

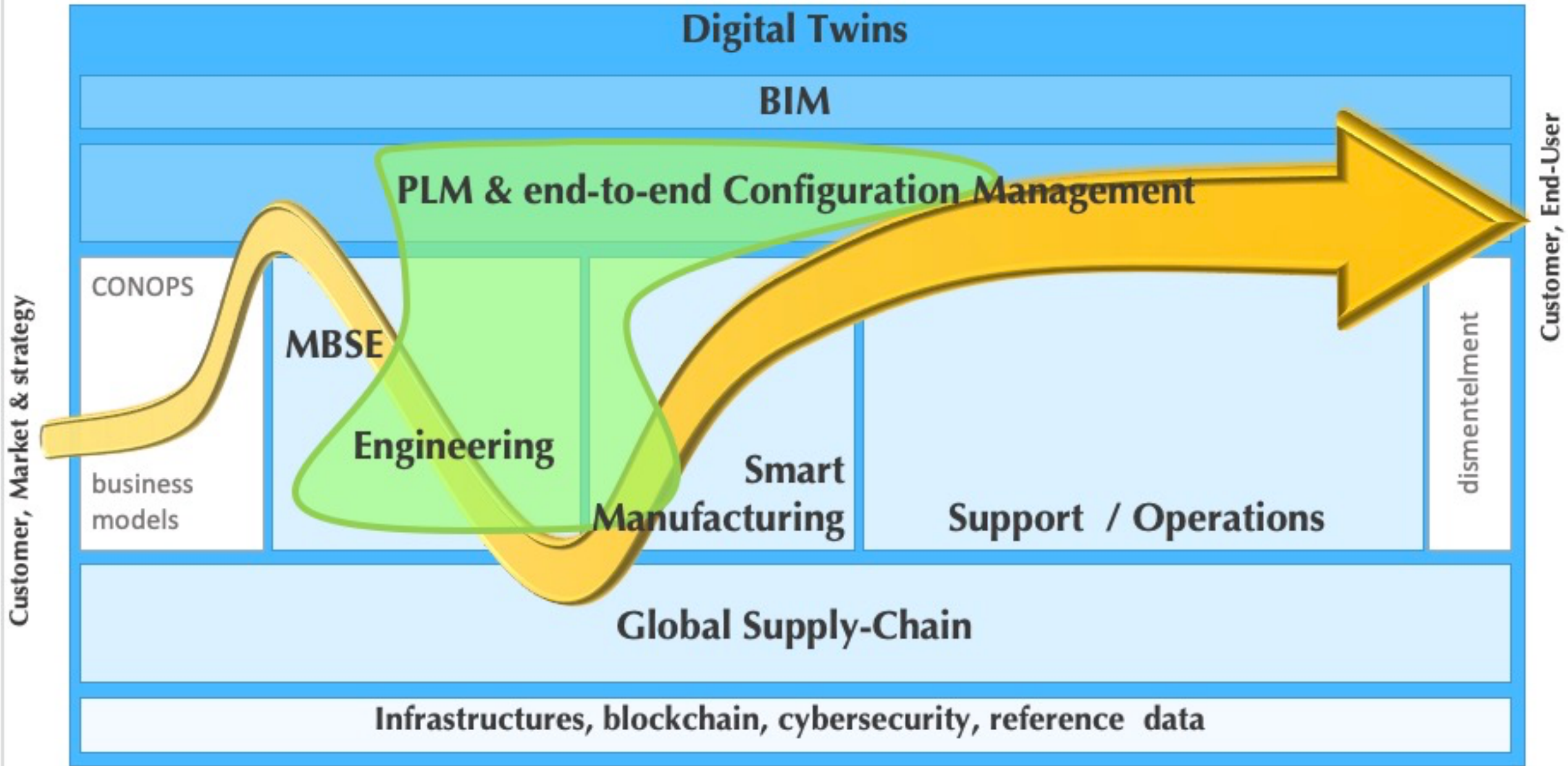
In partnership with



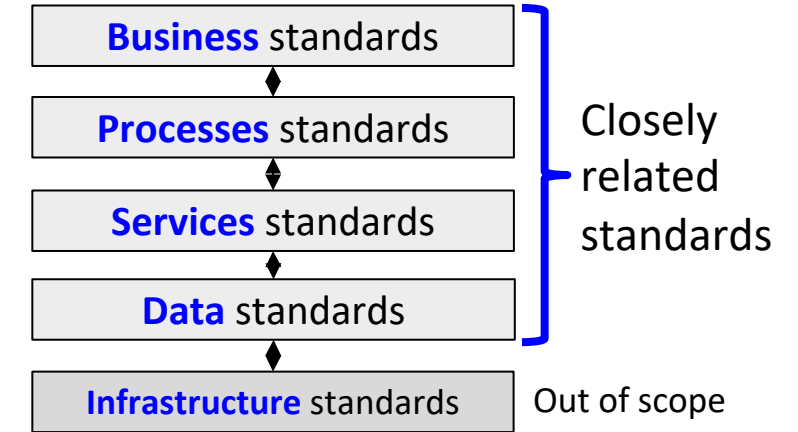
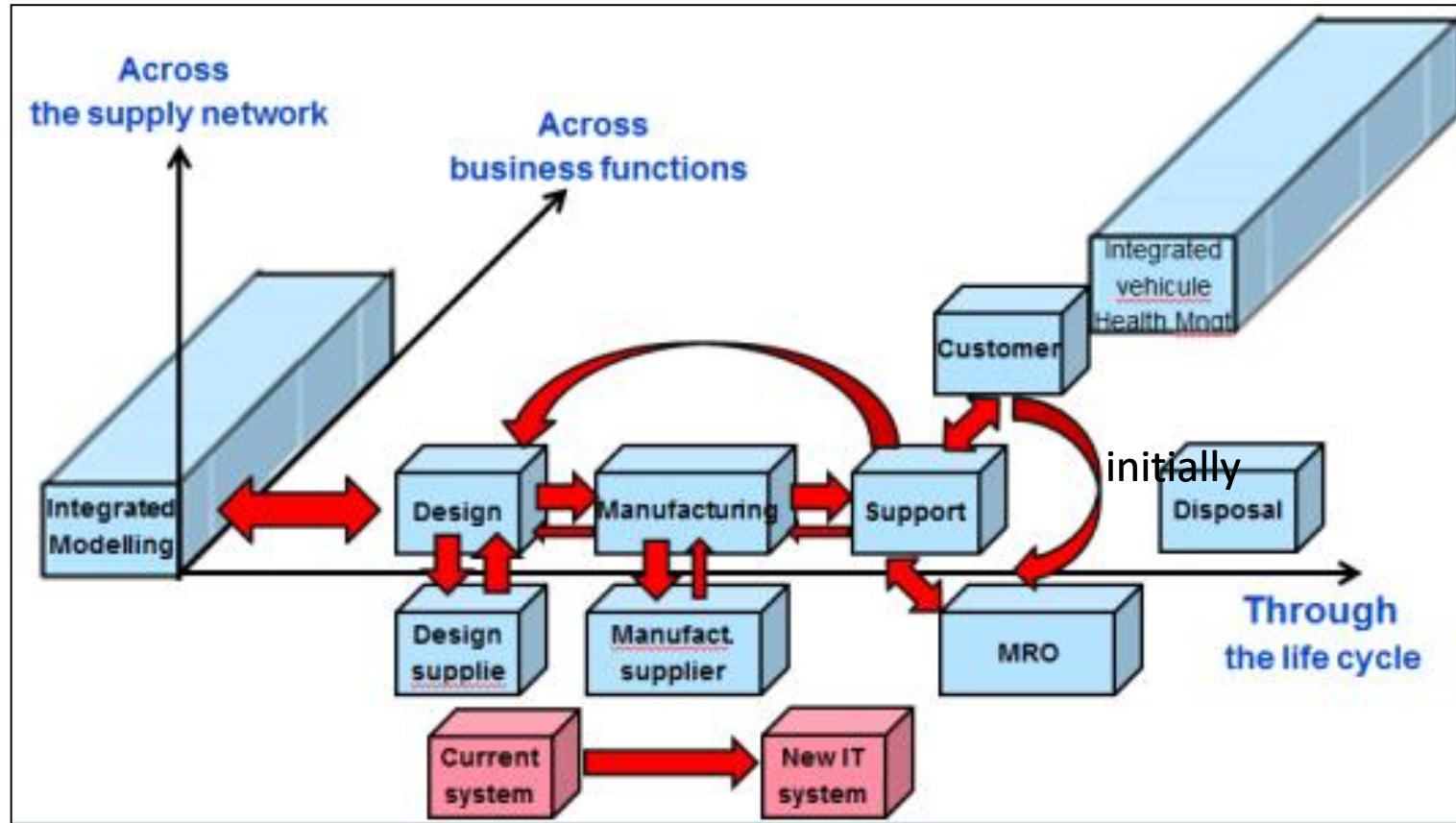
AFNeT Standards Days presentation Webinar
Standards to support the digital thread
3D Model Based Engineering – 3D Model Based Manufacturing

Jean-Yves Delaunay (AFNeT, Airbus)
18 June 2020

AFNeT Standards Days 2020 : 6 & 7 October 2020



Standards leverage Business Value through Interoperability



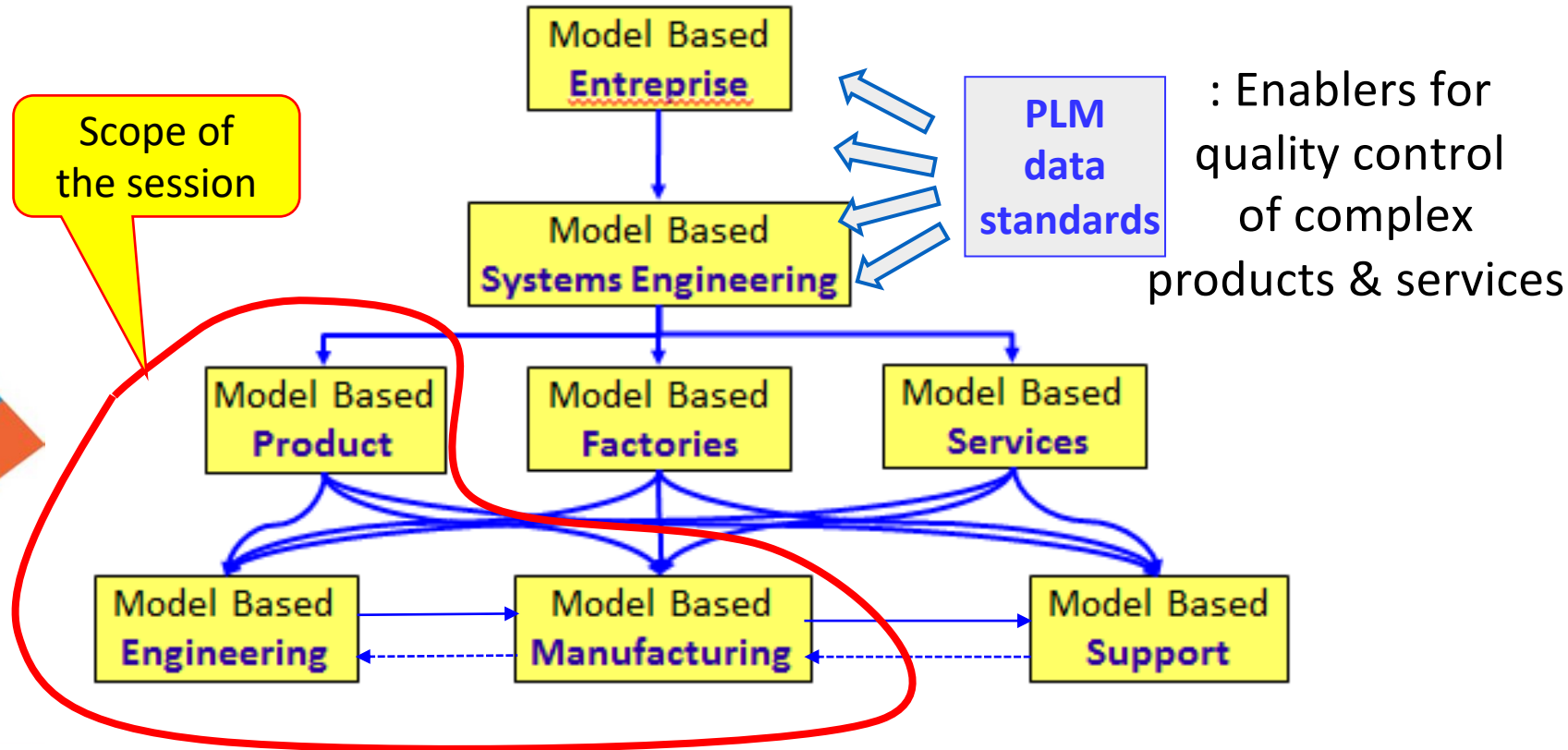
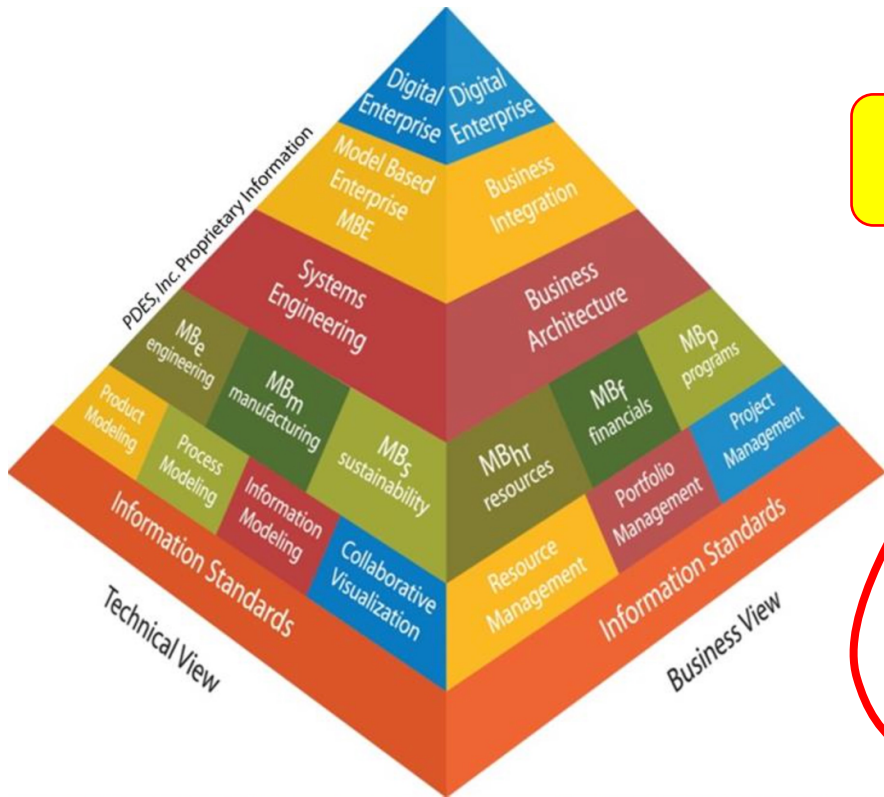
Enable digital continuity:

- Through the life cycle
- Across the Supply Chain EE
- Across business functions



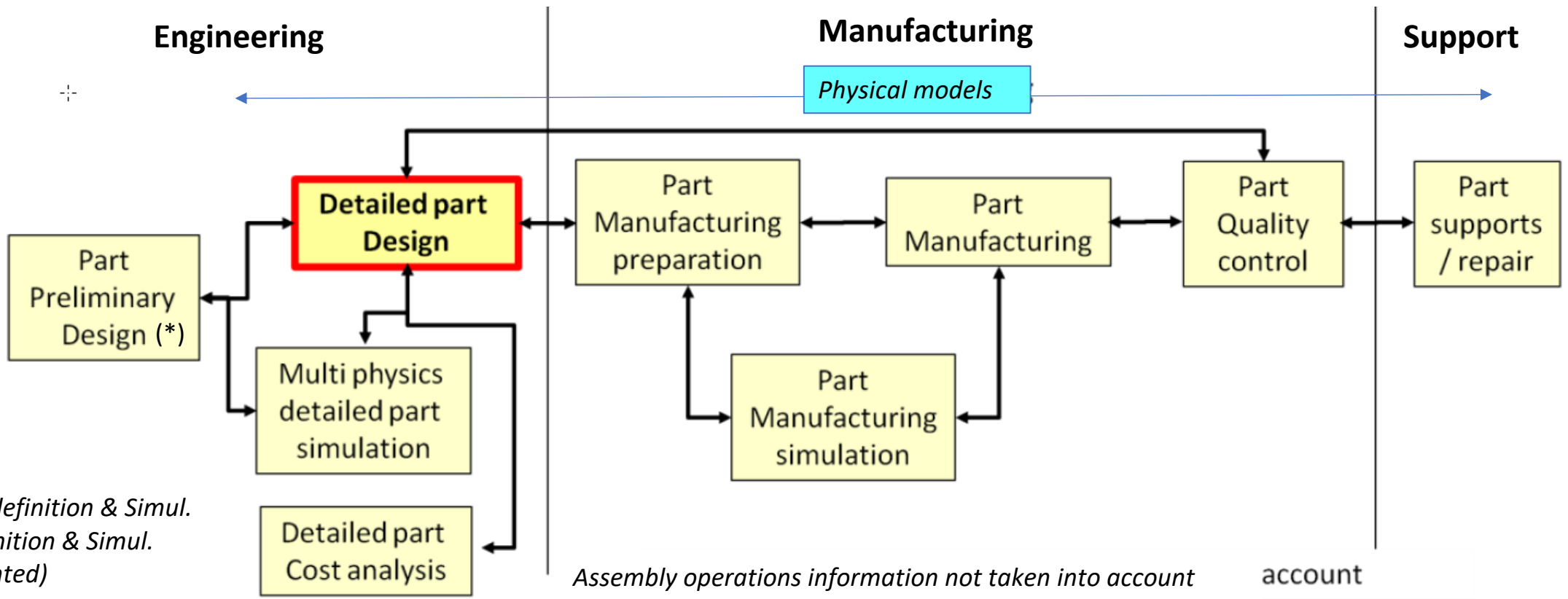
<http://standardsdays.afnet.fr/>

Data interoperability standards to support Model based Enterprise for Product, Factories and Services information interoperability



- Design - Manufacturing - Support shared between the OEMS and a worldwide supply chain
- Based on the intensive use of (COTS) PLM applications
- Creation of digital technical information, for the longevity of the products / services, able to exceed 70 years
- Formal models expressed in languages interpretable by humans and applications
- Digital technical information subset used for regulation / certification of products and services
- Preparation of new methods for products associated with their digital twins

Data standards for MB Definition, MB Manufacturing, MB Support : Example for the generic – High Level Process Flow for 3D MBD Parts



(*) Include:
 - Functional definition & Simul.
 - Logical definition & Simul.
 (Not represented)

Assembly operations information not taken into account account IS



➔ Need of machine readable standards to enable PLM interoperability through the product life cycle

<http://standardsdays.afnet.fr/>

Examples of availability of data standards per types of Digital Integrated Processes

Examples of digital Integrated Processes		Parts and assemblies					Standard part libraries
		Model based Engineering		Model Based Manufacturing			Model based definition
		Design	Simulation	Preparation	Simulation	Quality control	
General information	3D shape						
	Geo. Dim. & Tol., Annot.						
	basic meta data						
	Assembly structure						
Structural parts and assemblies	Machining						
	Sheet metal						
	Casting						
	Forging						
	Additive Manuf.						
	Composite						
	Mechanical installation						Requested
...							
Wiring harnesses	Electrical						Requested
	Optical						Requested
Fluidic systems	Tubing						Requested
	Heat, Ventil. & Air cond.						Requested
	...						
Electronic	Printed Circuit Board Assy.						Requested
	Chips (external shapes)						
	Covered (80% - 100%)	Simulation: a lot of types of simulations to be considered					
	Partially covered (30% - 70%)	(Structural analysis, thermal analysis, EMI analysis, etc)					
	Not covered (0% - 20%)						

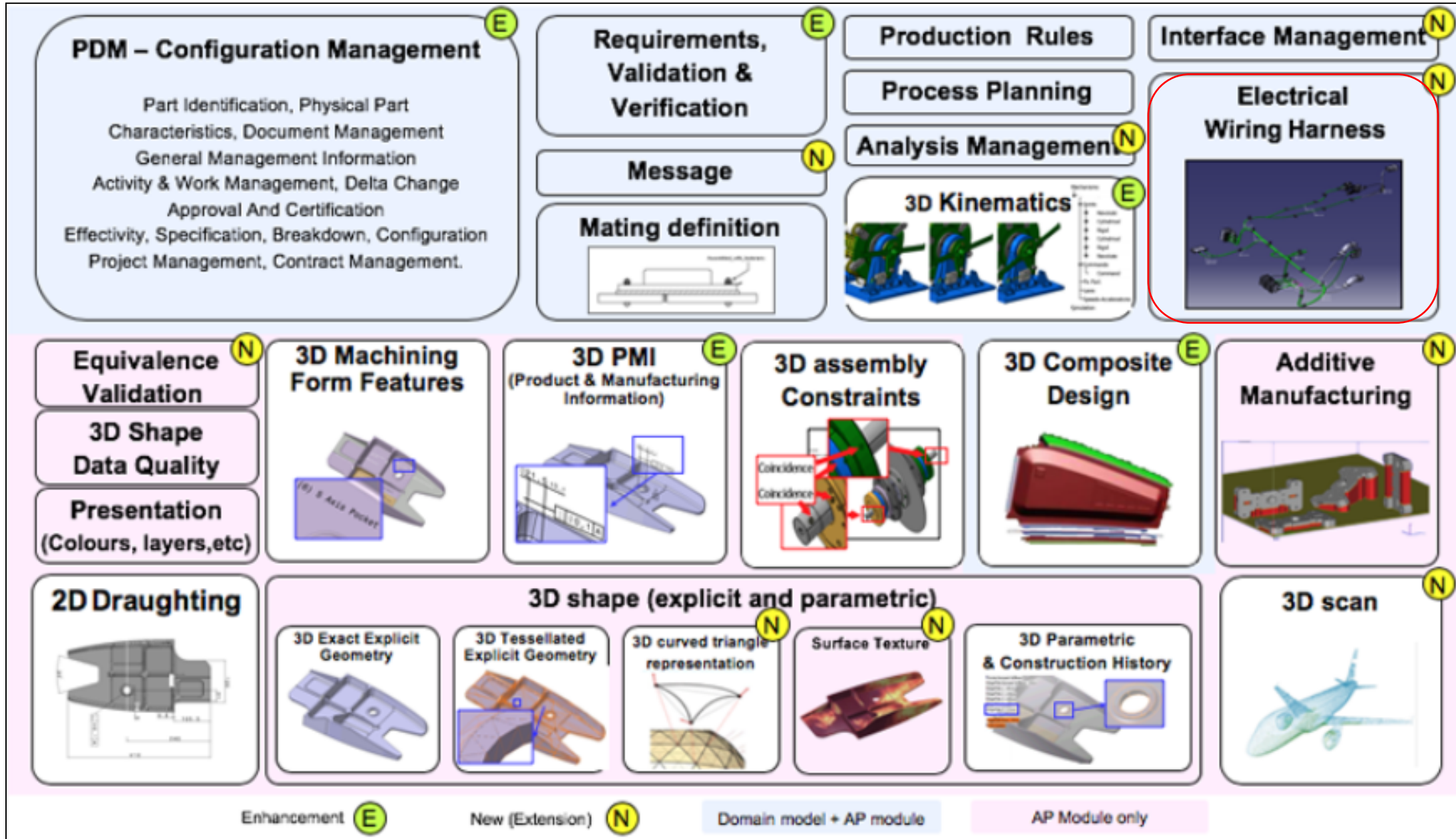


<http://standardsdays.afnet.fr/>

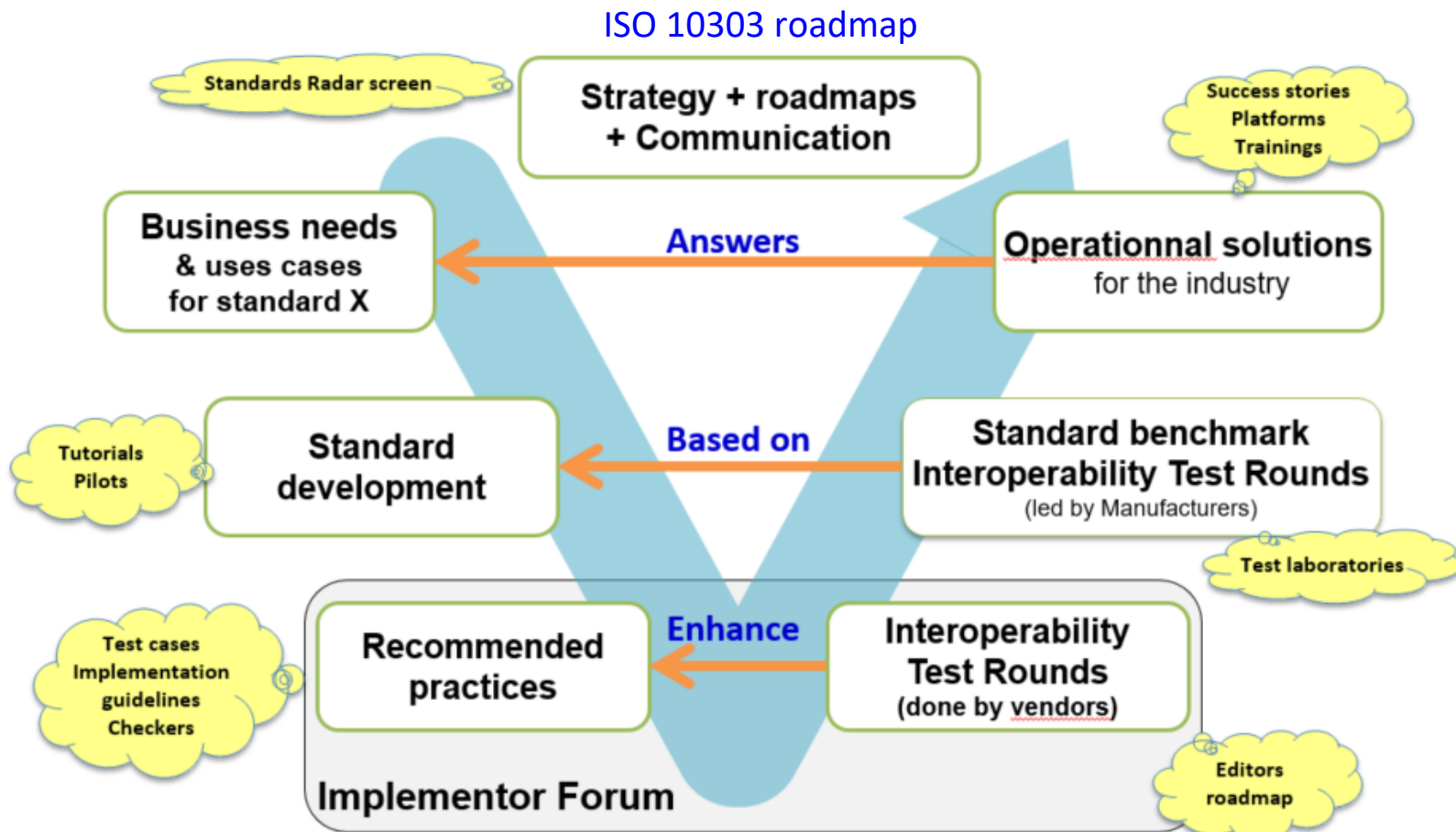
Overview of ISO 10303 STEP AP242 ed.2 International Standard

Managed
Model Based
3D
Engineering

AP242 ed2
project
supported by
- AFNeT
- PDES Inc



Overview of AFNeT PLM Steering 2020 activities



STEP AP242 Days
AFNeT Standards Days

STEP AP 242
CAD – PDM benchmark



ISO 10303 STEP
 - AP242 ed2
 - AP243 MoSSEC
 - AP239 ed3 PLCS
 EN 9300 LOTAR

CAX IF
 EWIS IF
 CAE IF
 PDM IF
 RV&V IF
 ...

<http://standardsdays.afnet.fr/>

13:00

#1: Keynote "Introduction to MB Engineering - MB Manufacturing digital thread"

13:45

#2 : Insights

- Exchange of 3D models with GD&T and associated requirements as specs for 3D NC metrology and loop back
- Exchange of standards parts libraries based on Machine readable standards
- Consideration of PLM Standards in the ATLAS Program

16:00

#3 : Deep dive

*status of dev. of key MB Engineering
interoperability capabilities*

- interoperability of Config. multi views product structures based on AP242 ed2
- Interoperability of Structural joints for assembly & installation based on AP242
- interoperability of Electrical Wiring Harness based on AP242 ed2
- interoperability of Structural Analysis models based on STEP AP209
- Development of ISO 10303 STEP standards roadmap based on Agile principles



<http://standardsdays.afnet.fr/>

Questions &
Answers

