

## ARIS and UML Modeling to Develop School Management Information System Based on National Education Standards of Indonesia

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### Abstract

The School Management Information System (SMIS) is important to accomplish educational mission. To reach the goal, it is necessary to know the rules, culture of school and related data prior to building the SMIS. This study is related with an attempt to develop the SMIS in Indonesian case. There are more than 240 million inhabitants in 33 provinces, and only six official religions which are recognized by the Indonesian government. Based on National Education Standards, the EPC diagram in the ARIS tool is used to design the process of the SMIS. For the implementation of the SMIS, the Use Case diagram and Sequence diagram are constructed by Together 2008.

### I. Introduction

Management Information System (MIS) is used in many sectors to manage an organization effectively for the competence. School Management Information System (SMIS) is a part of the MIS to manage some business function and information of school. However, many developing countries do not use SMIS in their education sector. Indonesia is one of developing country with around 237,424,363 population and 33 provinces and there are only six official religions that recognized by Indonesian government (figure 1). By the Education Data of National Education Ministry of Indonesia, there are around 32,607,767 students, 250,301 schools, and 314,673 teachers for SD/MI, SMP/MTs, and SMA/MA in Indonesia, except SMK/MA in August 29th, 2011. SMIS is important to be applied in each Indonesia school. This paper aims to develop a SMIS to manage the school organization based on the Indonesian National Education Standards. The EPC diagram in the ARIS tool is used to design the process of the SMIS. The Use Case diagram and Sequence diagram constructed by Together 2008 is used to develop the SMIS.

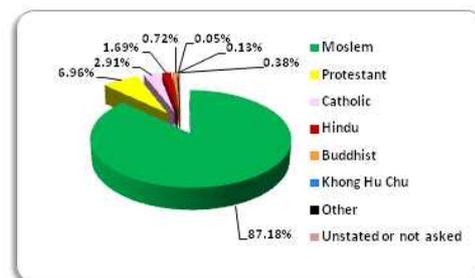


Figure 1. Percentage of Indonesian religion [7]

### II. Indonesian Education System

Related to Kelegai and Middleton [5] about education, they said that policy makers, must have confidence that educational institutions are able to produce people to meet the demands of the changing world, which IT professionals are trained and prepared to meet industry needs (especially school industry).

According to Republic of Indonesia laws Number 20 of 2003 about National Education Systems, Indonesia has the porridge of education as follows: basic education, secondary education, and higher education. Indonesian education has standardization, which according to National Education Standards Institution [6], National Education Standards is the minimum criteria of the education system throughout the territory of the Republic of Indonesia.

### III. Analysis of SMIS

Demir [4] mentioned that SMIS computerized the basic function of today's school management. ARIS provides a "complete" description of a business process [1], which it is not, strictly speaking, a tool, but a concept [3], by using event-driven process chain (EPC) model to drawing the concept of school business.

The process of the SMIS based on Indonesian National Education Standards (NES) is analyzed by using ARIS model. With a user-friendly facility, ARIS (Version 5.0.1.1 Release; Build 3069) software provides convenience to the user in drawing analysis system of NES to be built quickly and completed based on the ARIS rules.

### IV. Design of SMIS

UML is a standard language for writing software blueprint, and a common standard for object-oriented modeling, which can help analyst to represent a complex system as a set of simple diagram, charts, and narratives [2]. Davis [3] remarked that ARIS has supported for modeling software system using UML.

UML defines nine types of diagrams, which are appropriate for modeling systems to become software blueprint [2]. In this paper, the prototype of the SMIS is developed with two types UML diagrams: use case diagram, and sequence diagram, that are constructed by Together 2008.

### V. Conclusion

In school areas (SD/MI; SMP/MTs; SMA/MA) of Indonesia, the needs of managing and maintaining the information are increasing to maximize the usefulness of school information. Therefore, the development of the SMIS is necessary to manage and maintain the school information in Indonesia.

By using ARIS model, the processes of the SMIS based on NES of Indonesia are easy to described, with facilities that already provided by the ARIS (Version 5.0.1.1 Release; Build 3069) software. Together 2008 is used to construct the UML diagram, which is easy to develop the new system of SMIS. This new system conforms to the education rules of government.

### References

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