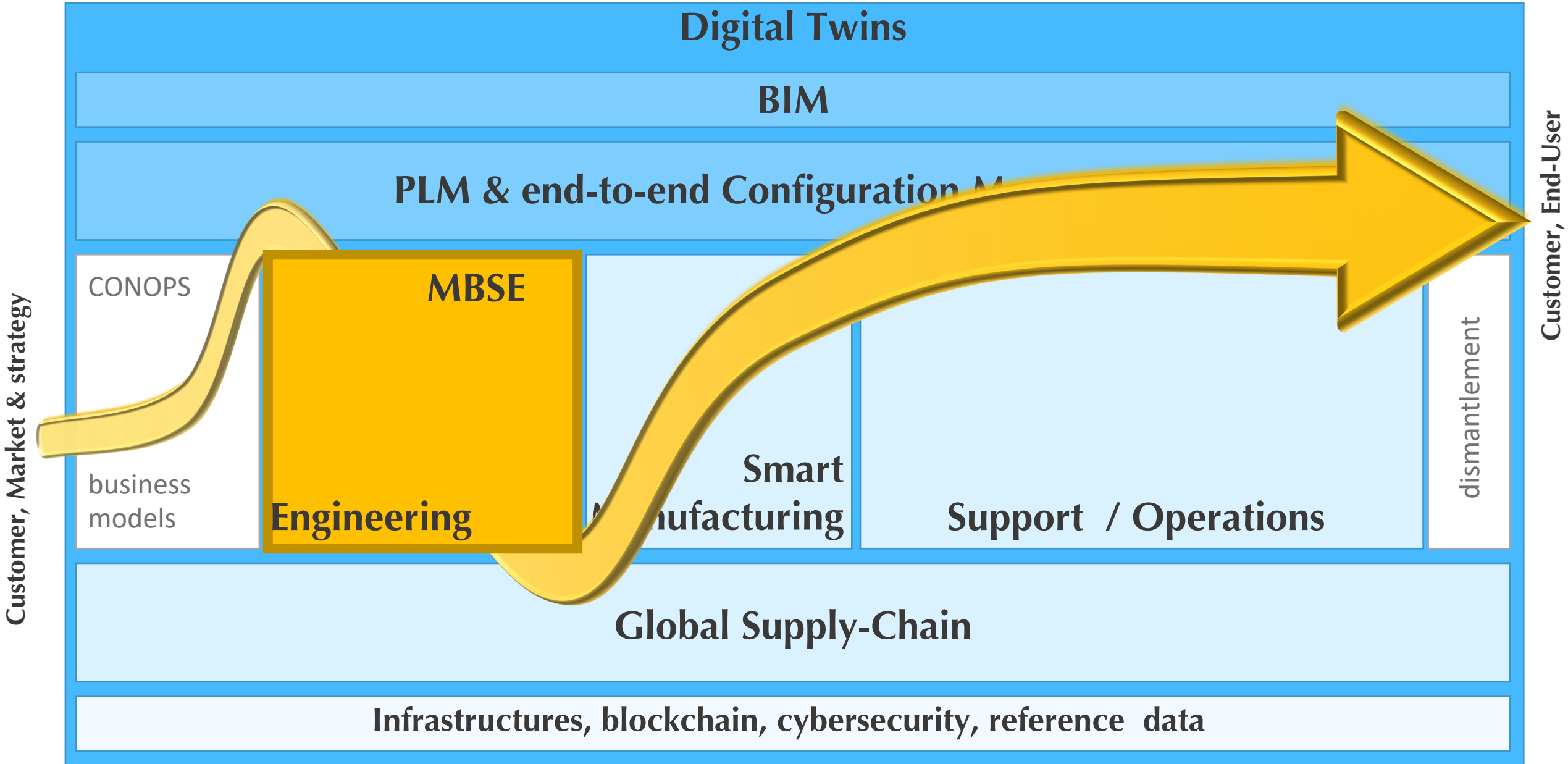


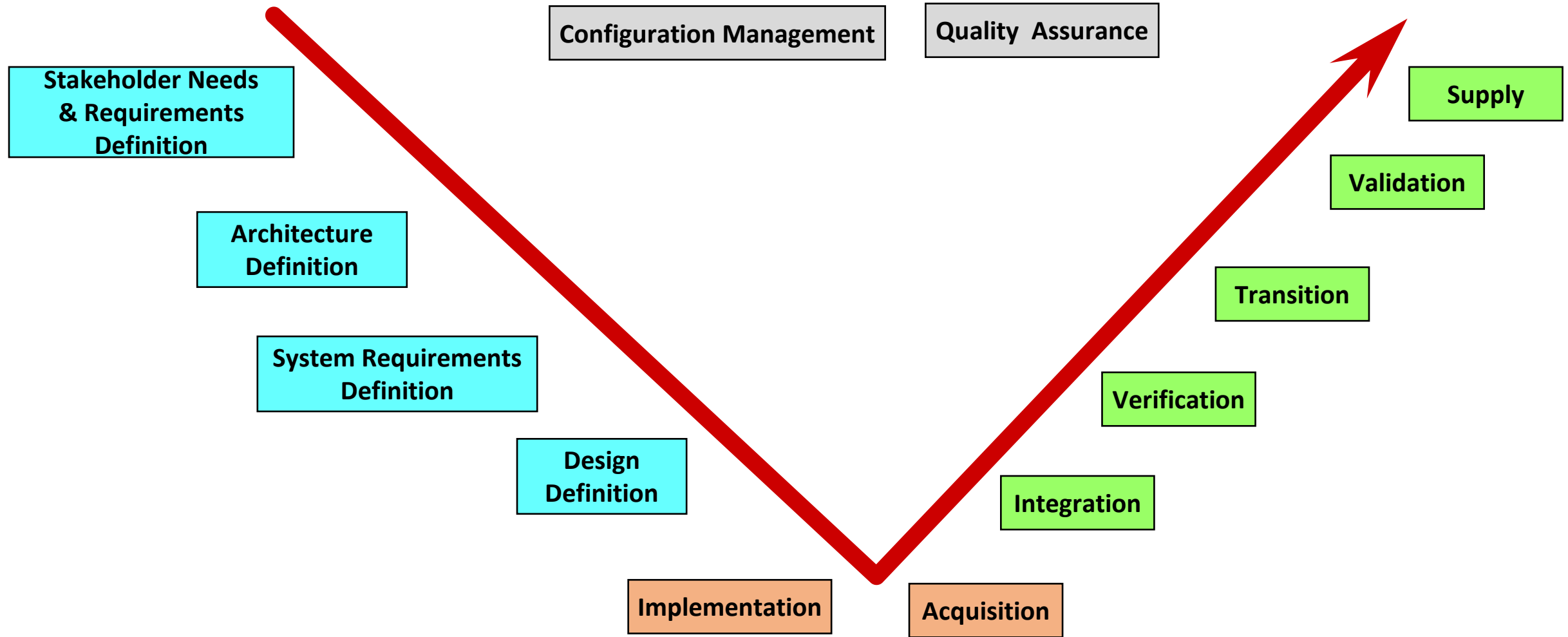
In partnership with



AFNeT Standards Days presentation Webinar How do standards sustain MBSE?

Jean-Luc Garnier (AFIS, Thales), Yves Baudier (AFNeT)
18 June 2020

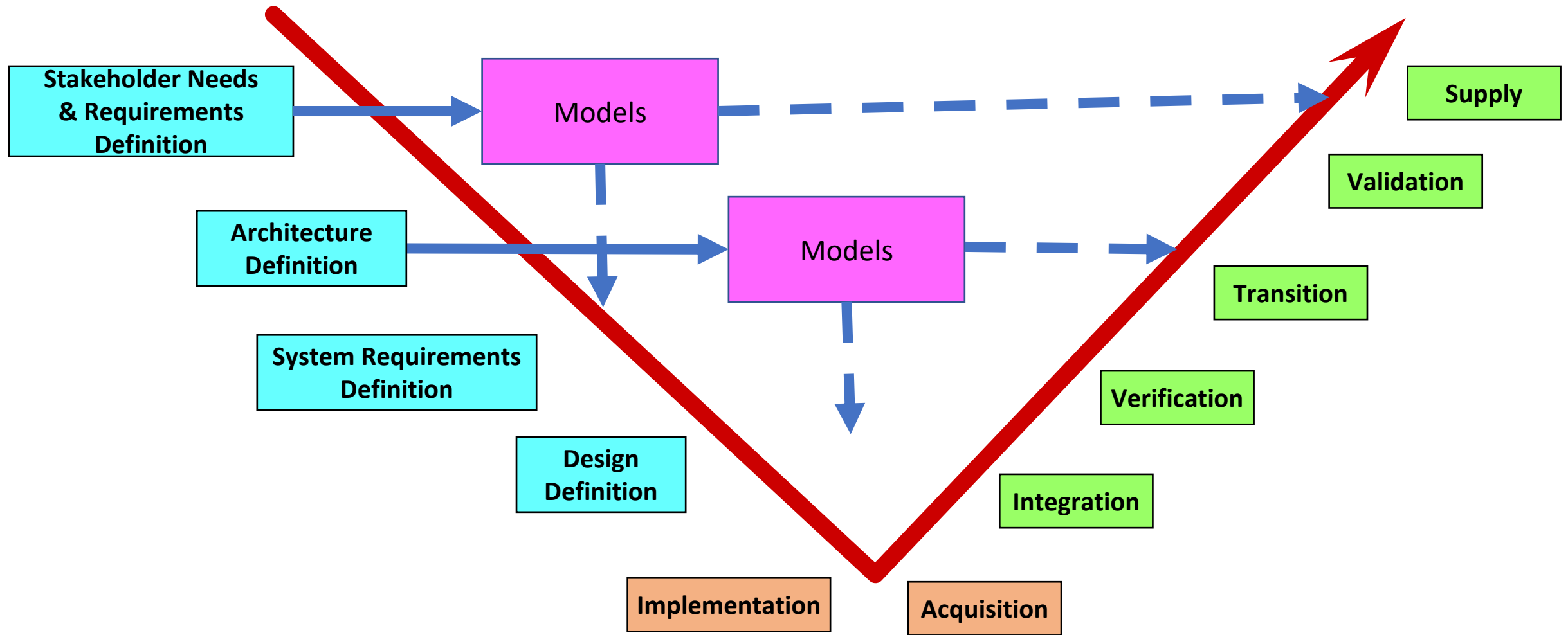




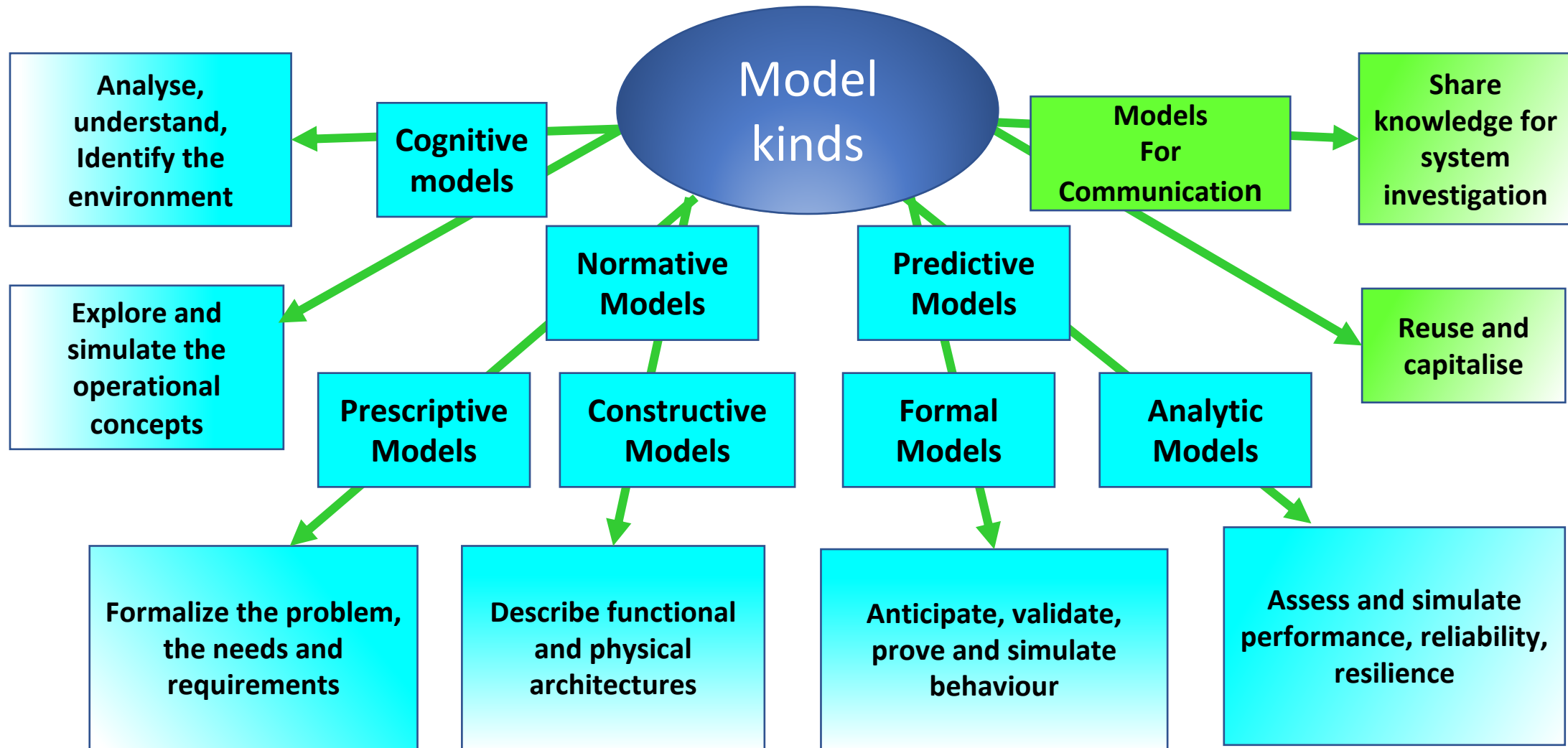
A more complete set of processes is defined in ISO/IEC/IEEE 15288:2015

Systems Engineering: another possible view (FAA, 2006; dependence model)

EXTERNAL	FAA Policy Integrated Master Sched. Corporate Strategy and Goals FAA Enterprise Architecture	Constraints FAA Mgmt. Decisions Govt. & Int. Regulations & Statutes Legacy System Needs Standards Technology	FAA Mgmt. Decisions Legacy System	Constraints Legacy System Market Research Standards Technology	Market Research Technology Constraints Integrated Master Schedule	FAA Policy Standards Interface Change Request	FAA Policy Standards	Technology Constraints	FAA Policy Constraints Technology Concerns/Issues Integrated Master Schedule Corporate Strategy and Goals	FAA Policy Change Requests Facility Definition	Need Standards	Technology Test & Assessment Articles System	Constraints Environ. Forces Govt. & Int. Regulations & Statutes FAA Policy Technology Concerns/Issues Integrated Master Schedule System	SE comments SE Training Feedback Technical & Program Products Process Assessment requests Other FAA Processes Standards FAA SE competency needs	
SEMP WBS SE Inpt/SAP Supporting Technical Plans Audit Results NAS Enterprise Architecture	INTEGRATED TECHNICAL PLANNING	NAS Enterprise Architecture SEMP WBS	SEMP	NAS Enterprise Architecture SEMP WBS	Constraints SEMP WBS	NAS Enterprise Architecture SEMP	NAS Enterprise Architecture SEMP	SEMP	Concerns/Issues SEMP	NAS Enterprise Architecture SEMP WBS Audit Results	NAS Enterprise Architecture SEMP	NAS Enterprise Architecture SEMP	NAS Enterprise Architecture SEMP WBS		
Requirements RVCD SOW	Planning Criteria Requirements	REQUIREMENTS MANAGEMENT	Requirements	Requirements RVCD	Constraints Requirements	Requirements	Requirements RVCD	Requirements Tools/Analysis Requirements	Requirements Concerns/Issues	Requirements Change Request	Requirements	Requirements VRTM	Requirements		
Concepts Functional Architecture	Concepts Planning Criteria	Concepts Functional Architecture OSED	FUNCTIONAL ANALYSIS	Functional Architecture OSED	Constraints Functional Architecture OSED	Concepts Functional Architecture OSED	Concepts Functional Architecture OSED	Tools/Analysis Requirements	Concerns/Issues	Functional Architecture	Concepts Functional Architecture OSED	Functional Architecture	OSED		
Physical Architecture	Planning Criteria Physical Architecture	Constraints Physical Architecture Product Definition	Physical Architecture	SYNTHESIS	Physical Architecture Design Constraints Description of Alternatives	Operational Prototype Results Physical Architecture	Description of Alternatives Physical Architecture	Tools/Analysis Requirements	Concerns/Issues	Change Requests Product Definition	Physical Architecture Operational Prototype Results	Physical Architecture	Constraints Physical Architecture Operational Prototype Results		
Trade Study Reports	Planning Criteria	Trade Study Reports	Trade Study Reports	Trade Study Reports	TRADE STUDIES	Trade Study Reports		Tools/Analysis Requirements	Concerns/Issues				Trade Study Reports		
Interface Control Documents IRD	Planning Criteria	Interface Control Documents IRD	Interface Control Documents	IRD Interface Control Documents	Constraints	INTERFACE MANAGEMENT	Interface Control Documents		Concerns/Issues	Change Requests IRD Interface Control Documents	IRD	Interface Control Documents			
SCAP DARs	Planning Criteria	DARs Constraints	DARs	DARs	DARs Constraints		SPECIALTY ENGINEERING	DARs Tools/Analysis Requirements	Concerns/Issues	DARs	DARs	Verification Criteria DARs	DARs		
Credible Analysis Results	Analysis Criteria Planning Criteria	Analysis Criteria Constraints	Analysis Criteria	Analysis Criteria	Analysis Criteria Constraints			Analysis Criteria	INTEGRITY OF ANALYSES	Concerns/Issues Analysis Criteria	Credible Analysis Results	Tools & Reference Models	Analysis Criteria	Analysis Criteria	
Prog. Risk Register Prog. Risk Summary Risk Mitigation Plan Summary Risk Status Risk Mitigation Plans Constraints	Planning Criteria	Risk Mitigation Plans Constraints	Constraints	Risk Mitigation Plans Constraints	Constraints			Constraints	Tools/Analysis Requirements	RISK MANAGEMENT		Constraints	Constraints	Risk Mitigation Plans	
Baselines Baseline Changes CSA Report	Planning Criteria	Baselines Baseline Changes CSA Report		CSA Report Baselines Baseline Changes				Baselines Baseline Changes	Baselines Baseline Changes	Concerns/Issues	CONFIGURATION MANAGEMENT	Baselines Baseline Changes CSA Report	Baselines Baseline Changes CSA Report		
	Planning Criteria	Validation Reports	Requirements	Requirements	Constraints			Validation Reports	Tools/Analysis Requirements Validated Tools & Reference Models	Concerns/Issues	Configuration Documentation Validated Tools & Reference Models	VALIDATION	Validation Reports		
	Planning Criteria	RVCD VRTM			Constraints				Tools/Analysis Requirements	Concerns/Issues	Configuration Documentation	VERIFICATION			
Commissioned System System Disposal Real Property Assets Current NAS Inventory Lifecycle Cost Estimate	Planning Criteria	Constraints		Lifecycle Cost Estimate Constraints	Lifecycle Cost Estimate Constraints				Tools/Analysis Requirements	Concerns/Issues Constraints	Change Requests Change Release Notices Configuration Documentation CSA Updates		LIFE CYCLE ENGINEERING		
SE Processes SE Best-Practices Documentation (SEM) SEBOK SE Training Curriculum Skill &/or Competency Requirements	SE Processes SE Best-Practices Documentation (SEM) SEBOK	SE Processes SE Best-Practices Documentation (SEM) SEBOK	SE Processes SE Best-Practices Documentation (SEM) SEBOK	SE Processes SE Best-Practices Documentation (SEM) SEBOK	SE Processes SE Best-Practices Documentation (SEM) SEBOK	SE Processes SE Best-Practices Documentation (SEM) SEBOK	SE Processes SE Best-Practices Documentation (SEM) SEBOK	SE Processes SE Best-Practices Documentation (SEM) SEBOK	SE Processes SE Best-Practices Documentation (SEM) SEBOK	SE Processes SE Best-Practices Documentation (SEM) SEBOK	SE Processes SE Best-Practices Documentation (SEM) SEBOK	SE Processes SE Best-Practices Documentation (SEM) SEBOK	SE Processes SE Best-Practices Documentation (SEM) SEBOK	SE Processes SE Best-Practices Documentation (SEM) SEBOK	MANTAIN SE PROCESS



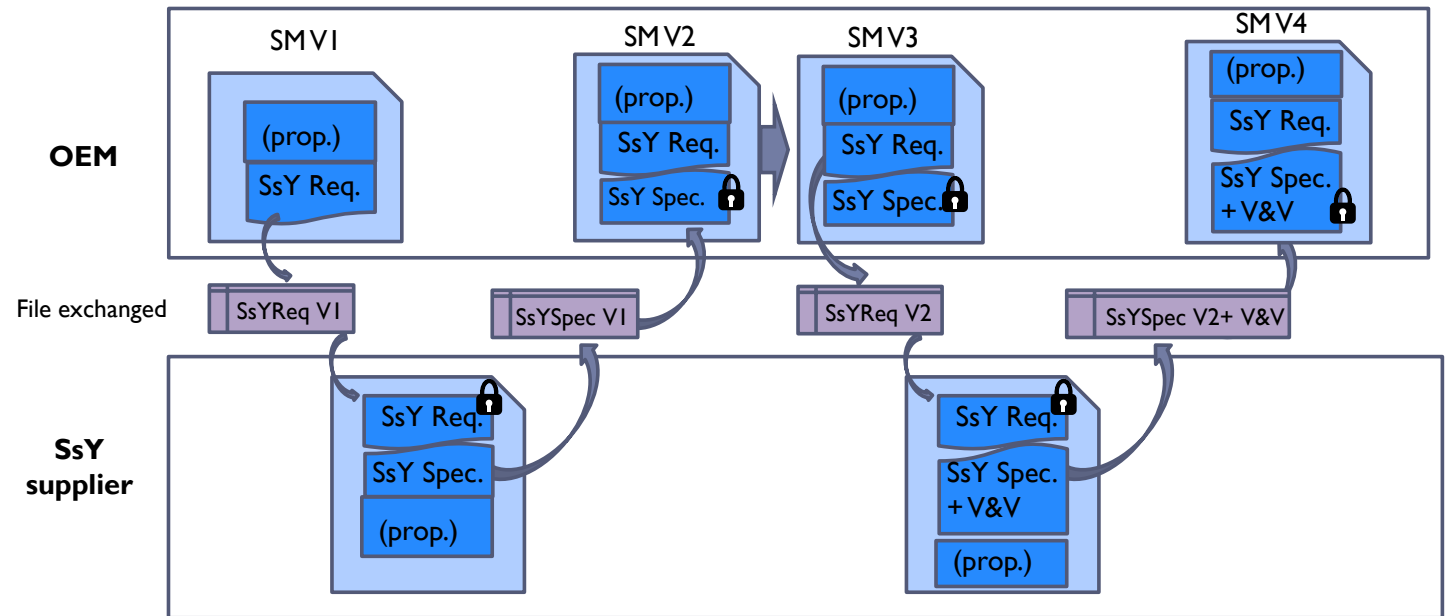
ISO/IEC/IEEE 24641 Methods and tools for Model-based systems and software engineering (under development) discusses more deeply.



Source: AFIS – CT MBSE, 2016

- Systems Engineering interoperability identified as a strong need, covering:
 - Collaborative processes in an MBSE context (between customers, OEMs, suppliers)
 - The sharing and sustainability of models related to systems engineering
 - The formalization of data in view of data analytics
 - The related needs for competences and associated skills.
- Leading to the AFIS-AFNeT partnership (covering the above perimeter):
 - Collaboration between AFIS and AFNeT on systems engineering interoperability ([press release, October 2018](#)).
 - AFIS-AFNeT collaboration on Systems Engineering interoperability - Framing document, Version 0.7, 1/02/2019
- AFIS and AFNeT share a vision of **SE data interoperability**, first business cases identified (from SE data exchange in Extended Enterprise to synchronisation of SE data between heterogeneous tools in a SE platform), roadmap drafted, 1st projects defined, collaboration open.

- 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 solution interoperability.



10:15 AM

#1 : Keynote MBSE

11:00 AM

#2 : Insights

- Introduction to Systems Engineering and model based approach
- Standards for Systems Life Cycle Processes
- Consideration of S.E. Standards in the ATLAS Program

3 PM

#3 : Deep dive

- Standard for MBSE
- MBSE practices
- Systems Engineering in a Prime Management Office
- Panel discussion on collaborative Model-Based Early activities



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

Questions &
Answers

