



# WP2 Framework

## nSHIELD PhC

### 30 November 2011

*ARTEMIS 2010 -1*  
*Project Proposal No. 269317*  
*ASP6: Inter-networked ES for Security and*  
*Critical Infrastructures Protection*

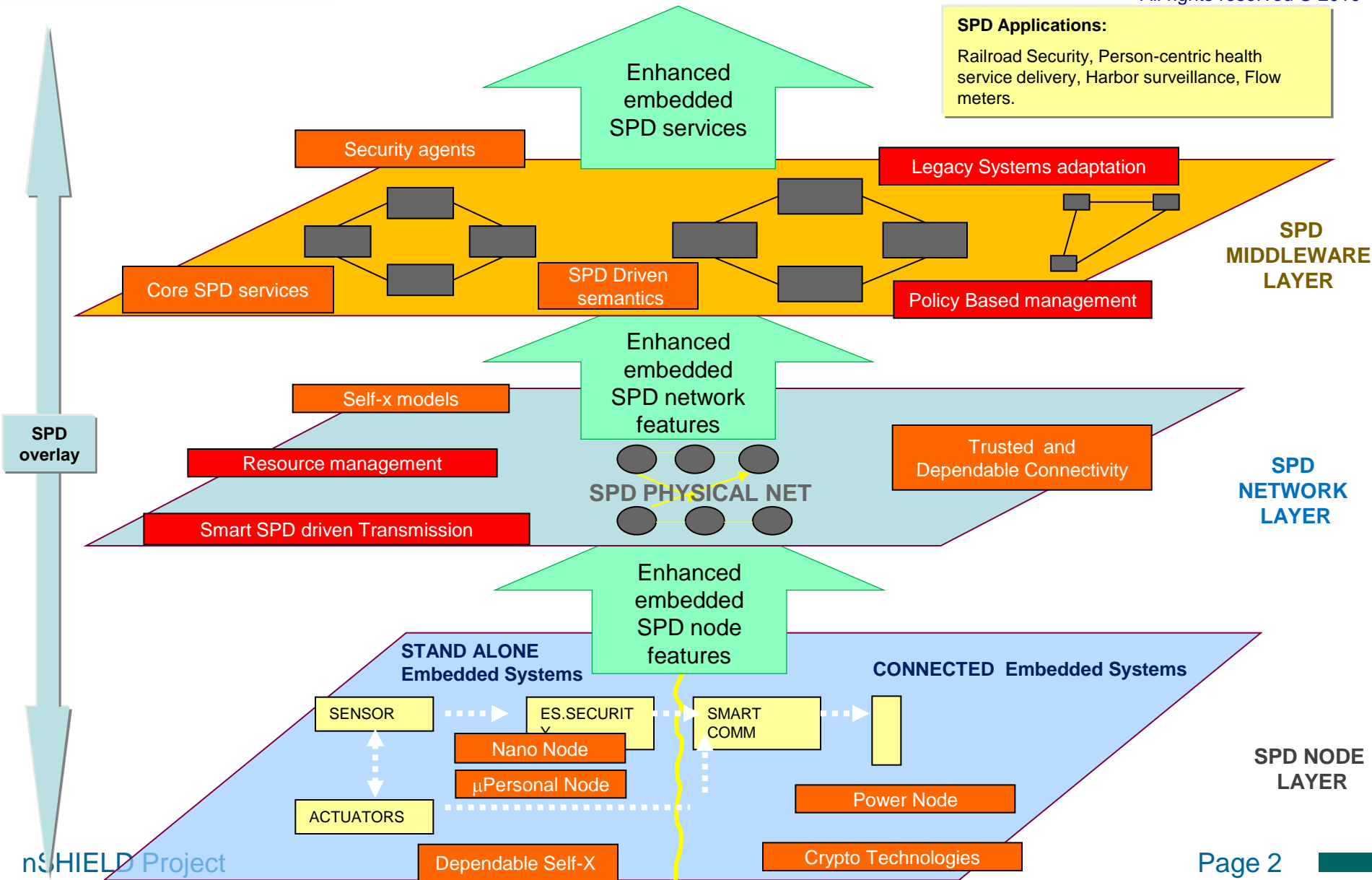


# nSHIELD functional architecture



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**SPD Applications:**  
 Railroad Security, Person-centric health service delivery, Harbor surveillance, Flow meters.



# WP 2 Framework

## Multi-technology requirements & specifications

SPD technology, for each layer, a formal set of high level, architectural, interface and performance requirements will be identified.

1. The application scenarios (4) → top level requirements
2. Overall nSHIELD system requirements and specification → high level view
3. SPD metrics to assess the achieved SPD level of each layer → SPD view

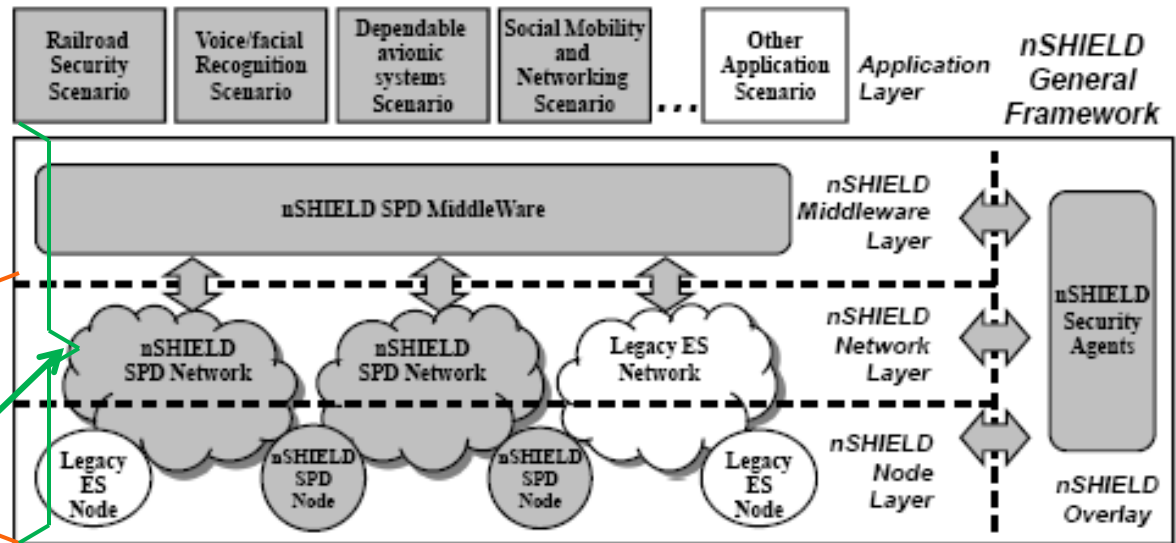


Figure 2-2 - nSHIELD Architectural View

## Multi-technology architectural design

Definition of nSHIELD system architecture. Identification of the SPD layers functionalities, their intra and inter layer interfaces and relationships.

# WP2 Task Goals



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## Task 2.1 Multi-technology requirements & specification (Task Leader: THYIA - Partners: SG, ASTS, ED, ETH, HAI, S-LAB, SICS, T2D, THYIA, TUC, SCOM)

This task will identify the requirements and describe the specifications of the overall nSHIELD system. For each SPD technology, for each layer, a formal set of high level, architectural, interface and performance requirements will be identified. This task will be influenced by the WP7 application scenarios. These scenarios will be taken as a reference for defining the SPD requirements of each architectural layer (even though the conceived architecture will be able to support any ES scenario). Requirements and specification will be also influenced by the liaisons activated in WP1.

## Task 2.2 Multi-technology SPD metrics (Task Leader: TECNALIA - Partners: SG, ASTS, ATHENA, ED, HAI, S-LAB, THYIA, TUC, SCOM)

The main result of this task will be the identification of SPD metrics. As a matter of fact, for the SPD needs, metrics are required for the measurement of security, dependability, reliability, trust and reputation, availability, privacy, anonymity and traceability, for all the levels (node, network communication, middleware, applications). The proposed metrics will be based on the definition of scenarios and use cases that will be identified in WP7. Task 2.2 aims at developing the basis for system interoperation on all levels (node, network and middleware). In order to pursue such aim, another result of this task shall be metrics and standards for the interoperation of nodes and systems, which shall be part of the future standardization for such systems. As also influence on legislative issues might be possible, special reports may extend the task deliveries in case of detection of such issues.

## Task 2.3 Multi-technology architectural design (Task Leader: HAI - Partners: AT, ATHENA, ED, SICS, T2D, THYIA, TUC, SCOM)

R&D for embedded security, intended as a system issue that must be solved at all abstraction levels (protocols, algorithms, architecture), will lead, in the framework of this task, to a coherent, composable and modular architecture for a flexible distribution of SPD information and functionalities between different ESs while supporting security and dependability characteristics.

Top-down approach

Bottom-up approach

## Objectives of WP2:

- Task 2.1 - Multi-technology requirements & specification: The definition of the SPD requirements and specifications of each layer, as well as of the overall system on the basis of the four application scenarios.
  - **THYIA**; SG, ASTS, ETH, HAI, S-LAB, SICS, T2D, THYIA, TUC, SE
  
- Task 2.2 - Multi-technology SPD metrics: The definition of proper SPD metrics to assess the achieved SPD level of each layer, as well as of the overall system.
  - **TECNALIA**; SG, ASTS, ATHENA, HAI, S-LAB, THYIA, TUC, SE
  
- Task 2.3 - Multi-technology architectural design: The definition of nSHIELD system architecture. Identification of the SPD layers functionalities, their intra and inter layer interfaces and relationships.
  - **HAI**; AT, ATHENA, SICS, T2D, THYIA, TUC, SE

Del. No.	Deliverable name	Nature	Dissemination level	Delivery date (proj. month)	Del. No.
D2.1	Preliminary System Requirements	Report	Confidential	3 (30.11.2011) 6	D2.1.1
D2.2	Preliminary System Requirements and Specifications	Report	Public	6 (29.2.2012) 9	D2.1.2
D2.3	Preliminary system architecture design	Report	Confidential	9 (31.5.2012)	D2.3.1
D2.4	Reference system architecture design	Report	Public	12 (31.8.2012)	D2.3.2
D2.5	Preliminary SPD Metrics specifications	Report	Confidential	12 (31.8.2012)	D2.2.1
D2.6	Final System Requirements and Specifications	Report	Public	24 (31.8.2013) 18	D2.1.3
D2.7	Final system architecture design	Report	Public	26 (31.10.2013) 18	D2.3.3
D2.8	SPD Metrics specifications	Report	Public	26 (31.10.2013)	D2.2.2

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# Milestones for WP2



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Mil. No.	Milestone name	Delivery date (proj. month)	Means of verification
M1	Preliminary System Requirements and Specifications	6 (29.2.2012)	D2.1.2
M2	Preliminary SPD metrics and System Architecture Design	12 (31.8.2012)	D2.2.1, D2.3.2
M5	Final System Requirements and Specification	24 (31.8.2013)	D2.1.3
M6	Final SPD Metrics and Tailored System Architecture Design	26 (31.10.2013)	D2.2.2, D2.3.3

No.	Participant		Country	WP2			
				T2.1	T2.2	T2.3	Tot
12	Selex Galileo	SG	IT	5	5		<b>10</b>
2	Ansaldo STS	ASTS	IT	5	4		<b>9</b>
3	ACORDE Technologies, SA	AT	ES			8	<b>8</b>
4	ATHENA	ATHENA	GR		3	3	<b>6</b>
5	Selex Elsag	SE	IT	3	3	7	<b>13</b>
6	European Software Institute	ESI	ES		12		<b>12</b>
8	Eurotech Security	ETH	IT	1			<b>1</b>
9	Hellenic Aerospace Industry	HAI	GR	5	5	12	<b>22</b>
15	Security Evaluation Analysis and Research Lab.	S-LAB	HU	5	5		<b>10</b>
17	Swedish Institute of Computer Science	SICS	SE	3		3	<b>6</b>
18	T2 DATA AB	T2D	SE	5		5	<b>10</b>
20	THYIA Tehnologije	THYIA	SI	10	5	5	<b>20</b>
21	Technical University of Crete	TUC	GR	3	4	3	<b>10</b>
23	Università di Udine	UNIUD	IT	3			<b>3</b>



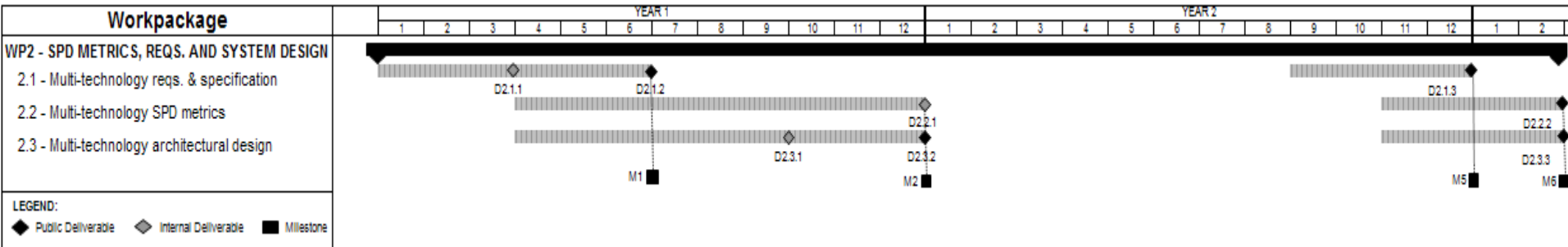
No.			WP2								
			D2.1	D2.2	D2.6	D2.5	D2.8	D2.3	D2.4	D2.7	
			D2.1.1	D2.1.2	D2.1.3	D2.2.1	D2.2.2	D2.3.1	D2.3.2	D2.3.3	Tot
12	Selex Galileo	SG	3	1	1	3	2	0	0	0	10
2	Ansaldo STS	ASTS	3	1	1	3	1	0	0	0	9
3	ACORDE Technologies, SA	AT	0	0	0	0	0	4	2	2	8
4	ATHENA	ATHENA	0	0	0	2	1	2	1	0	6
5	Selex Elsag	SE	2	1	0	2	1	4	2	1	13
6	European Software Institute	ESI	0	0	0	8	4	0	0	0	12
8	Eurotech Security	ETH	1	0	0	0	0	0	0	0	1
9	Hellenic Aerospace Industry	HAI	3	1	1	3	2	6	4	2	22
15	Security Evaluation Analysis and Research Lab.	S-LAB	3	1	1	3	2	0	0	0	10
17	Swedish Institute of Computer Science	SICS	2	1	0	0	0	2	1	0	6
18	T2 DATA AB	T2D	3	1	1	0	0	2	2	1	10
20	THYIA Tehnologije	THYIA	3	4	3	3	2	2	2	1	20
21	Technical University of Crete	TUC	2	1	0	3	1	2	1	0	10
23	Università di Udine	UNIUD	2	1	0	0	0	0	0	0	3

Del. No.	Del. No.	Deliverable name	Delivery date (proj. month)	1. review	2. review
D2.1	D2.1.1	Preliminary System Requirements	3 (30.11.2011)	4	5
D2.2	D2.1.2	Preliminary System Requirements and Specifications	6 (29.2.2012)	12	18
D2.3	D2.3.1	Preliminary system architecture design	9 (31.5.2012)	10	11
D2.4	D2.3.2	Reference system architecture design	12 (31.8.2012)	16	20
D2.5	D2.2.1	Preliminary SPD Metrics specifications	12 (31.8.2012)	16	20
D2.6	D2.1.3	Final System Requirements and Specifications	24 (31.8.2013)		
D2.7	D2.3.3	Final system architecture design	26 (31.10.2013)		
D2.8	D2.2.2	SPD Metrics specifications	26 (31.10.2013)		

# Gantt chart for WP2



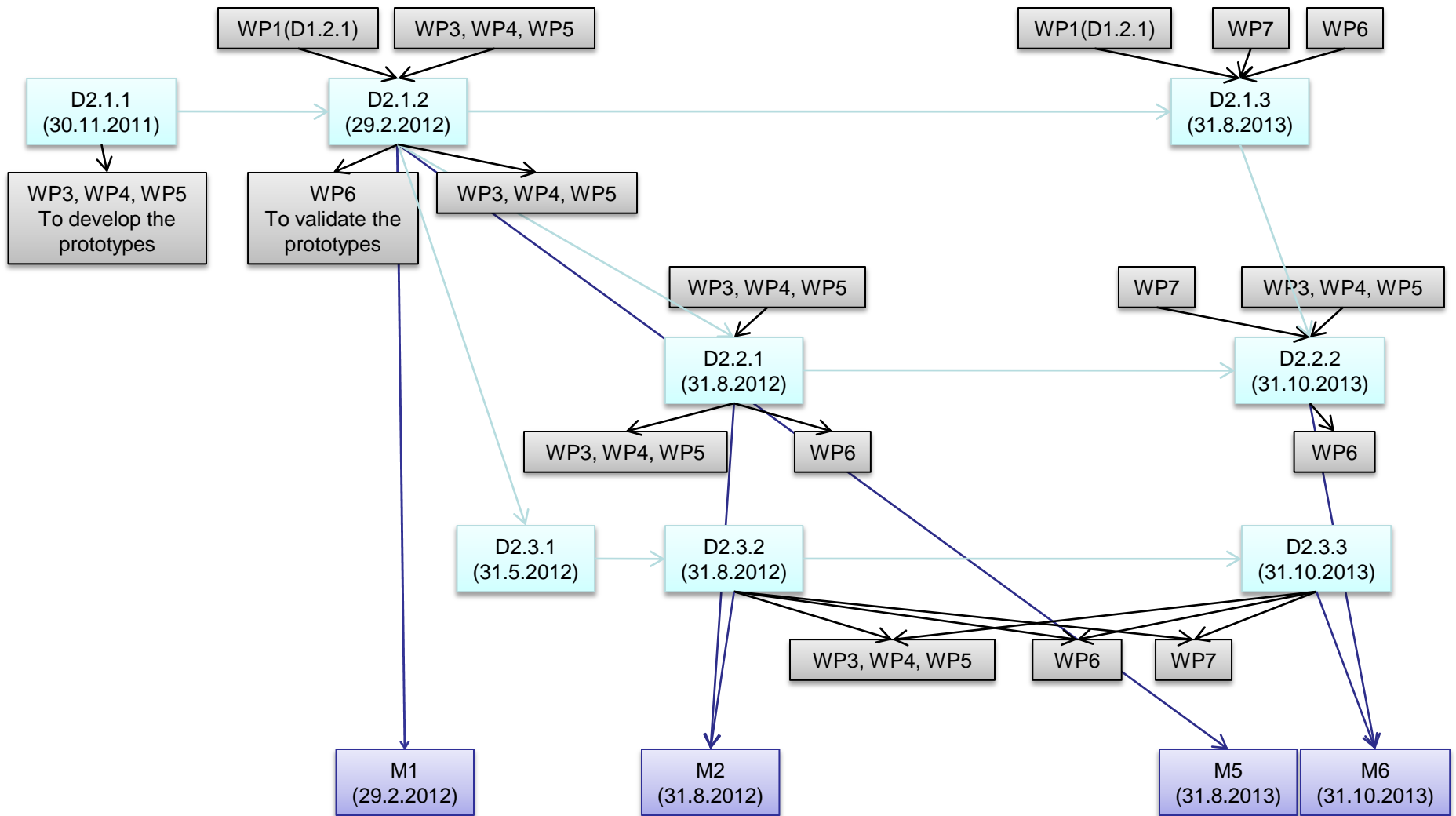
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# Feedback from other WPs



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# Feedback from other WPs



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Task	1	2	3	4	5	6	7	8	9	10	11	12
2.1			First version of system reqs and specs (D2.1.1)	Impact of WP3, WP1 (D1.2.1)	Impact of WP3, WP4, WP1 (D1.2.1)	Impact of WP3, WP4, WP5, WP1 (D1.2.1) Refined system reqs and specs (D2.1.2)						
2.2				Impact of system reqs (D2.1.1) and the SPD functionalities and technologies assessments (D3.1)	Impact of system reqs (D2.1.1) and the SPD functionalities and technologies assessments (D3.1, D4.1)	Impact of system reqs (D2.1.1) and the SPD functionalities and technologies assessments (D3.1, D4.1, D5.1)					Identify the preliminary SPD metrics. (D2.2.1)	
2.3				Analyzing the preliminary system requirements and the available SPD technologies assessments			Impact of D2.1.2		Preliminary architecture design (D2.3.1)			Refined architecture design (D2.3.2)

Task	13	14	15	16	17	18	19	20	21	22	23	24	25	26
2.1										Impact of validation and verification of Task 6.2 (D6.2.1) and WP7 (D7.1.1, D7.2.1, D7.3.1 and D7.4.1).	Impact of validation and verification of Task 6.2 (D6.2.1) and the system integration report done in Task 6.1 (D6.1.1) and WP7 (D7.1.1, D7.2.1, D7.3.1 and D7.4.1).	Refined system reqs and specs (D2.1.3)		
2.2												Impact of integration report (D6.1.1) and the application specific integration plans (D7.1.1, D7.2.1, D7.3.1 and D7.4.1)	Refined SPD metrics (D2.2.2)	
2.3												Impact of integration reports of WP6 and WP7	System arch. (D2.3.3).	

# Pert diagram



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