

APPLYING SCRUM METHODOLOGIES IN THE DEVELOPMENT OF  
E-DIRECTORY SYSTEM FOR ASWARA

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Alhamdulillah.....

***Thanks to Allah** for every step You make me go through this hardest path with the strength, guidance and spiritual support*

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## ABSTRACT

The purpose of this study is to investigate the application of the scrum methodology in the development of the E-Directory system for ASWARA. Currently, at ASWARA they do not have a suitable system that can help the HR department find detailed information about the staff such as personal and family information, security or any achievement records in their career. Therefore, the development of E-Directory system is hoped to resolve the problem. Since there are lots of private and confidential information that needs to be protected from external threat the system can only be accessed using intranet. The Intranet E-Directory is a system that combines three (3) systems which are E-Directory System, E-Store System, and *Perkembangan Kemahiran Artistik (PeKA)* Management System. Each of the system will use the same user data from the E-Directory system. The selection of the scrum methodology as a Software Development Methodology (SDM) is supported by a few studies that has implement scrum methodology in the development of software system. The result of survey that has conducted it shows that Scrum Methodology, Extreme programming (XP) and Custom Hybrid is the mostly used in the development of software product. The implementation of scrum methodology in development of E-Directory system has divided the module into three (3) sprint cycle which is first sprint ; login and logout, import data, second sprint ; directory module and profile module, third sprint ; HR module, security module and admin module. As a result from development E-Directory system using scrum methodology it will produce Software Requirement Specification (SRS) and Software Design Description (SDD) documentation as a deliverables together with E-Directory system. In both of documentation has the details of system requirement and design of the system.

## ABSTRAK

Tujuan kajian ini adalah untuk menyiasat penggunaan metodologi scrum dalam pembangunan sistem E-Directory untuk ASWARA. Pada masa ini, di ASWARA mereka tidak mempunyai sistem yang sesuai yang boleh membantu jabatan HR mencari maklumat terperinci tentang kakitangan seperti maklumat peribadi dan keluarga, keselamatan atau mana-mana rekod pencapaian dalam kerjaya mereka. Oleh itu, pembangunan sistem E-Directory diharap dapat menyelesaikan masalah ini. Oleh kerana terdapat banyak maklumat sulit dan rahsia yang perlu dilindungi daripada ancaman luar, justeru itu sistem ini hanya boleh diakses menggunakan intranet. *Intranet E-Directory* adalah satu sistem yang menggabungkan tiga (3) sistem iaitu sistem *E-Directory*, sistem *E-Store*, dan Perkembangan Kemahiran Artistik Sistem Pengurusan (PeKA). Setiap sistem akan menggunakan data pengguna yang sama dari sistem *E-Directory*. Pemilihan metodologi scrum sebagai *Software Development Methodology (SDM)* disokong oleh beberapa kajian yang telah melaksanakan metodologi scrum dalam pembangunan sistem perisian. Hasil daripada kajian yang telah dijalankan menunjukkan bahawa scrum metodologi, *Extreme Programming (XP)* dan *Hybrid Custom* adalah methodologi yang kebanyakannya digunakan dalam pembangunan produk perisian. Pelaksanaan kaedah scrum dalam pembangunan sistem *E-Directory* telah membahagikan modul ke tiga (3) kitaran pecut yang pecut pertama; log masuk dan log keluar, mengimport maklumat, kitaran pecut kedua; modul direktori dan profil modul, kitaran pecut ketiga; modul HR, modul keselamatan dan modul admin. Hasil daripada pembangunan sistem *E-Directory* menggunakan metodologi scrum ia akan menghasilkan dokumentasi *Software Requirement Specification (SRS)* dan *Software Design Description (SDD)* dan boleh dipersetujui bersama-sama dengan sistem *E-Directory*. Dalam kedua-dua dokumentasi mempunyai butiran keperluan sistem dan reka bentuk sistem.

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## LIST OF ABBREVIATIONS

ASK	-	AKADEMI SENI KEBANGSAAN
ASWARA	-	AKADEMI SENI BUDAYA DAN WARISAN KEBANGSAAN
CPO	-	CHIEF PRODUCT OWNER
CSM	-	CHIEF SCRUM MASTER
CSS	-	CASCADING STYLE SHEET
DESE	-	DOMAIN EXPERT SUPPORT ENGINEERING
DoD	-	DEPARTMENT OF DEFENSE
HR	-	HUMAN RESOURCES
HRMIS	-	HUMAN RESOURCE MANAGEMENT INFORMATION SYSTEM
IEEE	-	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
ISO	-	INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
KKR	-	KEMENTERIAN KERJA RAYA
KPT	-	KEMENTERIAN PENGAJIAN TINGGI
MIS	-	MANAGEMENT INFORMATION SYSTEM
PeKA	-	PERKEMBANGAN KEMAHIRAN ARTISTIK
PHP	-	HYPERTEXT PREPROCESSOR
PM	-	PROJECT MANAGER
PPO	-	PART PRODUCT OWNER
ROI	-	RETURN ON INVESTMENT
SAGA	-	STANDARD ACCOUNTING FOR GOVERNMENT AGENCIES
SDD	-	SOFTWARE DESIGN DESCRIPTION
SDLC	-	SOFTWARE DEVELOPMENT LIFE CYCLE
SDM	-	SOFTWARE DEVELOPMENT METHODOLOGY
SMPO	-	SCRUM MASTER-CUM-PART PRODUCT OWNER
SMS	-	STUDENT MANAGEMENT SYSTEM

SQL	-	STRUCTURED QUERY LANGUAGE
SRS	-	SOFTWARE REQUIREMENT SPECIFICATION
TPS	-	TRANSACTIONAL PROCESS SYSTEM
UML	-	UNIFIED MODELING LANGUAGE
XP	-	EXTREME PROGRAMMING

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## **CHAPTER 1**

### **PROJECT OVERVIEW**

#### **1.1. Introduction**

The improvements of technology make lots of changes as time goes by. With high technology, the communication technology enables simpler and easier data management. Thus, it eases the business process. Information system management is a technology that is made for a task to manage data information to be more accurate, easy and fast. The concept of an information system can be defined as "... in terms of three types of system: Transactional Process System (TPS), Management Information System (MIS) and Expert System [1]".

TPS is a system that captures, enters, stores, retrieves, and processes relevant details of business events and generates information and documents necessary to run a business [2]. Expert System is a program that intends to give assistance in complex areas in which human skills are fallible or scarce, [4] [5] or a program designed to solve problems at a level comparable to that of a human expert in a given domain [4] [6] [7]. MIS is designed to assist the management and professional workers by handling and dealing with large amounts of information to the managers' organization. [3].

In other words, MIS is the type of system that helps users to manage large amount of data in an organization. Most of the data are commonly detailed information about the staff that works in specific organizations. Large amount of data cannot be easily managed simply by storing them on shelves by files. With MIS, it can help the organization to manage data that the organization has such as business daily operation reports, staff information details, organization account details and other information related to organization daily operation.

The main system for this project is an intranet E-Directory system; this system is the combination of three (3) systems, which are E-Directory system, PeKA management system and the E-Store system. Each system has different of purposes and objectives developed. The common thing between these systems is that it uses the same data, which is staff data information. The intranet E-Directory system will be the main system for all the other systems in the future because the data will continuously update to ensure that the data is up-to-date.

The system that will be focused in this project thesis is the E-Directory system. This system can be defined as an MIS because the E-Directory system is a system that develops to manage huge amount of data in ASWARA. The main function of this system is to store staff data, information and can be easily managed by staff that works in the Human Resource Department. As a further matter, staff to request any equipment from the store department can use this system. The combination of these three (3) systems can prevent the development of a repeated function.



## 1.2. Company Background

In 1994, the Ministry of Culture, Arts, and Tourism Malaysia had established Akademi Seni Kebangsaan (ASK) now known as ASWARA on August 1, 2006, through the ACT Academy of Arts, Culture and Heritage, 2006 (Act 653) [10]. ASWARA is a higher education institution fully supported by the Malaysian Government under the Ministry of Unity, Culture, Art and Heritage Malaysia. ASWARA offers courses, in art, culture, and heritage fields, which aim to produce skillful artists and employees who are competent in their fields as well as to strengthen the sustainability of the country's artistic heritage. ASWARA is responsible for generating graduates who are able to become scholars, promoters, actors and practitioners of art and culture and heritage on certificate, diploma, degree and the highest degree in the fields of research and fostering cultural heritage preservation and administration of various kinds.

The IT department in ASWARA role is related to manage information technology aspect within the organization, one of which that is a system for foundation students (ASASI), Standard Accounting for Government Agencies (SAGA) and Student Management System (SMS). Previously, the system ASASI, SAGA, and SMS was developed by another company that was hired by ASWARA to develop a system that used to process data and provide information.

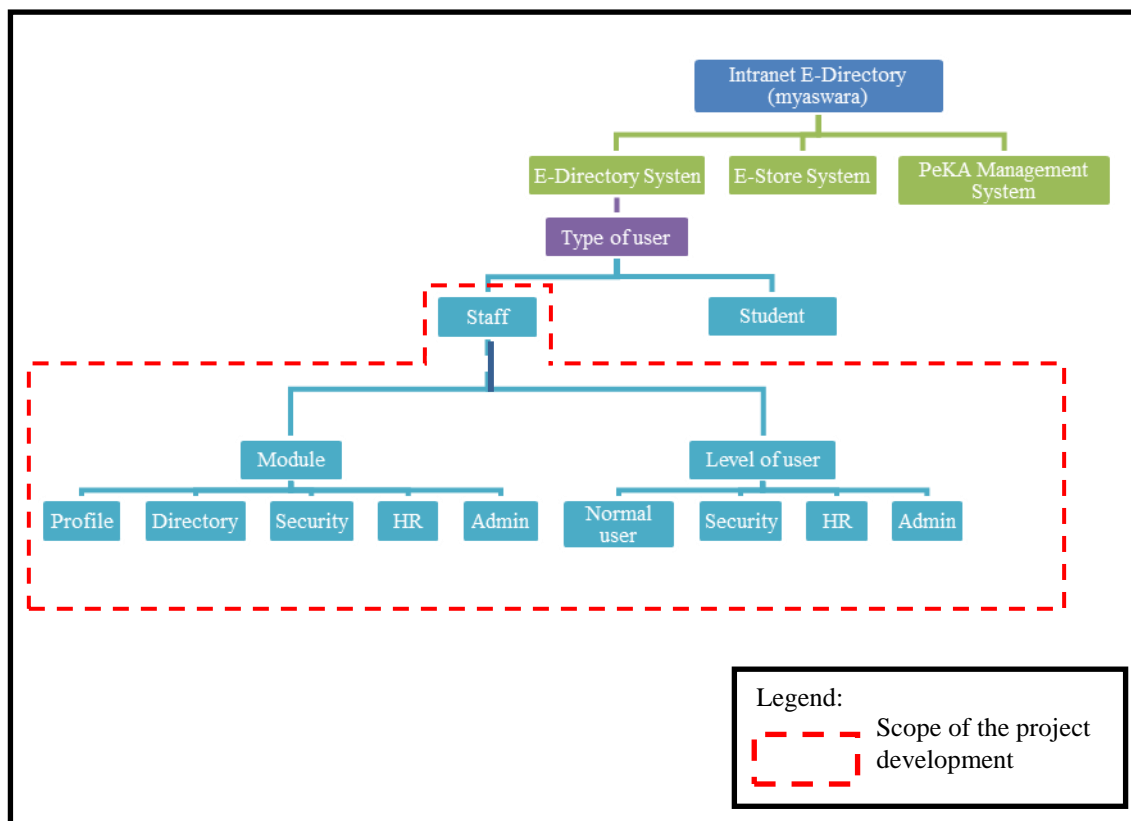
Albeit a few systems that are currently being used by the organization, there is still no system that can be used by staff to view staff information at ASWARA. Therefore, the development of E-Directory system is necessary to facilitate staff to search data related to the ASWARA community. The E-Directory system, web PeKA management system and E-Store system will be grouped together in a platform that will be simplified for the user to search details about the staff in ASWARA.

### 1.3. Background of the Problem

Presently, ASWARA is using a portal website for visitors or users to find information about them or any other information related to it such as upcoming events, the institution's background, the board of directors, faculty information or announcements. The website also has a staff directory section where users can find basic information about staff that works in ASWARA.

However, they do not have a suitable system that can help the HR department find detailed information about the staff such as personal and family information, security or any achievement records in their career. Therefore, the development of E-Directory system is hoped to resolve the problem. Since there are lots of private and confidential information that needs to be protected from external threat the system can only be accessed using intranet.

The Intranet E-Directory is a system that combines three (3) systems which are E-Directory System, E-Store System, and *Perkembangan Kemahiran Artistik* (PeKA) Management System. Each of the system will use the same user data from the E-Directory system. Figure 1.1 shows the structure of Intranet E-Directory system.



**Figure 1.1** Intranet E-Directory system hierarchy

Intranet E-Directory system acts as a platform that will be used by users to find, apply or view any information. The E-Directory system is a system that will be developed to store all the staff and student information and can be viewed by other users. Meanwhile, E-S Store system is developed to provide a medium that can be used by ASWARA staff to request any equipment from the store department. PeKA management system is a system that will be used by a student to add the record about the activity that they had done outside of their learning syllabus, which is required in order for them to graduate. Then the record will be viewed by a lecture to verify the student activity and marks will be given.

E-Store system and PeKA management system will grab data about the staff to be used in their system from the E-Directory system. The relation between the systems is that E-Store will use the staff information that have been managed by the staff at E-Directory system, then PeKA management system uses the staff

information in E-Directory system which position as lectures to manage record student marks in PeKA management system.

#### **1.4. Project Objective**

- i. To study and select the appropriate SDM for E-Directory system.
- ii. To design and develop E-Directory system with proposed scrum methodologies.
- iii. To implement the E-Directory system.

#### **1.5. Project Scope**

The scope of the project is described below:

- i. The development of the E-Directory system is focused on development for staff users only
- ii. There are four (4) level of users; normal user, HR, security and admin.
- iii. There are five (5) modules for user staff, which are profile, directory, security, HR and admin.
- iv. There are five (5) category of user directory; staff, contractor, student, alumni and SAHABAT.

## **1.6. Project Deliverables**

The deliverables of the project are as follows:

- i. Software Requirement Specification (SRS);
- ii. Software Design Description (SDD);
- iii. E-Directory System.

## **1.7. Importance of the Project**

The development of E-Directory system is important because of several factors. The factors are:

- i. To facilitate the human resource staff to search the data about the organization staff,
- ii. To support E-Store system by gathering details about the staff in order to allow the staff to apply the equipment from store department,
- iii. To support PeKA management system by providing information about the lecture to verify the student activity.

## **1.8. Project Schedule**

The duration of the project is within six (6) months. The details will be illustrated in the Gantt chart. Please refer **Appendix A**.

## **1.9. Chapter Summary**

This report is divided into five (5) chapter as follow:

- Chapter 1: Introduction
- Chapter 2: Literature review
- Chapter 3: Methodology
- Chapter 4: Project discussion
- Chapter 5: Conclusion

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