



EU H2020 project
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Use-Case & Scenario *Definition*

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Origin “Use Case”

The term “**Use Case**” was introduced as a methodology to support system analysis, with the purpose to identify, clarify and organise system requirements such that systems engineering can realise systems based on System Modeling (SysML).

Wikipedia goes further and specifies that a Use Case would be a list of actions or event steps. Looking at the definition of “**Scenario**”, this especially covers these last aspects.

It seems that along the way these terms have been synonymous or at least overlapping. Anyhow, here the term is specifically used within software engineering.

“Use Case” in ITS

Within Intelligent Transportation Systems the term “Use Case” has a wider value.

It is not specifically used for system engineering.

It is used by all stakeholder groups for internal alignment between these stakeholders. Alignment focussing on the functional needs to support general social European and market business objectives and not just for system engineering.

Additionally we would like to use it at 2 levels. At the generic functional and the specific functional level.

“Use Case” in ITS

For this reason a description needs to **cover generic aspects such as roles and responsibilities, business, legal, environmental, operational, privacy and life cycle objectives.**

Besides the generic also **specific** aspects should be covered to understand the consequences of these high level objectives to allow realisation and implementation.

All together a lot of information to be provided by different levels of contributors. Therefore, it is proposed to use “Use Case” for the general aspects and “Scenario” for specific aspects.

“Use Case” in ITS context

An “ITS Use Case” identifies a functional objective (goal) to reach. It clarifies the original situation, the objectives to achieve and the end situation and it recognises the general context in which this objective needs to be realised.

“Use Case” in ITS context

Description

An ***“ITS Use Case”*** includes a high-level system environment description including high-level functions, their interactions and conditions to realize the use case. No implementation but only high-level functional requirements maybe specified which might include high-level behavioral, conditional and/or situational aspects such that the description is implementation agnostic.

For implementation, a single ***“Use Case”*** may be supported by many different scenarios (such as Business, Legal, Privacy, Implementation, Testing/Validation, Environmental, Operational and Live Cycle Scenarios)

“Scenario” in ITS context

An ***“ITS Scenario”*** is an implementation assuming a general context as may be provided by a “Use Case”. It reveals a specific script, recipe, sequence of events or a process realising the aspect of the use case.

An ***“ITS Scenario”*** is specified with a specific set of implementation conditions in mind. The implementation conditions can be of any type which will characterise the type of “ITS Scenario”.

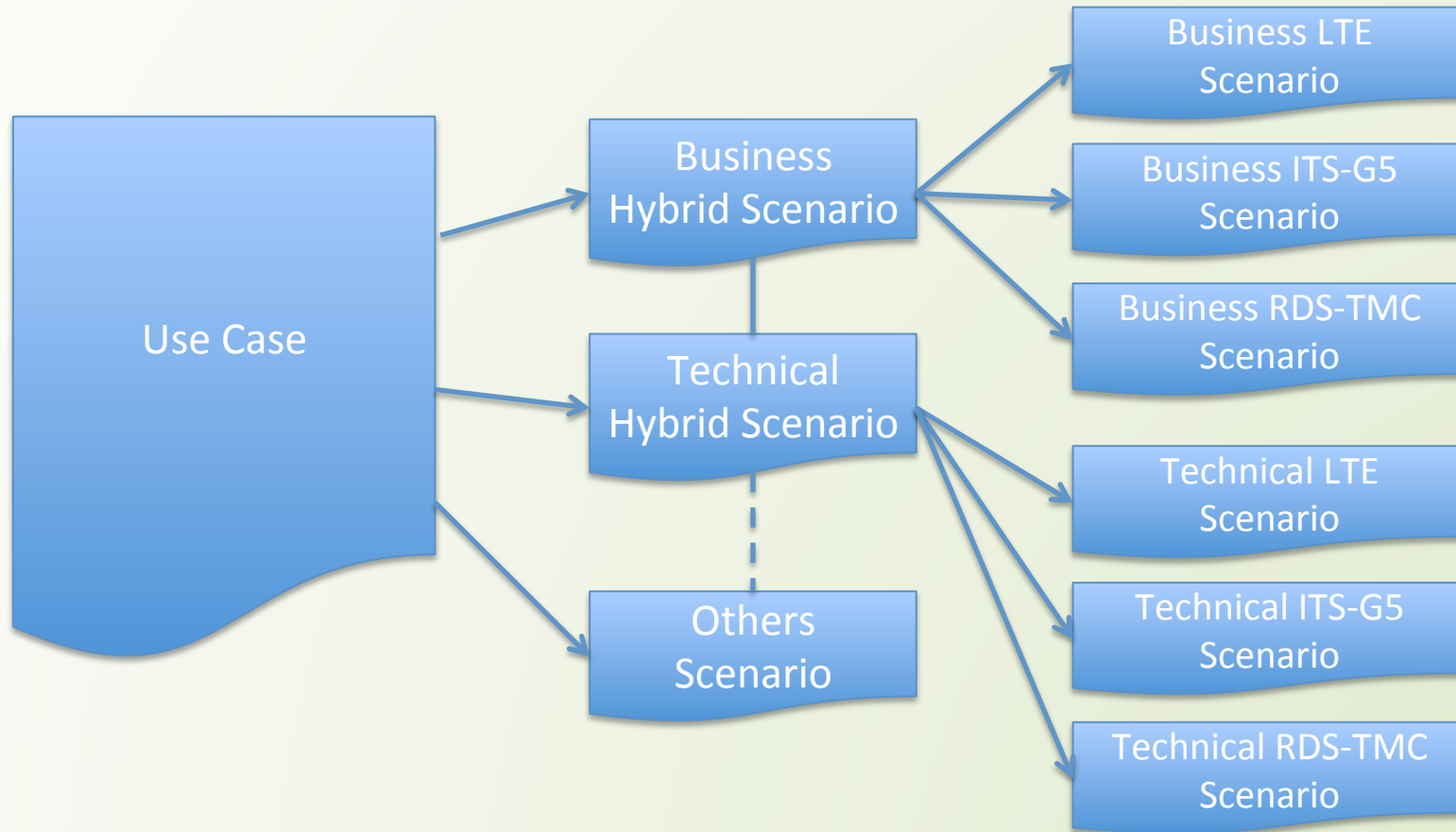
The following ITS Scenarios can be envisioned: Business Scenarios; Legal Scenarios; Privacy Scenarios; Implementation Scenarios; Testing/Validation Scenarios; Environmental Scenarios; Operational Scenarios; Life Cycle Scenarios.

“Scenario” in ITS context

In case of a Technical ***“ITS Scenario”*** description, it describes a specific script, recipe or sequence of events (process) realised in a specific technical system to realise behavioral functional aspects. It may include outside influences, pre and post conditions, trigger conditions.

When the Technical ***“ITS Scenario”*** needs to support implementation it is expected to include both Functional and Technical requirements. In this case it may include a functional description of the script, recipe, sequence of events or a process and the relation with other functions in the system.

ITS requirements captured example



Templates

“ITS Use Case”

A ***draft*** ITS Use Case template is available

“ITS Scenario”

A ***draft*** Technical ITS Scenario template is available.

Thank you

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