



openETCS WP3 Workshop

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openETCS@ITEA2 Project

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Brussel, 09.09.2014

Briefly History of the openETCS SRS Task Force

Founding of the SRS Analysis Task Force

09-October WP 3 Kick-off Meeting@Siemens Braunschweig

- Alstom as the WP 3 was presenting the Strategie of WP 3
- Presented the estimated effort for WP 3
- Made a proposal for founding a SRS Analysis Task Force:
 - SRS Task Force should be closed for a certain period
 - Documents from Alstom „General functional TRB“ was delivered
 - Documents from Siemens „High level functional structure“ was delivered
 - Documents and tasks of the SSRS have been integrated in the SRS Analysis TF
 - Members of the Task Force: SNCF, DB, NS/Lloyds,
Alstom, Siemens, TUBS, Systemrel

First SRS Analysis Task Force meeting

22-25 of October SRS Analysis Task Force meeting@Charleroi

Participants: SNCF, DB, Lloyds, Alstom, Siemens, TUBS

- System analysis of the Subset 026 by ERTMS Experts and Operator
- First intermediate definition of (Subset 026) high level functions
- Prioritising and estimate the complexity of the high level functions
- Creating a template and a process about how to analysis the functions
- Creating a first description/modeling of the High level functions

First SRS Analysis Task Force workshop

22-25 of October SRS Analysis Task Force meeting@Charleroi

Participants: SNCF, DB, Lloyds, Alstom, Siemens, TUBS, Systemrel

- first estimation of the workload
- Setting of the second SRS Analysis Task Force meeting@Berlin 22-25.11.2013
- Reviewing of the documents that has been performed with the template
- Evaluating the template and process for the analysis of the functions

Second SRS Analysis Task Force workshop

21-25 of November SRS Analysis Task Force meeting@Berlin

Participants: DB, Lloyds, Alstom, Siemens, TUBS, Systerel

→ Estimation of the necessary effort to model the defined function from the first SRS analysis Task Force workshop@Charleroi ~51 mann/year



Microsoft Excel
7-2003-Arbeitsbla

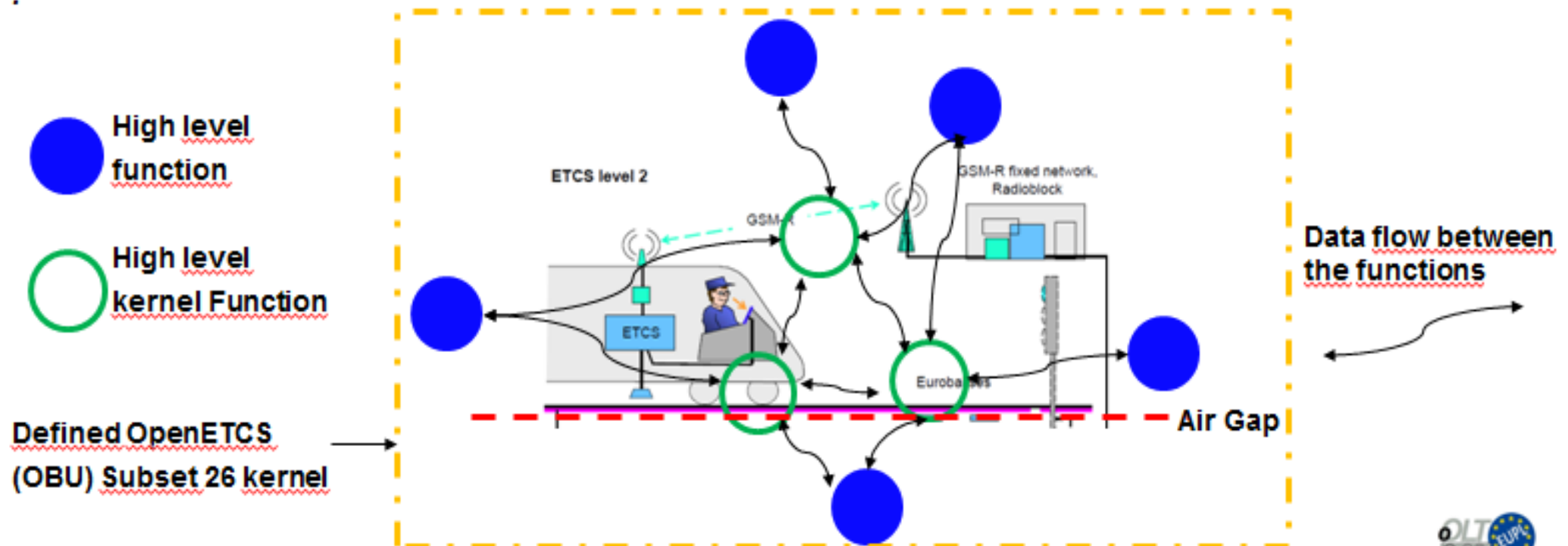
- Available ressources ~30 mann/year
- ~60% of the requirements and ~80% of the functions can be modelled
- Process need to be validated and verified
- Model need to be completed

Second SRS Analysis Task Force workshop

21-25 of November SRS Analysis Task Force meeting@Berlin

Participants: DB, Lloyds, Alstom, Siemens, TUBS, Systerel

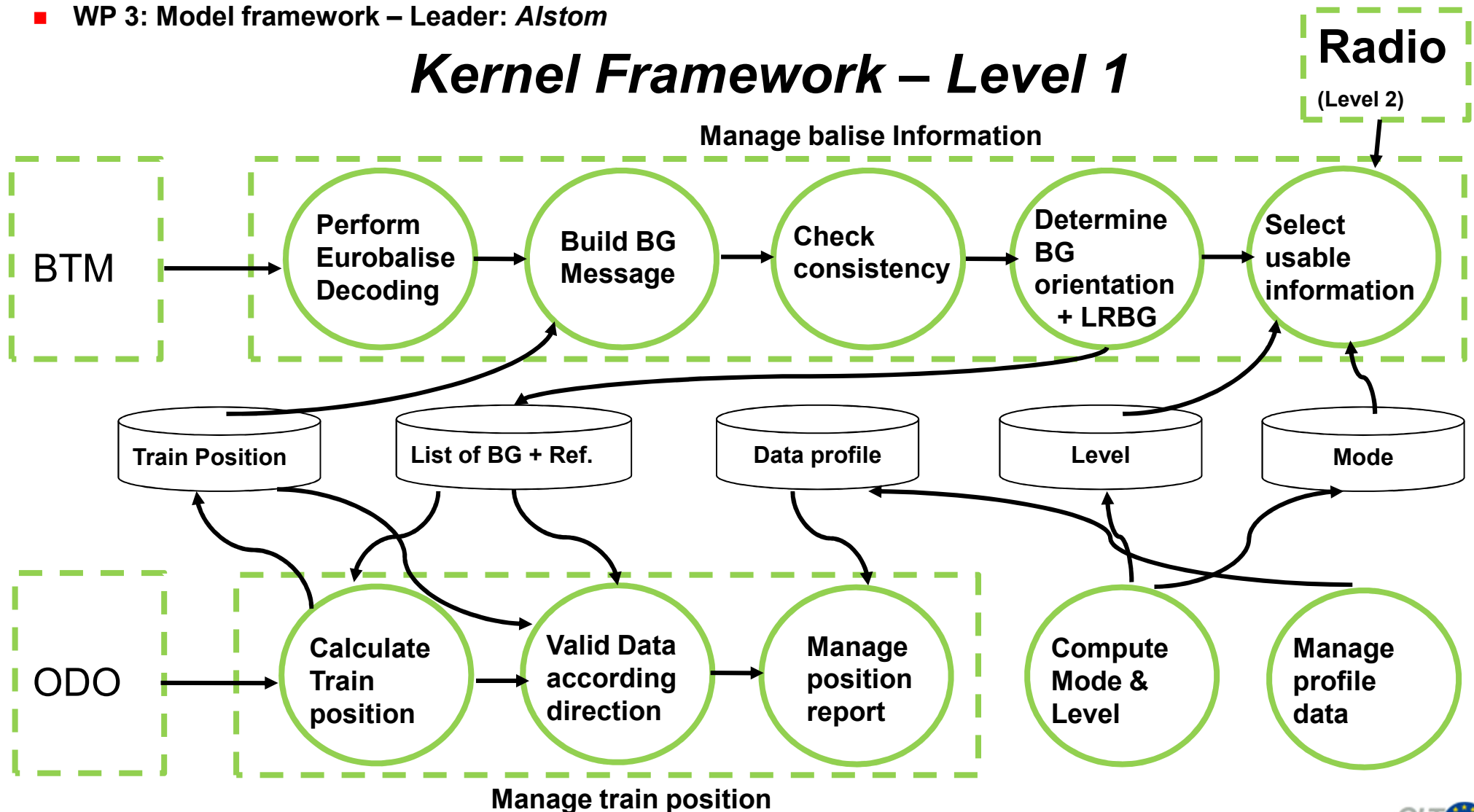
→ Definition of the kernel functions of the high level functions



Second SRS Analysis Task Force workshop

- WP 3: Model framework – Leader: Alstom

Kernel Framework – Level 1



Second SRS Analysis Task Force workshop



21-25 of November SRS Analysis Task Force meeting@Berlin

Participants: DB, Lloyds, Alstom, Siemens, TUBS, Systerel

→ Deep analysis and modeling of the high level kernel functions

Second SRS Analysis Task Force workshop

Spread the work in different Groups (see excel sheet Alstom):

Group 1: Control Route Suitability, Filter information from ERTMS Trackside, Store Coinfiguration Data (Alstom Group)

Group 2: Manage Track Condition (Open)

Group 3: Movement Authority Management (Open)

Group 4: Determine Train Location Procedure (NS/DB Group)

Data Dictionary: Bernd Hekele and Jan Welvaarts

Architecture: Open

Scade and SysML training

- first Scade training was held from 07.01.2014 – 10.04.2013@Munich
- Training on Papyrus/SysML
- Additional Scade Training necessary

Summary – Status of the work(progress)

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Alstom Workshop @Berlin 11/2013	Alstom Workshop Brussel 05/2014
Confirm on high level functions	High level function in Alstom document
Confirm on a high level architecture	High level architectue in Alstom document
Confirm on a working process	Working process in the document
Split the work in different groups	?
Assign functions to different groups	?
First Model description on agreed functions and process	First IBD Model First Model on certain functions and process
First V&V of the described functions	V&V next step?
Alstom API	Alstom API

Alstom proposal

- **one week workshop for harmonisation of the results from the available draft for architecture and data dictionary.**
- **Implentation of Backlog and process for efficient and collaborative work.**
- **Expanding of existing SysML (Papyrus) Model**
- **Analysis of Scade compatibility with new features of architecture**

Great work from every participant – Thanks to the modelling team

Steps to complete:

- **Split of the work in different modelling groups**
- **Confirmation on a working process**
- **No double work!!**
- **Creating of a backlog!! (May use the Siemens and Alstom Backlog)**
- **Interaction with other WP's (WP 5 Demonstrator and WP 4 V&V)**
- **WP 1 will propose a high level Backlog**
- **Goal „Proof of concept“**

Alstom proposal

- **one week workshop for harmonisation of the results from the available draft for architecture and data dictionary.**
- **Implentation of Backlog and process for efficient and collaborative work.**
- **Expanding of existing SysML (Papyrus) Model**
- **Analysis of Scade compatibility with new features of architecture**

openETCS Objective: Proof of Concept

Objective of WP 1 – open proof of concept?

OPEN PROOF OF CONCEPT =

TOOLS +

MODELLING +

PROCESS +

METHODS +

Proof the concept on a „real use case“ for demonstration

Objective of WP 1 – open proof of concept

SCOPE

- **Modelling of the ETCS kernel OBU functions**
- **Modelling of necessary OBU functions for a certain track**
- **Demonstration of the Model on a demonstrator for a certain track**

Utrecht – Amsterdam as Use Case

- **Engineering Datas**
- **Track Layout**
- **JRU Datas**

Objective of WP 1 – open proof of concept

How do we achieve the open proof of concept goals??

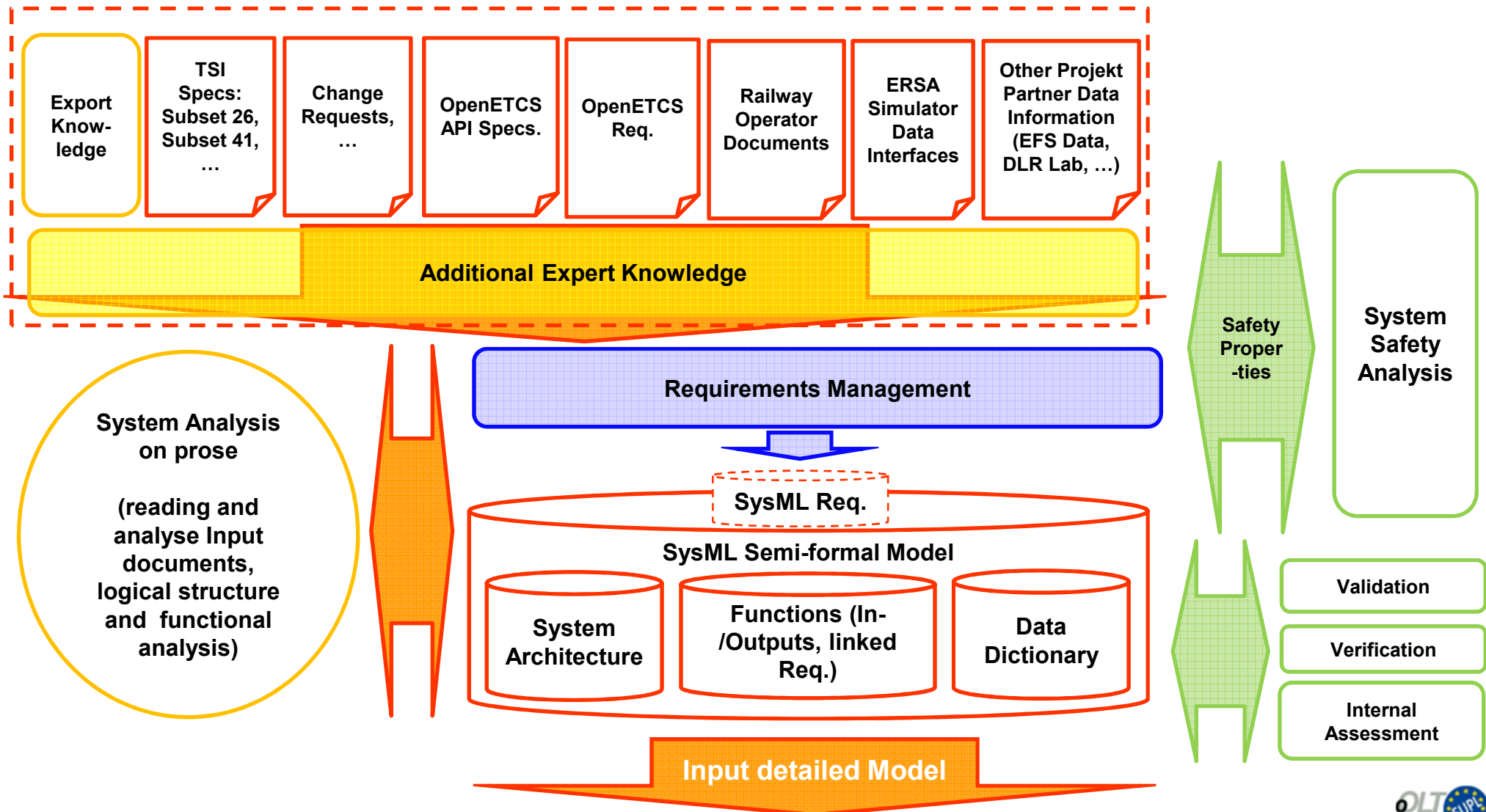
Workplan → WP 3

Schedule → WP 3

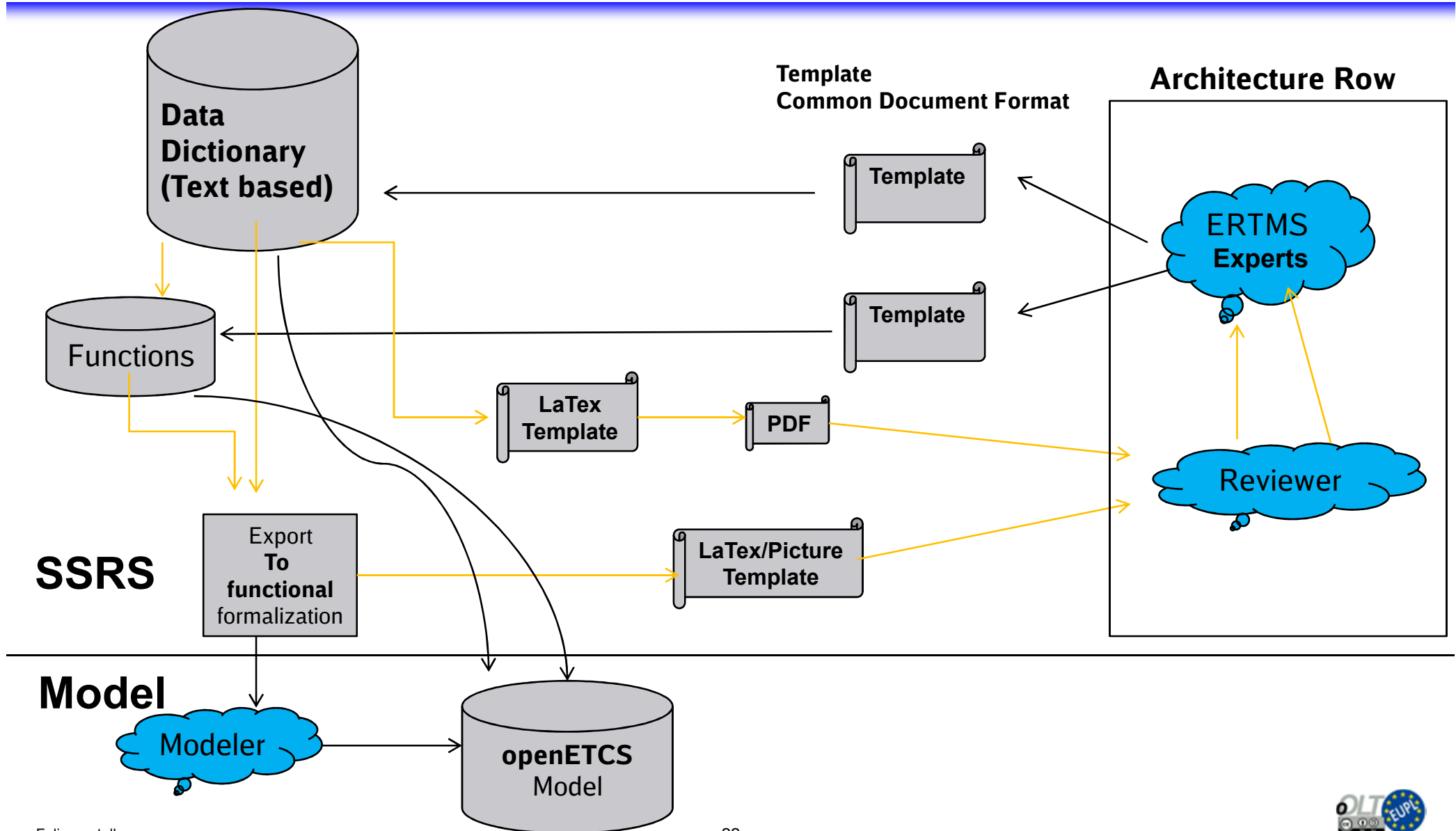
Backlog → WP 1 and WP 3

Interaction to other WP's → WP 3 and WP 1

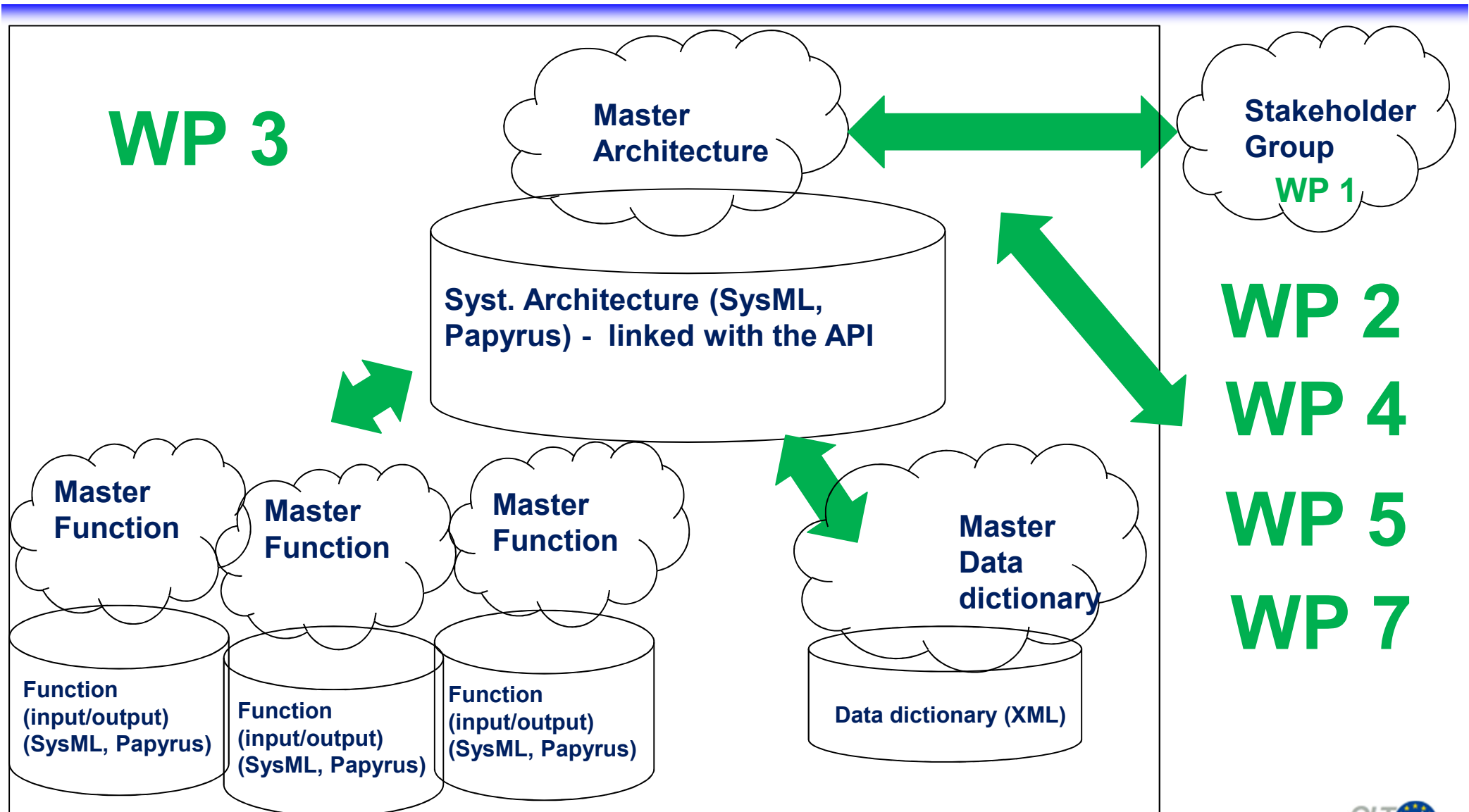
Development Process and Toolchain



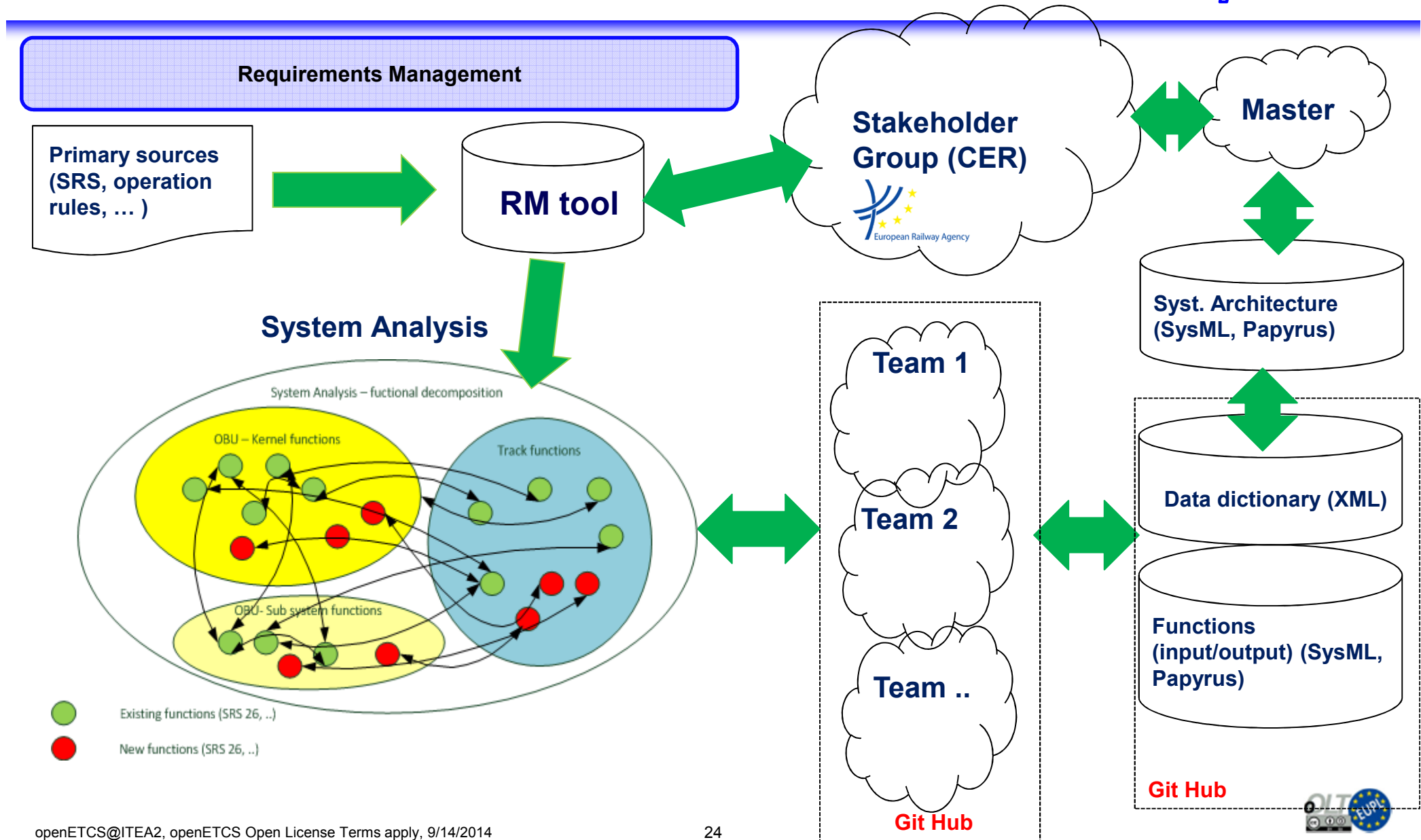
Process for data dictionary and functions



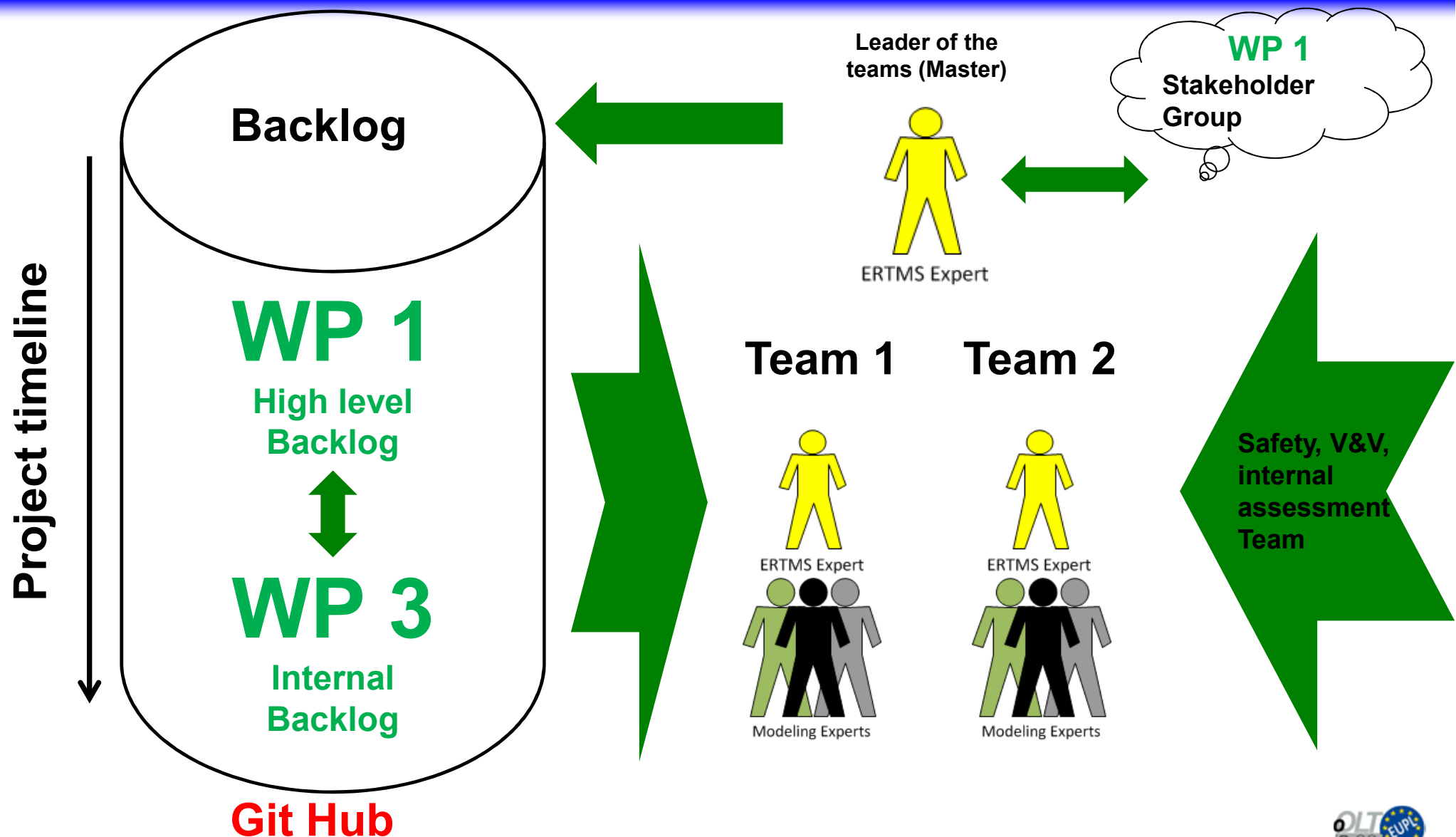
Syst. Architecture design process



Steps from the Prosa to the formal Model



Working process



WP 1 Backlog by priorities

- 1. Confirm on Process and methods**
- 2. Confirm on Architecture and Data Structure**
- 3. High level functions (WP 3 need to confirm on the kernel functions – bottom - up & top - Down)**
 - 3.1 Filter Informations from ERTMS Trackside**
 - 3.2 Manage MA request**
 - 3.3 Sending of position report**
 - 3.4 Provide train movement information**
 - 3.5 Manage TSR**
 - 3.6 Manage Speed Supervision inputs**

Next steps

Objective of WP 1 – open proof of concept

How do we achieve the open proof of concept goals??

Workplan → WP 3

Schedule → WP 3

Backlog → WP 1 and WP 3

Interaction to other WP's → WP 3 and WP 1

WP 1 Backlog by priorities

- 1. Confirm on Process and methods**
- 2. Confirm on Architecture and Data Structure**
- 3. Generic API**
- 4. High level functions (WP 3 need to confirm on the kernel functions – bottom - up & top - Down)**
 - 3.1 Filter Informations from ERTMS Trackside**
 - 3.2 Manage MA request**
 - 3.3 Sending of position report**
 - 3.4 Provide train movement information**
 - 3.5 Manage TSR**
 - 3.6 Manage Speed Supervision inputs**

- 1. Need names behind the Backlog items**
- 2. DB will propose to work on a architecture with the industriepartner and NS – need confirmation.**
- 3. Next workshop**
- 4. Preperatio for the next workshop**
- 5. Workplan and Schedule for WP 3**
- 6. Description of Work for WP 3**
- 7. Minimum 1 (30min) Weekly WP 3 (Architecture) Telco**