

*Simulation augmented development  
process of aircraft systems*

**Act 5**

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**VIVACE**

VIVACE Forum 2, Den Haag.  
Oct 2006

I'm pleased to welcome you in this act

I'm Antoine CASTA. I belong to Airbus and I will guide you all along the act 5

Just some words about the aircraft systems

They are used to command & control the aircraft during preparation of flight, taxi, take-off, cruise, landing, ...

They work closely to ensure the fulfilment of these missions with a high degree of safety.

Main functions carried out by systems are

- The control of the aircraft,
- The distribution of common resources such as fuel, air or information
- And of course, the accommodation of crew and passengers




## A new way of developing systems

- **The systems team composed of different contributing designers and suppliers will help the VIVACE project by proposing a renewal for systems development. This new way of working is based on**
  - **Innovative Modelling & Simulation technologies**
  - **Reengineered development processes**
  - **A generic collaborative capability used to integrate together the systems specific simulations**
- **VIVACE project could expect benefits in term of**
  - **Reduction of costs and lead time for systems development**
  - **Guarantee a high level of systems maturity at the same time**

In the proposed business situation, the systems team is composed of different designers and suppliers.

They help the VIVACE project with a new way of developing systems. This new way relies on:

- Innovative M&S technologies specific to each system
- Reengineered development processes based on the previous up to date technologies
- A generic collaborative capability which enable the integration of systems specific simulations



## Systems Specific Simulations

Modelling & Simulation Technologies

Reengineered development process

Hydraulic Simulation

Modelling & Simulation Technologies

Reengineered development process

IMA Simulation

Modelling & Simulation Technologies

Reengineered development process

Electric Simulation

Modelling & Simulation Technologies

Reengineered development process

Flaps Simulation

- **Innovation driver is M&S technologies**
  - Solver improvement, Simulations coupling, Original modelling, ...
- **Innovation driver is reengineering of process**
  - Physical tests optimization, Early multi-systems dimensioning, Reduce design loop, Support certification, ...

VIVACE FORUM 2
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24-26 October 2006

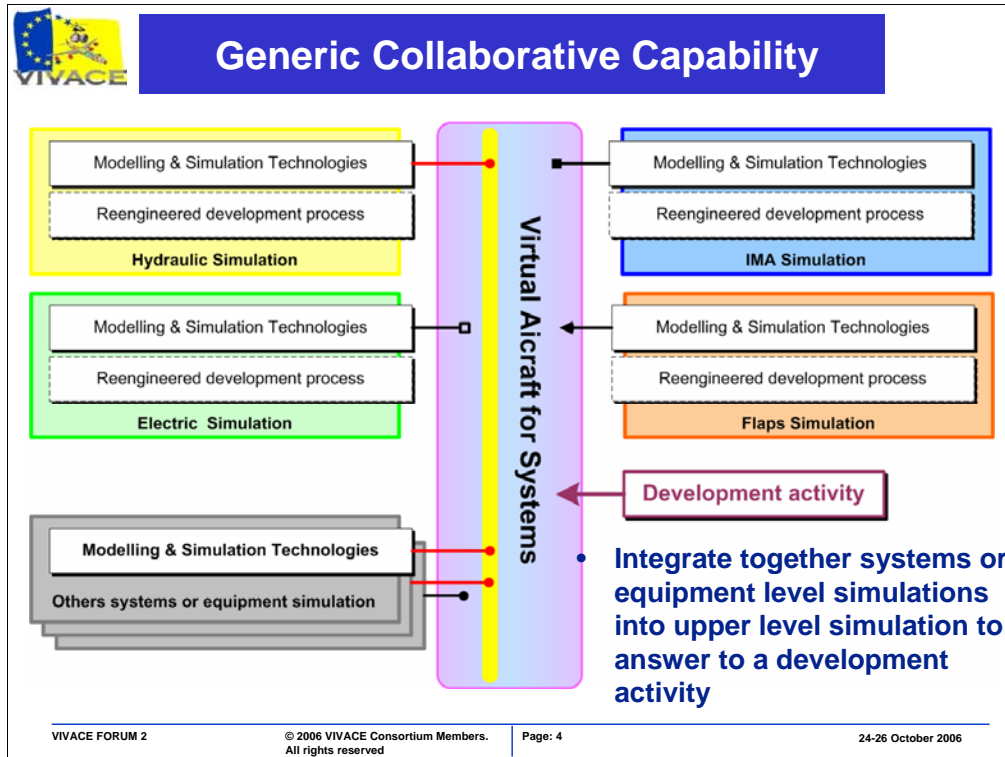
The system specific simulations are working on the area of the distribution of common resources such as the hydraulic, the electric and the modular avionics for the distribution of information.

We are working also in the domain of the control of flight with the flaps and the hydraulic

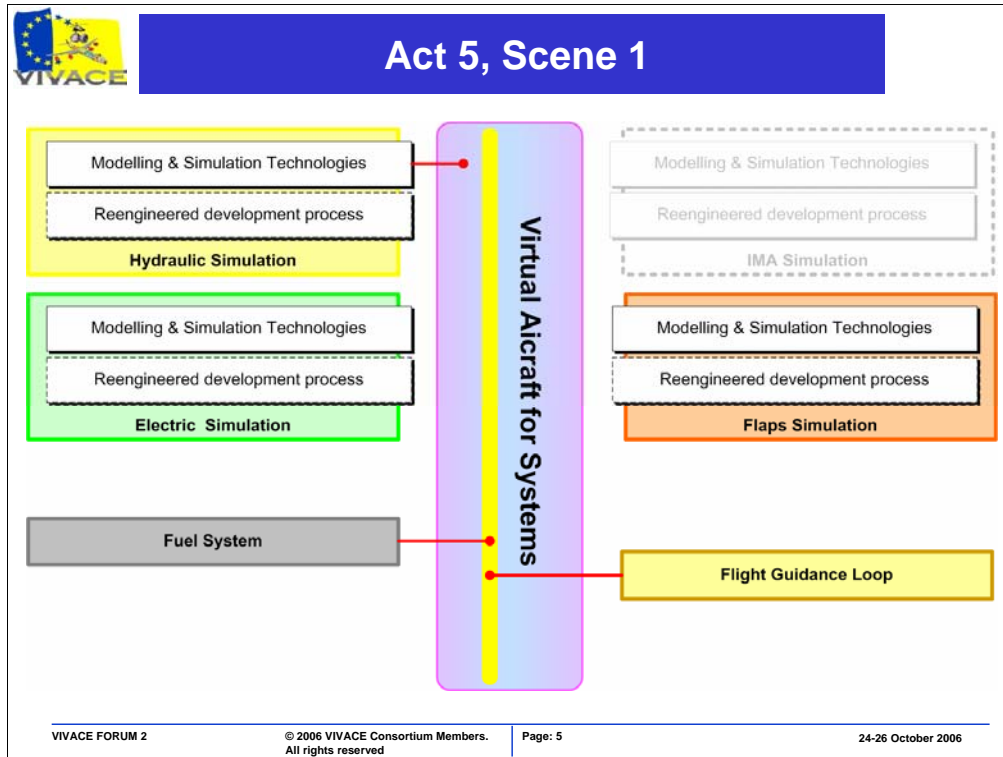
For these specific simulations, innovation is driven by:

Firstly by the M&S technologies. New technologies such as solver improvement, new coupling, original modelling lead to change in the development process

The other innovation driver in the reengineering of the development processes. This leads to the introduction or the augmented use of simulation for engineering tasks in order to optimize the early dimensioning for distribution aspect or the support to certification



The generic collaborative capability will enable the integration of specific simulations together in order to solve more complex engineering tasks such as multi-systems dimensioning and optimization or aircraft level validation.



Today in the Act 5, we are going to show you concrete and validated results  
 So, IMA is not presenting today, they start from the process and they are not ready to show validated results

Let's begin with the electric system simulation and Mr Martin OTTER or Martin KUHN

Have a nice act