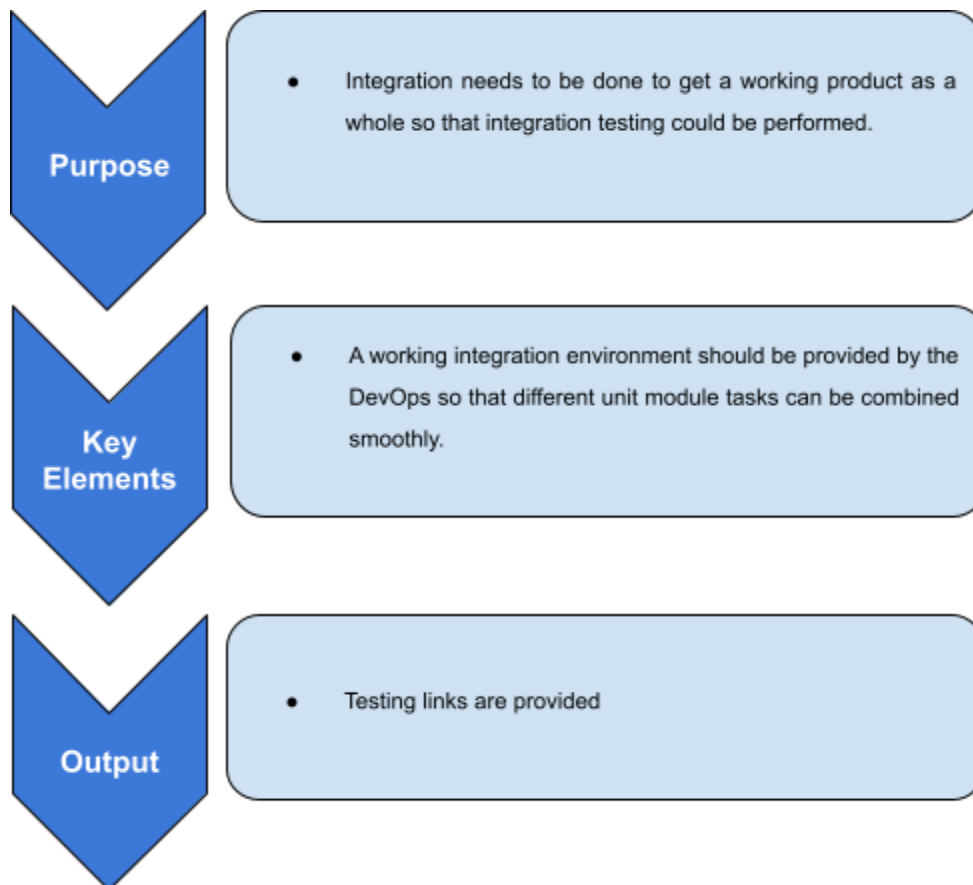
3.6.3 PROCESS DESCRIPTION

- DevOps should ensure that the testing environment is working and all frameworks are set up properly.
- FrontEnd, BackEnd and Mobile development teams need to combine their solutions based on interface requirements using proper QA box setup.
- Pull requests should be merged together to get tested as a whole solution.
- QA and Devops should prepare and build the solution in their QA boxes to start the test. The guidelines in this process that are documented in WikiJs should be followed.

3.6.4 INPUT

- GitHub Pull Requests with all the code changes from different teams.
- Testing environment where all the changes are merged and is identical to the current production environment.

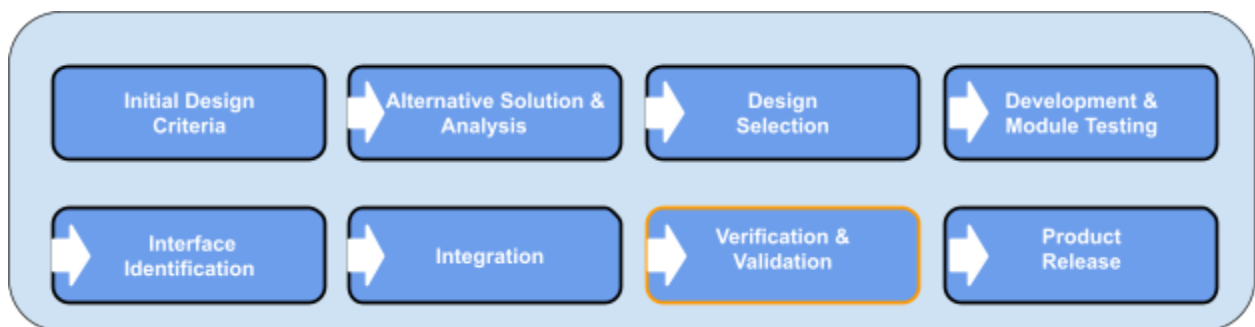
3.6.5 PURPOSE, KEY ELEMENTS, OUTPUT



3.7 VERIFICATION AND VALIDATION

3.7.1 OVERVIEW

Before individual integrated components are merged into the final solution they should be verified that they work as per the specifications. Interfaces are checked thoroughly to ensure that the implementation of the interface followed the requirements. Checklists are provided in Redmine cards for testers to test and check defects. Figma and other external materials are also provided for proper examination of the interfaces. After the individual interfaces have been verified and tested they should be tested as a whole. This will generally be a form of automated regression testing as set out in the testing plan of the project. Testers will gather as a group to conduct testing, compliance and usability teams may take part in the test to check if the current interface is implemented as per specification.



3.7.2 TEAMS

- DevOps
- Tech Team
- QA
- Compliance Team
- Usability Team

3.7.3 PROCESS

- Each single solution should be tested individually.
- Once the verification of each Individual solution is done, then those solutions should be merged together in the staging environment to begin a regression test.
- A regression Redmine card should be created according to the guidelines of each individual teams mentioned in WikiJs
- A new Redmine card will be created once a defect has been discovered.
- Once the test is complete and free of defects, it will be moved for the release process.

3.7.4 INPUT

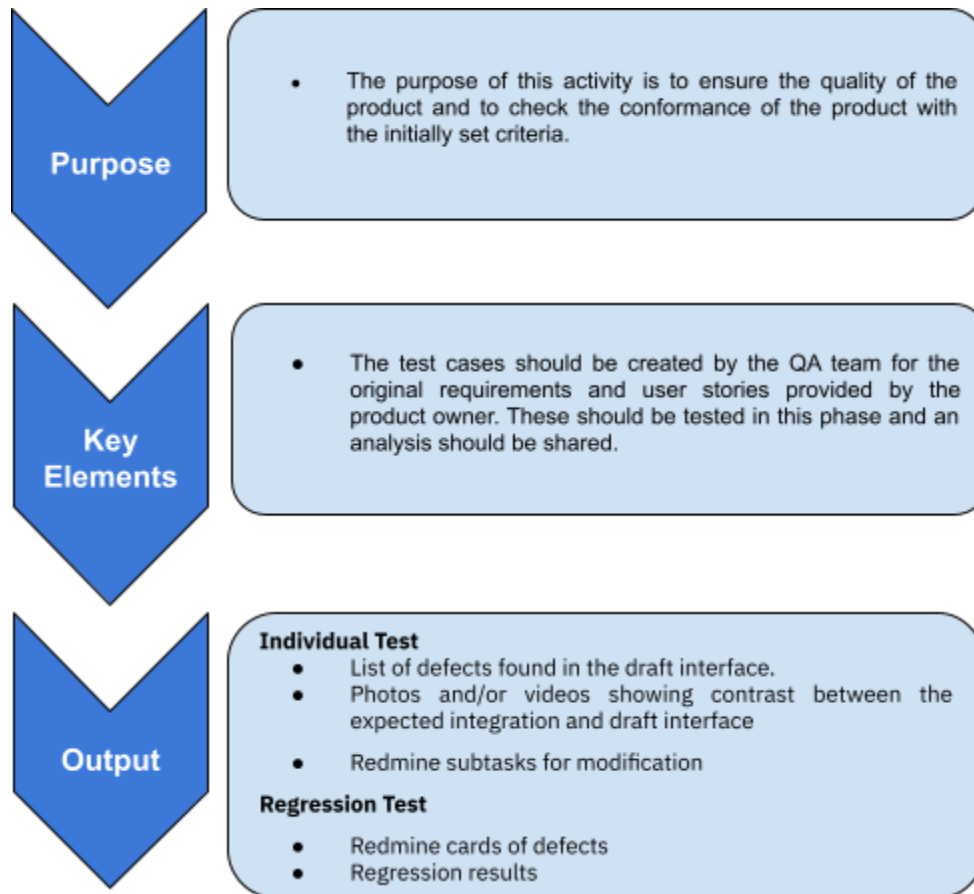
Individual Test

- Test Links
- Checklists
- Figma design references

Regression Test

- Regression card on Redmine
- Test links, API Keys, Login credentials
- Internal/External Documents

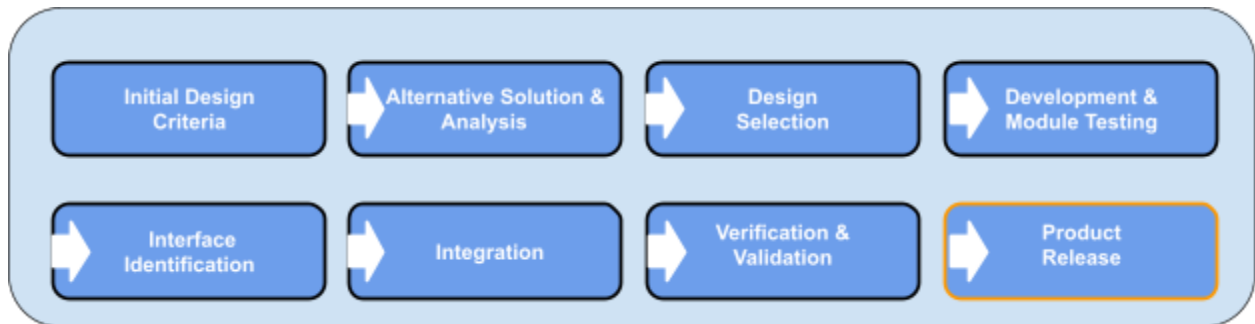
3.7.5 PURPOSE, KEY ELEMENTS, OUTPUT



3.8 PRODUCT RELEASE

3.8.1 OVERVIEW

Product Release is the process of merging the combined individual components into a finalized solution. This is normally merging the staging branch to the production branch in GitHub. Translation team may take part in handling newly added labels, paragraphs and descriptions within the interface.



3.8.2 TEAMS

The following teams will be involved at this stage:

- Technical Teams (Devops, Backend, Frontend, Mobile)
- Translation Team

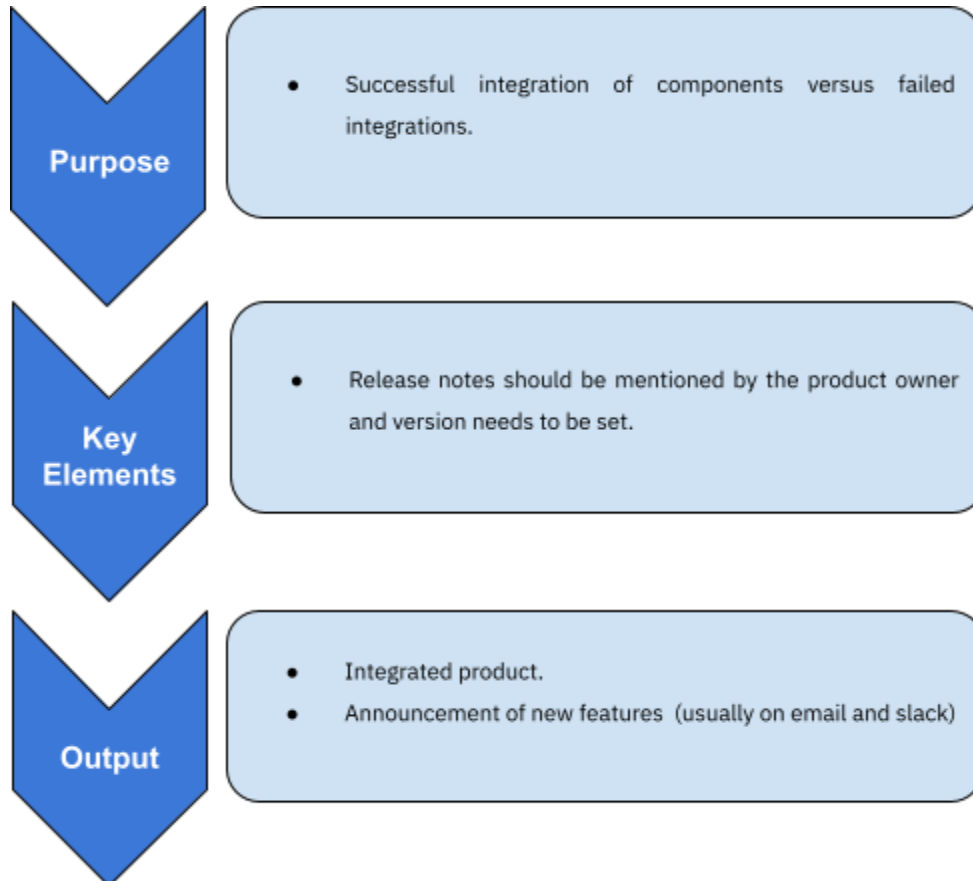
3.8.3 PROCESS

- Technical Teams (Release Managers) should announce the release in the public slack channel and email to x-all@deriv.com, then they will tag the verified branch with the production version and will trigger the automated release.
- All related Redmine issues should be marked as archived.
- After the successful release, the QA team should do a sanity check on the integrated solution in the production environment.

3.8.4 INPUTS

- Validated GitHub branch
- Version tagged Redmine cards

3.8.5 PURPOSE, KEY ELEMENTS, OUTPUT



4. RACI MATRIX

Process Steps	Initial Design Criteria	Alternative Solution & Analysis	Design Selection	Development & Module Testing
Project Manager	C	A	A	I
Product Owner	A	I	A	I
Compliance	I	I	C	R
Design	R	R	R	I
Backend	I	R	C	R/A
Web/ Mobile Frontend	I	R	C	R/A
DevOps	I	I	I	C
QA	I	R	C	R/A

(A=Accountable , R=Responsible , C=Consulted , I=Informed)

Process Steps	Interface Identification	Integration	Verification & Validation	Product Release
Project Manager	C	C	I	A
Product Owner	C	C	I	A
Compliance	I	I	C	I
Design	I	I	C	I
Backend	R/A	C	C	R
Web/ Mobile Frontend	R/A	C	C	R
DevOps	C	R/A	I	R
QA	I	I	R/A	C

(A=Accountable , R=Responsible , C=Consulted , I=Informed)