

A Mature Approach to Test Automation

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Test & Verification Engineering

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V&V in the medical devices world

- Requirements for V&V are way stricter than in the non-medical world
- Quality drive requires an special attention for test and verification
- A need for further standardization and harmonization is recognized at all levels
- Test and Verification initiative is on of the six strategic initiatives within PInS



Test & Verification Engineering

Create test strategies, -plans, -methods and -tools for design verification and manufacturing tests in line with quality management system and quality targets

Definition

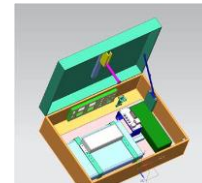
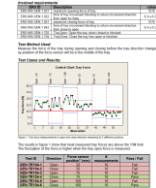
Verification and validation are independent procedures that are used together for checking that a product, service, or system meets requirements and specifications and that it fulfills its intended purpose (*)

- Creation of a suitable test strategy
- Formulation of test and verification plans
- Taking ownership for development and realization of tools for design verification and manufacturing test
- Execution and reporting of test plans in line with the applicable quality management system

Sub competences

- Design characterization
- Design verification of modules and systems
- Test tool development & realization
- Test automation
- Manufacturing test engineering
- Test coverage analysis & engineering
- Safety assessments & CE marking
- Requirements engineering
- LabVIEW & TestStand programming
- Test coverage analysis

Examples



(*) Ref: [I2M R&D Competence framework](#)



Support the journey to world class T&VE activities throughout the BUs

To achieve our goals, we:

- facilitate a Philips wide self learning **Community of Practice** (CoP), leveraging learnings and best practices across BUs and Delivery Models
- define and deploy (physical and virtual test) **methodologies** supporting a standardized way of working across BUs
- guarantee the availability of **subcritical competences** (e.g. LabVIEW, Requirement engineering, ...) to support the BUs, based on identified needs
- deploy and maintain a limited set of **reference test architectures** and platforms

*One dream,
One soul,
One prize,
One goal*



World-class T&V activities across Philips before 2025

*One way to
define a test
strategy,*

One platform,

*One overall test
equipment architecture,*

*One way of
troubleshooting,*

One

One look and feel,

One Graphical User Interface,

One way to define requirements,

*One TE Life
Cycle Management protocol,*

*One self learning
community,*

*One methodology,
fully compatible with PDLM,*

Hardware

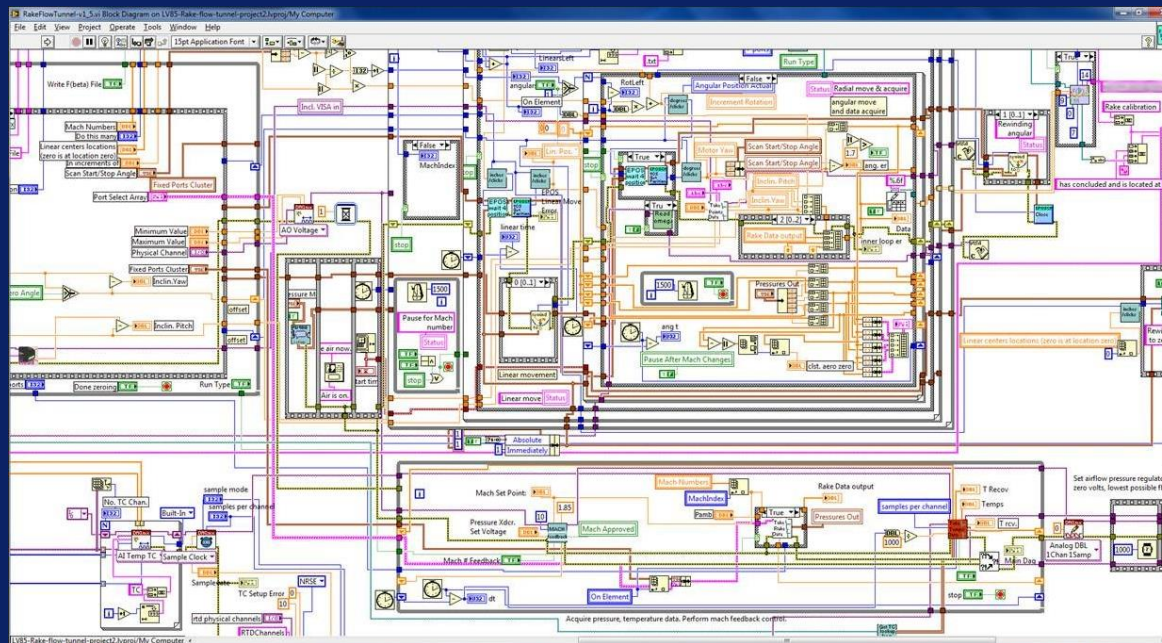
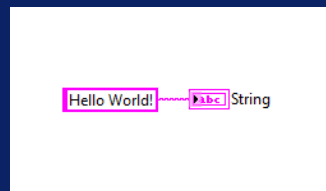
- This is where it all starts!
- Keep it modular and extensible
- Make sure SW experts are also involved into selection process
 - more expensive hardware can be a cheaper solution
 - standardized hardware is the cheapest
- Talk to your customer

Whichever language you use,
be proficient

Coding vs. Software Development

- Source Code Management
- Issue Tracking
- Paradigms (OOP...)
- Methodologies (Agile...)
- Testing
- Build, deployment, distribution
- UI/UX
- Code Quality. Code/Design Reviews
- ...

A delusive simplicity of LabVIEW



IGT Systems video
testimonial:

PlnS safeguards
**the quality of
our systems** by
developing the
testing platform
that makes
verification &
validation much
easier.

