STREAMLINING MOTOROLA GSG MALAYSIA'S CHANGE MANAGEMENT SYSTEMS UNDER THE ORGANIZATION INNOVATION AND DEPLOYMENT OPTIMIZATION INITIATIVE

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JUDUL: Streamlining Motorola GSG Malaysia's Change Management System under the Organization Innovation and Deployment Optimization Initiative

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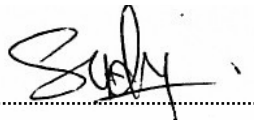
A thesis submitted in fulfilment of the requirements for the award of the degree of Master of Science (Computer Science - Real Time Software Engineering)

Faculty of Computer Science and Information System
Universiti Teknologi Malaysia

SEPTEMBER, 2004

I declare that this thesis entitled "STREAMLINING MOTOROLA GSG MALAYSIA'S CHANGE MANAGEMENT SYSTEMS UNDER THE ORGANIZATION INNOVATION AND DEPLOYMENT OPTIMIZATION INITIATIVE" is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature : 

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Special thanks to my beloved father, mother, sisters and brothers. Thank you for their support.

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ABSTRACT

Organization Innovative and Deployment (OID) is a process area in CMMI Level 5 that is part of the organizations effort for continuous improvement. The OID process area enables enhance the organization's quality and process performance. With the OID optimization initiative, ClearQuest has been chosen by Motorola to replace ClearDDTS for streamlining the organization’s Change Management System within GSG Malaysia. With applying Rational ClearDDTS and ClearQuest in OID are helping project easy performing change management and keep track defect. In addition, the OID can reduced the organization training and maintenance cost for new human resource.

ABSTRAK

Organization Innovative and Deployment (OID) adalah sebahagian daripada proses dalam CMMI peringkat ke 5, iaitu keupayaan organisasi untuk meneruskan kemajuannya. Proses ini memberikan keupayaan untuk meningkatkan kualiti organisasi dan proses pelaksanaan. Dengan initiatif dari OID, ClearQuest telah dipilih oleh Motorola untuk menggantikan ClearDDTS bagi menyusun semula sistemnya yang dipanggil sebagai Change Management System dalam GSG Malaysia. Dengan adanya Rational ClearDDTS dan ClearQuest ia telah membantu projek dalam menguruskan pertukaran dengan senang dan menyimpan maklumat-maklumat tentang kesalahan projek itu. Tambahan pula, OID berupaya mengurangkan kos pemeliharaan dan latihan organisasi bagi sumber manusia yang baru.

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LIST OF ABBREVIATIONS

CCB	-	Change Control Board
CMM	-	Capability Maturity Model
CMMI	-	Capability Maturity Model Integration
CSAM	-	Comprehensive Software Asset Management
GSG	-	Motorola Global Software Group
GSG-MY	-	Motorola Global Software Group Malaysia
GUI	-	Graphic User Interface
HTML	-	HyperText Markup Language
ISO	-	International Organization for Standardization
ISQL	-	Interactive Structural Query Language
KPA	-	Key Process Area
MMMSB	-	Motorola Multimedia Sdn Bhd
MMSC	-	Motorola Malaysia Software Centre
MSC	-	Multimedia Super Corridor
OID	-	Organization Innovation and Deployment
PA	-	Process Area
PM	-	Project Manager
SCM	-	Software Configuration Management
SEI	-	Software Engineering Institute
SQE	-	Software Quality Engineering
SQL	-	Structural Query Language
SW-CMM	-	Capability Maturity Model for Software
UML	-	Unified Modeling Language

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

This chapter is to give an overview of the project. A very brief on the company background and describes project background, project scopes and objectives. Give an overview of the project organization structure. A detailed plan for the project include schedule for each activity.

1.1 Company Background

The Motorola Global Software Group (GSG) was established in India in 1991. GSG is the premier custom software house for Motorola. It designs and delivers leading edge software products and services for wireless infrastructure, wireless subscriber, embedded solutions, private wireless networks, automotive and broadband communications industries with over 3,000 engineers in 15 coutries worldwide.

Motorola Multimedia Sdn Bhd (MMMSB) started its operations in mid-1999 followed by its inauguration as a Multimedia Super Corridor (MSC) status company by YAB Dato' Seri Dr. Mahathir Mohamad, Prime Minister of Malaysia. MMMSB, which is part of Motorola's Global Software Group (GSG), employs more than 200 software engineers, who are mainly Malaysians.

This group of local talent with global expertise has built itself a reputation as a world-class software development organization by consistently delivering on time high quality services across the complete software and product life cycle.

The centre's domain of excellence includes software applications and network management solutions in 2G, 2.5G and 3G Wireless Communication Systems, embedded test software applications for portable wireless devices as well as automotive.

MMMSB is the first MSC status company out of 676 MSC-status companies in Malaysia to achieve the SEI-CMM Level 5, the highest level of process maturity in October 2001, making it the fastest in Motorola and perhaps the quickest in the world. GSG is working towards achieving CMMI Level 5 across the organization. GSG-Malaysia was assessed at Level 5 (highest process maturity) in the CMMI SCAMPI Class A assessment using the continuous representation.

GSG-Malaysia is only the second organization and the youngest in the world to reach this milestone. GSG-Malaysia is also the first and the only organization in Malaysia to attain CMMI Level 5. The CMMI assessment was led by an Independent assessor authorized by SEI. The assessment team's diligence and thoroughness contributed to the success of this assessment.

Today, GSG's expertise and knowledge includes wireless networks and infrastructure components, wireless subscriber devices software and systems, embedded software solutions, automotive and telematics software, system engineering and systems integration, and broadband communication software.

1.2 Project Background

This project is about the key process area of Organizational Innovation and Deployment in CMMI Level 5 on the deployment of the Change Management

System. The purpose of OID is to select and deploy innovative improvements that are measurable, which improve the organization's process and technology. This project is deriving from the two specific goals in this process area that are Select Improvements and Deploy Improvements.

In Select Improvement, process and technology improvements that contribute to meet quality and process performance objectives are selected. Rational ClearQuest tool has been chosen by Motorola to replace ClearDDTS. Both are Change Management Systems used for many projects to keep track any defect or change of a project. The selection has gone through the practices of collecting and analyzing improvement proposals, identify and analyse innovations, pilot improvements, and select improvements for deployment. ClearQuest is the latest generation Window GUI based tool and has many advantages over ClearDDTS, which is legacy application being phased out of Rational's product line. ClearQuest has full integration with other software suite of products to optimize engineering productivity through out the development life cycle.

Deploy Improvement is the measurable improvements to the organization's processes and technologies are continually and systematically deployed. Practices of deployment improvements consists of plan deployment, manage deployment, and measure improvements for deployment. The writer was assigned to this project, which was pertaining to the deployment practices as continuing deployment in this process area for GSG-Malaysia.

Many Motorola sites including GSG-Malaysia have started using ClearQuest. Before that, GSG-Malaysia was maintaining these two tools that are served the same purposes. The migration was planned for Motorola GSG-Malaysia where only a single tool to be used. Migration means converting all existing ClearDDTS records to ClearQuest and shutting down ClearDDTS at the time of conversion. At one point, all ClearDDTS data needs to move to ClearQuest and engineers should be able to view and update old ClearDDTS data from ClearQuest eliminating the need for maintaining two different applications.

1.3 Project Scopes

The scope of the project is related to the migration of change management tool from existing Rational ClearDDTS to Rational ClearQuest including the data. Classes and projects in ClearDDTS that are still active will be migrated to ClearQuest. Scopes for migration consist of the whole software development life cycle: studying and identify the requirements; analysing and project planning; designing and developing the schema in new tools; implementing and deploying of the project migration.

Other than migration, this project's also includes setup new schema in ClearQuest for new project. In additional, the writer also requires produces the necessary documentation within the project development, support internal users and problems troubleshooting for any issue occur.

1.4 Project Objectives

The main objectives of the project are:

- To reduce the training and maintenance cost where only one defect tracking tool will be used at any given time;
- To reduce the learning curve. The user or application support will focus on one tool instead of two.
- To centralize data source and reduce potential of data loss. Data retrieval can be synchronized and simplified.

Besides the above mentioned objectives, another purpose of this project is the consideration of difficulties in getting technical support from vendor who is IBM Rational. This is because they no longer support this tool and currently they are moving to the new tools whereby lots of new releases have introduced in the market.

1.5 Project Organization Structure

This section describes the project team structure, roles and responsibilities of the writer with team members of the group.

1.5.1 Project Team

The Software Quality Engineering (SQE) Group is divided into four sections: Software Engineering Process, Software Quality, Software Engineering Tools, and Organizational and Software Metrics. The teams are managed by a Software Quality Manager. The team's structure is as follows:

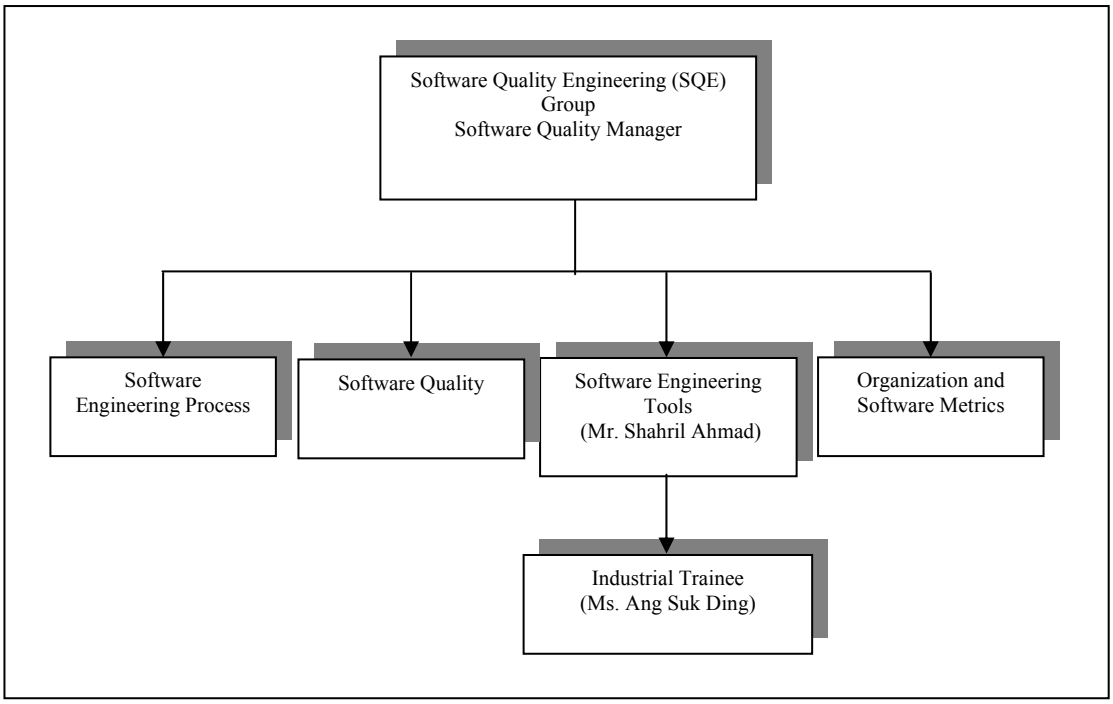

Figure 1.1 : Project Team

However, this project was part of Software Engineering Tools which was lead by a Software Tool Engineer. The writer was assigned to assist on this project.

1.5.2 Roles and Responsibilities

This project was lead and managed by the Software Quality Manager, Mr. Rajashekar. The project was handled by the writer, who was play an role as developer responsible to carry out the whole migration activities such as studying the document and reading material, analysing the requirement, planning and scheduling, designing the process workflow for schema and database, developing schema, deploy and implementing of the system, and documenting. Within the SQE, Mr. Shahril Ahmad was the key person to coordinate on the project. Other members of Software Quality Engineering were responsible to provide the necessary information.

The role and responsibilities for this project can be summarized as follows:

Table 1.1 : Roles and Responsibilities

Roles	Responsibilities
Software Quality Manager	• Lead the project to meet the project goal and objective. • Manage the project
Software Tools Engineer	• Coordinate the project • Assist the project to meet the project and goal • Provides guidelines and advices on the problems.
Developer	• Identify user objective and requirements • Analysis the requirements • Project planning and scheduling • Designing the process workflow of schema • Develop the schema • Migrate projects to new system • Prepare testing material

Table 1.1 : Roles and Responsibilities (continue)

Roles	Responsibilities
	• Conduct user testing • Implementing and deployment of the Software • Provide training to user • Prepare documents

1.6 Schedule and Milestone

These five months project where the project was planned to finish at the end of August 2004. The details of the project plan on the schedule and milestone shows in Gantt chart. Refer to Appendix A.

1.7 Project Deliverables

At the end of the Industrial Training, these deliverables of work-products that were developed throughout the development life cycle has been delivered to the Industrial and Academic mentors.

For the company, the main proposed products have been delivered includes:

- ClearQuest's schema and database that contain the migrated data from ClearDDTS.
- Software Development Plan
- Migration procedure, gap analysis and assessment report
- Requirement Specification
- Test plan, test setup, test cases, test summary report
- Deployment Plan

- User manual
- Others – Progress Report

These work-products that have been delivered to the company were kept in the tool's shared repository for their references within the Motorola. The documents would not be attached in this thesis due to the private and confidential policy in company.

However, the deliverable products to Academic mentor include:

- Technical Report (Thesis)
- Progress Report

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