KDI : Knowledge and Data Integration

iThelos - Scope

W3.L6.M3.T6

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Top level view

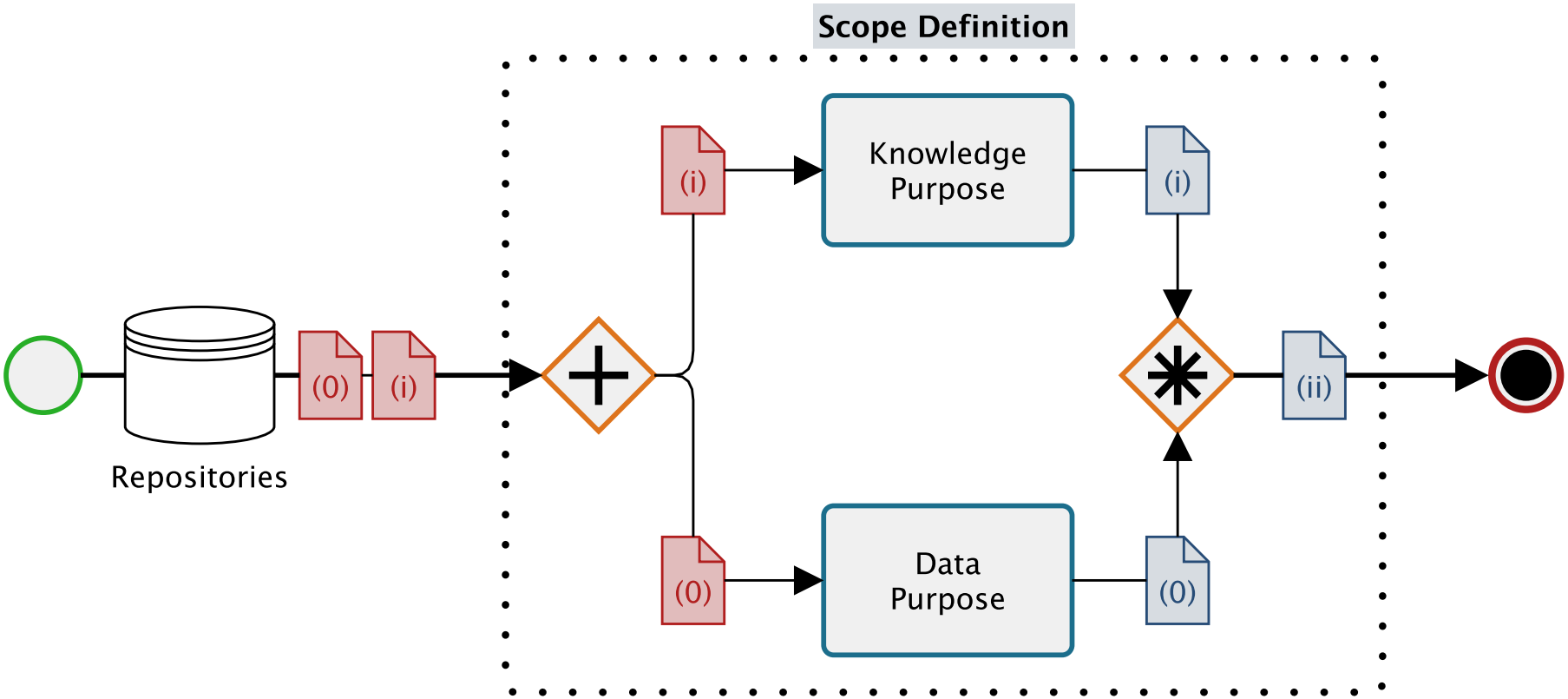
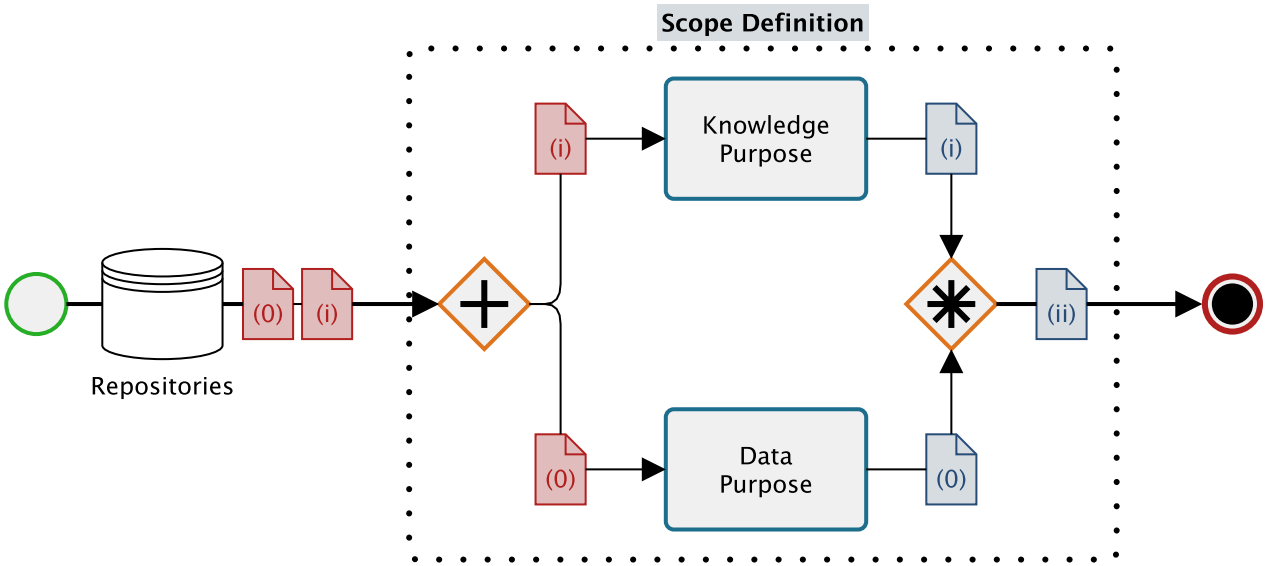


Figure: Scope Definition Diagram

Top level view



where:

- 0 : List of Repositories and Data sets already available.
- i : Problem Purpose.
- ii : Purpose Documentation.

Top level view

The Scope phase aims to define the project's purpose and to answer to the following questions:

- Why the iTelos Methodology has to be adopted?
- Which is the problem's context and how is defined?
- Which problem the Methodology will solve in the context?

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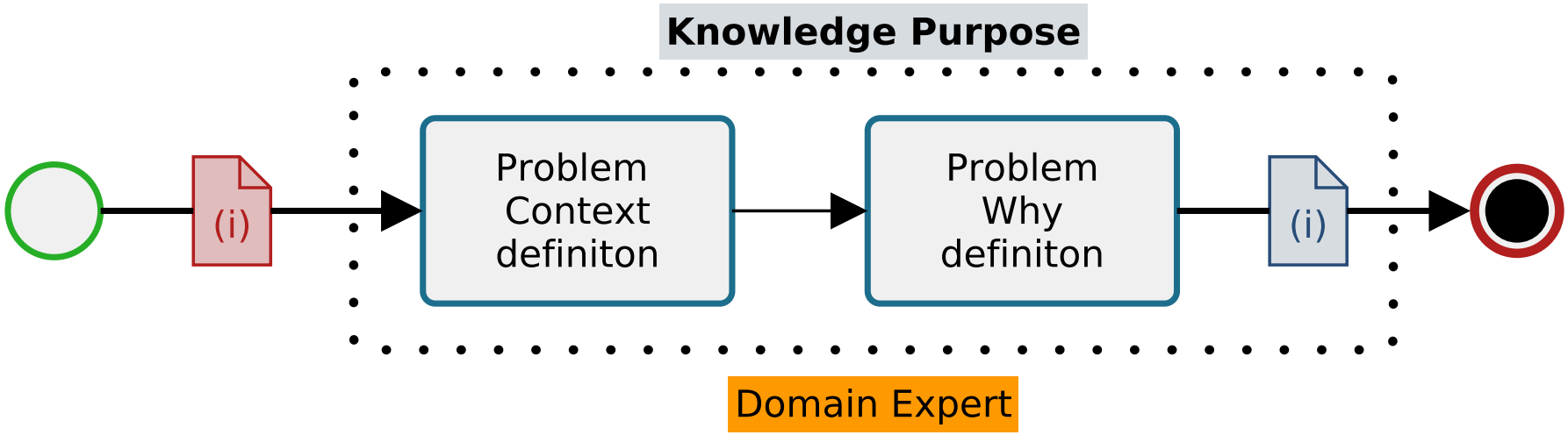
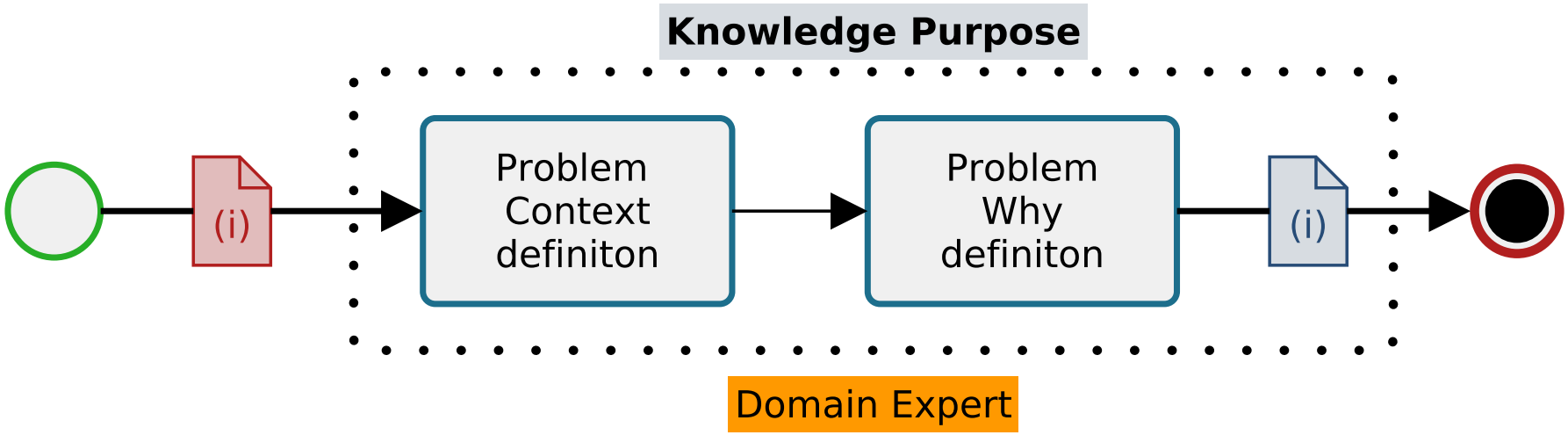
Knowledge Purpose



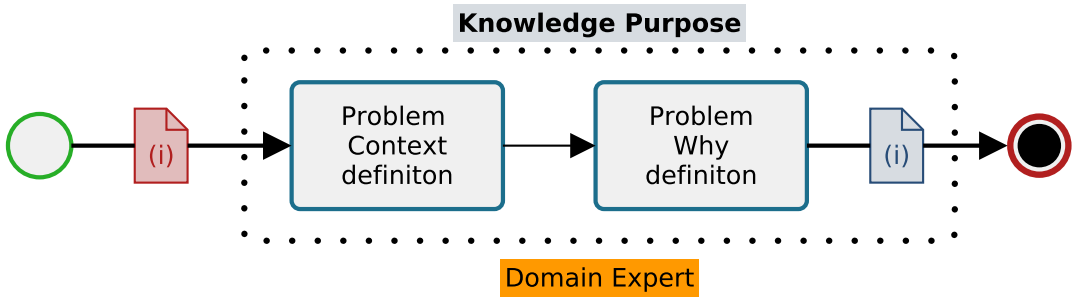
Knowledge Purpose



Executed sub-activities in the Knowledge Purpose macro-activity:

- Problem Context definition
- Problem Why definition

Knowledge Purpose



Tasks of Domain Experts are to identify and define:

- the context in which the project will be focused on;
- why to solve the problem in that context;
- why the iTelos Methodology is needed to solve it

Problem Context definition

Within this sub-activity, tasks of Domain Experts are to identify and define the context in which the application will work in.

Domain Experts has to define three fundamental aspect of the problem's context:

- Geographical aspects.
- Temporal aspects.
- Domain general aspects.

Problem Why definition

In this sub-activity, Domain Experts has to integrate the documentation with the information regards why the problem has to be solved. In particular:

- Purpose for starting the Project.
- Problem description.
- Personas and Scenarios relative to the problem.

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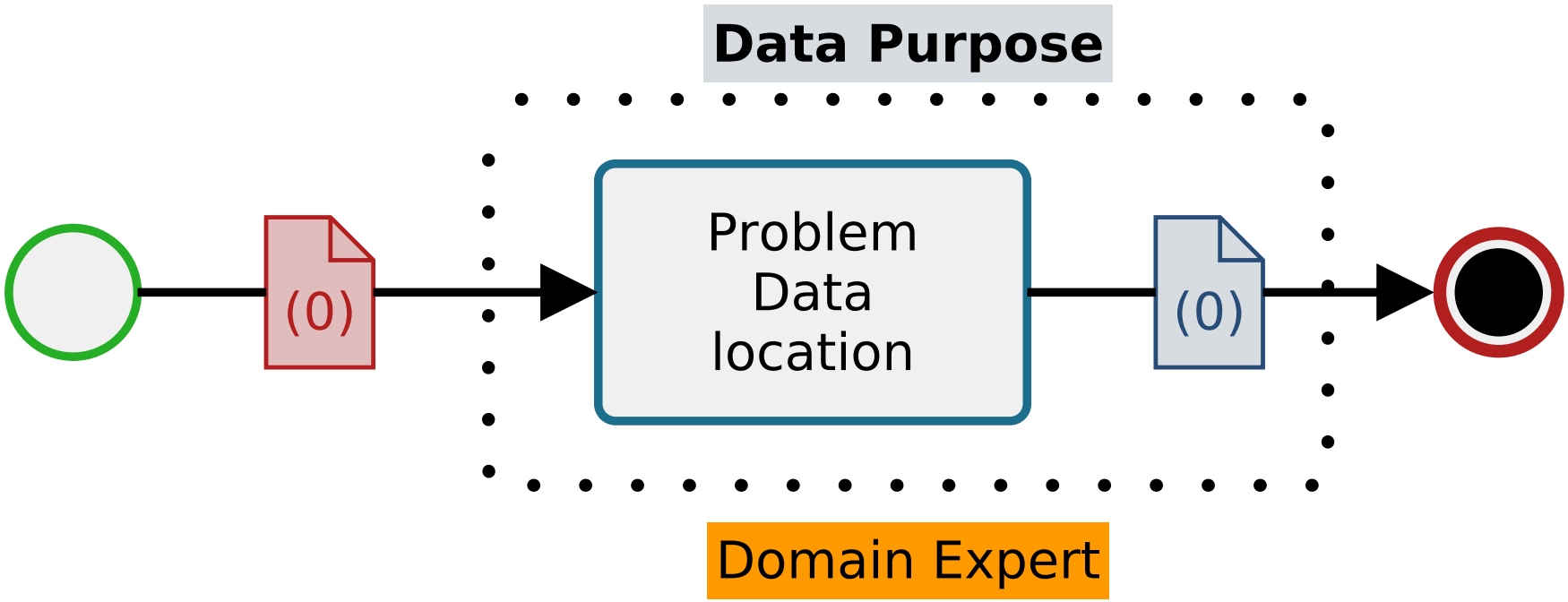
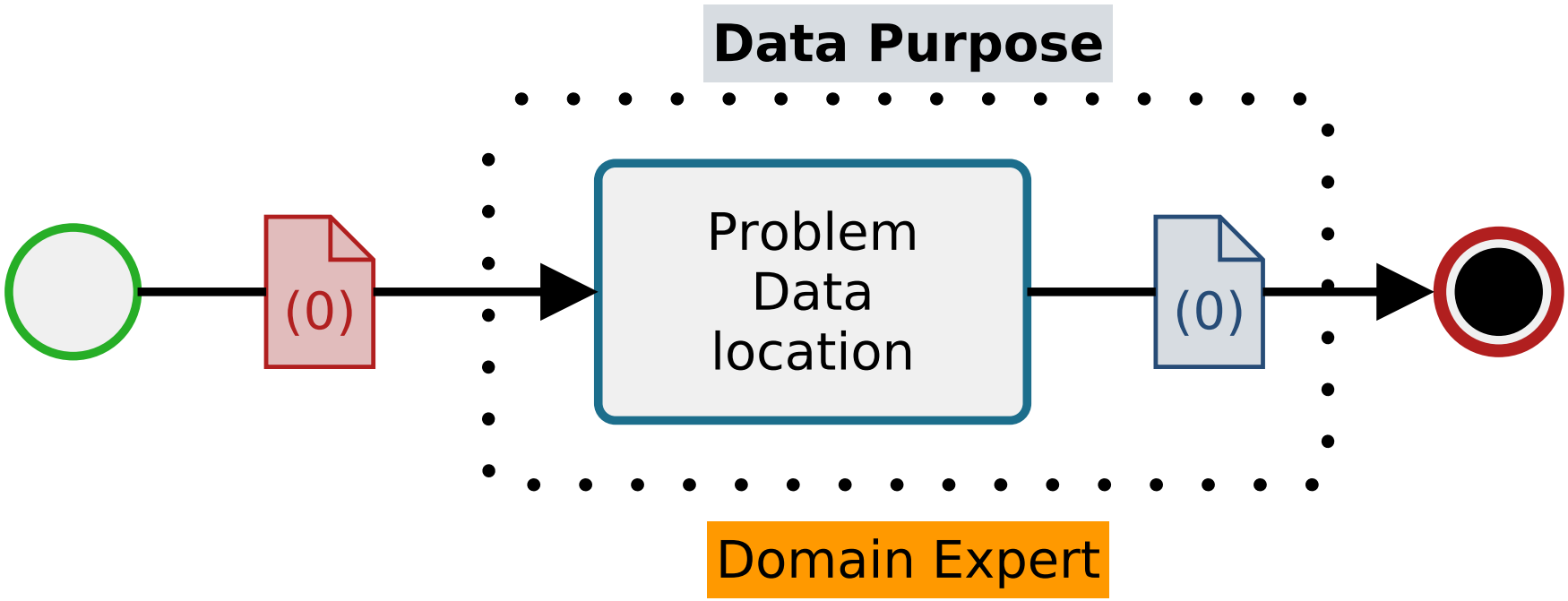
Data Purpose



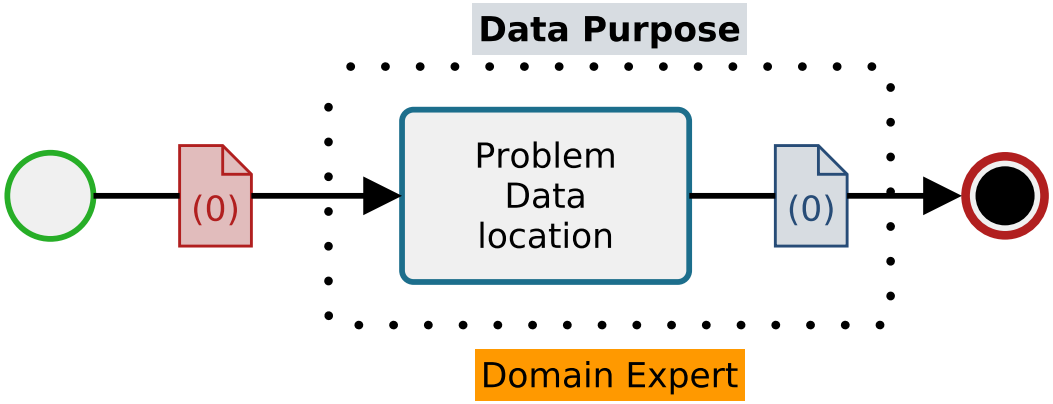
Data Purpose



The Data Purpose macro-activity executes the following sub-activity:

- Problem Data location.

Data Purpose



In this current sub-activity the Domain Experts have to produce a list of the main data sources used to collect data for the project like:

- Open data repositories.
- Data sets, such as private databases.
- Web pages to gather data.

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Languages & Standards and Tools

- Knowledge purpose:
  Overleaf is required for documenting the phase's output $\Longrightarrow$ knowledge and usage of the LaTeX language.

- Data purpose:
  Excel or Google Sheet for the data level output $\Longrightarrow$ the Domain Expert should be able to produce documentation by following this standard.

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Deliverables

In the Scope Definition phase the output consists of a documentation that include the **iTelos project report**. The document discusses the initial most important aspects related to the project itself:

- the context of the project;
- the actors involved;
- the scenarios;
- the project purpose;
- the data source sheet.

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Examples of Knowledge Purpose

Trips organization is a complex problem, which people don't want to spend time on. The solution we propose is an integration of data regarding places, famous attractions, itineraries and any kind of points of interest. In order to obtain a complete data collection, we intend to integrate data about facilities like hospitals, shops, and public structures, and transports. It is important to adapt the trip to your needs in order to let you better enjoy the experience. Crossing data, it is possible to plan the whole vacation with no effort up to the smallest detail.

Figure: Space Domain Problem purpose

Examples of Knowledge Purpose

NAME	AGE	INTEREST	USAGE	DESCRIPTION
Maria (1)	25	Visit cities, popular attractions and museums.	Travel more and spent less. Trips focus on culture.	Maria is a student. She wants to use the system to organize her trips. She wants to spend as little as possible but at the same time, she wants to visit many places. Using the system could be an optimal solution, crossing the data and prices you can get a list of accommodation and facilities with the most advantageous price. Organizing a trip by public transport requires a huge amount of data to find the best connections, the proposed system will also provide such data.
Giovanni(2)	45	Enjoy holidays with his family, Skiing on winter and biking/hiking/trekking on summer.	Organize the trip, suitable sports with different levels of challenge. Parking lots (accommodation).	Giovanni works as a professional and goes on holidays with his family. He wants to use the system to organize their vacations in Trentino. Their holidays differ in length, type of sport and the level of challenge of the sports they practice. So, for each of their holidays, they have different needs about the type of staying structure. They travel with their own vehicle.

Figure: Space Domain Personas

Examples of Knowledge Purpose

Nowadays people spent their free time travelling around. In our frantic world, time is running short and people want to improve the quality of their trips. Let us explore some possible personas.

Maria is a young woman; she is still studying at the university and next year she will graduate. She has free weekends because lessons end on Thursday morning. She travels with her friends who are students at the university like Maria. Maria plan one trip per month, she uses public transport, and she prefers to spend as little money as possible. As lessons start on Monday morning, she has only the weekend available, and she looks for accommodation for a maximum of 3 nights. She is really interested in visiting cities, the most popular attractions and museums.

Giovanni is a husband and a father of two young children. He usually travels with his family for two different weekly trips a year, and occasionally they take weekend trips during the year. Travelling with the family requires planning the whole trip to avoid problems. As Giovanni is a precise person, he takes care of the whole organization. He and his wife love to practice sports in the visiting areas, but at the same time, they look for attractions, like adventures parks, suitable for their 7 and 11 years old children. The budget is high because both Giovanni and his wife have a substantial salary: they are lawyers. Giovanni has a beautiful car, so he wants to travel in comfort using it.

Figure: Space Domain Scenarios

Examples of Data Purpose

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4 https://www.booking.com
5 https://scrapy.org/
6 https://dati.trentino.it/dataset/esercizi-alberghieri
7 https://dati.trentino.it/dataset/trasporti-pubblici-del-trentino-formato-gtfs
8 http://sasabus.org/it/opendata
9 https://developers.google.com/transit/gtfs
10 https://www.istat.it/it/archivio/6789
11 https://www.openstreetmap.org/
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Figure: Space Domain Data Sources

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