



WP6: Platform integration, validation and demonstration

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Objective of WP6

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- Integration of software components;
- Validation of implemented solution through an iterative and incremental process.
- Demonstration of the proposed architecture through pilot demonstrators

☒	☒ Title	☒ Due month	☒ Lead partner	☒ Dissem
D6.1	Platform development report report	M17	HAI	Public
D6.2	Platform component validation and verification	M18	SE	Public
D6.3	pSHIELD pilot demonstrators	M18	ASTS	Public
D6.4	Real world requirements for SPD-based systems	M19	ASTS	Public

- **Plan versus Reality** of a Pilot Project

Plan versus Reality of a Pilot project



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T6.1 System integration

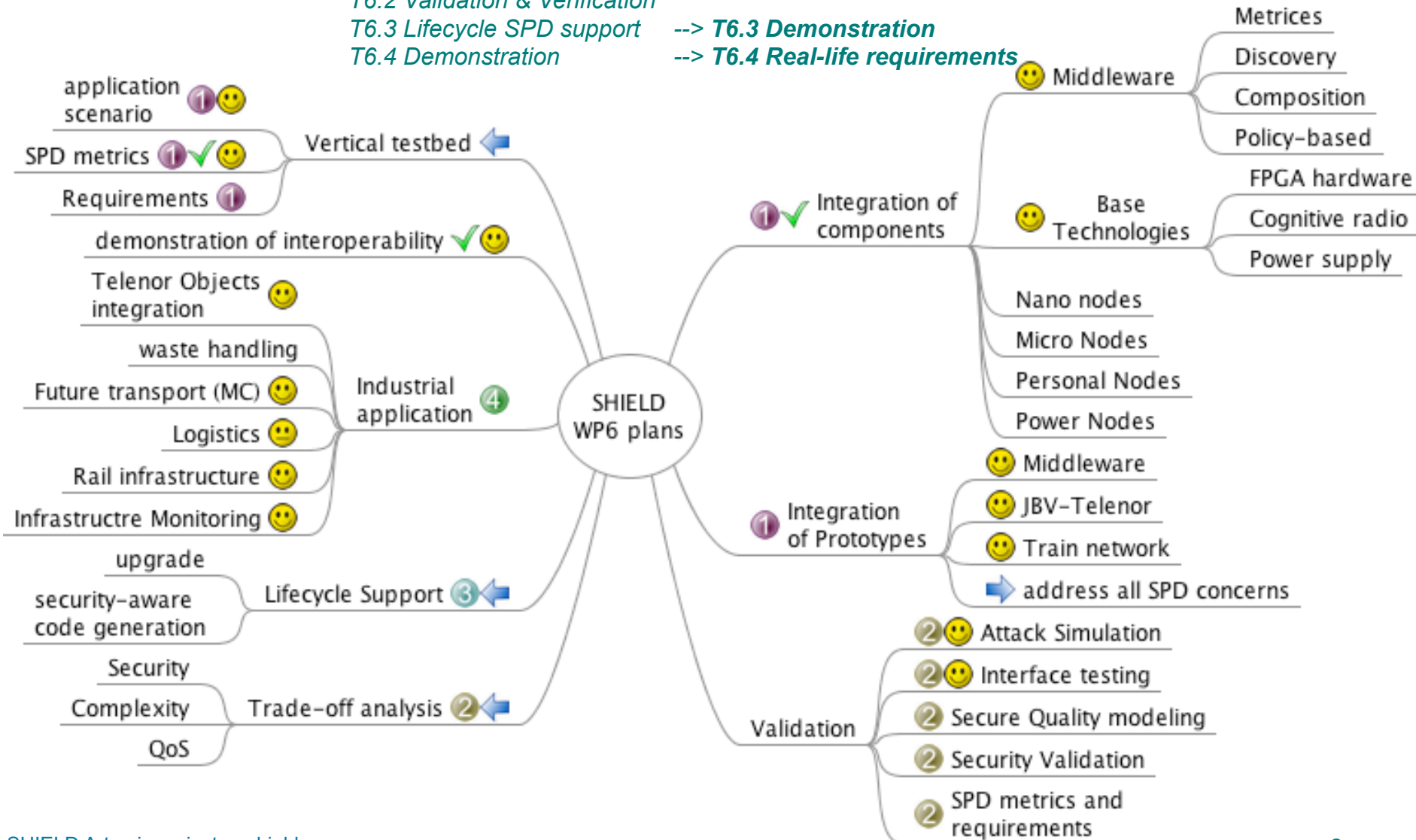
T6.2 Validation & Verification

T6.3 Lifecycle SPD support

T6.4 Demonstration

--> T6.3 Demonstration

--> T6.4 Real-life requirements



Updated plan: Reality

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- T6.1 Multi-Technology System Developments
 - T6.2 Multi-Technology Validation & Verification
 - T6.3 Multi-technology Demonstration
 - T6.4 Real world requirements for SPD-based systems
- Highlight the key concepts or else the idea of pSHIELD
 - Show that these ideas
 - optimise applications or
 - confront problems that arise during implementation (security attacks etc.)
 - Present a list of functional components which implement the key concepts
 - Integrate
 - Produce prototypes

SPD aspects of prototypical demonstrations

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- Through SHIELD we'd like to achieve a robust, reliable, available and secure network,
- including functionalities for the pSHIELD sub-system such as
 - SPD Audit
 - Cryptographic support
 - Identification and Authentication
 - Protection of SPD functionalities
 - Security Management
- and
 - Routing Protocol
 - Service Discovery
 - Intrusion Detection
 - Energy management
 - Location management

WP6 emphasises industrial application

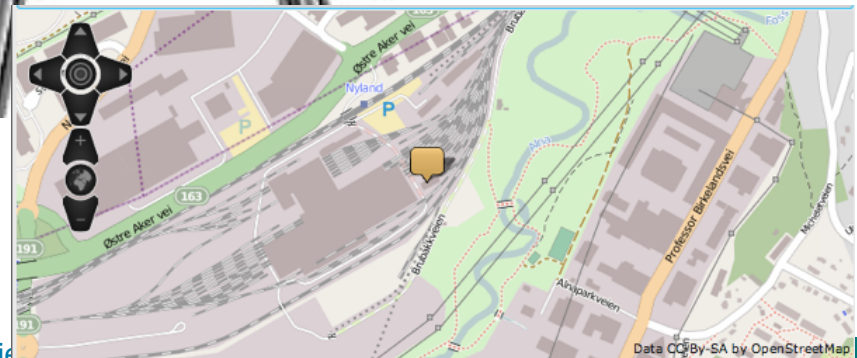
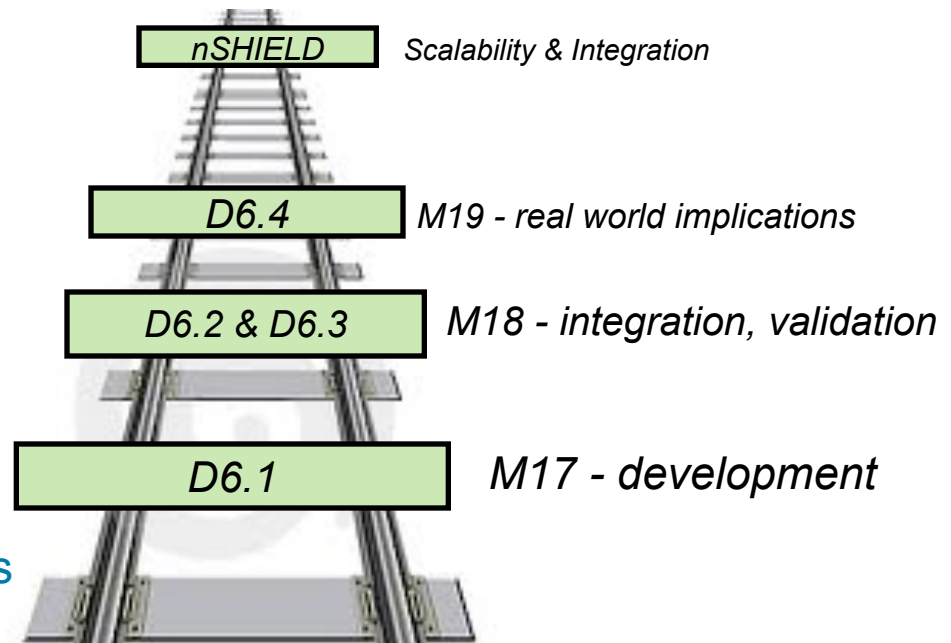
Achieved integration of

- middleware
- pilots

Achieved demonstration of

- industrial applicability
 - rail wagon
 - first application on Shepherd
- SPD composability
- Validation/verification of selected aspects
 - composability
 - SPD functionality

The scope of the integration is the demonstration and validation of selected SPD technologies



T6.2 Verification and Validation

The purpose of this task is to validate and verify the SPD features and concepts integrated on an identified platform for pSHIELD scenario.

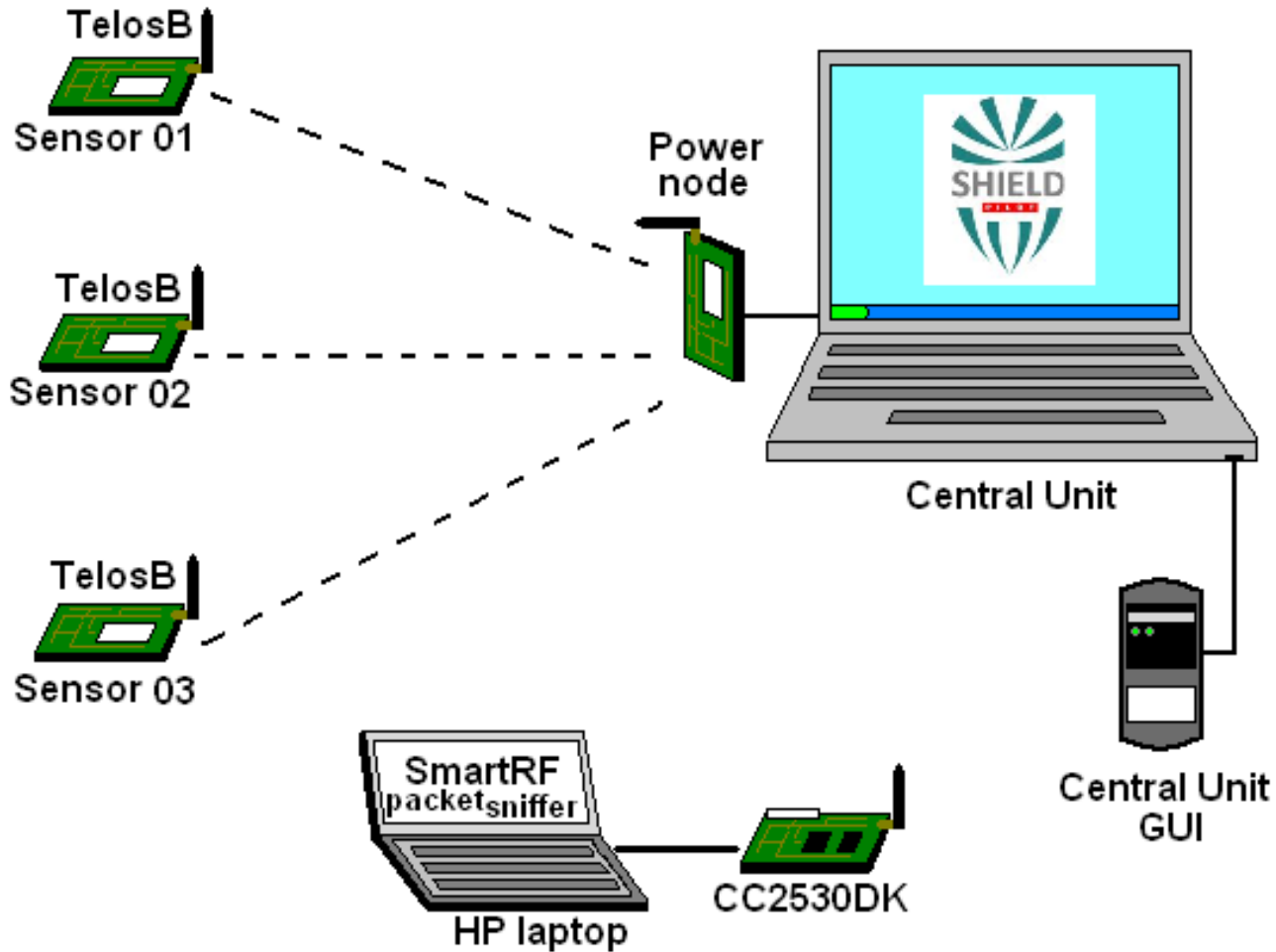
The objective of the platform validation activity is to check the consistency of the platform components in terms of functionalities, semantic models (e.g. metrics and descriptions) and interfaces necessary to perform the SPD composability.

The objective of the platform verification activity is to verify the platform behaviour with respect to the selected scenario by means of focused functional tests.

Identified platform for pSHIELD scenario



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- *The major platform validation has been based on the presence of the innovative pSHIELD Middleware that is able to dynamically discover and compose the SPD functionalities offered by the system elements.*
- *This middleware is the first enabler of the SPD-aware composability.*
- *The second enabler is the semantic model used to describe the pSHIELD components and the SPD functionalities, since it feeds the metrics-driven composition performed at middleware level.*

In conclusion the project demonstrator is able to perform SPD-aware composition by using specific Middleware Services and semantic models and this makes it pSHIELD-enabled.

However this composition can either be correct or not.

The functional tests had to verify that this composition is also correct, thus validating also the metrics composition approach.

At this purpose the platform performs SPD functions belonging to the following classes:

AU - SPD Audit (4)

CS – Cryptographic Support (3)

IA – Identification and Authentication (2)

PT – Protection of the SPD functionalities (1)

SM – Security Management (3)

The proposed test plan has the purpose to demonstrate that all SPD functions implemented in the pSHIELD for the specific scenario, work properly without errors.

Tests are executed with the aim to demonstrate the correct SPD functions implementation.

Verification (2/2)

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In the following table it is demonstrated how tests set defined in D6.2.1 (paragraph 6.2) is complete to verify pSHIELD platform SPD functionalities.

		AU					CS								IA			PT		SM	
		T01	T02	T03	T04	T05	T01	T02	T03	T04	T05	T06	T07	T08	T01	T02	T03	T01	T02	T01	T02
Class	Comp.																				
AU	GEN.1	X	X	X	X	X															
	GEN.2	X	X	X	X	X															
	SAR.1	X	X	X	X	X															
	SAR.3		X	X	X	X															
CS	CKM.1						X	X	X	X	X	X	X	X							
	CKM.2						X	X	X	X	X	X	X								
	COP.1						X	X	X	X	X	X	X								
IA	UID.1													X	X	X					
	UAU.1													X	X	X					
PT	STM.1																X	X			
SM	MTD.1																				X
	SMR.1																		X	X	
	SMF.1																		X	X	

Conclusions

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Summarising, the project demonstrator is able to perform SPD-aware composition by using specific Middleware Services and semantic models and this makes it pSHIELD-enabled and the functional tests have verified that this composition is also correct, thus validating also the metrics composition approach.

Naturally this approach on the hypothesised platform aim to be not a conclusion but the basis of the enrichment and further development that will be carried out during the prosecution of the research with the nSHIELD project.