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**Abstract**

This document help everyone in project team understand what they needs to do in development project.

**Incremental Process**

**Foxes Project**

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# Introduction

This document will describe about the software development process is applied by us to use to develop software product.

## Purpose

* Help everyone in project team understand what they needs to do in development project.
* Make member in this project do their work follow the standard, the discipline to ensure the quality of product.

## Goal

* Can deliver product under budget and behind schedule.
* Deliver high product’s quality.
* Help member in this project have more experience about working in process.

## Scope

The scope of this document is used for Software Process Management Project during 6 months.

## Intended Audiences

|  |  |
| --- | --- |
| Audience | Reference Purpose |
| Project Manager | * Scheduling & tracking all process in project |
| Mentor | * Ensure that Foxes Team follows process |
| Team members | * Following process |

Table 1: Intended Audiences

# Reason for choosing process

## Analyzing the project characteristic

|  |  |
| --- | --- |
| Characteristic | Description |
| Project Team Skill | Weak overall knowledge. That a reason why our team is more suitable with the traditional methodology than any methodology. |
| Rate of expected change | In this project, the requirements is stable and can be determined well so we choose traditional methodology for project. |
| Project Communication | In this project, we have to develop system within 6 months, so the project communication must be clear and specified, in detail we need a comprehensive Communication plan so we choose traditional methodology for project. |
| Customer Relationship | We have some contract with our customer, it ensure we can deploy the product on time, in quality and achieve something that customer want and need. All of them must be deal and write down on a contract, which is our basis for customer relation, so we choose the traditional methodology. |

Table 2: Analyzing the project characteristic

## Comparing between Traditional & Agile Methodology

We analyzed and made some decisions for each factors above. But we need to summary it into a table and make a final decision about which methodology suitable for us.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Factor | Traditional | Suitable | Agile | Suitable |
| Communication | Formal | ✓ | Informal | ✓ |
| User requirements | Detailed and defined | ✓ | Interactive input |  |
| Cost of restart | High | ✓ | Low |  |
| Dev. Direction | Fixed | ✓ | Easily changeable |  |
| Testing | After coding is completed | ✓ | Every iteration |  |
| Client Involvement | Low |  | High | ✓ |
| Requirements | Very stable, known in advance | ✓ | Emergent, with rapid changes |  |
| Architecture | Design for current and predictable requirements | ✓ | Design for current requirements |  |
| Extra quality required for developers | Nothing in particular | ✓ | Interpersonal skills & basic business knowledge |  |

Table 3: Comparing between Traditional & Agile Methodology

* **With all of current resources, our team fit with Traditional Methodology than Agile Methodology. So we chose Traditional methodology.**

## Comparing between Waterfall & Incremental Methodology

We choose 2 Methodologies are Waterfall and Incremental to compare because we have more experience with these Methodologies than other.

We use the range 1-3 to compare 2 processes in those following factors.

### Advantage

|  |  |  |
| --- | --- | --- |
| Advantage (bigger is better) | Waterfall | Incremental |
| Simple and easy to understand and use. | 3 | 1 |
| Achieve more new knowledge and experiences. | 1 | 3 |
| It is easy to manage due to the rigidity of the model – each phase has specific deliverables and a review process. | 3 | 1 |
| Works well for projects where requirements are very well understood. | 3 | 2 |
| Generates working software quickly and early during the software life cycle. | 1 | 3 |
| This model is more flexible – less costly to change scope and requirements. | 1 | 3 |
| It is easier to test and debug. | 2 | 3 |
| Customer can respond to us or our product easier. | 1 | 3 |
| Lowers initial delivery cost. | 2 | 3 |
| Easier to manage risk | 2 | 3 |
| **Total** | **19** | **25** |

Table 4: Advance of Waterfall & Incremental Methodology

### Disadvantage

|  |  |  |
| --- | --- | --- |
| Advantage (smaller is better) | Waterfall | Incremental |
| Difficult to go back and change something that was not well-thought out in the concept stage. | 3 | 1 |
| No working software is produced until late during the life cycle. | 3 | 1 |
| High amounts of risk. | 3 | 2 |
| Not suitable for the projects where requirements are at a moderate to high risk of changing. | 3 | 1 |
| Needs a good planning and design. It is hard for our team because of leaking experiences. | 2 | 3 |
| Needs a clear and complete definition of the whole system before it can be broken down and built incrementally. | 1 | 1 |
| **Total** | **15** | **11** |

Table 5: Disadvantage of Waterfall & Incremental Methodology

### Deciding process

After considering about advantages and disadvantages between Waterfall and Incremental. **We decide to choose Incremental process in Traditional methodology for our project.**

# Process Visual Diagram

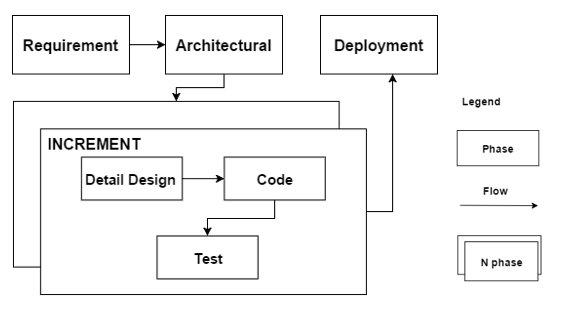


Figure 1: Incremental Process

# Process Roles & Responsibilities

|  |  |
| --- | --- |
| Role | Responsibilities |
| Phase Lead | * Ensure tools and methods are used correctively and effectively. * Primary interface between team and customer, team and project manager. * Activate member’s work, create environment oriented to open communications, creative thinking and workplace trust. * Providing weekly report and monthly report or schedule. * Support, manage, training, and help the development of team members, help resolve any dysfunctional behavior. |
| Requirement Team | * Identify requirement. * Deal with stakeholder. * Clearly understand requirements and scope of project. * Coordinate with developer in building prototype. * Developing SRS document. * Coordinate with test team in writing test document. * Monitor and ensure the developer team build product align with design models. |
| Architect Design Team | * Identify the architecture of the system. * Validate the architecture of the system. * Design database for software system. |
| Coding Team | * Responsible in coding phase. * Implement follow the design. * Fix defect if have. |
| Testing Team | * Find defect, bug in the program. * Write and update test case document for testing from all aspects of product (quality attributes, functionality). * Verify and tracking defects. * Ensure developer fixed important defects. * Giving mandatory information of defect to developers in order to fix it. * Prepare test data for the test cases. |

Table 6: Roles & Responsibilities

# Process Description

## Requirement Phase

|  |  |
| --- | --- |
|  | Description |
| Purpose | Develop document based requirement of customer’s need and present it to customer to get approved. |
| Input | • Project Charter  • Requirement Plan |
| Activities | * Requirement Elicitation: the requirement engineer have to get requirement from stakeholder, by using some techniques like interview or questionnaire, identify all of thing that stakeholder’s need. * Requirement Analysis: the requirement engineer have to analyze the requirement that get from stakeholder, than decide which features are appropriate for the product based on stakeholder’s need. * Requirement Specification: the requirement engineer have to document all thing that related to requirement. * Requirement Verification and Validation: the requirement engineer have to show the requirement specification to stakeholder and ensure that it meet the stakeholder’s need. |
| Output | * Vision and Scope Document. * Concept of operation Document. * Software Requirement Specification Document. |

Table 7: Requirement Phase Description

## Architect Design Phase

|  |  |
| --- | --- |
|  | Description |
| Purpose | Develop architecture for product to ensure satisfied goal of customer and quality of product. |
| Input | * Architectural Design Plan * Software Requirement Specification. |
| Activities | * Discover architect driver. * Decompose the element in each perspective to the appropriate level. * Conduct to implement detailed design for functions that selected. * Document architecture and design. |
| Output | * Software Architecture Specification * Software Architecture Driver. * Database Specification Document. * Software Design Specification. |

Table 8: Architect Design Phase Description

## Increment Phase

### Coding Phase

|  |  |
| --- | --- |
|  | Description |
| Purpose | Develop system as requirement & architecture |
| Input | * Increment plan * Software Requirement Document. * Architecture Document. * GUI Specification * Database Specification Document. * Software Design Specification. |
| Activities | * Coding each functional based on detail design |
| Output | * Source code |

Table 9: Coding Phase Description

### Testing phase

|  |  |
| --- | --- |
|  | Description |
| Purpose | Test, verify and validate the functional and non-functional of system that we developed. Beside, ensure that product get high quality and satisfy from customer. |
| Input | * Testing plan * Software Requirement Document. * Architecture Document. * GUI Specification * Database Specification Document. * Software Design Specification. |
| Activities | * Run test cases, make report. * Report bug or defect. |
| Output | * Test report. |

Table 10: Testing Phase Description

# Revision

|  |  |  |  |
| --- | --- | --- | --- |
| # | Date | Editor | Description |
| 3 | Sep 6th, 2015 | Tỷ Trần | * Adding table description. |
| 2 | Aug 22th, 2015 | Hồng Nguyễn | * Add reason for choosing process. |
| 1 | Aug 17th, 2015 | Hồng Nguyên | * Establish the first revision. |