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A New Tool to Support Collaborative Building and Sharing of an IVVQ Strategy

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Thales Missions and Solutions...



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**Sensing
& data gathering**



**Data transmission
& storage**



**Data processing
& decision making**



Digital Identity and Security



Defense and Security



Aerospace



Space



Ground Transportation

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ENGINEERING IN THALES

Transform knowledge into value for the customers and our company through collaboration and agility



GLOBAL FOOTPRINT

68 Countries
100 Development Centers



MORE THAN 32000 ENGINEERS

~ 11 000 System Engineering
~ 14 400 Software Engineering
~ 6 300 Hardware Engineering



OUR TARGET

Improve Thales Engineering competitiveness



80,000
employees
around the
world



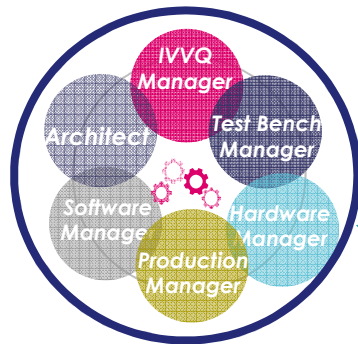
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The Origin of MAESTRIA



Promoting a fundamental co-engineering practice...



... and achieving a common understanding across cultures and formats

Graphical Approach

Standard Formalization



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The Rationale of MAESTRIA...



Quickly Building...

... A System Integration, Test, and Acceptance...

... High Level Strategy and Schedule...

... Shared in a Co-Engineering Way...

... During the Bid Phase or at the Project Start



Quickly Building...



Fat client
Easily installed



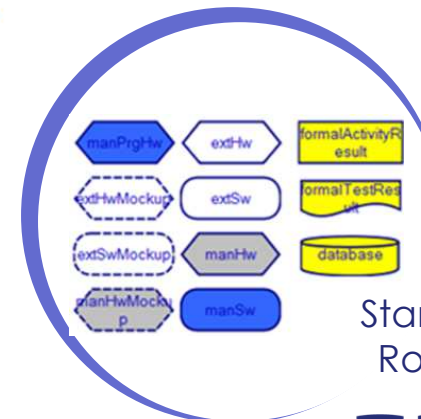
Coaching & support
IVVQ Community



Familiar framework
Advanced graphical display



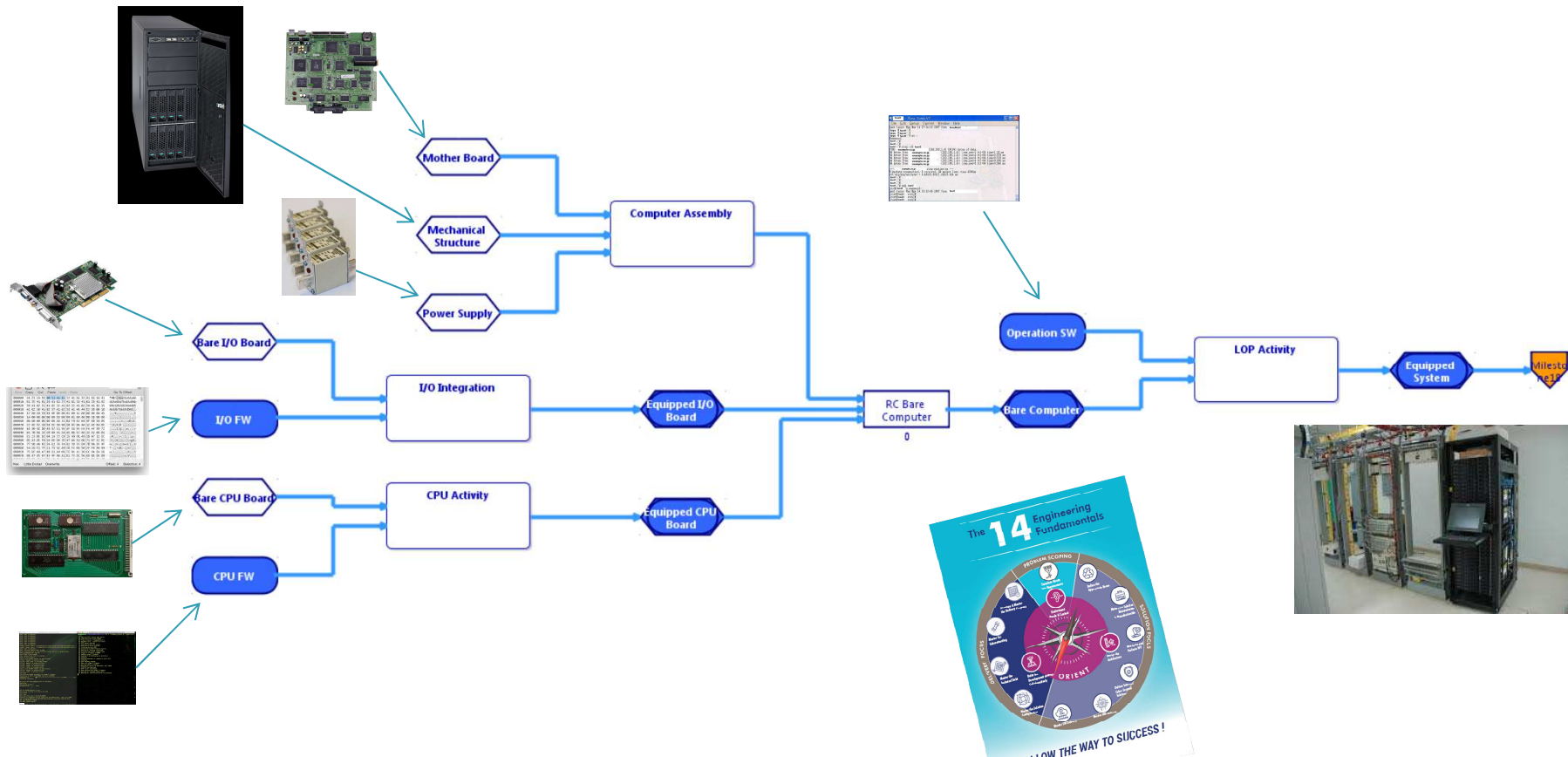
Standardized syntax
Robust metamodel



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... A System Integration, Test and Acceptance...

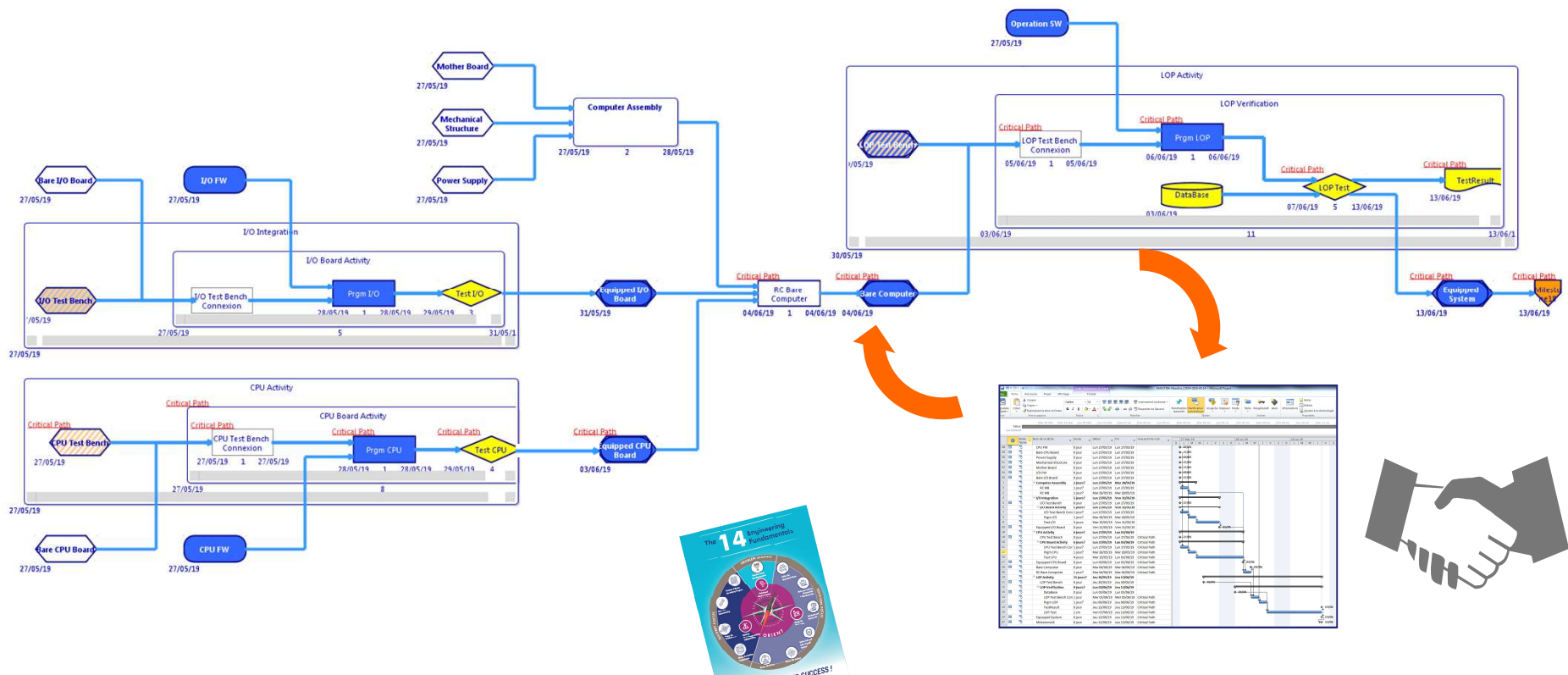


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... a System Integration, Test and Acceptance...



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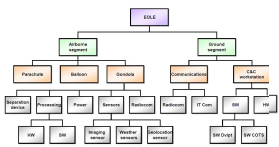


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... High Level Strategy and Schedule...

Process



PBS



LEVERS

Assembly Tree

According to physical and industrial constraints

Integration & Test Tree

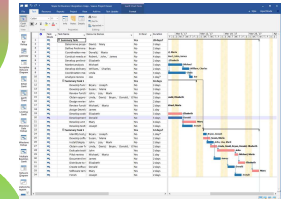
Specify tests, tuning and associated test means

PERT diagramme

Allocate on prototypes and associated resources according to capacity



Quality Milestones
NRC Cost



GANT
PERT

HW & SW Versioning

Activities Outsourcing

Testability & Industrial issues

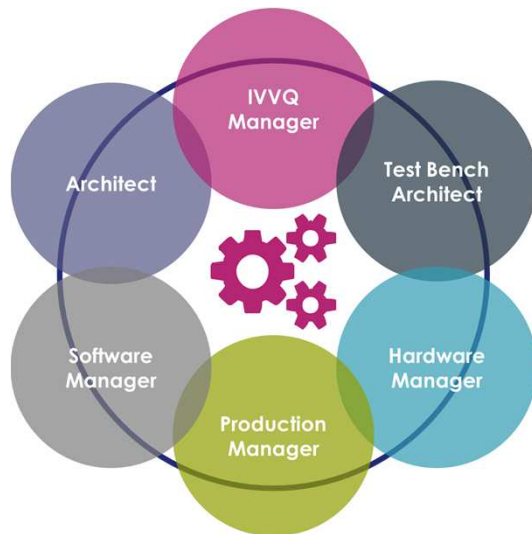
Test level, Test coverage

Test Environment Cost

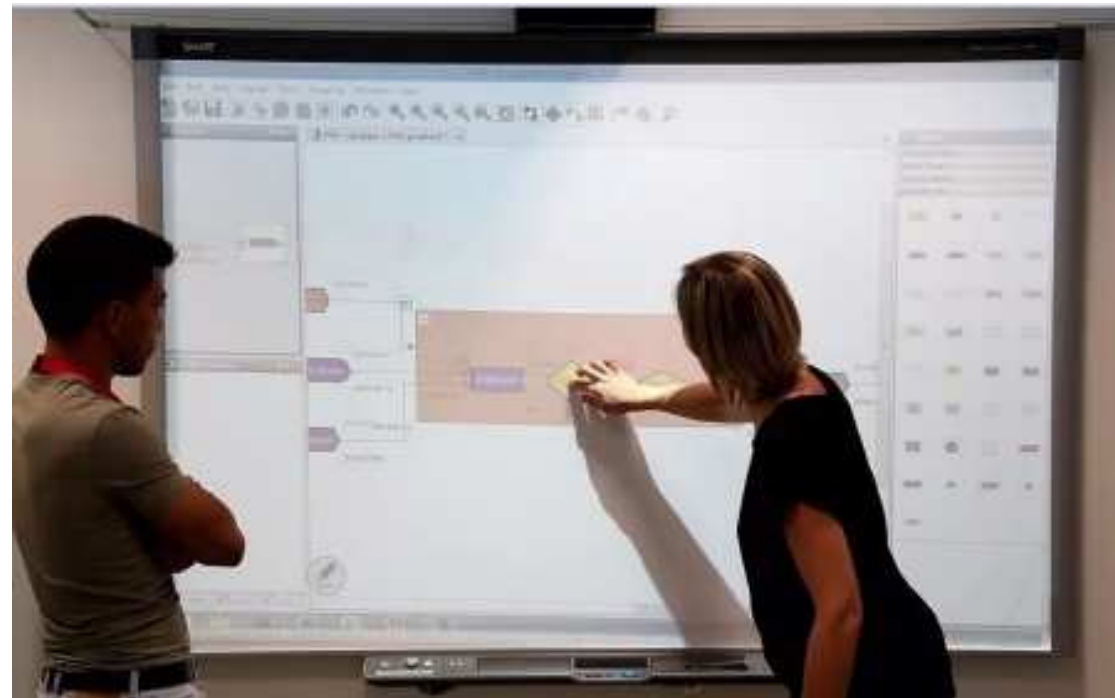
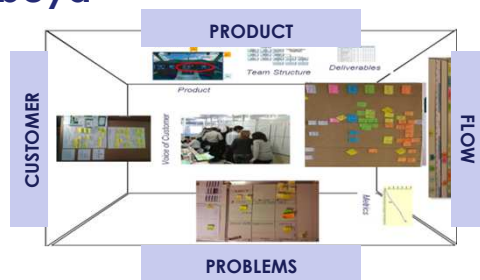
Technical & calendar risk

Parallelizing activities

... Shared in a Collaborative Way...



Obeya



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... During the Bid Phase or at the Project Start.



Missile Seeker

Integration trees
built in parallel for
both Development
and Production

**IR Search &
Track**



Easier knowledge
transfer between
SE Manager/Architect
and IVVQ Manager



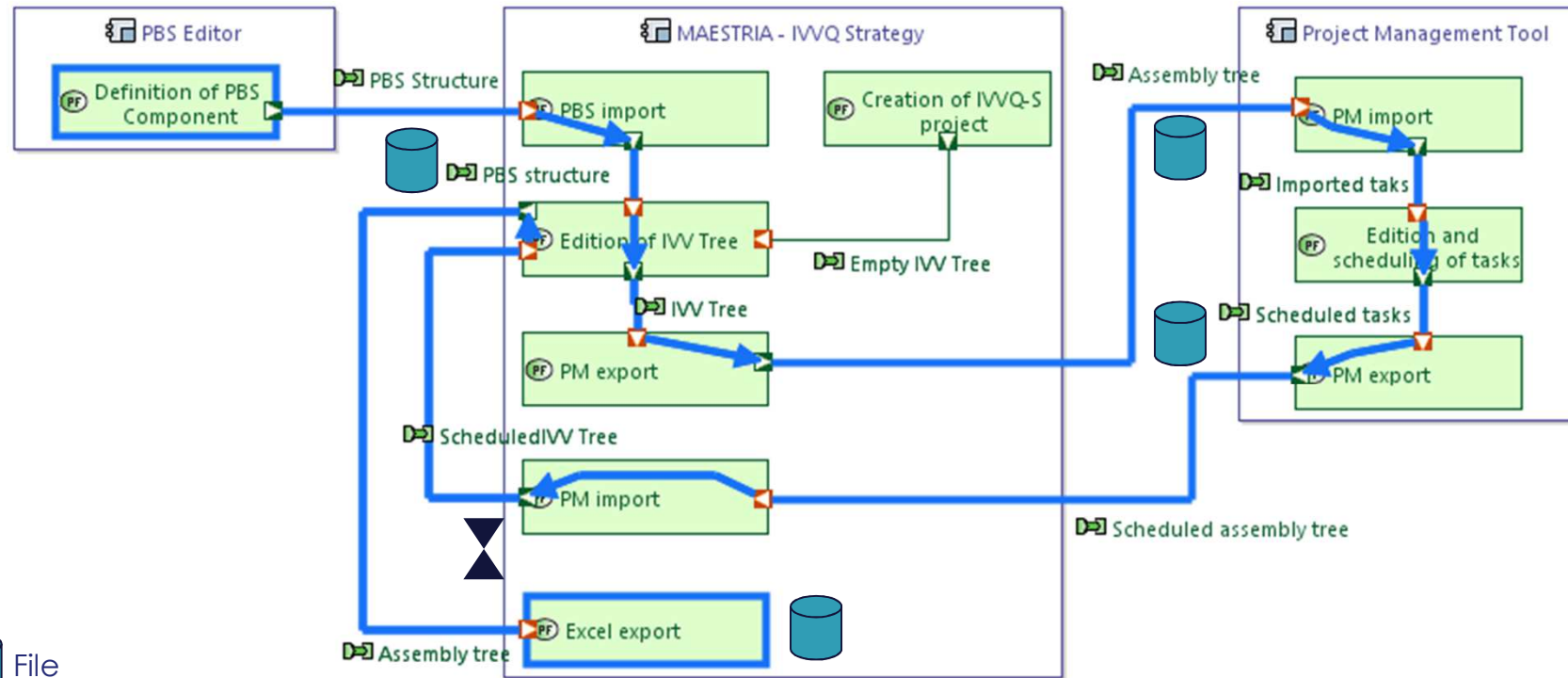
POD Computer

Integration tree for a
calculator :
SW Agile compatible

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The Value Stream of MAESTRIA



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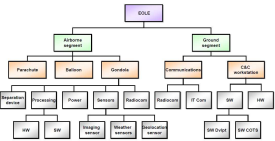


PBS Import, round-trip with the project management tool, and Excel export

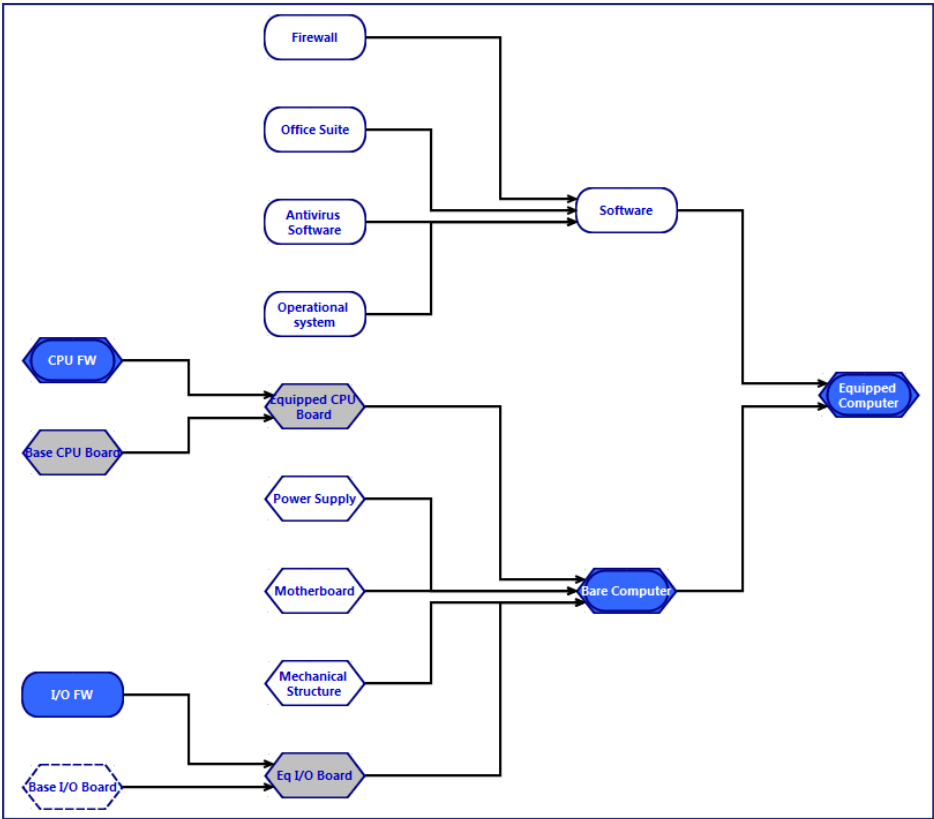
Example: PBS Import in MAESTRIA



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Title : Equipped Computer		Date : 12/03/2019	
Verticalisation			
	Display information	x	x
	Display specific borders' colors		x
Levels	Description	Category	Make, Team, Buy
1	Equipped Computer	System	Make
1.1	Bare Computer	System	Make
1.1.1	Mechanical Structure	System	Buy
1.1.2	Motherboard	System	Buy
1.1.3	Power Supply	System	Make
1.1.4	Eq I/O Board	System	Make
1.1.4.1	Base I/O Board	System	Make
1.1.4.2	I/O FW	System	Make
1.1.5	Equipped CPU Board	System	Make
1.1.5.1	Base CPU Board	System	Make
1.1.5.2	CPU FW	System	Make
1.2	Software	System	Buy
1.2.1	Operational system	System	Buy
1.2.2	Antivirus Software	System	Buy
1.2.3	Office Suite	System	Buy
1.2.4	Firewall	System	Buy



PBS

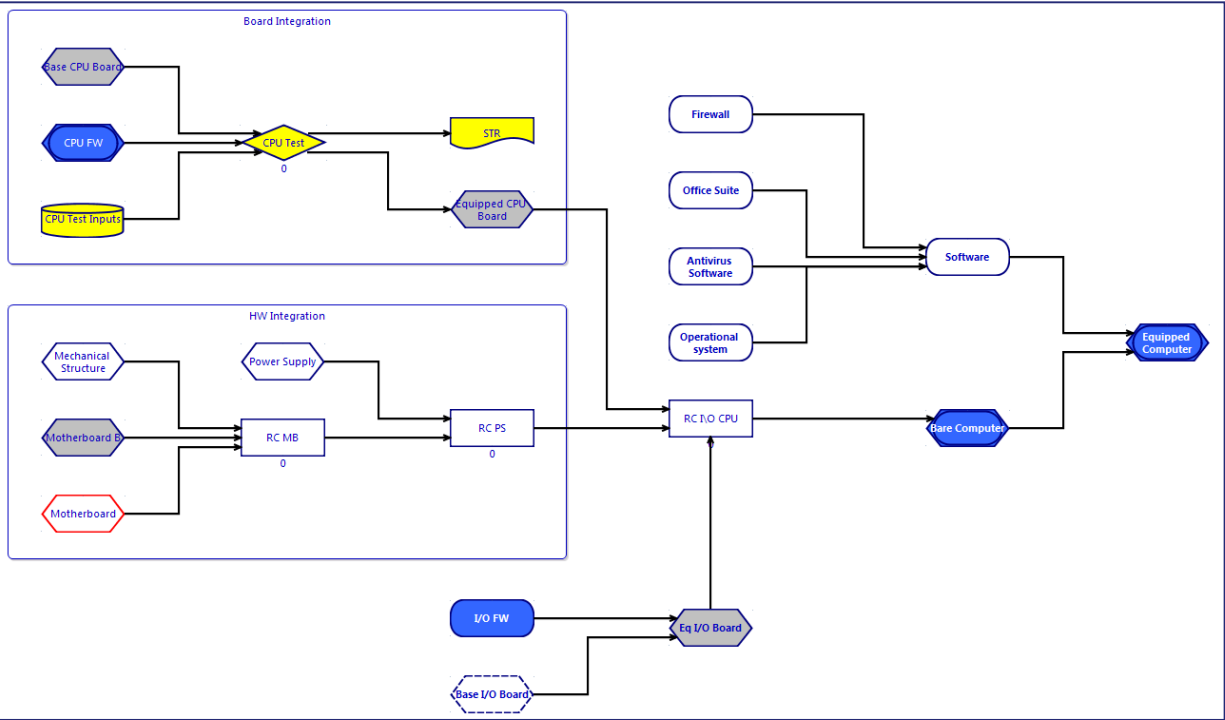


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Example: Integration Tree & Scheduling



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		Task Mode	Task Name	Duration
1			Equipped Computer	0 days
2			Bare Computer	0 days
3			Eq I/O Board	0 days
4			Base I/O Board	0 days
5			I/O FW	0 days
6			Software	0 days
7			Operational system	0 days
8			Antivirus Software	0 days
9			Office Suite	0 days
10			Firewall	0 days
11			RC I/O CPU	5 days
12			HW Integration	7 days
13			RC MB	2 days
14			Motherboard	0 days
15			Mechanical Structure	1 day
16			RC PS	2 days
17			Motherboard B	3 days
18			Power Supply	2 days
19			Board Integration	6 days
20			CPU FW	0 days
21			Equipped CPU Board	0 days
22			CPU Test	3 days
23			CPU Test Inputs	0 days
24			STR	3 days
25			Base CPU Board	0 days



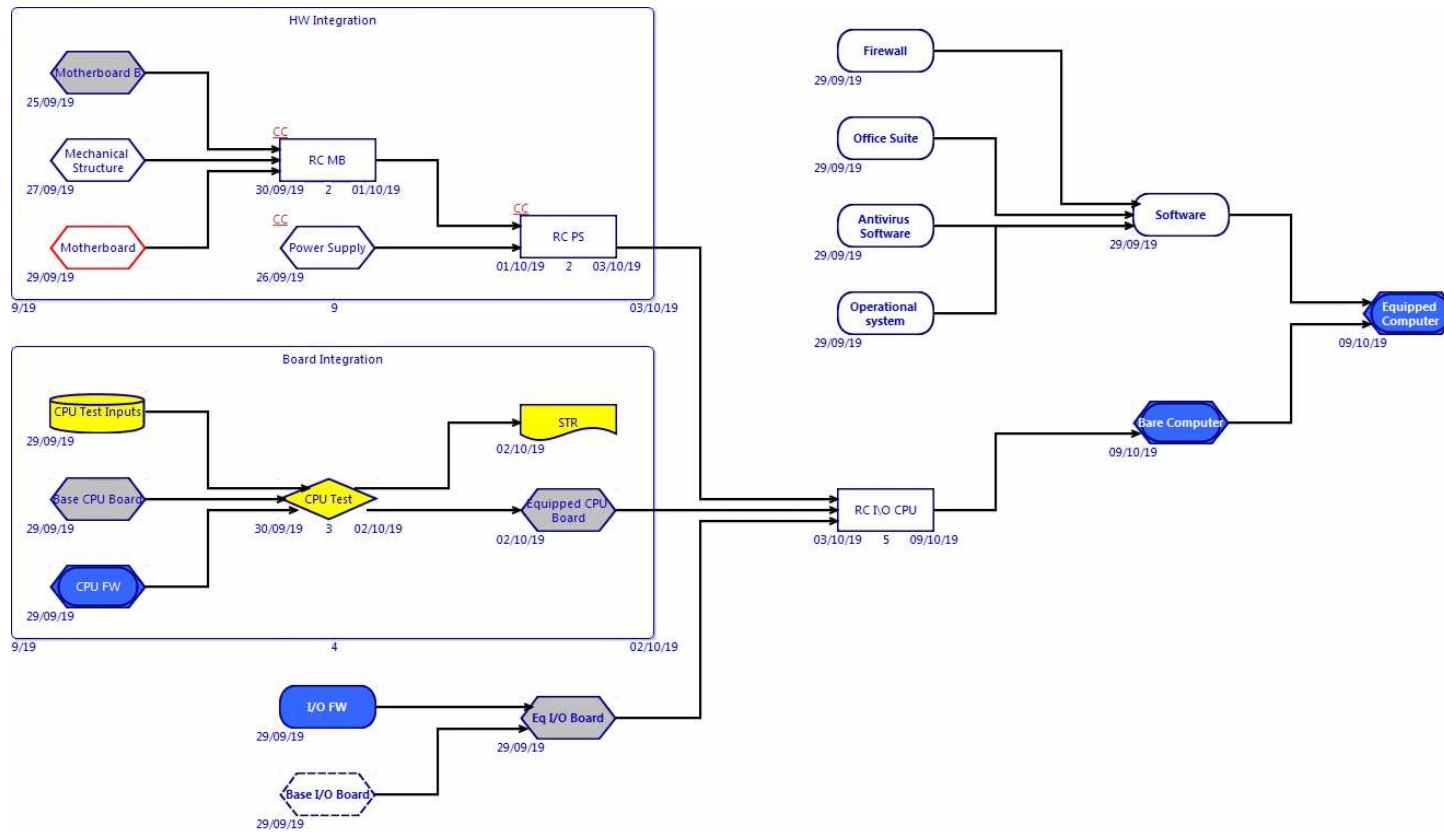
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MS Project (Gantt)

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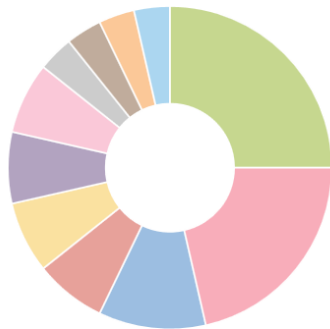
Example: IVV Strategy (PERT)



MAESTRIA Continues Its Way



Pie Chart: SSE IVVQ Demo MAESTRIA



Country / Site
Total Issues: 28

France-Gennevilliers	7
France-Massy	3
Australia	2
France-Brest	2
France-Velizy	2
United Kingdom	2
Austria	1
Belgium	1
France-Fleury	1
France-Limours	1
Other...	6

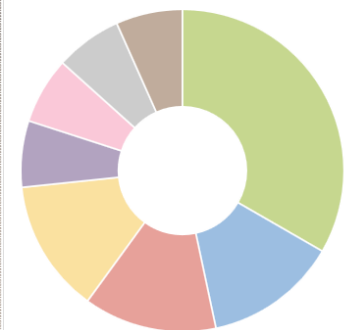
Coming for a look

- > Avionics: France, Australia
- > Defense Germany, Netherlands, UK
- > Space: France, Germany, Belgium
- > Air Defense France
- > Security France
- > Transportation Austria
- > Digital France

Early adopters

- > Underwater systems
- > Radars & Defense
- > Optronics, Surface Radars, Air Operations
- > Radiocommunication
- > Networks

Pie Chart: SSE IVVQ Dep MAESTRIA



Country / Site
Total Issues: 15

France-Gennevilliers	5
France-Limours	2
France-Toulouse	2
Italy-Gorgonzola	2
Canada-Toronto	1
France-Cholet	1
France-Elancourt	1
Germany	1

This tool clearly meets a need. It brings a more global vision, and contributes to the digital way of working.

I will definitely carry on with the use of MAESTRIA.

Its usability and simplicity are its key assets. It enables to easily share planned and current integration steps.

- ✓ Co-engineering and value-pulled perspective around the IVVQ Manager
- ✓ The way toward a seamless transition from the strategy to its implementation

Wrap-up: The MAESTRIA Value Proposition



Collaborative, simple, intuitive and adaptable graphic standard

Ensure the consistency between test strategy and scheduling

Ability to quickly visualize and monitor the test execution according to the test strategy “Visual Management”

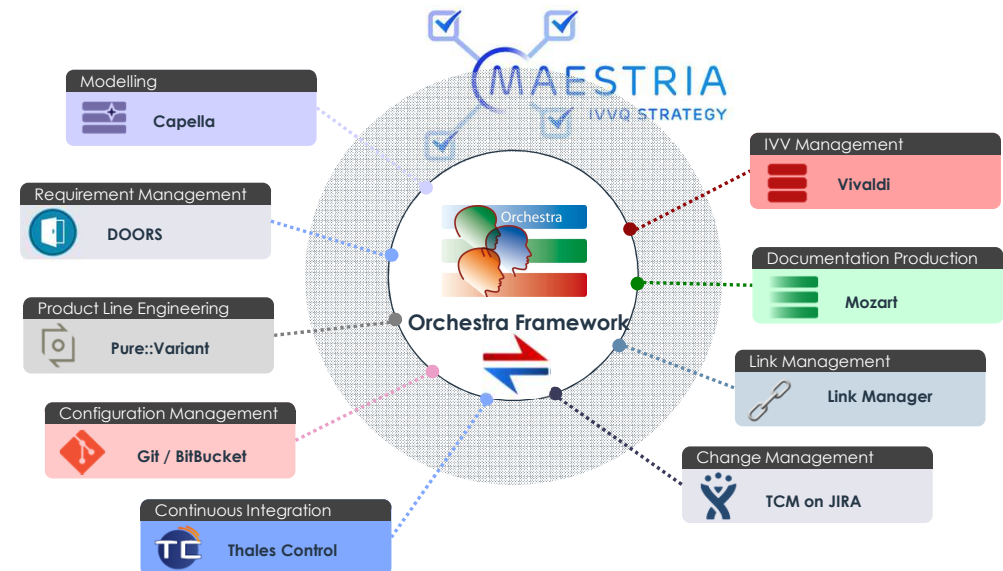
A Selected feature of the Thales engineering environment, along with lean engineering, model-based, and collaborative prospects



Orient... Then Prepare, and Manage IVVQ



« To quickly build and share a high level IVVQ strategy and schedule in a co-engineering way during the bid phase or at project start »



« To optimize a fine-grained IVVQ strategy, and to prepare and monitor its implementation »

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Thank You for Your Attention ☺



Q&A

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