

EUROSPI 2001, Limerick Institute of Technology

10.-12.10.2001

Test Execution and Test Management for Numerical Control Software

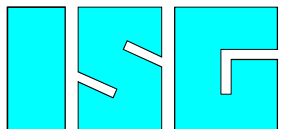
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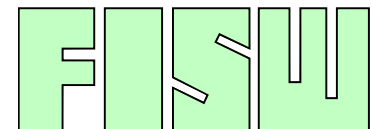
Thomas Bürger

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- Definition of a NC-System
 - Applications
 - NC interfaces
- NC Software Development
 - Further Incremental Development
 - Change Processes
- Objectives of the TEAM Project
- Test Process and Test Method
 - Regression Test
 - Test Environment
- Conclusion and Outlook
- Contact



Structure of the Presentation





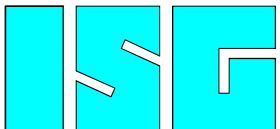
Parallel strut machine for milling purpose (HSC)



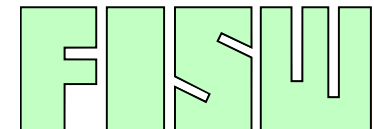
Wood-working machine



Electrical Discharge Machining - EDM

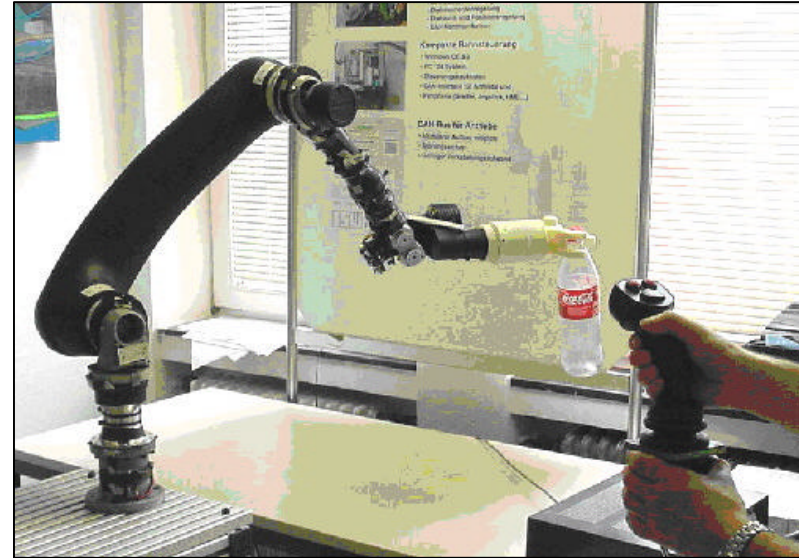


Definition of an NC-System: Applications

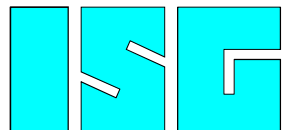




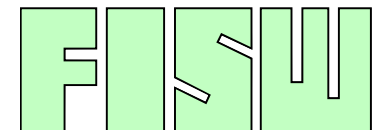
Medical robot for surgical applications

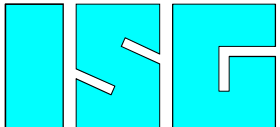
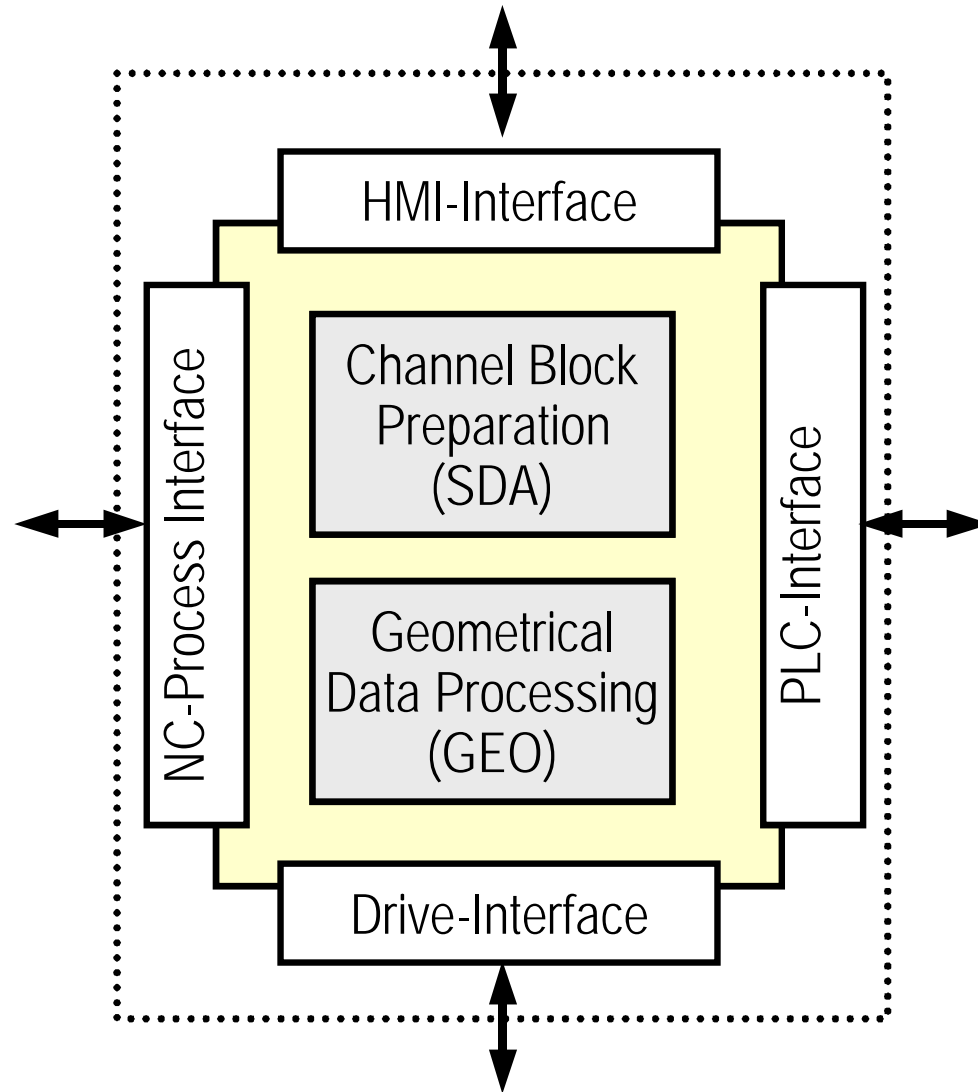


Robot arm for handicapped people

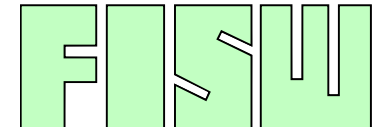


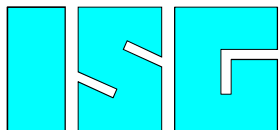
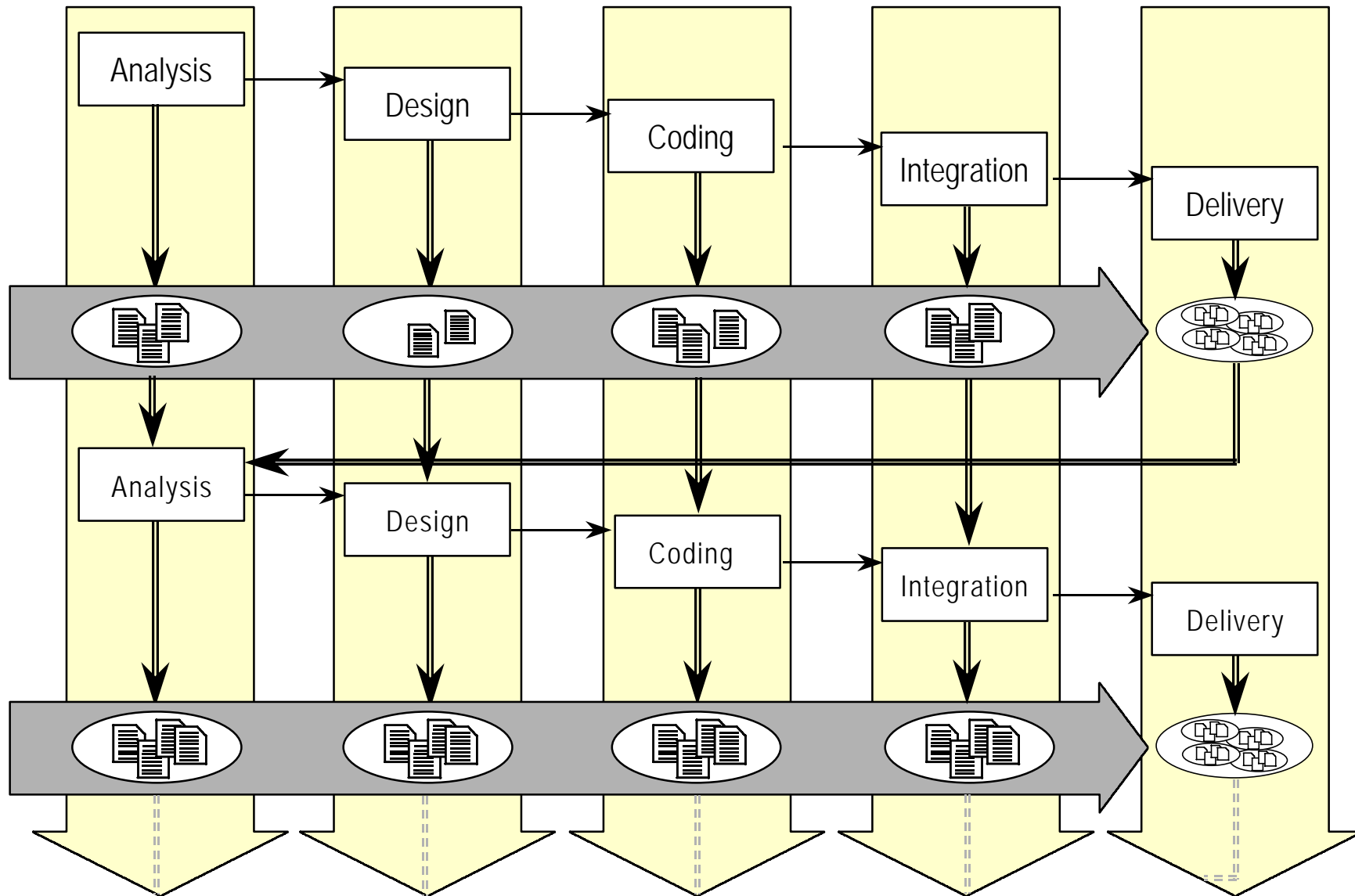
Definition of an NC-System: Applications



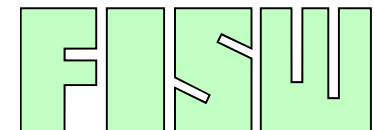


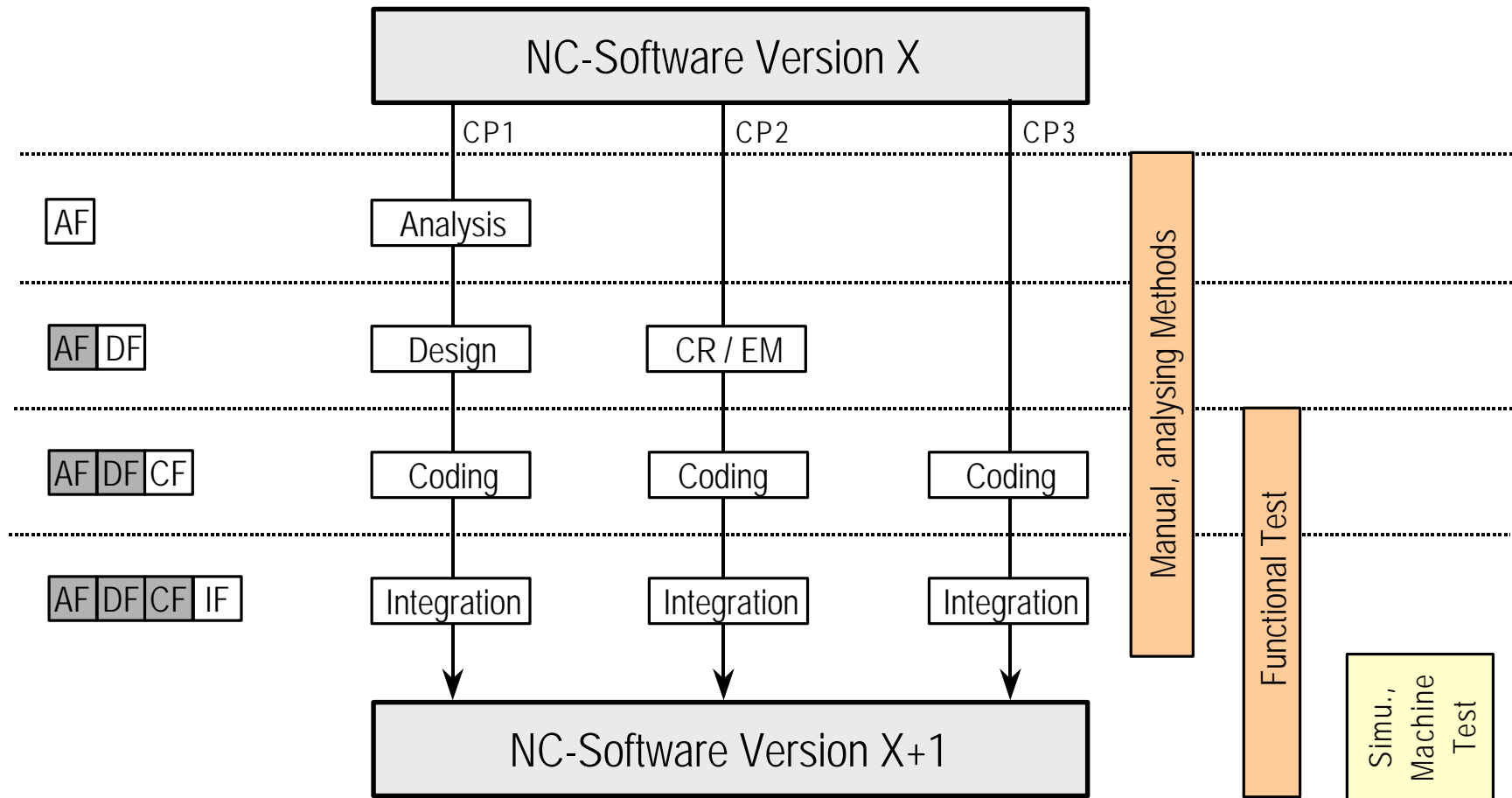
**Definition of an NC-System:
NC interfaces within an automated system**





NC Software Development: Further Incremental Development

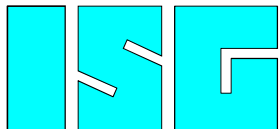




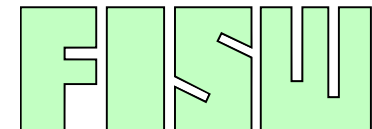
AF Analysing Fault
 DF Design Fault
 CF Coding Fault
 IF Integration Fault

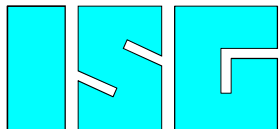
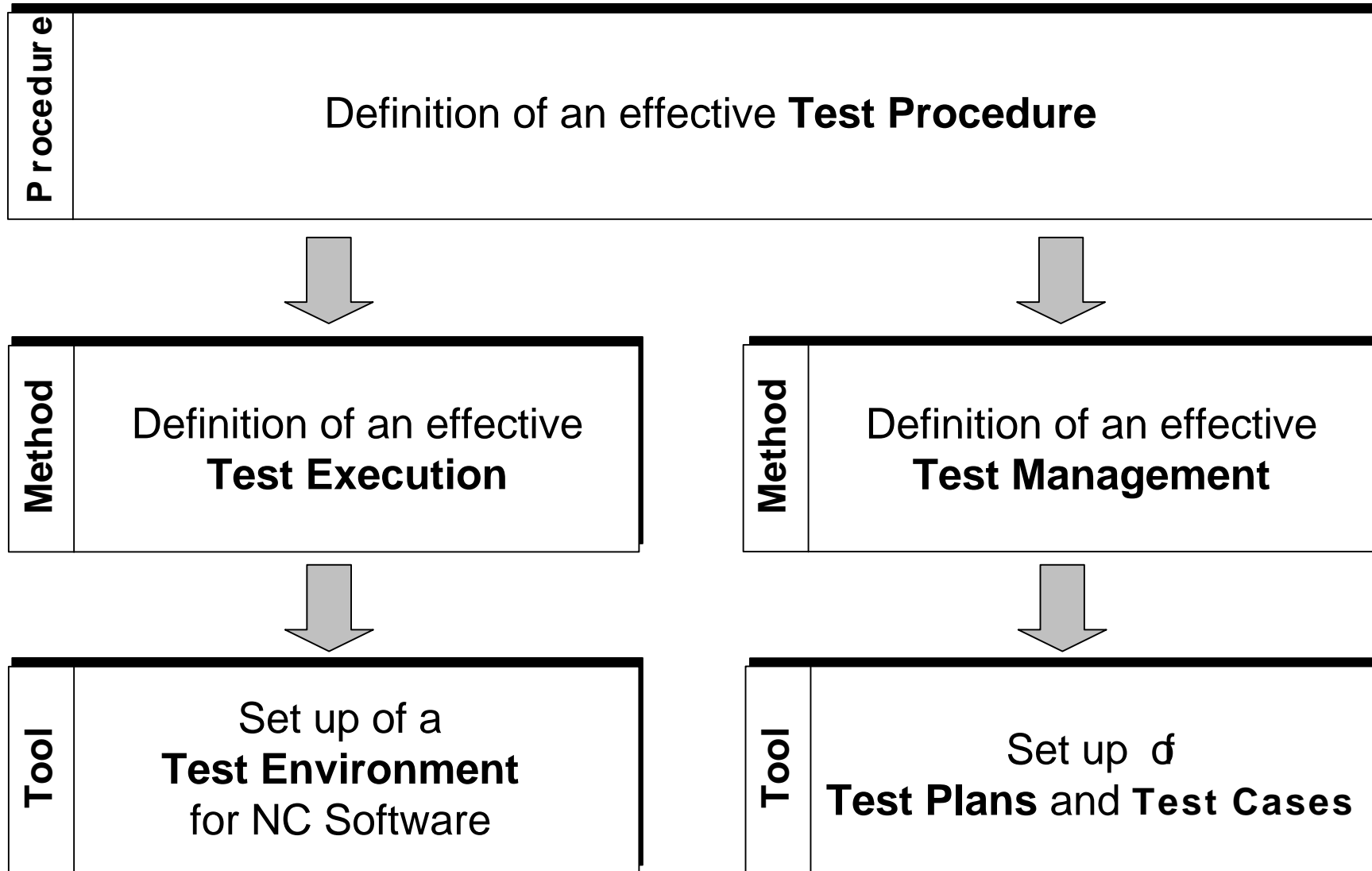
CP Change Process
 CR Change Request
 EM Error Message

Verification
 Validation
 Summation Faults

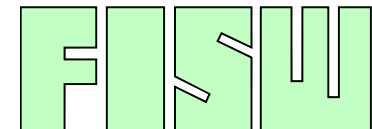


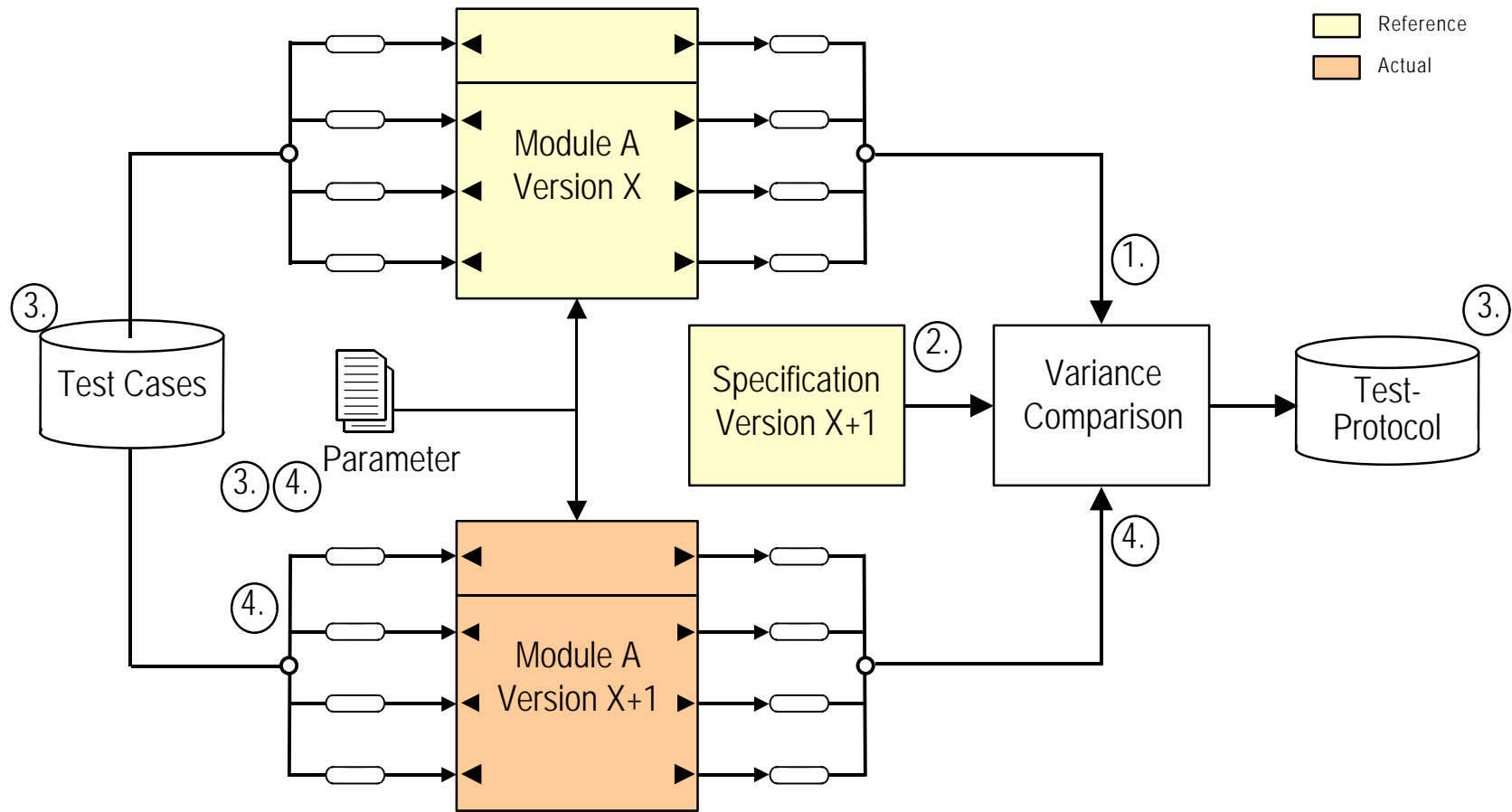
NC Software Development: Change Processes





Objectives of the TEAM project



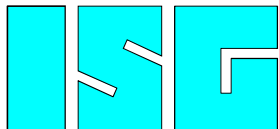


① Test of basic Functionality (Verification)

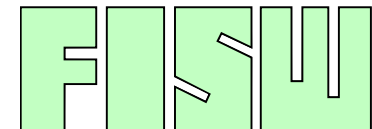
③ Reproducible

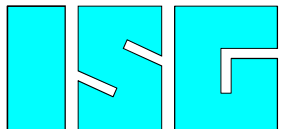
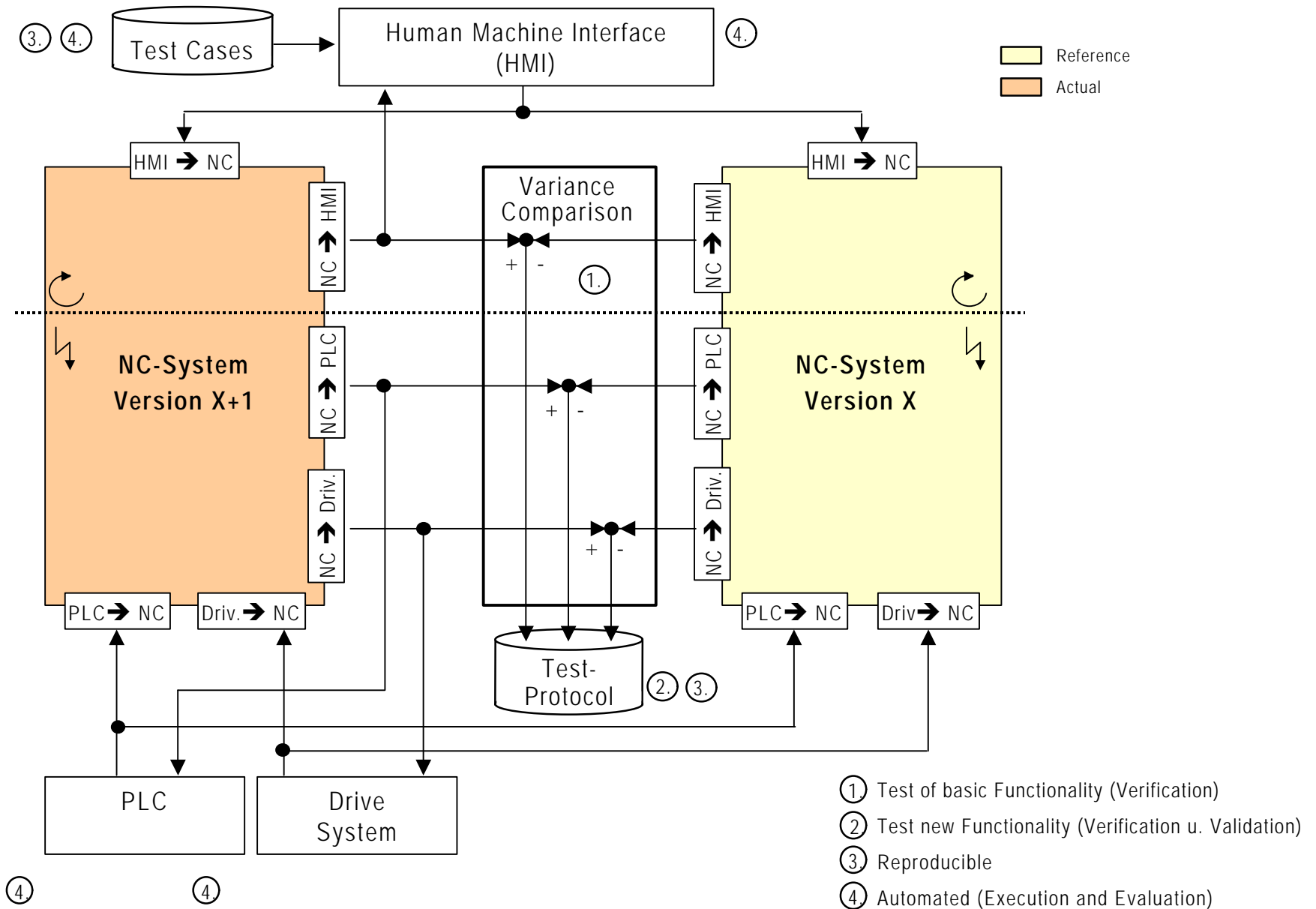
② Test of new Functionality (Verification)

④ Automated (Execution and Evaluation)

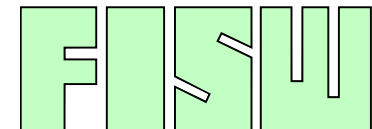


Regression Test for Functional Test



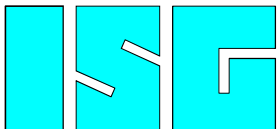


Test Environment for an On-Line NC-Software Test

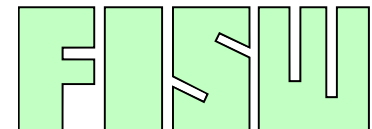


- **Grey-box tests**, executed as **regression tests**, are particular suitable for functional tests of NC software
- An **on-line evaluation** of test results is necessary in order to execute tests in an effective way
- In order to guarantee a **high reproducibility** of tests the test management has to be supported by CM

- The results of the TEAM project will be **standardised at ISG**
- The positive results of the TEAM project will open up **new markets** for ISG



Conclusion and Outlook

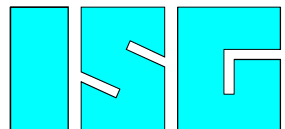




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