
Information System Modelling for Effective Information Testing

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Documenting Complex Systems

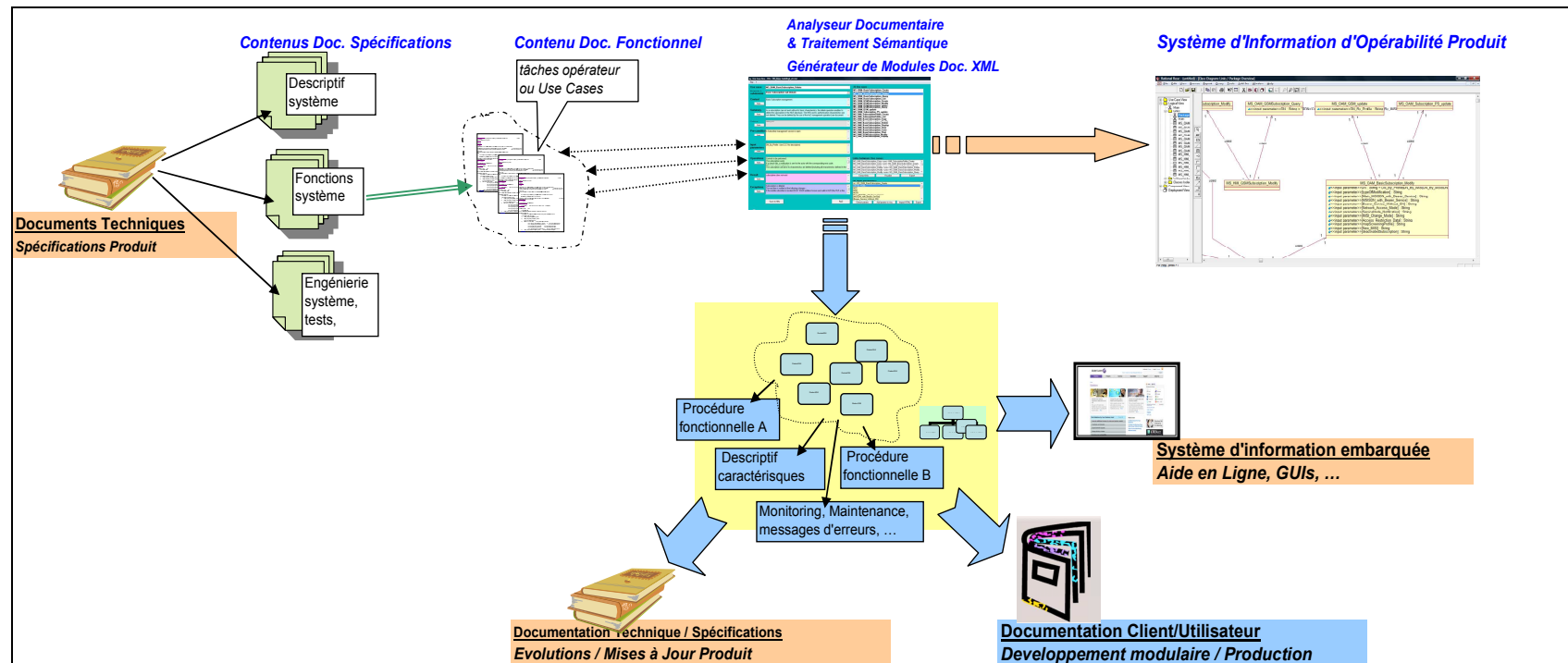
- An increasing volume of information for complex systems demands more and more control for reliability, security and quality of treatment and processing.
- This requirement directly concerns the performance of systems delivered to operators, experts and final users.

Context of our study

- Our objective is to improve the quality of documentation, and mainly:
 - 1. customer-specific technical documentation
 - 2. product or user documentation
 - 3. product training documentation
 - 4. extranet for customer
 - 5. on-line help and documentation embedded in the product
 - 6. technical support

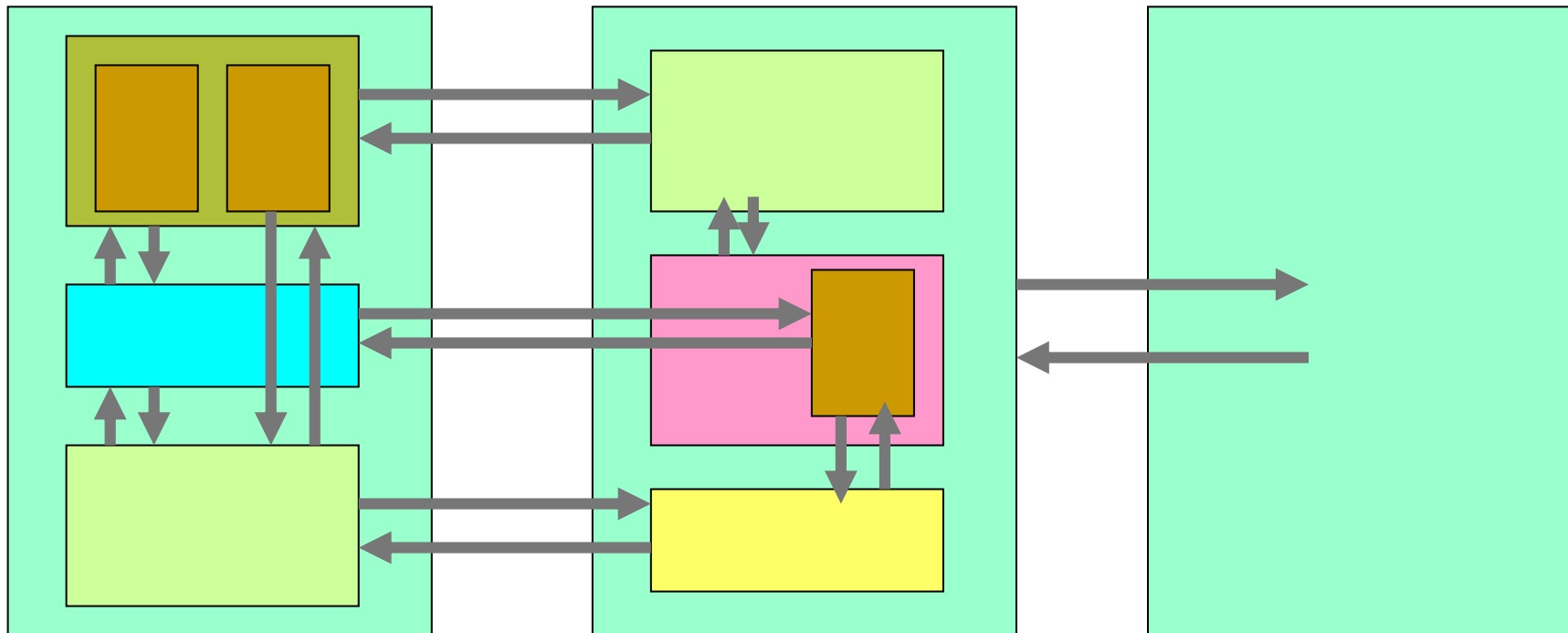
Documentation engineering 1/2

- A documentation (set of documents) is seen as a software
- Modular techniques and OO-techniques – valid for software – are also valid for documentation



Documentation engineering 2/2

Like software, technical documents contain reusable information modules that exchange data one to each other



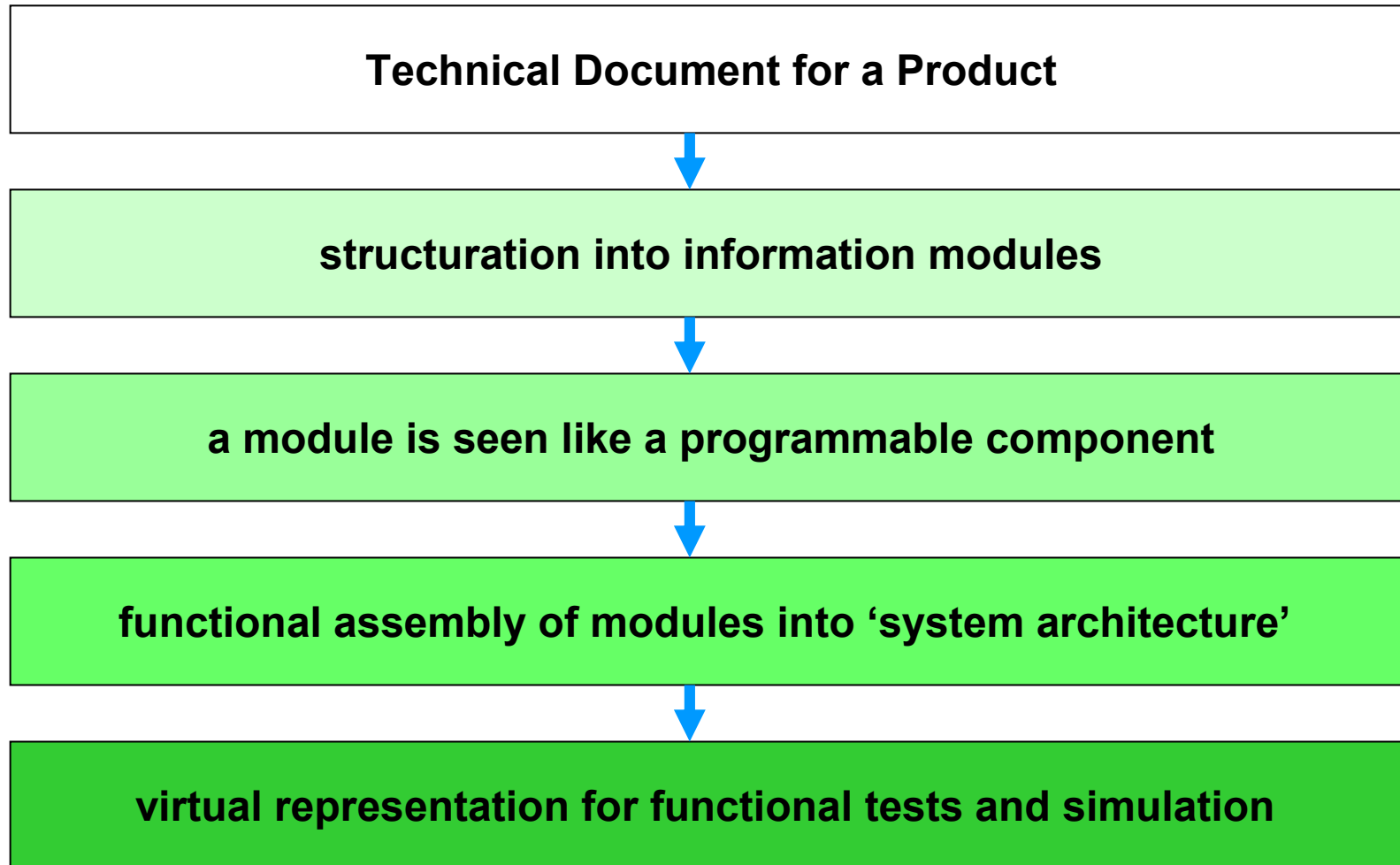
Exchanged data

- The information provided to the user is an important part of Product Performance
- In software systems, the element is the Graphical User Interface – for most of software applications

the product = the GUI

- So, the functional information displayed or referencing info components (documentation, on-line help, etc.) is part of product performance:
 - quality of data,
 - understandability of actions,
 - message interpretation,
 - processed time vs result,
 - knowledge skill vs provided information, etc.

Information modelling



Functional Module

- Pre-requisite
- Input parameters
- Description of functioning steps
- Expected results
- Exceptions due to input data values

example: Use Case

Module management

- Information modules are stored in a Content Management System
- After a semantic processing, modules become typed components – like software code – and contain:
 - Unique identification for module management
 - Metadata for characterization: information type (description, fonctional, alarm, ...), language (Fr, En, Sp, ...), domain / product family (hard, soft,...), etc.
 - Structure according to module type (DTD, XML Schema, HTML, ...)
 - Informational content
 - Links, modular references and associations

Information testing = Architecture V & V

- Validation of operational procedures

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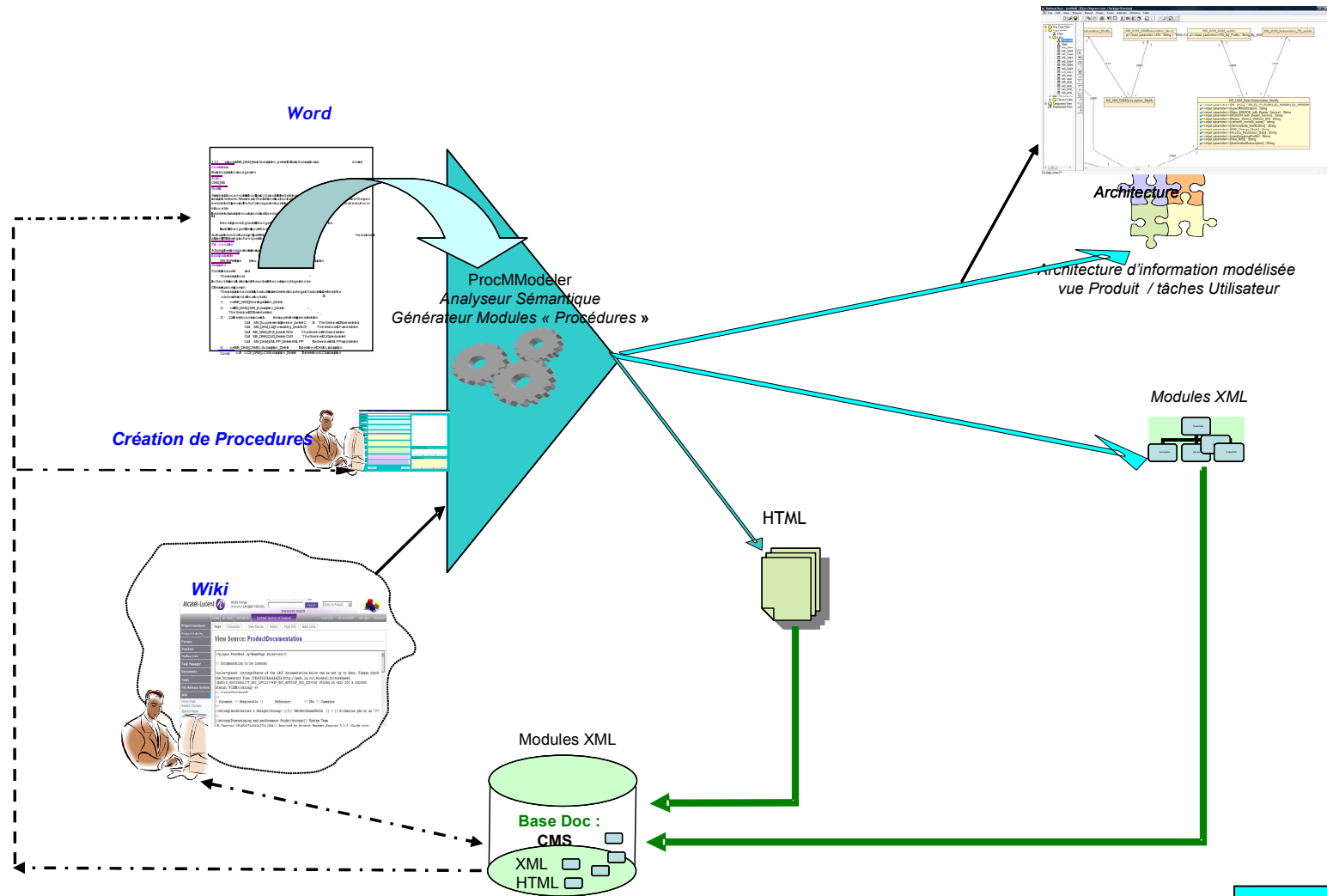
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- Automated reliability Test of end-users documents (installation, administration, maintenance,) vs product lifecycle
- Functional Simulation, notably within the frame of a new modular architecture to help the design of a new product

Automated Development Process



demo !

As a Conclusion

- Technical and functional information becomes programmable system modules
- This view allows assurance an immediate optimization of modules operability according to functional contexts:
 - evolution anticipation,
 - tests, V & V,
 - reliability and consistency check,
 - simulation of system behaviour