Week05 – Short Paper Assignment – Basic Unified Process (UP)

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# Introduction

The Unified Process (UP) is an iterative and incremental software development process. This process can be customized as per the project requirement. This can be viewed as a framework which contains multiple modules. This framework has been modified several times to create several variations like Rational Unified Process (RUP) and the Open Unified Process (OpenUP). There are a few key characteristics that may be listed below.

* Iterative and incremental development framework
* Architecture-centric – Most work is done to define and validate the architectural design
* Risk-focused – Highest risk factors are addressed in the earliest deliverables
* Use case and UML driven

# UP Disciplines

Agile methods are typically small. The unified process conforms to the principles of the agile methodology. The whole flow is organized into disciplines, which were formerly called work-flows. The disciplines can be further categorized into two dimensions; method and process (Balduino, n.d.).

***Method****:*

This is the dimension where the elements of it are defined; such as roles, tasks, artifacts, and guidance. The project lifecycle may be organized differently, however, the roles are the same for all the projects that are implementing the unified process.

1. Roles – There can be many roles that play critical roles in the development life cycle. The team is typically small and co-located. These roles are pretty much similar to the roles that are present in the traditional development project which starts with an analysis, then goes on to testing and ends with a release.
   * Analyst – They are the people who understand the business from the end-users and who are responsible for gathering requirements. Some of the analysts may have some basic technical knowledge to check for the technical compatibility of the requirements with the platform that is intended to be used or is currently being used. They may be able to translate the business requirements to functional requirements, which makes it easier to deduce the acceptance criteria for each of the requirement bullet.
   * Architect – The software architects play a vital role in building the application software architecture based on the overall requirements and come up with the major modules or components of the project. They also keep in mind the platform for the development, environments, and technology to be used.
   * Developer – They are the core team member of the team who creates the design based on the architecture laid out, and then builds the application by writing code for each of the components. They are responsible for integrating the components to build the final application. Developers write the unit tests for each of the methods or functions they write in the code. These unit tests help them gain confidence in each of the smaller components they write.
   * Testers – Testing is one of the integral parts of the development process. They may or may not have the structural knowledge behind the application. Typically they write their test scripts, considering the application as a black box. The main goal of the team is to ensure the application meets the acceptance criteria.
   * Project Manager – Each of the projects that apply UP needs to have a project driver and called as Project Manager. They communicate with the stakeholders, plan for the project, they set the expectation of the customer, create a risk management plan. Additionally, their job is to have the project team focused and make sure they do not get deviated.
2. Tasks – The tasks can be defined as the low-level activities in a small project. Many tasks were converted into steps that may be included inside another task and performed by a different role (Balduino, 2001, *Basic Unified Process: A Process for Small and Agile Projects*. p. 2).
3. Artifacts – In the case of a basic unified process, the number of formal artifacts is much lower than the RUP process. Few of them have a template and others follow guidelines. Artifacts for each of the tasks may vary by role. For example, an architect may be responsible for performing tasks like create an architectural proof of concept (POC), analyze the architecture. For them, the artifacts may be the architecture and architectural POC.

***Process****:*

The process within the UP is nothing but the method content which is nothing but step-by-step explanations. The process follows a capability pattern, which consists of reusable method elements organized into patterns. These patterns are meant to provide a consistent development approach and are grouped in a sequence for a particular area of development where they make sense.

The iterations within UP also follow an iteration template pattern. While creating the project plan, the below iterations are planned with a specific pattern.

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1. Inception – This is the phase where the analysts try to understand what to build. The key system functionalities are identified and listed. The cost, schedule, risk associated are assessed by the project manager. A work breakdown structure (WBS) document is created which can be used to organize the tasks under activities and helps in accurately create an estimate for the project.
2. Elaboration – The analysts try to get the full picture of the project and try to get the detailed project requirements. The requirement analysis and elaboration are followed by the architectural proof of concept creation.
3. Construction – The core development of the product is done in this phase iteratively. The developers and testers work closely to build and validate the application as per the customer requirements.
4. Transition – This may consist of many activities, like user acceptance testing, deployment in production, training to the end-users and maintenance of the application.

The project manager may plan to instantiate any of these iterations as many times as needed as per the project size and requirements. The below table is an example that depicts how the iterations can be instantiated multiple times.

|  |  |
| --- | --- |
| Basic Unified Process | |
| Inception phase iteration | I1 |
| Elaboration Phase Iteration | E1 |
| Elaboration Phase Iteration | E2 |
| Construction Phase Iteration | C1 |
| Construction Phase Iteration | C2 |
| Construction Phase Iteration | C3 |
| Transition Phase Iteration | T1 |

# Conclusion

BUP in a whole is an agile methodology, consisting of a lean team, limited roles, multiple iterations, incremental developments. This process is meant for small size projects which can be split into smaller modules and completed using the process pattern templates. This process can be customized as per the requirement. While the method is followed, the whole project can easily be documentation heavy, but as it is a customizable framework, a lot of documentation can be skipped and the implementation can be given more importance.

# Reference

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Balduino, R.. (n.d.). *Basic unified process: A process for small and agile projects*. Retrieved from *https://www.eclipse.org/proposals/beacon/Basic%20Unified%20Process.pdf.*

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