Fragment Definition

Task Specification

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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 Task Specification, extracted from PASSI methodology whose process is completely represented in the following figure

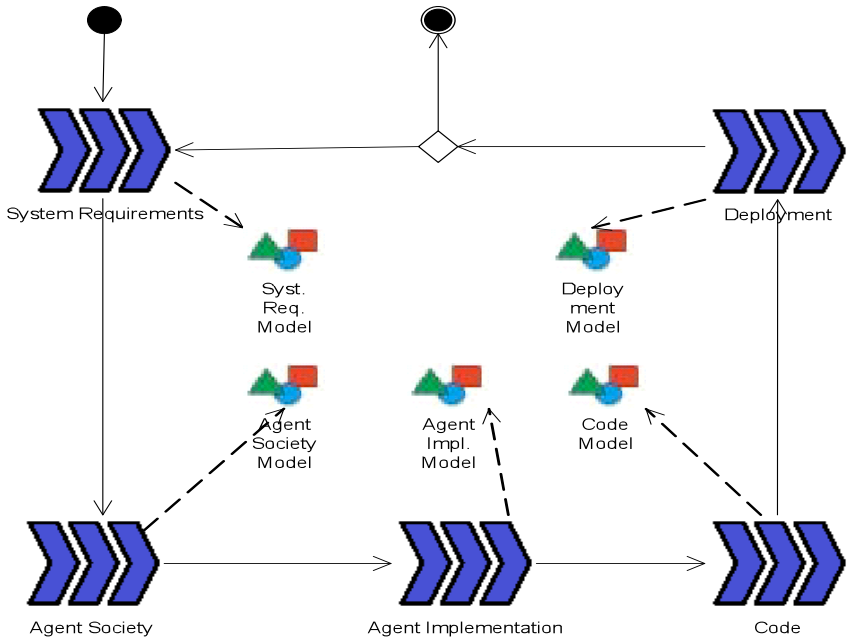

Fig. 1 The complete PASSI process

2. Fragment Description

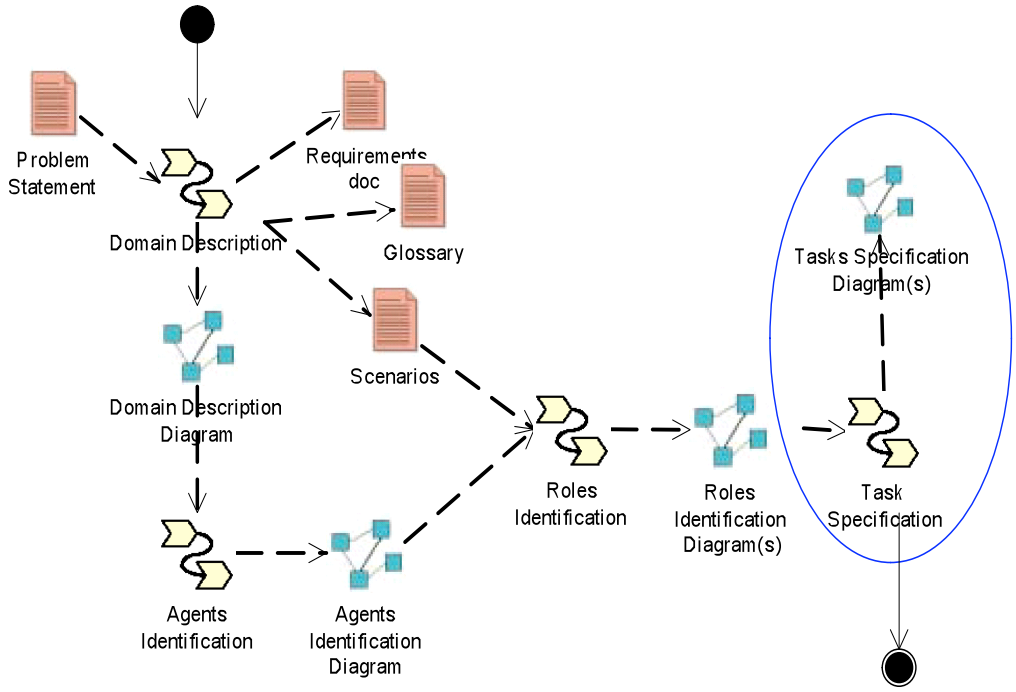

Fig.2 The System Requirements phase

This fragment aims is to describe the behaviour of each agent . The UML Model of this portion of process, Task Specification Diagram, is designed following a standard UML notation.

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

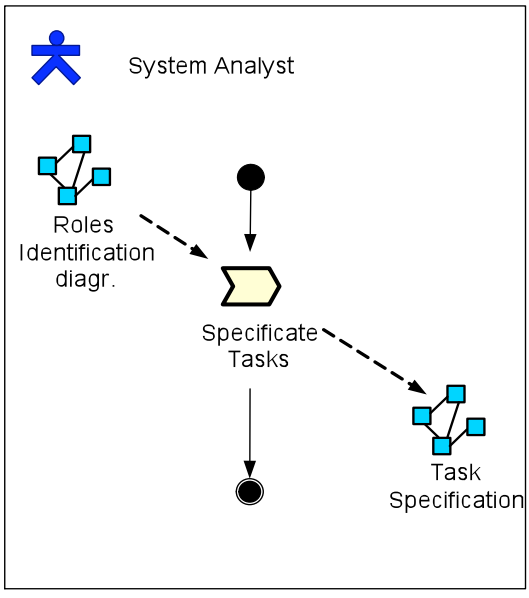

Fig.3 Task Specification fragment-Procedural aspect

3. Relationship with MAS meta-model

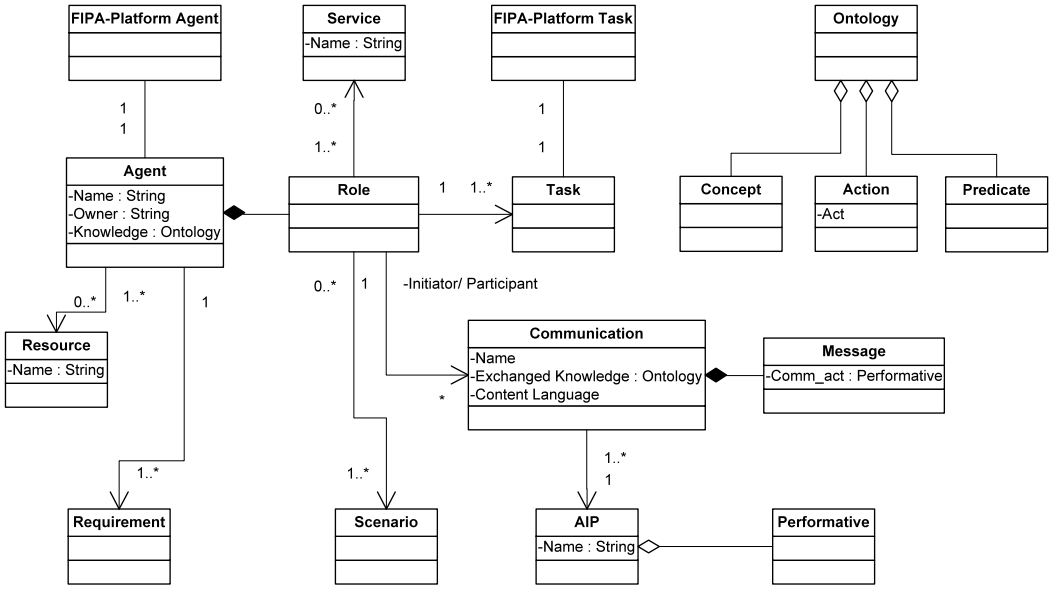

Fig.5. The MAS meta-model adopted in PASSI

This fragment refers to the MAS meta-model adopted in PASSI and contributes to define and describe a set of concepts in relation with it : requirement, scenarios.
The following figure describes the structure of the different work products, in the fragment, and their composition with respect to the MAS model.
Here the symbol:

represents an element of the MAS model .

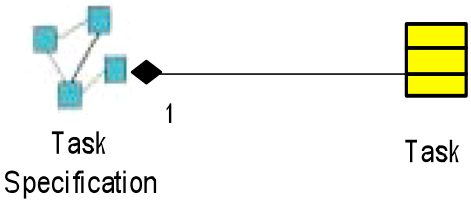

Fig.6. MAS Metamodel concepts

4. Deliverables

4.1. Task Specification Diagram

One different activity diagram is drawn for each agent. This diagram describes how the agent can use its tasks to execute its plans.
Each diagram is composed of two swimlanes and contains activities that usually represent tasks of the agent. The right swimlane contains tasks of the agent we are describing (Purchase Manager in the figure above), in the left one we can find tasks of other agents that interact with this one. Transitions in the same swimlane describe the flow of control from different tasks while transitions from one swimlane to the other represent communications.

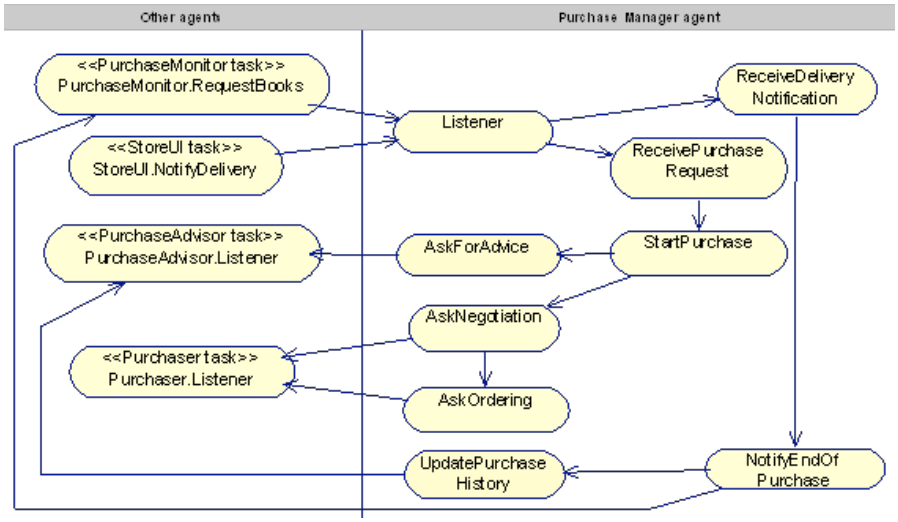

Fig. 4 The Task Specification Diagram

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
Roles Identification	Task Specification
Scenarios	Requirement doc

As regards MAS metamodel elements:

To Be Designed	To be related	To be quoted
Task	Agent-Task	Agent

6. Glossary

Requirement Fragment uses this list of model element:

Task – It is a logical unit of individual or interactive behaviour. An agent uses tasks to execute its plan(s). Each task is an entity that aims to reach a sub-goal (for example dealing with a communication or executing some transformations on a specific resource).