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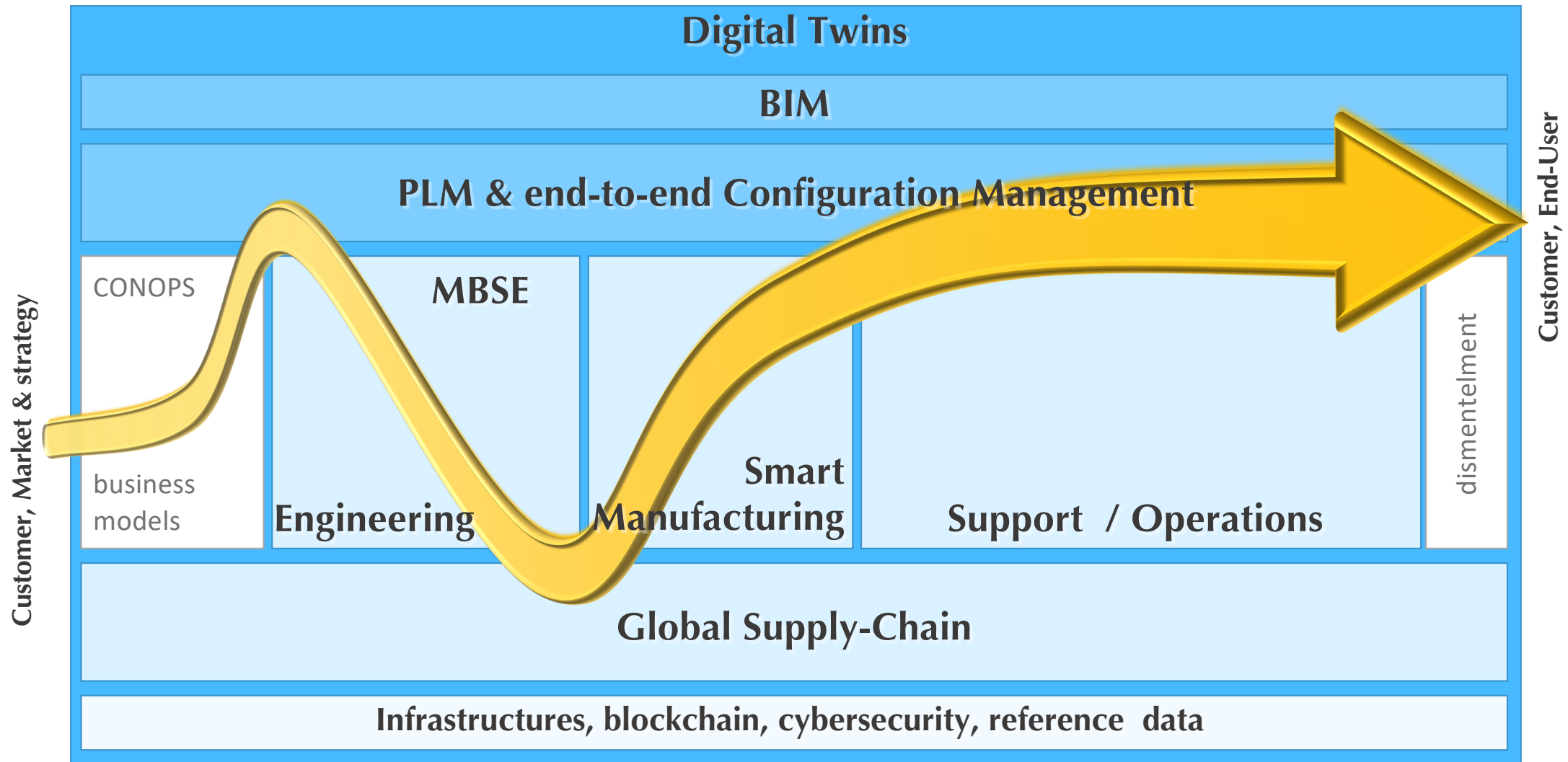


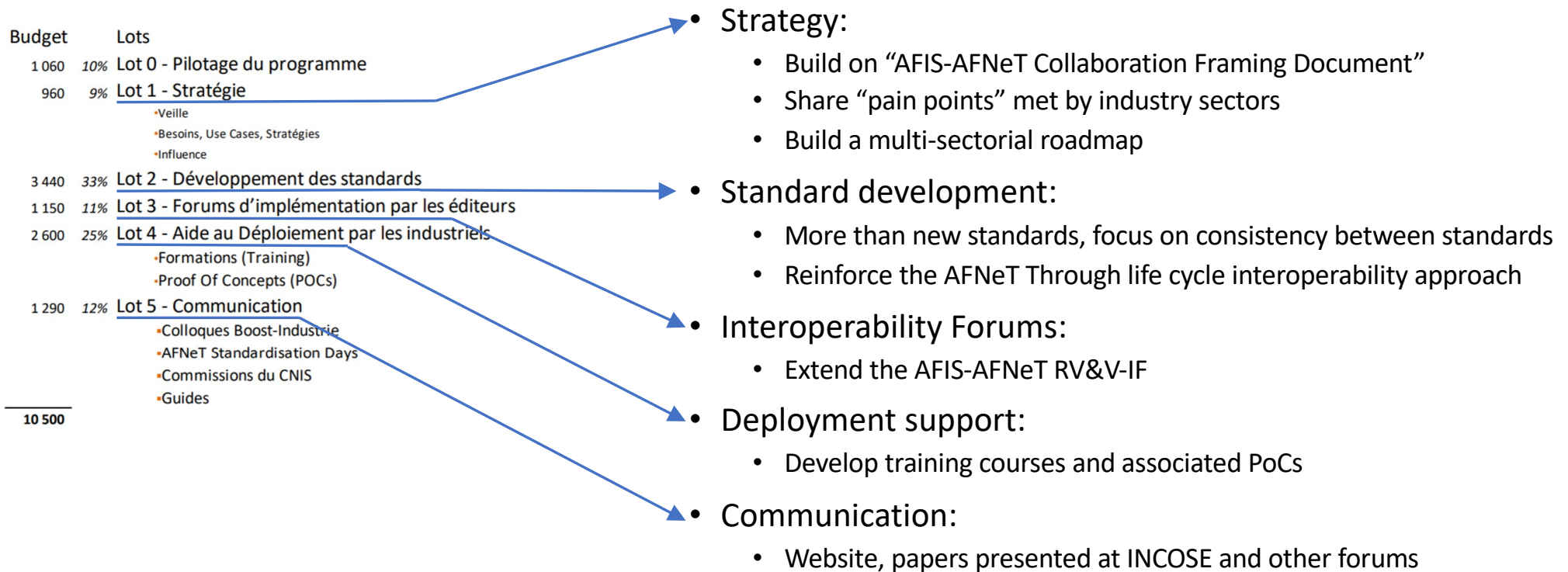
AFNeT Standards Days

Consideration of Systems Engineering standards in the ATLAS program

By Yves Baudier, AFNeT

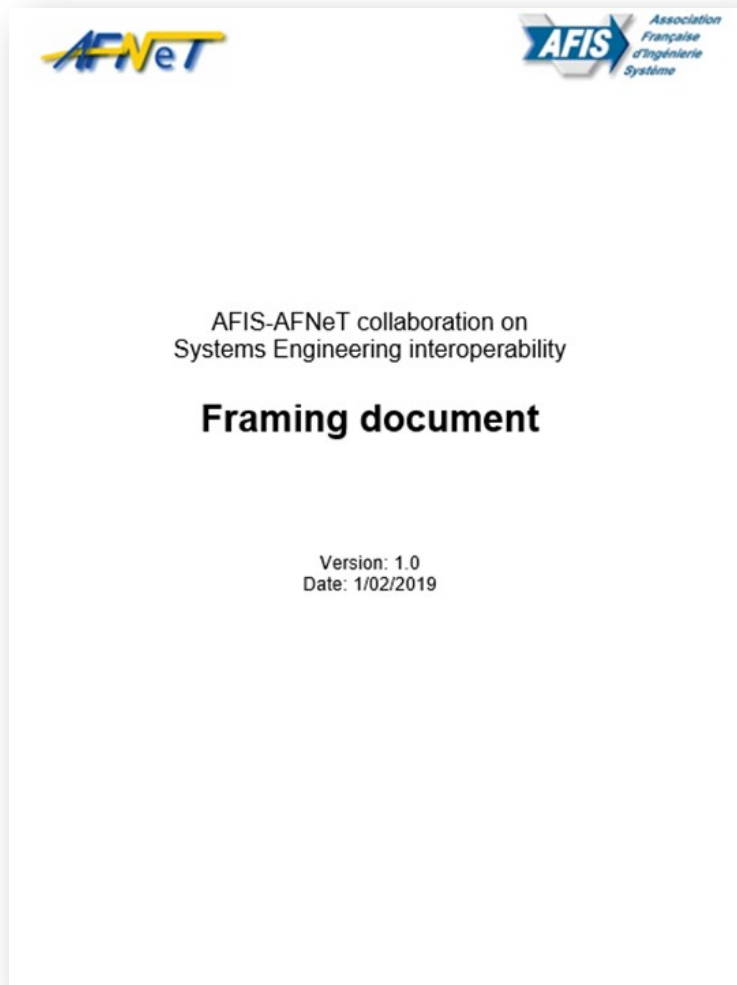
<http://standardsdays.afnet.fr> - AFNeT Standards Days 2020 : 6 & 7 October 2020





- AFIS-AFNeT Collaboration Framing Document
- AFIS & AFNeT background
 - AFIS contributions to standardisation
 - AFNeT Through life cycle interoperability approach
- AFIS-AFNeT RV&V-IF

AFIS-AFNeT Collaboration on SE interoperability – Framing document (1/1)



AFIS-AFNeT collaboration on Systems Engineering interoperability – Framing document Page 2

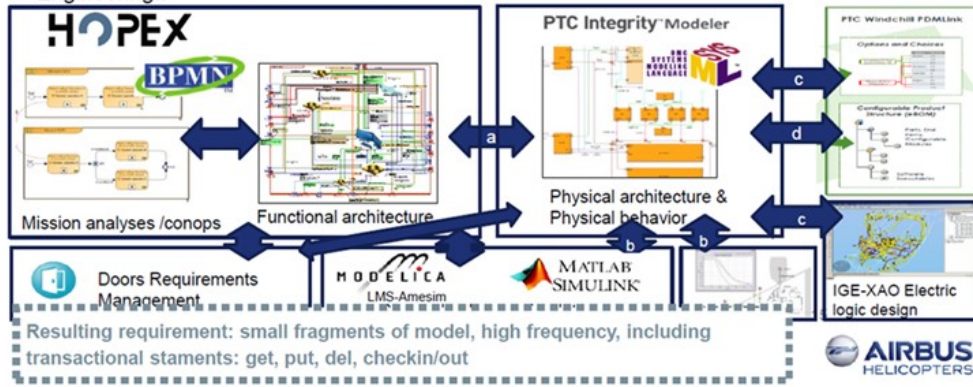
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Use case #1 MBSE interoperability : Interactive tools integration .

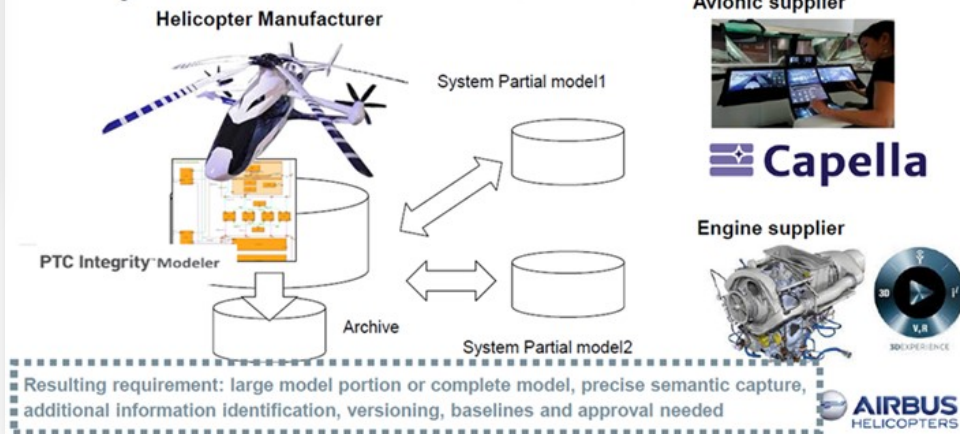
Rationale: inner company process integration

Only if the digital continuity is achieved and SE-model itself become the deliverable and can be reused process downstream without recoding we can speak truly of a Model based System Engineering..

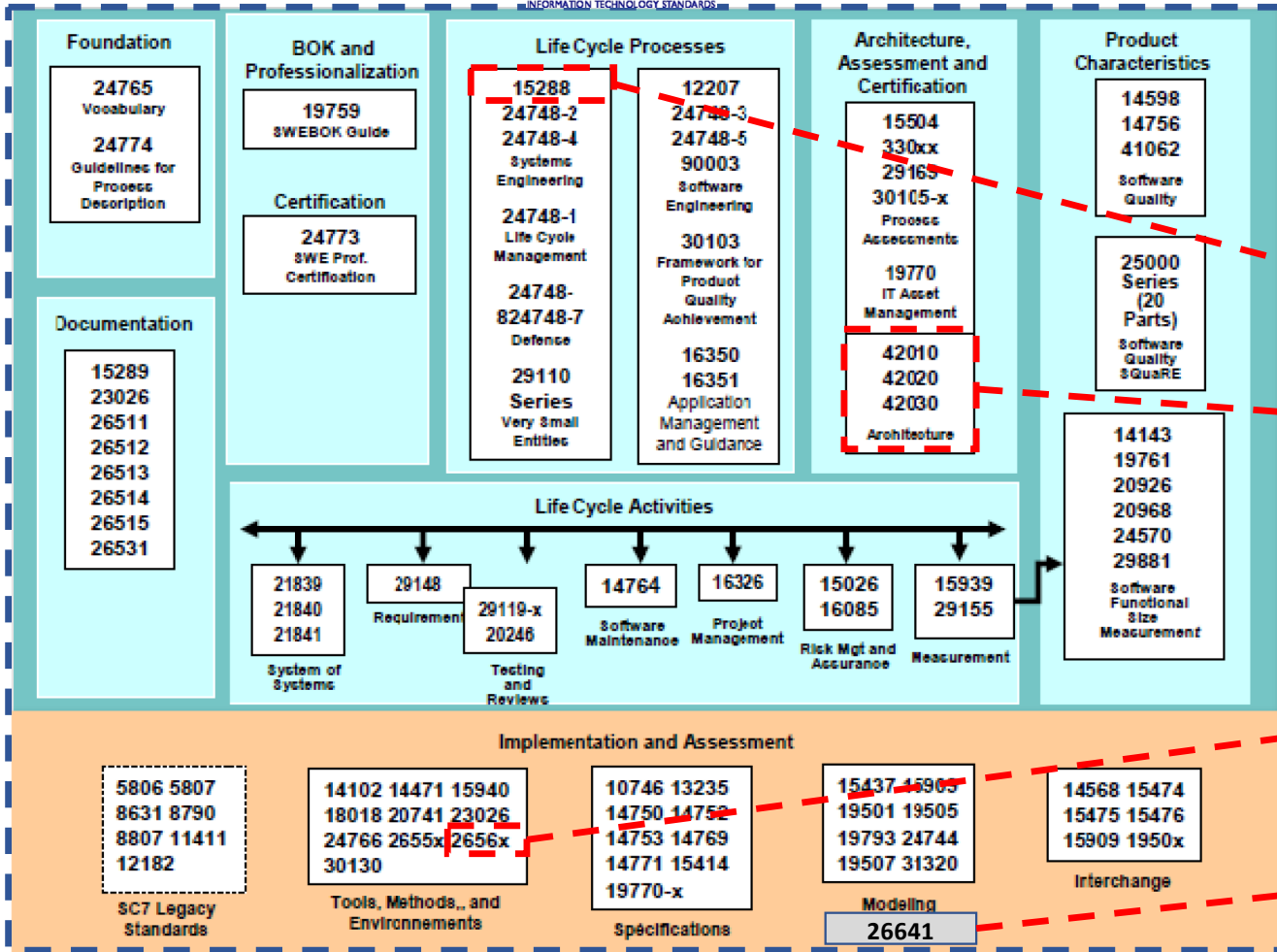


Use case #2 MBSE interoperability : cross company model exchange and archiving

Rationale: extended enterprise & long term archiving



AFIS contribution to ISO/IEC JTC 1/SC 7 – Software and systems engineering



Member of:

- AG4 Standard Architecture (alignment of the SC7 references)

Co-editor of:

- Update of 15288 System Life Cycle Processes

Lead of:

- 42010 Architecture Description
- 42020 Architecture Processes

Co-editor of:

- 42030 Architecture Evaluation

Co-editor of:

- 2656x Product-Line Engineering

Lead of:

- 24642 Model-Based Systems and Software Engineering

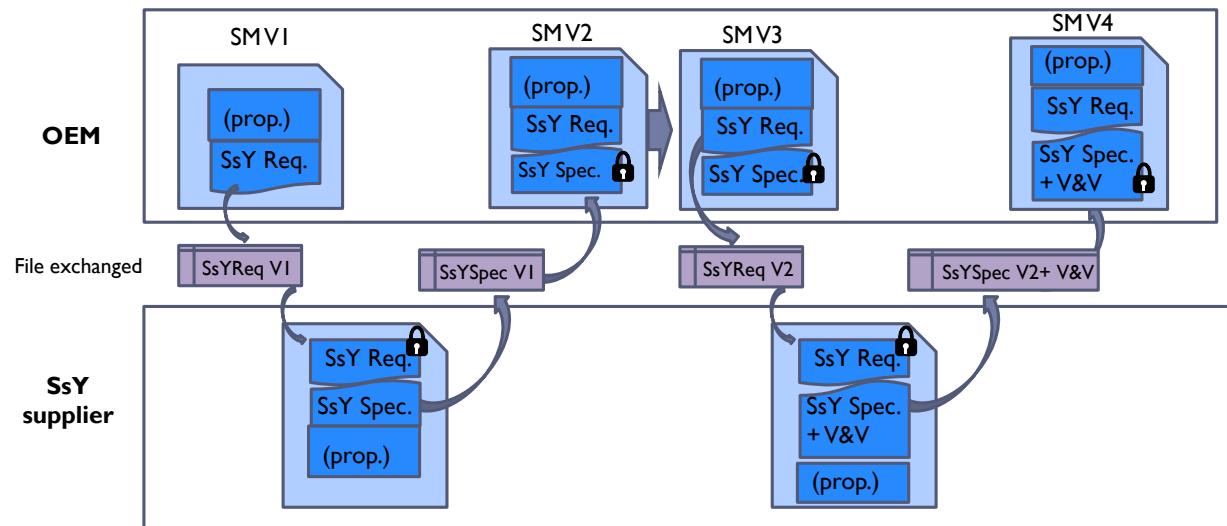
Version 20.1 May 2020

- AFNeT involved in the development of the STEP Extended Architecture since 2015:
 - Move to state-of-the-art modelling languages (SysML) for a complete model-based architecture from business layer to implementation layer – Increased quality
 - Implementation technologies: XML schema derived from Domain Model, webservices
 - New Integration Layer: the Core Model (ISO/TC 184 SC 4 Part 4000), for harmonisation between Application Protocols (APs), enabling interoperability between Application Protocols (AP).
 - New method to create and customize future AP Domain models from Core Model.
 - Mechanism for sharing common information semantics (e.g. classification and reference values defined in common Reference Data Libraries) managed at an international level.
- AFNeT and partners on the way to deliver 3 STEP APs based on this architecture:
 - AP242 (3D design): Edition 2 delivered and published early 2020, largely compatible with new architecture. Full compatibility targeted for Edition 3 (2022?)
 - AP243 (MoSSEC): Draft International Standard to be proposed end of 2020
 - AP239 (PLCS): Committee Draft to be proposed end of 2020, DIS in 2021.
- The STEP backbone for through life cycle interoperability, made of harmonised AP242 (3D design) and AP239 (product life cycle support), is within reach!
- Systems Engineering: an Edition 2 of AP233 is an option to connect SE to this STEP backbone, with requirement to cover most of NAF/UAF scope and to ensure compatibility with SysML V2.

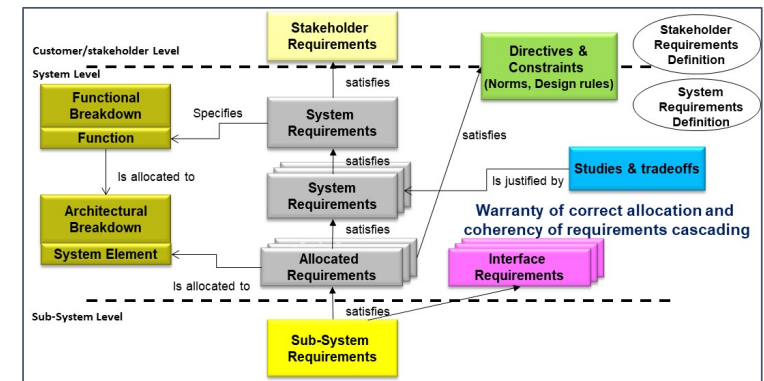
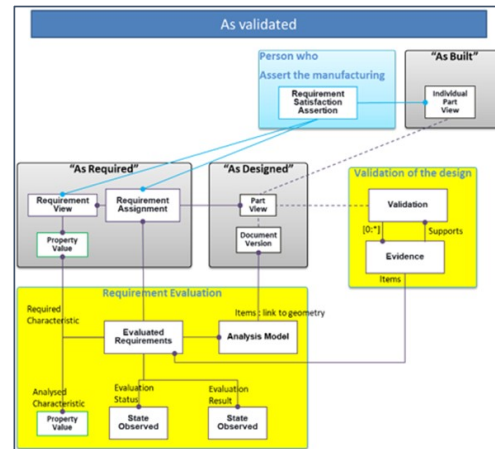
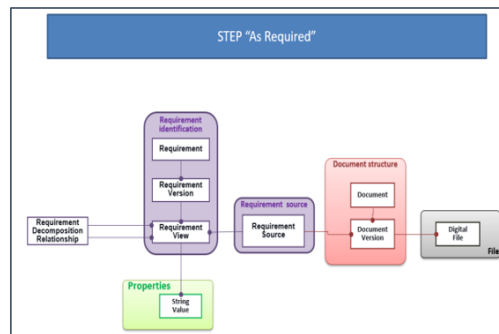
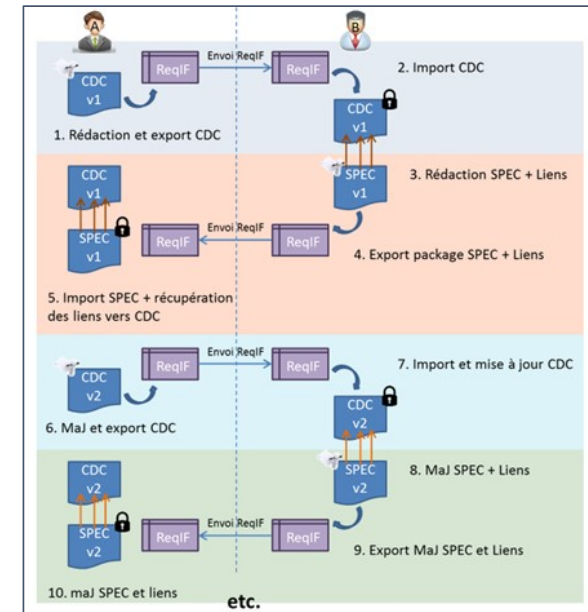
ATLAS: targeted stack of Systems Engineering standards

Domaine ATLAS	Standard <i>0 nom ou référence du standard</i>	Cycle ATLAS	Développement en cours	Livrable / semestre :						Leader ATLAS
				<i>en rouge les livrables documents normatifs</i> <i>en bleu italique les livrables Implementor Forum et Aide au déploiement</i>						
				<i>T0 + 6 mois</i>	<i>T0 + 12 mois</i>	<i>T0 + 18 mois</i>	<i>T0 + 24 mois</i>	<i>T0 + 30 mois</i>	<i>T0 + 36 mois</i>	
	ISO/IEC/IEE 24641	DIS, IS,	oui	CD	DIS	FDIS	IS			AFIS
Ingénierie Système	SysML	formation, Démonstrateurs, IF, Communications	non	<i>RV&V IF</i>	<i>RV&V-IF: Démonstrateur integration SysML et AP242 MBSE-IF</i>	TR intégration SysML/AP242				AFNeT/AFIS
Ingénierie Système	ISO 10303-233 / STEP AP233	PWI optionnellement : NWI, CD, Démonstrateur, DIS, Implementor Forum, formations	non		PWI AP233 ed2 NWI AP233 ed2	CD AP233 ed2	DIS AP233 ed2 IS AP233 ed2	<i>Implementor Forum Test Cases</i>	Recommended Practices v1, formations	AFNeT/AFIS
Ingénierie Système	ISO 10303-243 / MOSSeC	ed1: DIS, Démonstrateur, Implementor Forum, formations ed2: PWI, CD, Démonstrateur, DIS, Implementor Forum, formations	non pour édition 2 et édition 3	DIS AP243 ed1	PWI & NWI AP243 ed2	CD AP243 ed2	DIS AP243 ed2	IS AP243ed2 PWI AP243 ed3	NWI AP243 ed3	AFNeT
Ingénierie Système		NWIP, CD, (DIS?)	non	NWIP	CD	DIS?	FDIS?	IS		AFIS (Project Co-Ed)
Ingénierie Système		CD, DIS, IS,	oui	CD2	DIS	FDIS	IS			AFIS (Project Editor)
Ingénierie Système	FMI	Veille et communications	non	<i>Participation conférences et rapport</i>	<i>Participation conférences et rapport</i>	<i>Participation conférences et rapport</i>	<i>Participation conférences et rapport</i>	<i>Participation conférences et rapport</i>	<i>Participation conférences et rapport</i>	AFNeT
Ingénierie Système	VMAP	Veille et communications	non	<i>Participation conférences et rapport</i>	<i>Participation conférences et rapport</i>	<i>Participation conférences et rapport</i>	<i>Participation conférences et rapport</i>	<i>Participation conférences et rapport</i>	<i>Participation conférences et rapport</i>	AFNeT

- RV&V-IF stands for *Requirements and V&V Interoperability Forum*
- Objective is to enable the exchange of MBSE data, thanks to a shared work of Industry and IT vendors to ensure that data exchange interfaces developed by IT vendors fulfil the Industry end-users' requirements.
- This activity was initiated jointly by AFIS and AFNeT end of 2019, with the launch of an RV&V-IF User Group in October 2019.
- Status: 2 Use Cases defined, short term objective is to purpose associated test cases and to invite PLM vendors to join an implementer group to assess their tool interoperability.



- Industry state of the art and needs
 - Safran: use case and Reqif exchange experiment
 - Ariane Group: use case
- Requirement exchange prototype
 - BoostAeroSpace: AirDesign prototype (3DExperience/Reqtify)
- Exchange based on STEP XML technology
 - PFA/Galia: Promethea project
 - CIMPA: ReConnEct project



N'hésitez pas à nous faire part de vos commentaires !

Les travaux ATLAS démarreront en 2021.

ATLAS, l'opportunité pour l'industrie française de définir et mettre en œuvre des pratiques efficaces d'ingénierie système collaborative – en s'appuyant sur les meilleurs standards du domaine

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Questions
&
Answers



6th and 7th October

<http://standardsdays.afnet.fr>