WAYS INTO AUTOMATED CHAOS AND OUT AGAIN
LESSONS (RE-)LEARNED

Presented by Anne Kramer and Sebastian Dengler
Outline

- Context
- Ways into automated chaos ...
  - The challenges we faced
- ... and out again
  - Technical mitigations
  - Organization mitigations
- Lessons (re-)learned
- Recommendations
CONTEXT

initial situation and organisational context
Context

System
- Automotive ECU
- Features
  - Functional Safety
  - Communication (CAN, FlexRay, Ethernet)
  - ...
- SW branches
  - for (parallel) integration steps

Project
- Project delayed
- Task force mode
  - on-site customer

Test
- Automated tests
  - Python test scripts
- Execution over night
  - shift plan
Automated Test Environment
Organizational Context (Task Force)

- Tier 1 Supplier
- Subcontractor 1
  - Requirement specification
  - Test specifications
  - Traceability
- Subcontractor 2 (our part)
  - Test (specification, implementation, execution, environment)
  - Defect tracking
- Customer (OEM)
  - High Level SW Development
  - Internal Subcontractor
- External Consultants and Task Force Manager
WAYS INTO AUTOMATED CHAOS ...

The challenges we faced
Challenges Best Of (1/2)

Planning

- unclear prioritization
  - different managers used different metrics
- lack of know-how and know-how transfer
  - experts had no time for discussions and reviews
  - team completely delocalized

Execution

- unsynchronized test environment
  - no results / different results for same tests and SW
- too many test runs
  - parallel test of different SW branches
  - no time for analysis
Challenges – Best Of (2/2)

Reporting
- interpretation of test results difficult
  - test had to analyse and report SW failures
- several deliveries per week
  - manual merge of different test runs per delivery
- defect „ping-pong“
  - „gray area“ between development and test

Organization
- no single point of contact with OEM
- test / reporting 24/7 („meeting-driven development“)
... AND OUT AGAIN

technical mitigations

organisational mitigations
Technical Mitigations

- Re-review of requirements
  - incl. check of test case links (Traceability)
- Improved test architecture
  - configurable test scripts to cover several integration steps
  - systematic preparation and clean-up in test scripts
- Increased automatisms
  - automated script to copy new SW to test sites
  - MS Excel macros for planning and reporting
  - checklist for manual steps (incl. systematic reboot of HILs)
- Unified test environment
  - new HW ordered
  - unified realtime simulation model
Organizational Mitigations

- Adoption of Kanban / agile methods in task force mode
  - clear prioritization by OEM managers
- Unified controlling
  - common dashboard for everybody
- (Technical) Change Control Board
  - controlled system and software changes
- Reorganisation of team
  - outsourcing reduced
  - relocation of team in one location
  - dedicated persons for daily test runs and result analysis
LESSONS (RE-)LEARNED

processes, psychology, organisation
Lessons (re-)learned

- Regarding processes
  - Most problems originate from unclear requirements.
  - Well-defined processes are extremely important.

- Regarding psychology
  - "Trust" is a core value.
  - It is allowed to say "No".
  - Panic is contagious

- Regarding organization
  - Too many context changes reduce efficiency to zero.
  - Adding (untrained) people makes you slower, not faster.
Recommendations

- Sharpen the axe.
  - Allocate time for improvements.
  - Clean up from time to time.

- Stick to the plan.
  - ...and have a plan - especially for managing changes
  - unreflected process or SW changes do more harm than good

- Try to have fun.
  - no shouting during meetings
  - laughing is a good medicine against burn-out
  - testers are no roboters
Thank you very much!

Anne Kramer (sepp.med)
Sebastian Dengler