

**MBE Summit 2018**

Gregory Pollari

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**MoSSEC (Modeling &  
Simulation information in a  
collaborative System  
Engineering Context) ISO  
Standards Effort**

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Judith Crockford, Airbus Operations Ltd  
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# Agenda

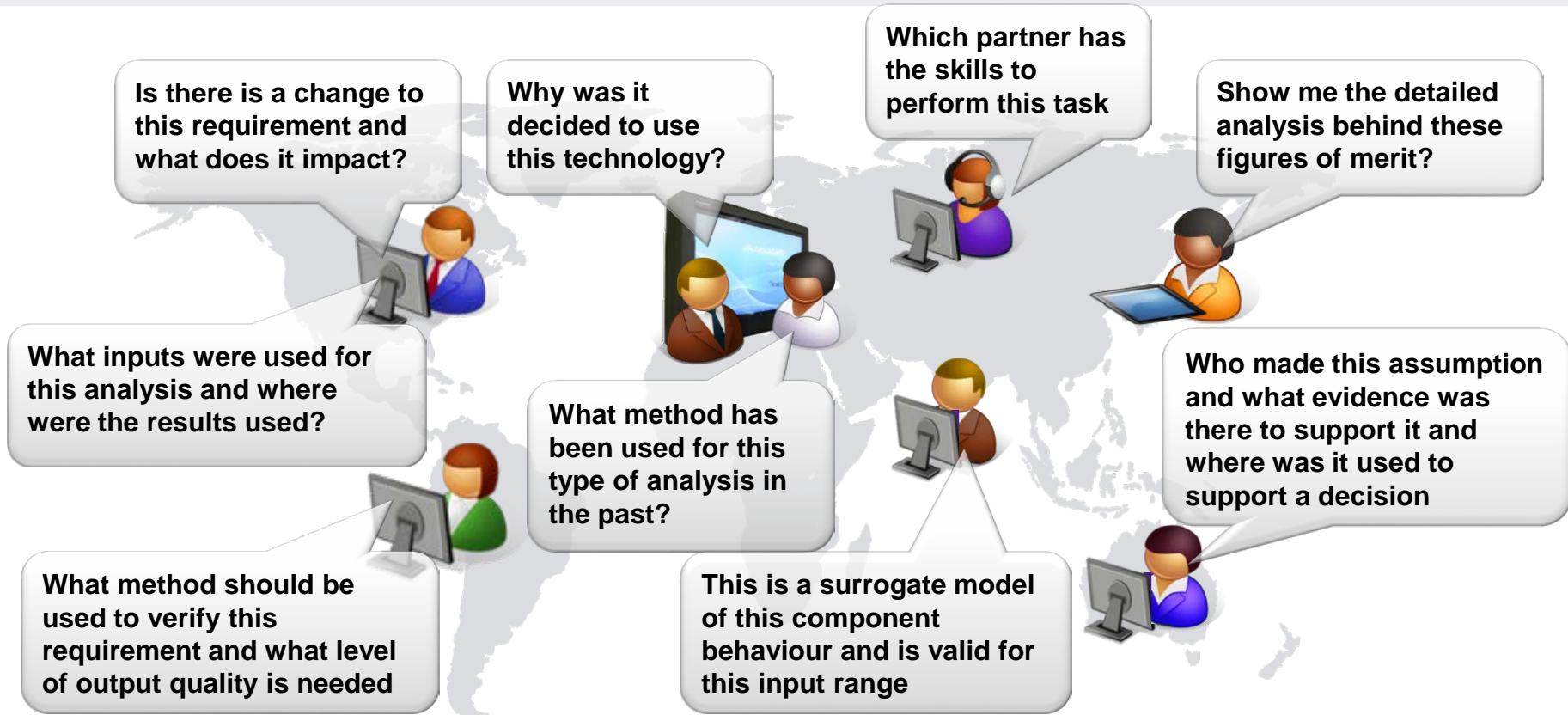
- **Why do I need MoSSEC?**
- **What is MoSSEC?**
- **How can MoSSEC be used?**
- **Summary**

# Agenda

## Why do I need MoSSEC?

- What is MoSSEC?
- How can MoSSEC be used?
- Summary

# Lifecycle Model-Based Enterprises: Typical decision making questions



# Lifecycle Model-Based Enterprises: Typical decision making questions

If there is a change to this requirement and what does it impact?

Why was it decided to use this technology?

Which partner has the skills to perform this task

Show me the detailed analysis behind these figures of merit?

## Who, What, Where, When, How & Why

### “The Kipling Method”

What is this and where were the

is assumption  
ence was  
ort it and  
used to

type of analysis in the past?

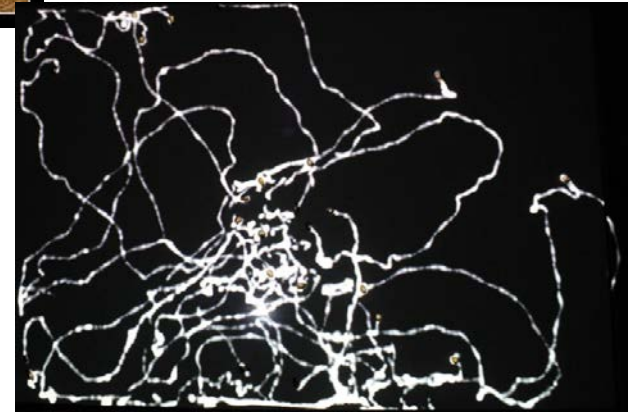
support a decision

What method should be used to verify this requirement and what level of output quality is needed

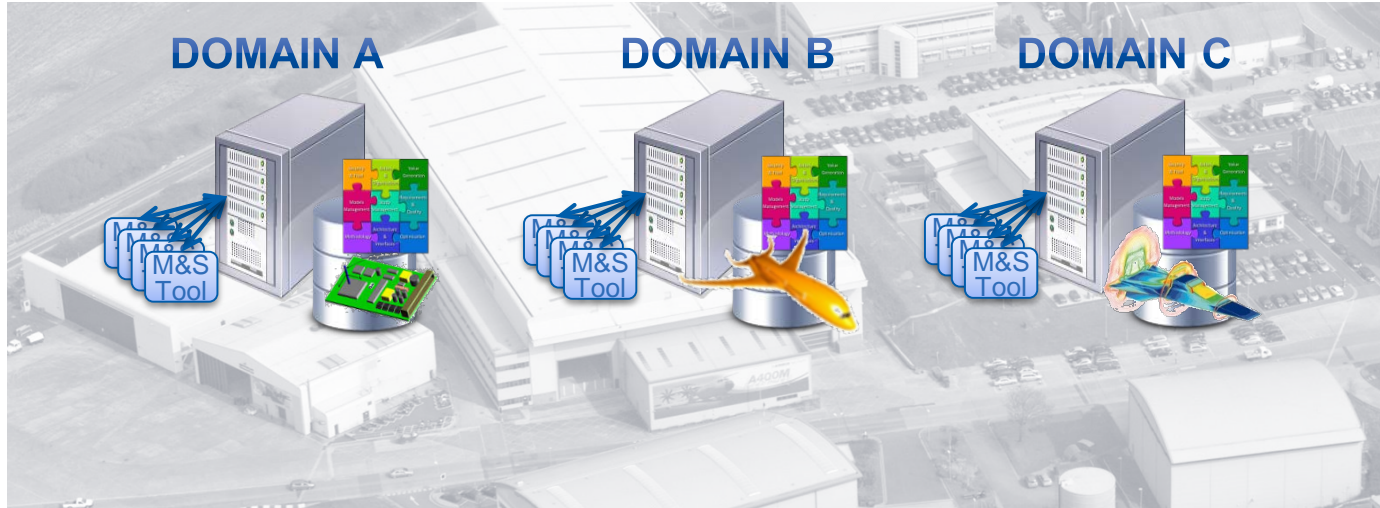
This is surrogate model of this component behaviour and is valid for this input range

## Audit trail -

- The model is intended to capture the whole simulation process
  - Study intent
  - Relationship to requirements
  - Models and values as inputs
  - Models and values as outputs
  - Quality aspects
  - Library of simulation types
  - Process record
    - How long, who, what,...
- It operates at the meta data level
  - Lots of data about data!!!
- It is intended to be process and simulation type independent
- Joined up “big picture” view

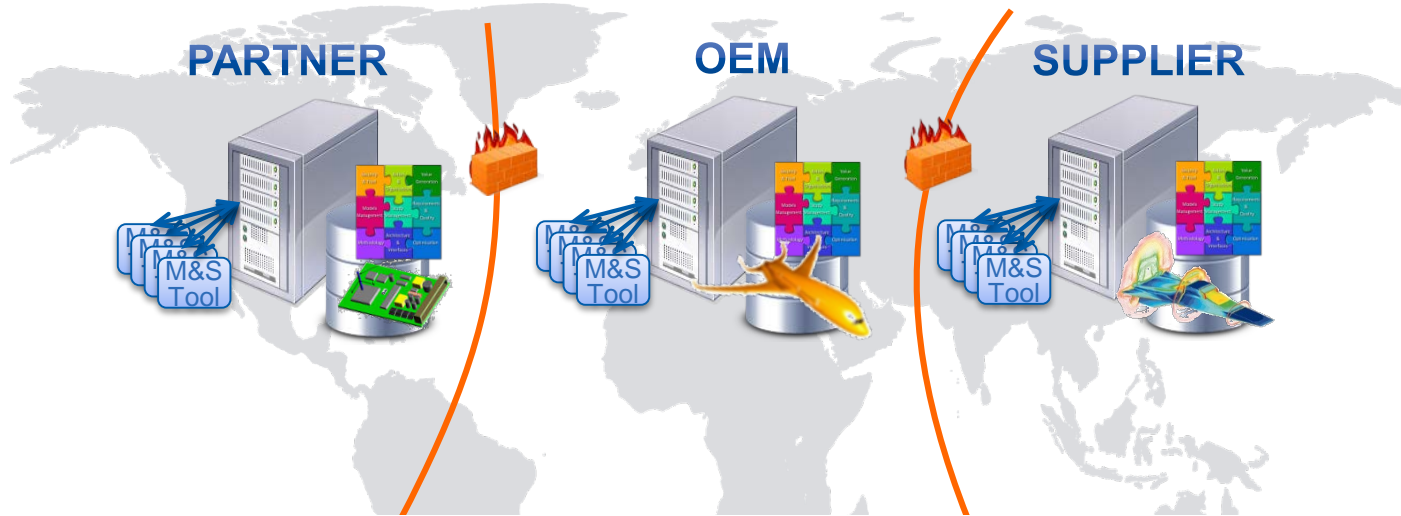


# Lifecycle Model-Based Enterprises: Improving decision making within an organisation



- Needs efficient distribution and retrieval
  - Of system-of-systems definition
  - Across multiple organisations, platforms and locations
- To facilitate a joined-up “big-picture” view

# Lifecycle Model-Based Enterprises: Improving decision making across an extended enterprise



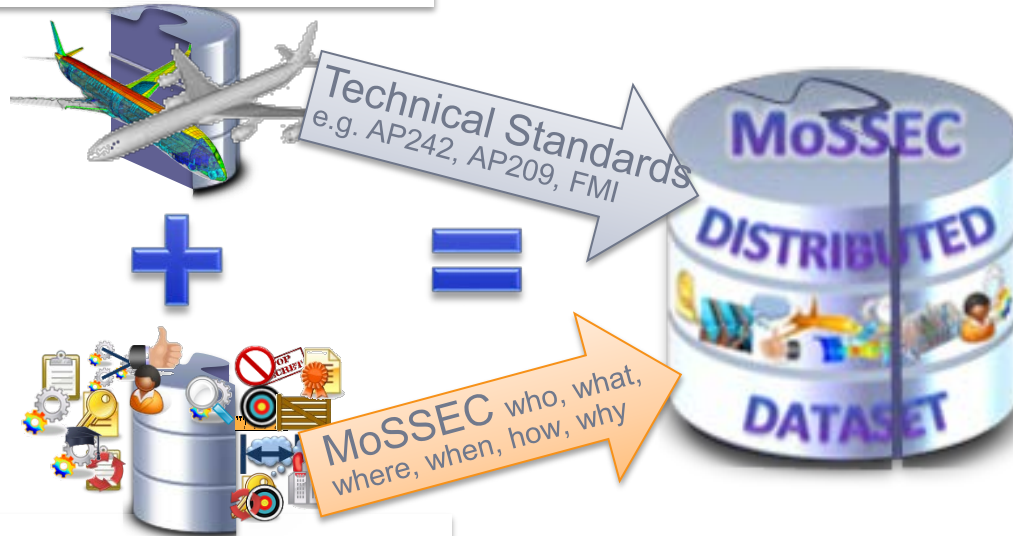
- Needs efficient distribution and retrieval
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# Combining Modelling and Simulation Data with Collaboration Data

## Modelling and Simulation data

- Managed by PLM/SPDM tools
- Exchanged with technical standards



Together this supports a lifecycle model-based enterprise

## Collaboration data

- Managed by MoSSEC Compliant Tools
- Exchanged with MoSSEC standard

# Agenda

- **Why do I need MoSSEC?**

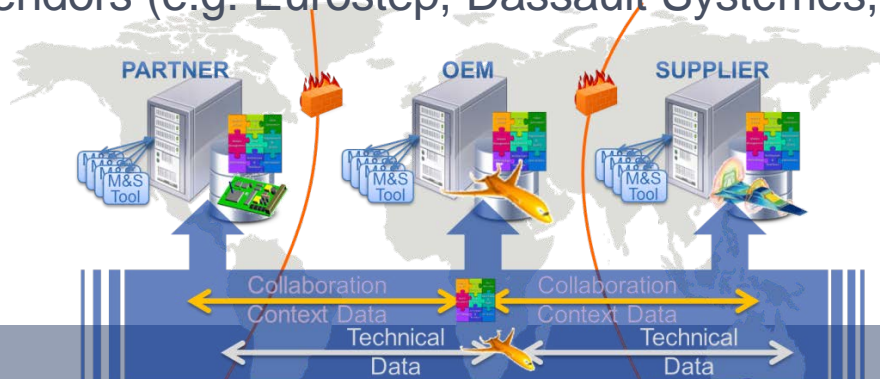


## **What is MoSSEC?**

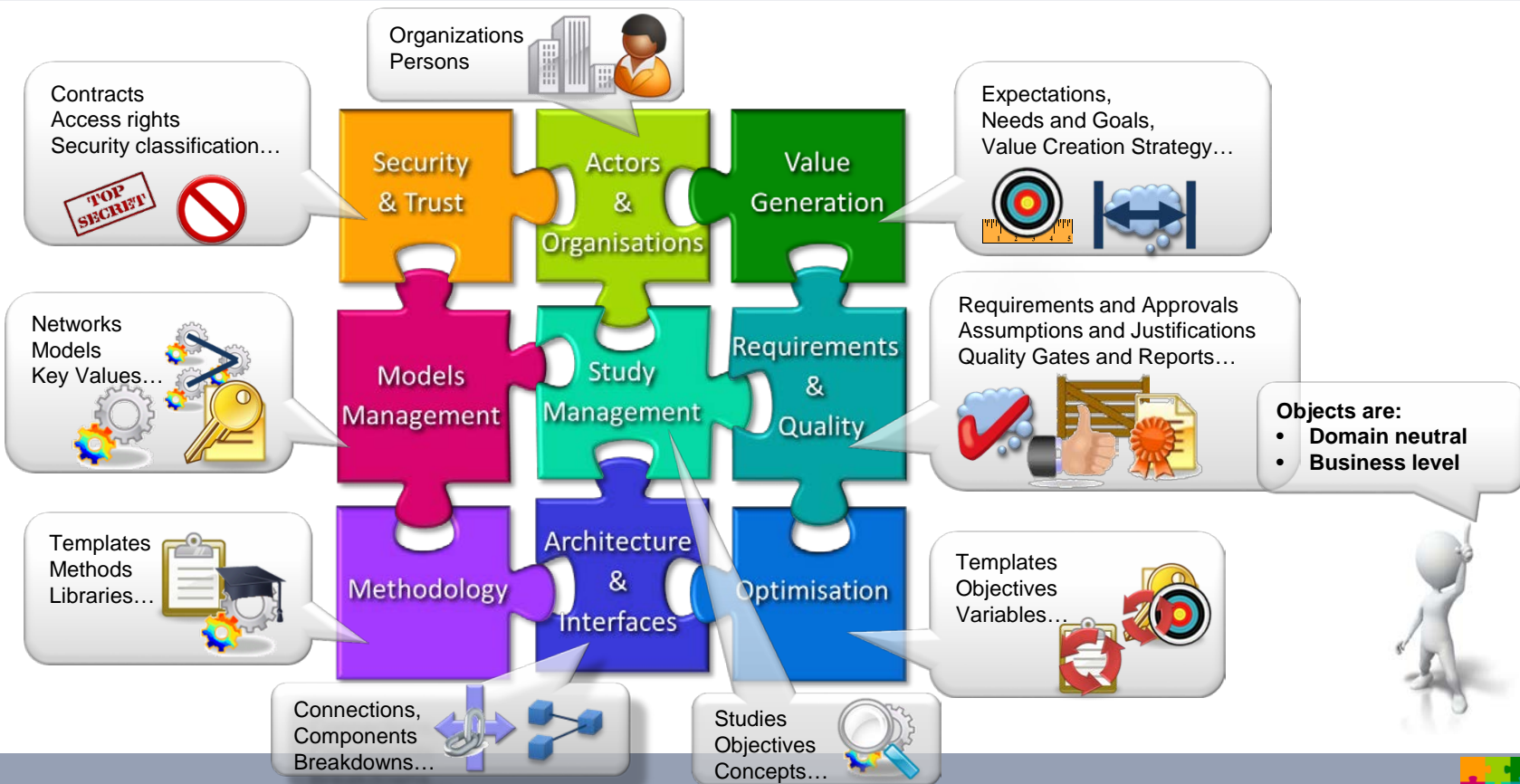
- **How can MoSSEC be used?**
- **Summary**

# MoSSEC: A work-in-progress ISO Standard

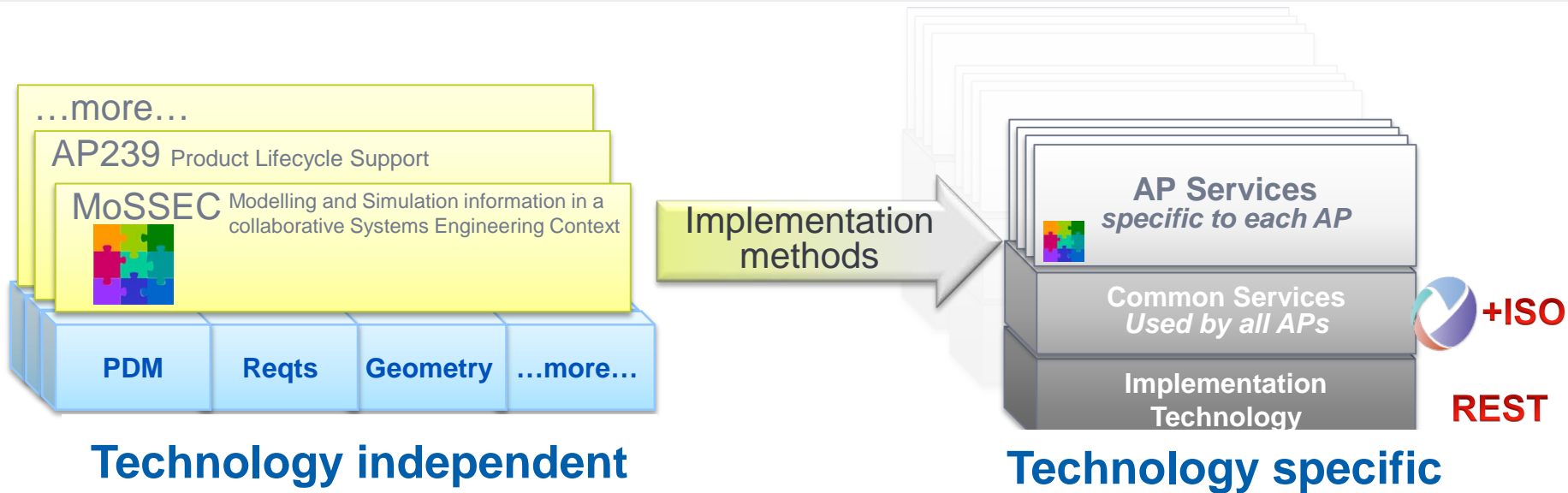
- ISO “Approved new Work Item” - Dec 2016 ([ISO/AWI 22071](#), AP243)
  - Committee Draft (CD) planned Q1 2018
- Shares systems engineering context of modelling and simulation data between internal teams/domains and Extended Enterprise
  - Who, What ,Where, When, How, Why
- Supported by industrial partners (e.g. Airbus, Rockwell Collins, Boeing, BAE Systems)
- Supported by vendors (e.g. Eurostep, Dassault Systèmes, MSC Software, Siemens)



# MoSSEC: Business Object Model coverage



# MoSSEC: Building on Related Standards



- STEP modular architecture - Mapping to AP239 (PLCS)
- **REST/OSLC - Developing implementation methods for services**
- Exploitation facilitated by improved implementer guides



# Agenda

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# MoSSEC: An example of use from TOICA

## • What you will see

1. A study has already been structured and specified in an Architect's Cockpit
2. The study objects required for thermal analysis are sent to the thermal platform with clear context
3. The thermal analysis is performed and study results are sent to the architect platform
4. The Architect views the results in the Architect's Cockpit

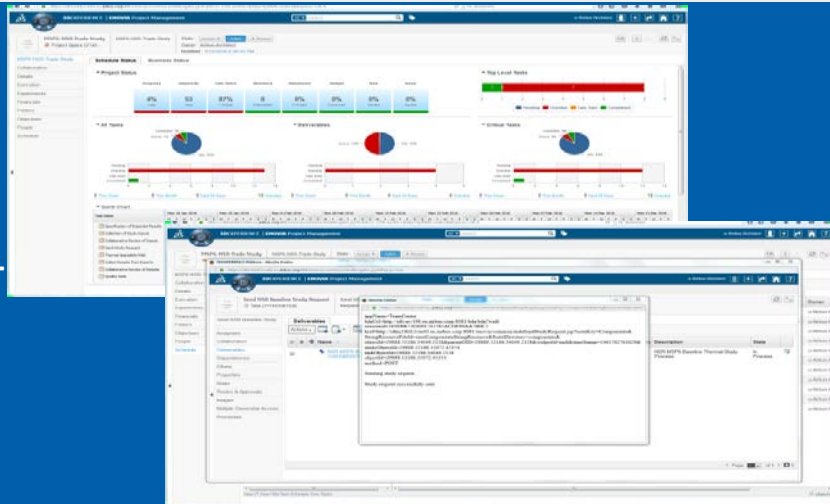
• *All exchanges via MoSSEC web services*

## • Video sequence

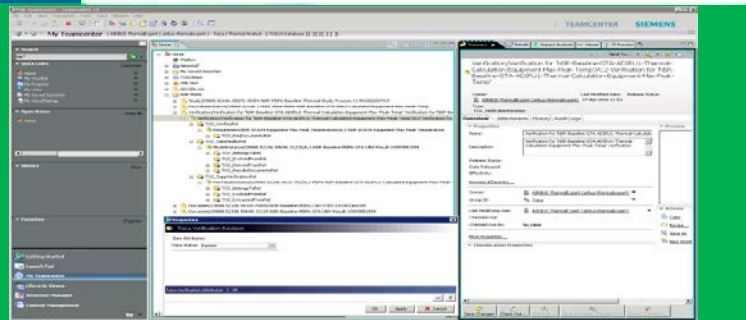
[http://www.mossec.org/video\\_resources](http://www.mossec.org/video_resources)



3DExperience



TeamCenter



# Agenda

- **Why do I need MoSSEC?**
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 **Summary**



## MoSSEC: A Unique Combination of Features

- **Links Modelling and Simulation to the Systems Engineering Context**
  - Uses objects at a business level
- **Efficiently shares context information**
  - Uses web services defined using the business object specification
- **Builds on existing standards**
  - Uses STEP Extended Architecture mapping to AP239 and the Core Technical Capabilities
  - Exploits AP239 usages such as Long Term Archiving and Retrieval (LOTAR)
- **Supports Lifecycle Model-Based Enterprises**



# MoSSEC: Further information

- **MoSSEC website**

- <http://www.mossec.org/>
- Overview
- Resources
- News
- Links

- **Members website**

- <http://private.mossec.org>

- **To be added to the members list contact:**

- [Adrian.Murton@airbus.com](mailto:Adrian.Murton@airbus.com)
- [Gregory.Pollari@rockwellcollins.com](mailto:Gregory.Pollari@rockwellcollins.com)

**Modelling and Simulation information in a collaborative Systems Engineering Context**

A standard to improve decision making for complex products.

**MoSSEC Business Scenarios**

The different phases of systems engineering each have their own engineering problems to solve involving different types of information and data at different levels of maturity. However they all have the business need to establish the traceability of that data through the system lifecycle and evolution. There are mature PLM platforms in the marketplace that manage traceability, however the distinguishing feature of the traceability business scenarios targeted by MoSSEC is the need for traceability between domain teams, between platforms and between organizations.

[Link to more detail](#)

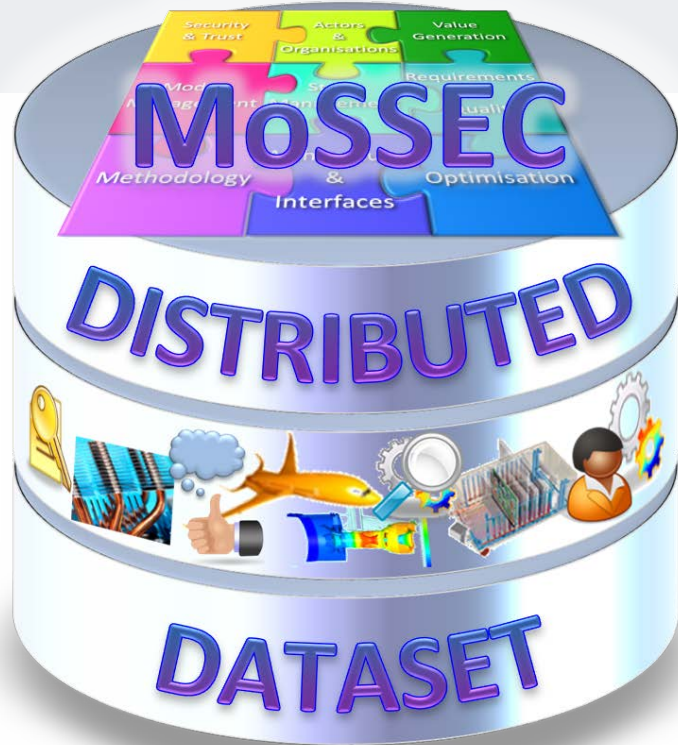
**Interaction with other Standards**

MoSSEC will provide the standard for the systems engineering context when modelling and simulation data is shared or exchanged. For more information on how MoSSEC interacts with:

Modelling and Simulation data  
Technical Standards  
MoSSEC DISTRIBUTED  
Structured By  
MoSSEC Business

**Latest News**

- NWI and WP released  
The New Work Item and associated White Paper have been finalized for release to ISO  
[Read More](#)
- Website Updates 15 Sept 2016  
Major updates to Illustrative Example, STEP standards, ISRC standards (still in progress) Minor updates to Standards, Project Management,  
[Read More](#)
- MoSSEC Website Updates  
MoSSEC Website Updates Monday 15th August 2016  
Kyle Hill The New MoSSEC Website is coming Work is now thoroughly under way to completely overhaul the functionality and...  
[Read More](#)



# Any Questions?



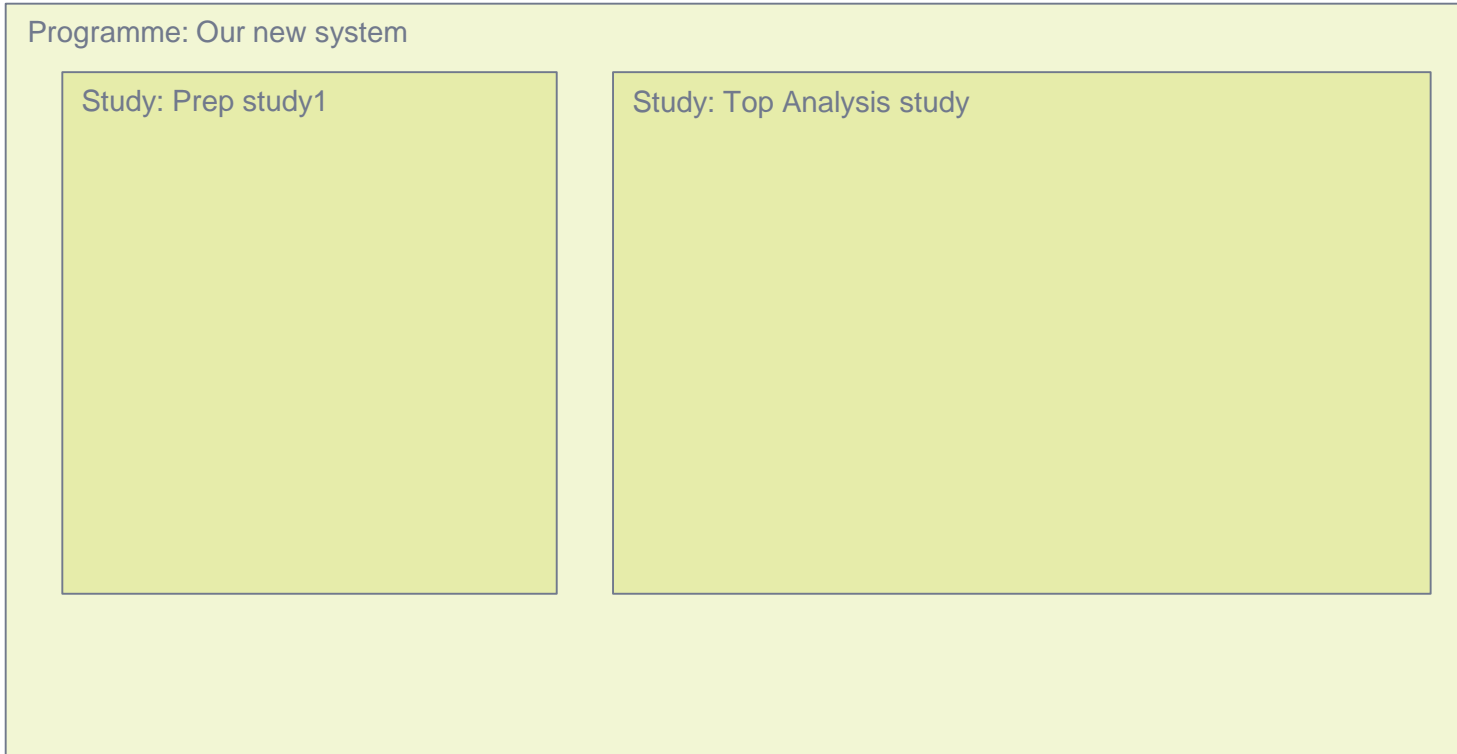
# Backup: Simplified Example

## MoSSEC Core capability: Start with a Programme

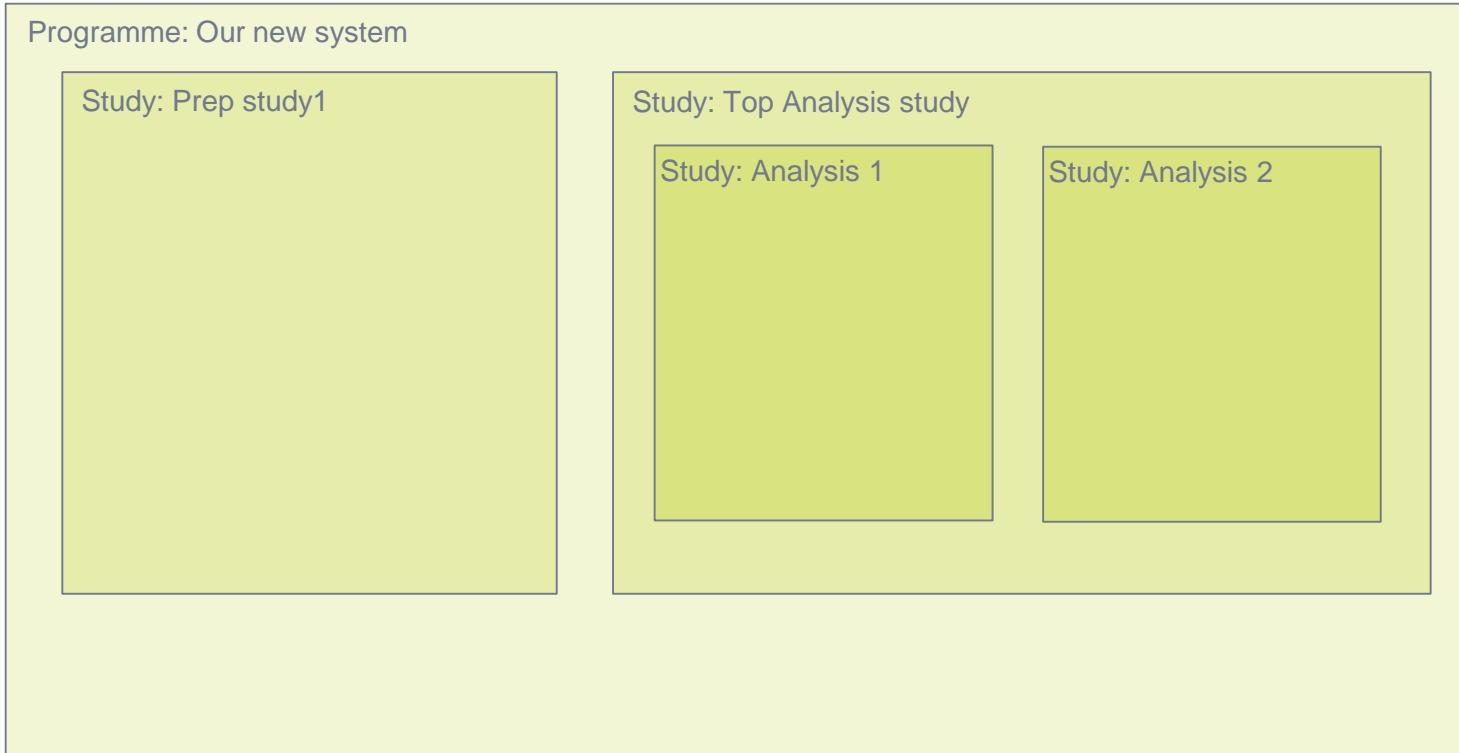
Programme: Our new system

**Beware: this is  
simplified to  
show core idea**

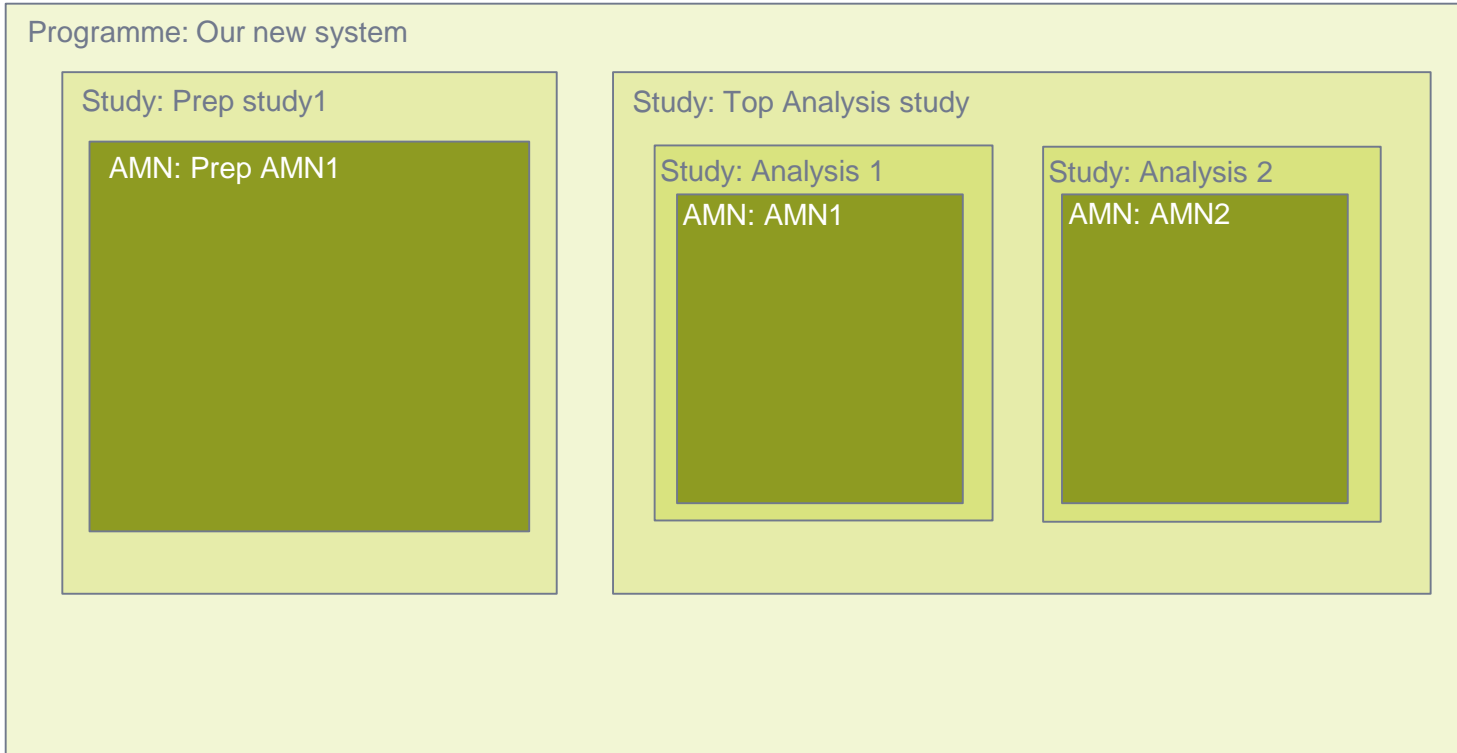
# MoSSEC Core capability: Programmes have Studies



# MoSSEC Core capability: Studies can be nested

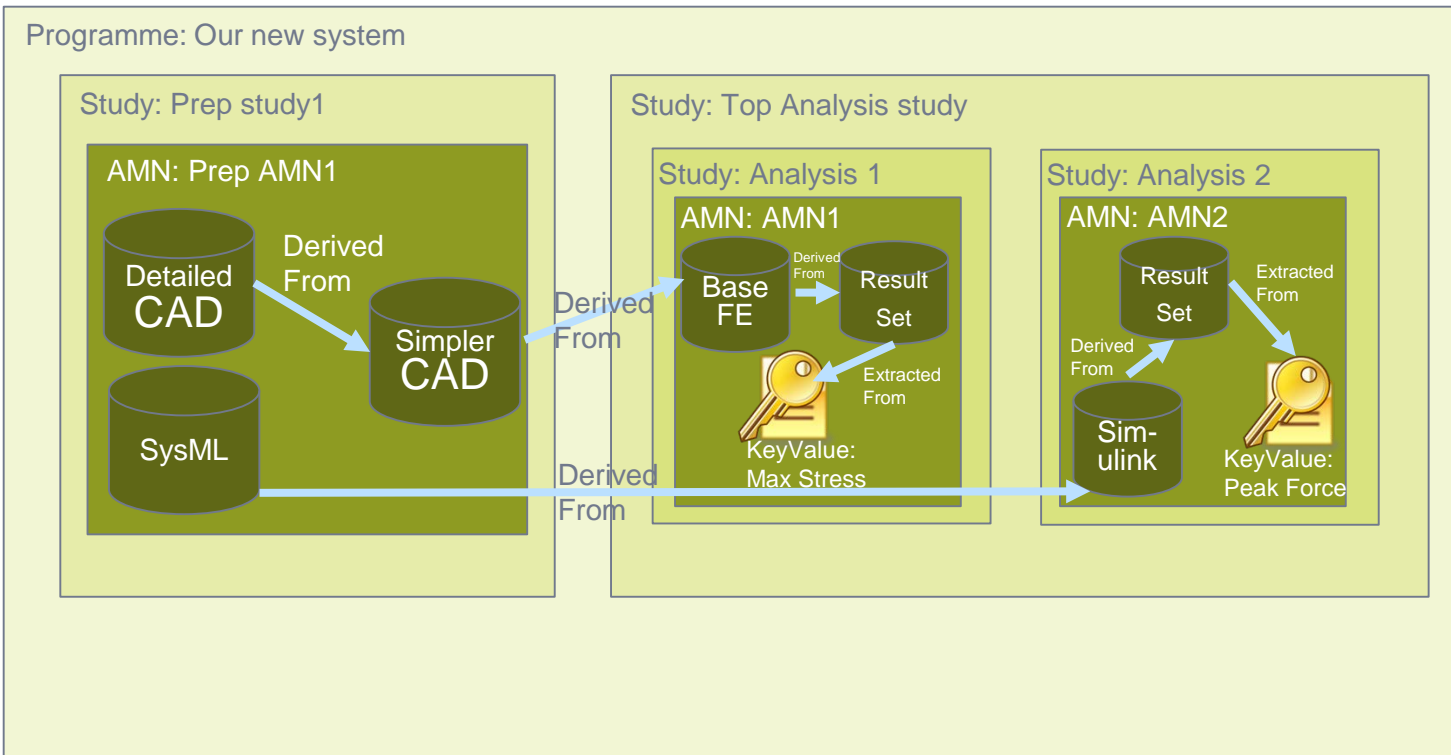


# MoSSEC Core capability: Studies contain Associative Model Network(s)

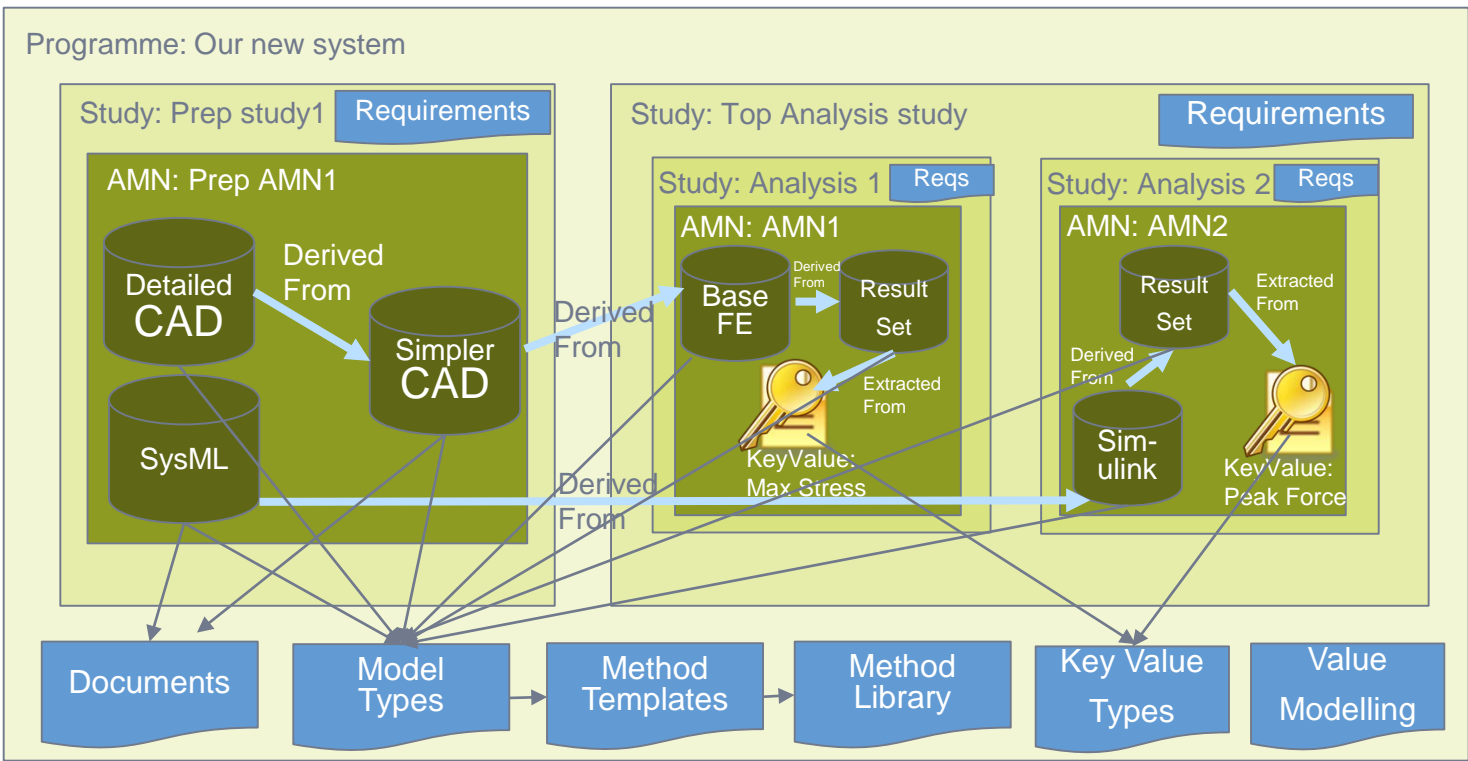




# MoSSEC Core capability: Associative Model Networks link Model Instances and more



# MoSSEC Core capability: Associative Model Networks link Model Instances and more



Plus:  
Who  
When  
Why  
Performance  
...