LITERATURE REVIEW :

A Case Study: Refining the SDLC Method, Improving the Quality and Accelerating the Software Development at Bank Rakyat Indonesia (BRI)

By Irfan Syukur

EAP 508 – P01
Lecturers :
Christina Brady
Sarah Baker

Bilingual Abstract

English

The software development at BRI must adapt to a complex and challenging business environment. Selecting an appropriate SDLC method for each project is a key element in gaining software, which has a better quality, cheaper to cost, faster to schedule. This article proposes an integration of agile method with some good features of waterfall method to enhance the current software development techniques used by BRI.

Indonesian

Pengembangan software di BRI harus beradaptasi dengan lingkungan bisnis yang kompleks dan menantang. Pemilihan metoda SDLC yang tepat adalah elemen penting untuk mendapatkan software yang lebih baik, lebih murah dan lebih cepat dari jadwal. Artikel ini menawarkan integrasi metode “agile” dengan metode “waterfall” untuk meningkatkan teknik pengembangan perangkat lunak yang digunakan BRI saat ini.

Overview

- Introduction and Background
- Research Question
- Findings from Literature Review
- Discussion for Future Research

Introduction and Background

BRI's Profile

- 32 Divisions
- 19 Regional Offices
- 461 Branches
- 584 Sub Branches
- 8721 Micro Units
- 621 Mobile Units
- 21,184 ATMs/CDMs
- 131,204 EDCs
- 55 ATM Mobile
- 55,7 Million Customers
- 123,000 Employees
- New Satellite (2016)

December, 2014

Introduction and Background

Issues

- Systems frequently down
- Systems too slow
- Many requirements to create new systems
- Delays in System implementation
- Frequent changes in system requirements
- Lack of human resources

Research Question

Procedures to/approaches to design and develop a robust, efficient, high-performance and reliable software?

The Definition

SDLC : Software Development Life Cycle

Definition :
“an approach to develop an information system or software product that is characterized by a linear sequence of steps that progress from start to finish without revisiting any previous step”
(Transseed Group,2015)

The Examples

- Waterfall
- Iterative
- Incremental
- Spiral
- V-shape
- Rapid Application (RAD)
- Agile

The SDLC Phases

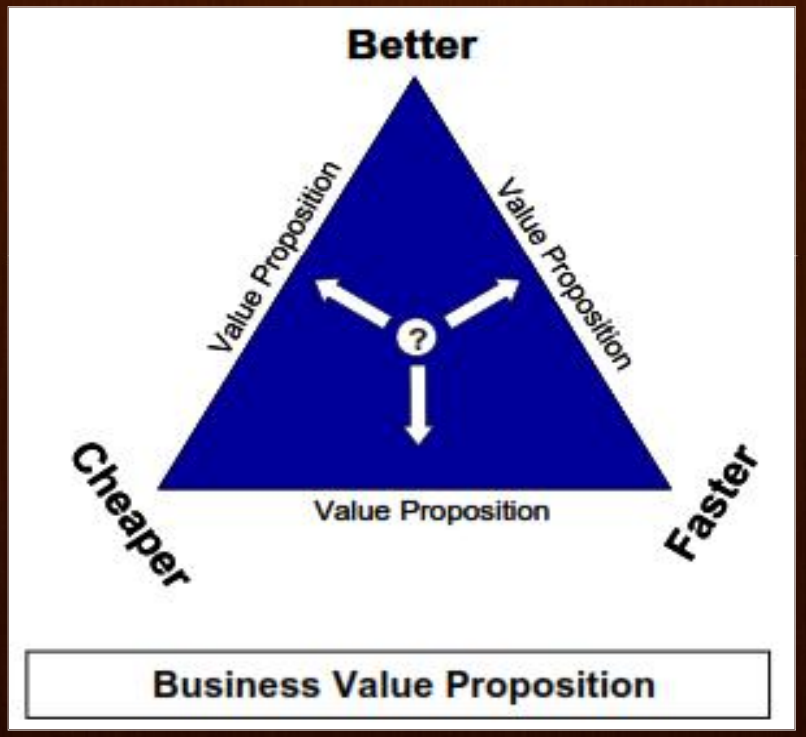
Software Development Life Cycle Phases

Planning & Requirement Analysis	▪ Initial assessment ▪ Feasibility study
Design	▪ User requirements ▪ Existing system evaluation ▪ System design
Development	▪ Coding
Testing	▪ Testing and debugging ▪ Installation, fine-tuning
Maintenance & Operational	▪ Evaluation ▪ Maintenance ▪ Enhancement

The SDLC Objectives

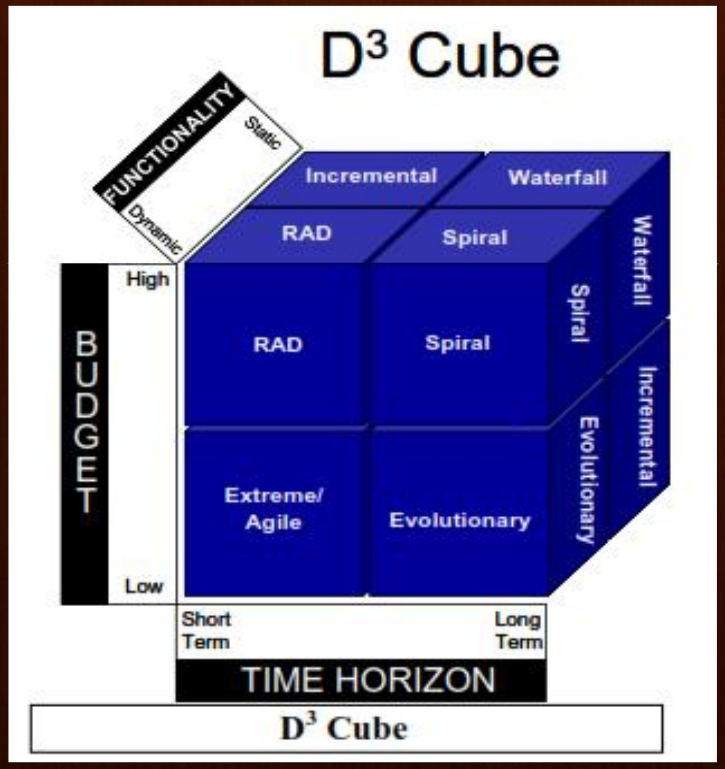
"Better to Quality, Cheaper to Cost and Faster to Schedule" (Dillman, 2008)

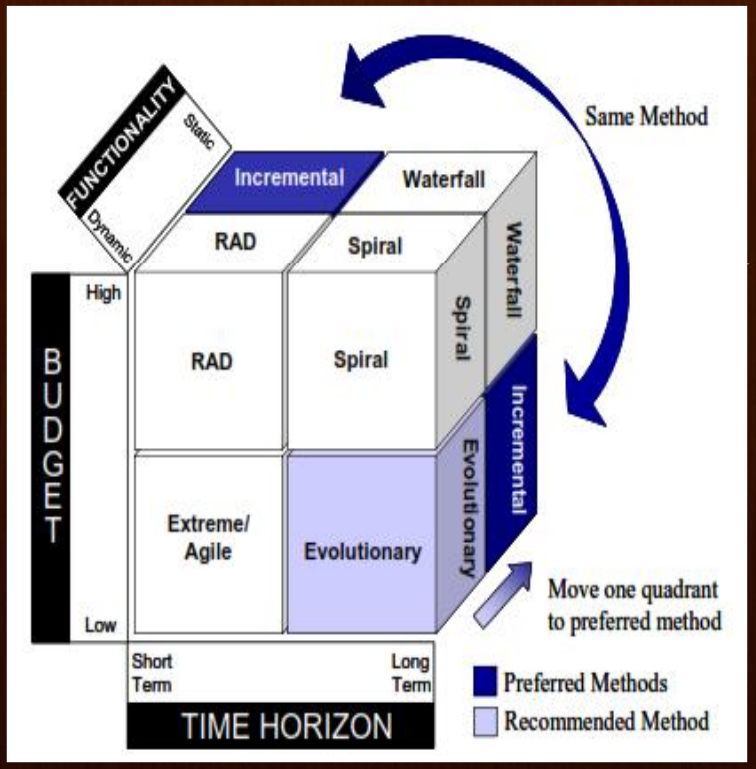
The Summary Value Proposition of the Business : Only two can be achieved for every project .



Selecting a SDLC Method

1. D^3 Cube (Decision Cube)





Selecting a SDLC Method

2. Project Characteristics

This approach divides categories into three project characteristics :

- project team
- user community
- project type and risk.

Each of them is measured in 0-10 rating and then, comparison tables are designed on three project Characteristic categories

Selecting a SDLC Method

Table Comparison based on project team

	Waterfall	Spiral	RAD	Incremental
New to problem domain	1	9	1	3
New to technology domain	8	9	1	8
New to tools to be used	7	8	1	2
Any training available	2	1	8	9
Comfortable with structure	8	1	2	9
Closely track by manager	8	9	2	9

Table Comparison Based On User Community

	Waterfall	Spiral	RAD	Incremental
Availability of user representative restricted or limited	9	2	2	7
Expert in problem domain	2	9	2	8
Want to track the project process	7	8	1	2
Want to involve in SDLC	2	9	2	8

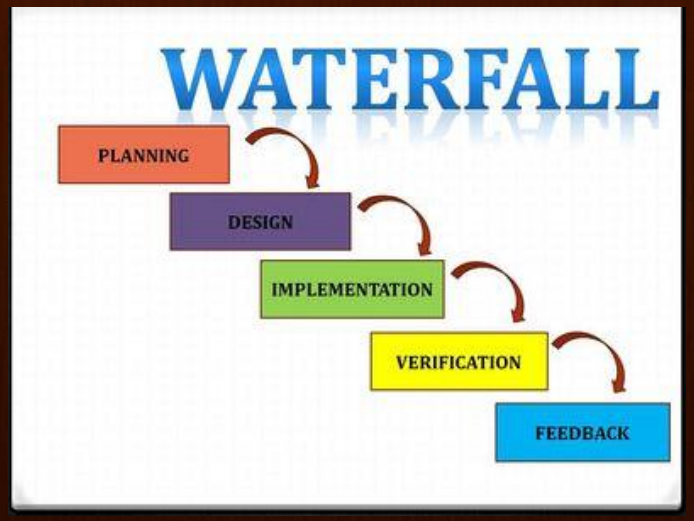
Table Comparison Based On Project Type and Risk

	Waterfall	Spiral	RAD	Incremental
System integration project	2	8	7	9
Enhancement to an existing project	2	2	9	8
High reliability is must	7	9	8	2

The Waterfall Method

Why did BRI choose The Waterfall ?

- Ideal for supporting less experienced project teams and project managers, or project teams whose composition fluctuates
- Progress of system development is measurable
- Cleary define phases
- Well documented process and results (auditable)

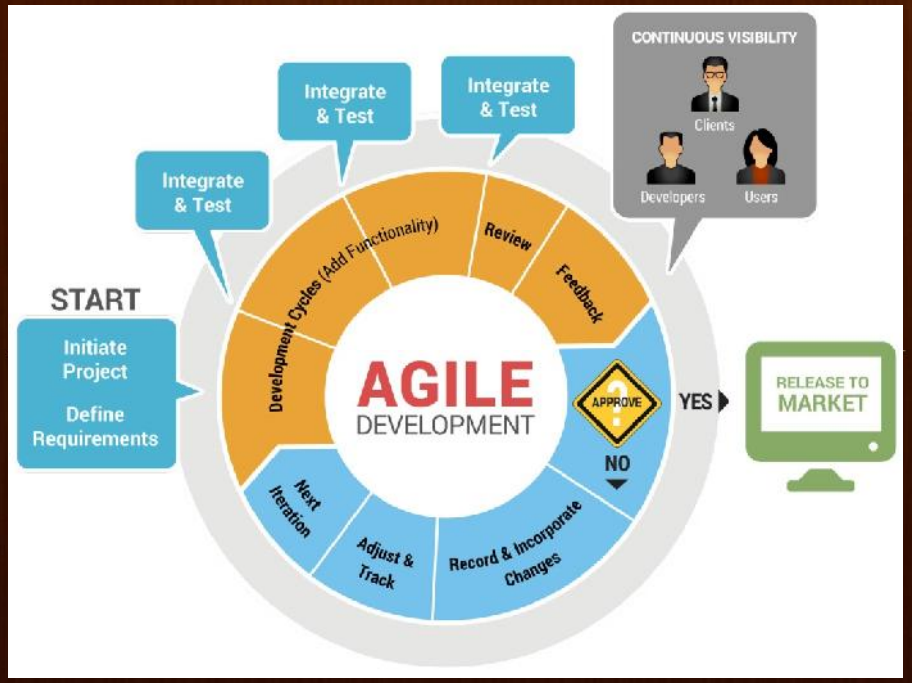


The Disadvantages of Waterfall

- Inflexible, slow, costly and cumbersome due to significant structure and tight controls
- Depends upon early identification and specification of requirements
- Written specifications are often difficult for users to read and thoroughly appreciate
- Difficult to respond to changes

The Advantages of Agile Methods

- Adaptive to the changing environment
- Ensures customer satisfaction
- Least documentation
- Reduces risks of development



The Waterfall and The Agile

Recommendation :

- ❖ Progress of system development is measurable
- ❖ Cleary define phases
- ❖ Well documented process and results (auditable)
- ❑ Adaptive to the changing environment
- ❑ Ensures customer satisfaction
- ❑ Reduces risks of development

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Thank You & Question

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Irfan Syukur