

# Schema Definition of a Pyroprocess System Engineering

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## 1. Introduction

Department of system engineering technology in KAERI had established system engineering by using requirements management/engineering in order to get a traceability that can maintain consistency of requirements management for PRIDE facility.

A first work as conducting system engineering is establishing a schema. Fig. 1 reflects the heart of the systems engineering schema. Additional classes and relationships exist to capture issues, risks, test & evaluation material, and much more.

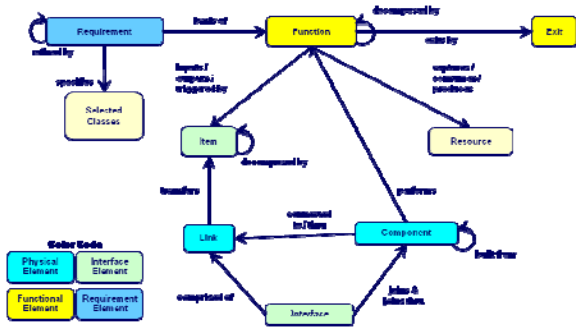


Figure 1. Overview of system engineering schema

Schema is defined a set that need to set between a component relationship applied with system engineering process [1]. The paper propose a suitable schema by using SEMP (System Engineering Management Plan) development process for constructing of PRIDE facility.

## 2. Methods and Results

### 2.1 Schema procedure

Schema means database structure. Currently most of the computer supported system engineering tools use database management system. But, the types of the data to be used in each project are different according to the target system or organization, so it is common to design schema and develop it in the computer support tools. This schema includes the types of the data to use, attributes of each data, and the relationship between each data. Fig. 2 shows the schema establishment procedure, and the relationship with the contents developed in the tools.

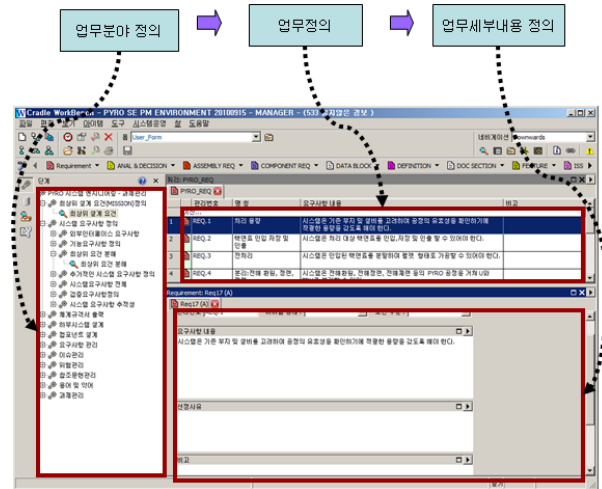


Figure 2. Contents of schema definition and frame

### 2.2 Results of schema

Whole schema of a pyroprocess system engineering includes a pyroprocess task definition and task detail contents is represented in Fig. 3.

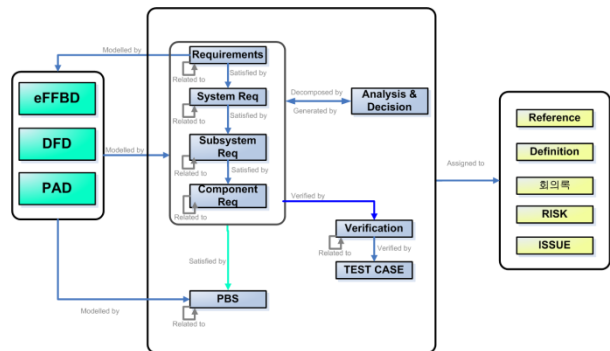


Figure 3. Schema of pyroprocess system engineering

Elements consist of pyroprocess system engineering schema could be described as follows;

- Top requirements: The top requirement is a customer requirement related to the system development or a declarative requirement related to the task.
- System requirements: System requirement is the requirement defined through analysis and decision for the top requirement, and system requirement is stated in

technical language, while the top requirement is stated in natural language.

□ Sub system requirements: Sub system means the elements composing utility, process, and subsidiary facilities. System requirement is disassembled into sub system requirements.

□ Analysis and decision: Analysis and decision making mean the efforts tried to disassemble upper level requirements into lower level requirements.

### **3. Conclusions**

A scheme for pyroprocess system engineering based on PRIDE construction was defined. The results conclude that R&D documentation was defined by them rather than there is no existed the standard pyroprocess task process. A pyroprocess system engineering schema will be provided a technology that can be guaranteed a pyroprocess traceability based on a logical correlation between data.

### **REFERENCES**

- [1] 유일상, 박영원, "대형 복합 시스템개발을 위한 효과적인 시스템공학 관리계획 개발 프로세스". *Journal of the Society of Korea Industrial and Systems Engineering*, Vol. 26, No. 4, pp. 82-90, December 2003