

Fragment Definition

Domain Description

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Document Authors:

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1. Introduction

The PASSI process is composed of five different phases: System Requirements, Agent Society, Agent Implementation, Code and Deployment.

Each phase produces a document that is usually composed aggregating the UML models and work products of the work definitions that are inside each phase .

We will define a method fragment Domain Description, extracted from PASSI System Requirements phase. The PASSI process is represented in the following figure. The System Requirements phase covers all the phases related to Req. Elicitation, analysis and agents/roles identification.

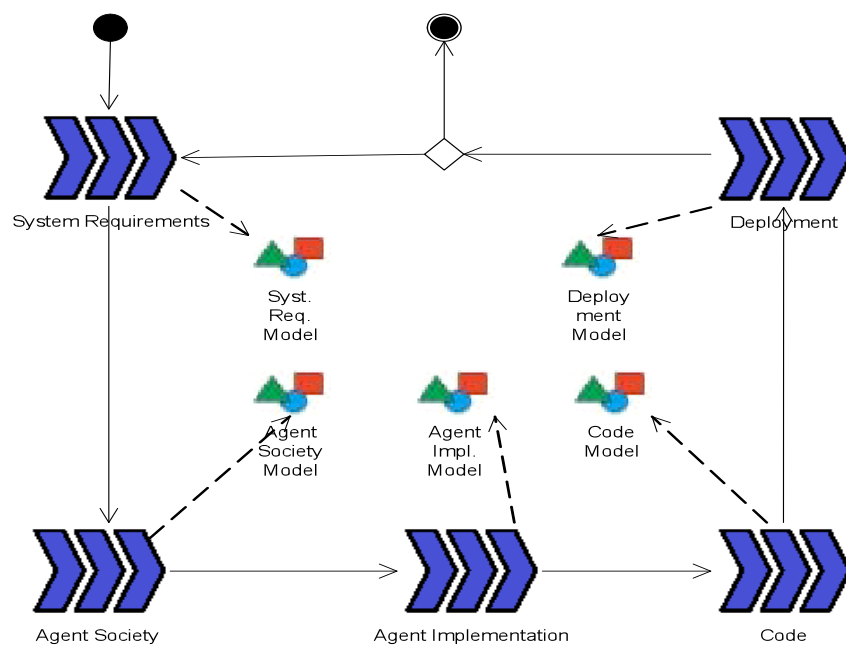


Fig. 1. The complete PASSI process

2. Fragment Description

We describe requirements in terms of use case diagrams. The Domain Description fragment, as a result, produces a functional description of the system composed of a hierarchical series of use case diagrams.

Starting from the PASSI System Requirement phase activities reported in the following Figure 2, let us consider the work definition “Domain Description” (the blue oval) whose aim is to identify the system requirements through the UML Domain Description Diagram and the (textual) Requirements document.

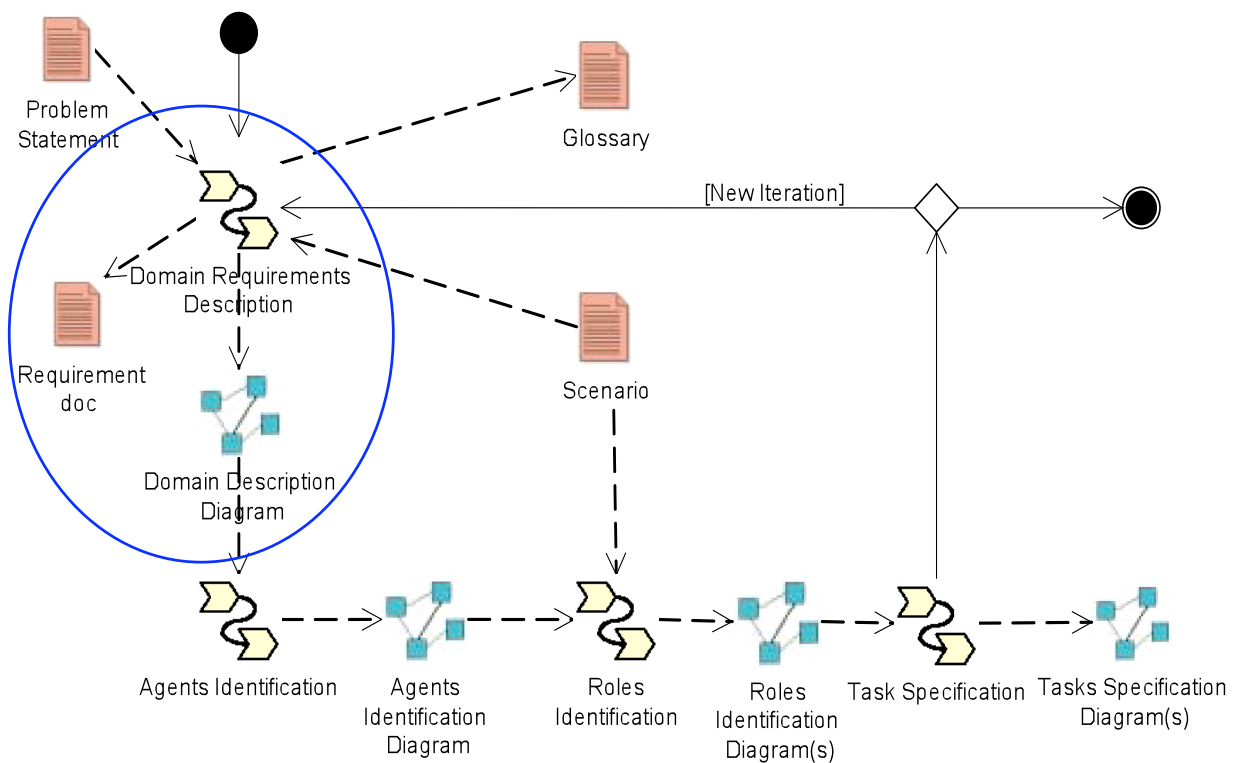


Fig.2. The System Requirements phase

2.1. Portion of Process

The process that is to be performed in order to obtain the result is represented in fig. 3 as a SPEM diagram

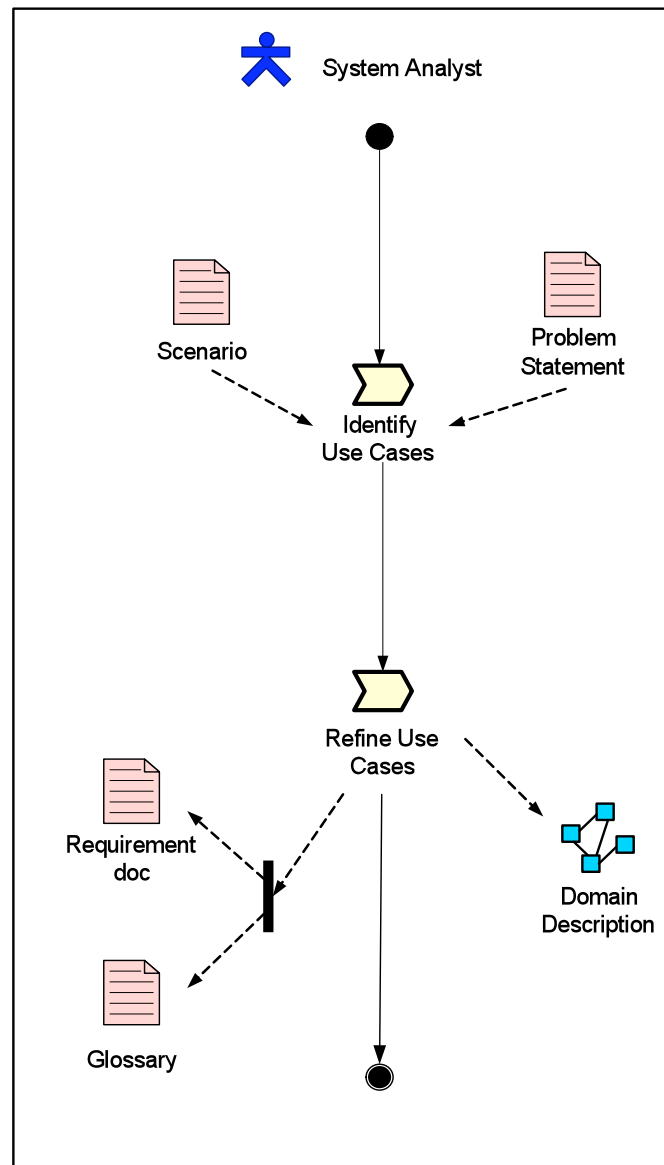


Fig.3. Requirements description fragment-Procedural aspect

Activities description:

Activity	Activity Description	Roles involved
Identify Use Cases	Use cases are used to represent system requirements	System Analyst (perform)
Refine Use Cases	Use cases are refined with the help of a Domain Expert	System Analyst (perform) Domain Expert (assist)

Two roles are involved in this fragment: the System analyst and the Domain Expert. They are described in the following sub-sections:

System Analyst

He is responsible of:

1. Use cases identification during the DD sub-phase. Use cases are used to represent system requirements.
2. Use cases refinement during the DD sub-phase. Use cases are refined with the help of a Domain Expert.

Domain Expert

He supports the system analyst during the description of the domain requirements

3. Fragment MAS meta-model

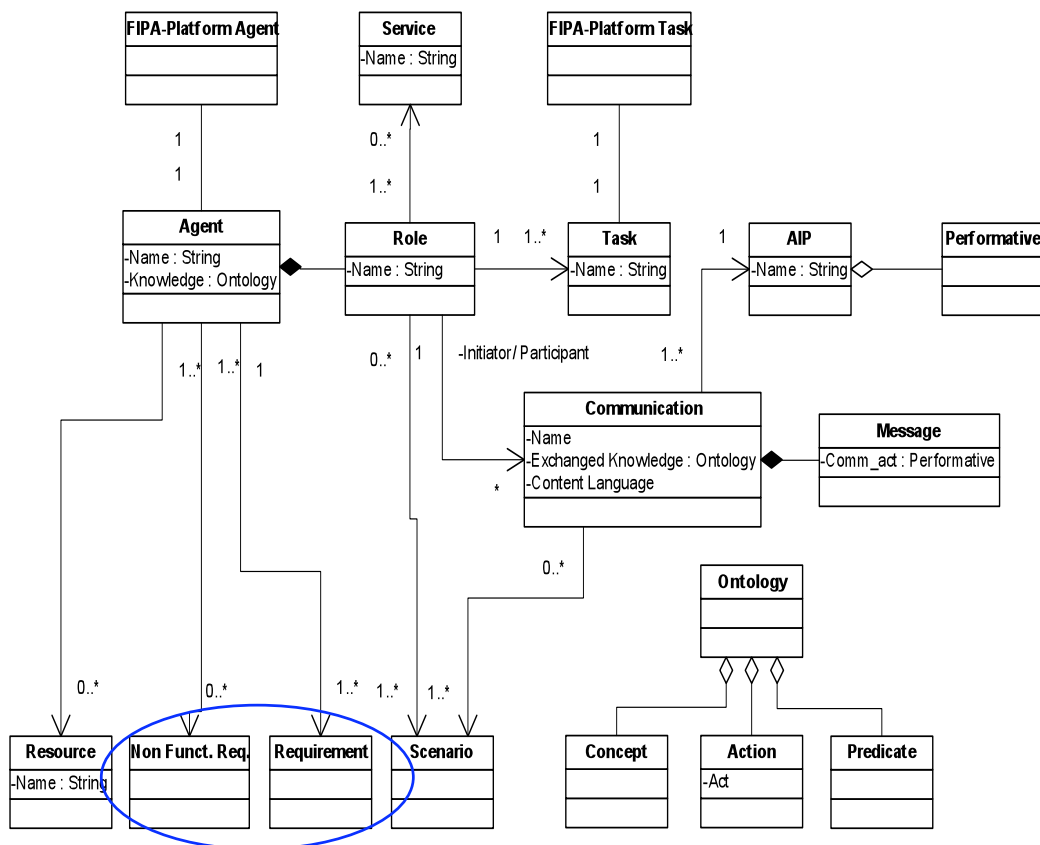


Fig.5. The MAS meta-model adopted in PASSI

This fragment refers to the MAS meta-model adopted in PASSI and contributes to define and describe functional and non functional requirements.

4. Deliverables

4.1. Domain Description Diagram

Common UML use case diagram(s) are used to represent the system requirements.

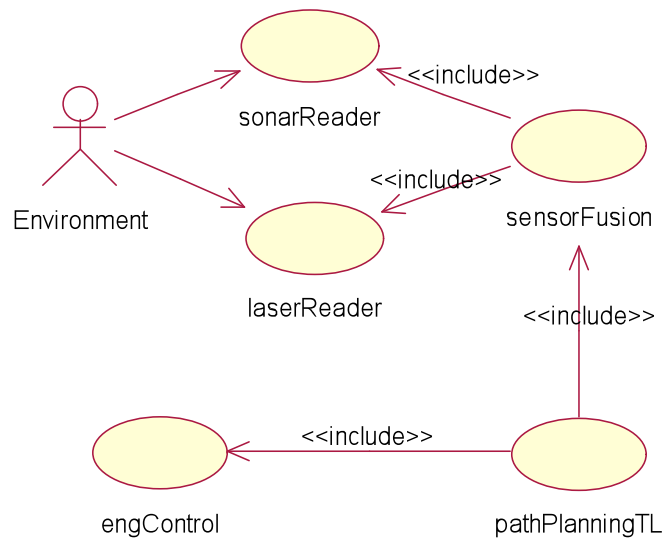


Fig. 4. The Domain Description Diagram

4.2. System Requirements document

It is a textual document containing the complete documentation of the use cases in terms of: name, participating actors, entry condition, flow of events, exit condition, exceptions and special requirements.

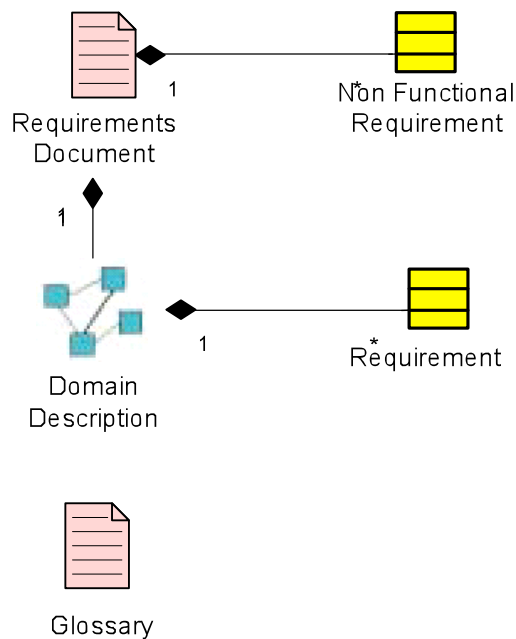
It also reports the non functional requirements identified for the system.

4.3. Glossary

A glossary of terms coming from the system domain

4.4. Deliverables relationships with MAS model

The following figure describes the structure of this fragment work products in relationship with the MAS model elements:



Note that the symbol:  represents an element of the MAS model.

In the Requirements document, use cases are documented in terms of: name, participating actors, entry condition, flow of events, exit condition, exceptions and special requirements.

5. Preconditions and concepts to be defined

Input, output and elements to be designed in the fragment are detailed in the following tables.

As regards documents:

Input	Output
Problem Statement	System Requirements document
Scenarios	Domain Description diagram
	Glossary

As regards MAS metamodel elements:

Input	To Be Designed	To be related	To be quoted
Scenario	Requirements (both functional and non functional)		

6. Guideline

None specific of an agent oriented approach

7. Composition Guideline

None

8. Aspects of fragment

None

9. Dependency Relationships with other fragments

In most approaches, this fragment is intended to be the first of the design process but it can also be preceded by a requirements elicitation fragment.

10. Glossary

This Fragment refers this terms:

Requirement - A requirement represents a feature that the system to be must exhibit, it can be a functional requirement that describes the interactions between the system and its environment independent of its implementation, or a non-functional requirement such as a constraint on the system (or a specific part of it) performance.

Scenario – A scenario represents a concrete sequence of interaction between the system and the actors.