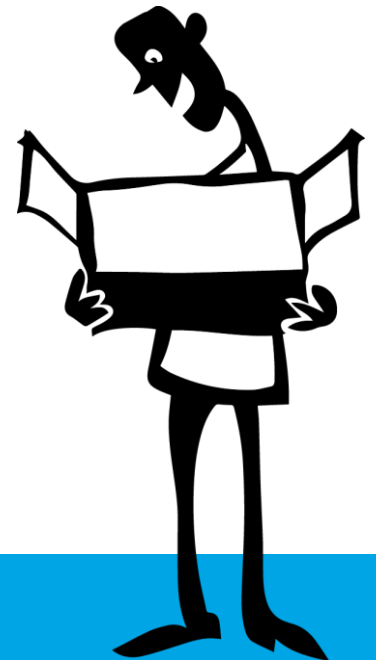


# SW Test Automation & Continuous Integration

Mikko Lindström  
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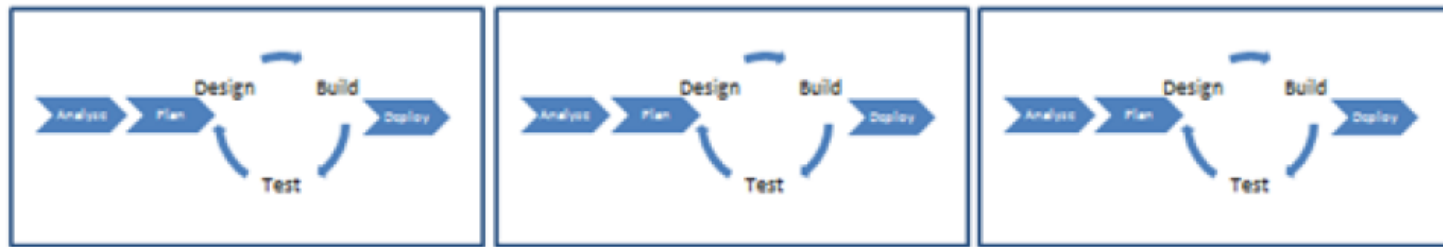


# Waterfall vs. Agile SW development

## Waterfall



## Agile



Project Timeline



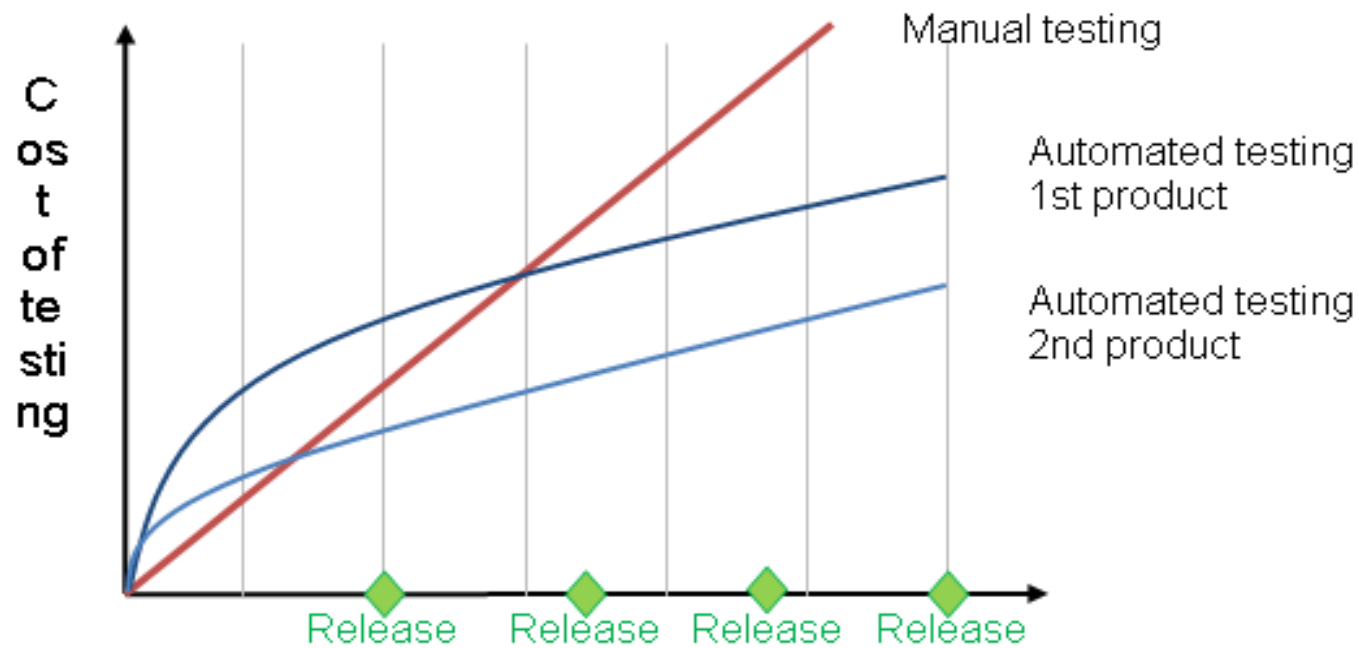
# SW Test automation

- **Test automation** is the use of special software (separate from the software being tested) to control the execution of tests and the comparison of actual outcomes with predicted outcomes.(wikipedia)
- If the program expectations and outcomes align → **PASS** → Code can be included to build
- If the two don't align → **FAIL** → Change the code and re-run tests
- Easy to apply and start with repetitive testing e.g. regression testing
- Test Driven Development (TDD)

# Continuous Integration & Continuous Delivery

- **Continuous integration (CI)** is the practice, in software engineering, of merging all developer working copies to a shared mainline several times a day.
- **Continuous delivery (CD)** is a software engineering approach in which teams produce software in short cycles, ensuring that the software can be reliably released at any time

# Test Automation vs. Manual testing



# TA/CI advantages

Quicker

Cheaper

More

Better

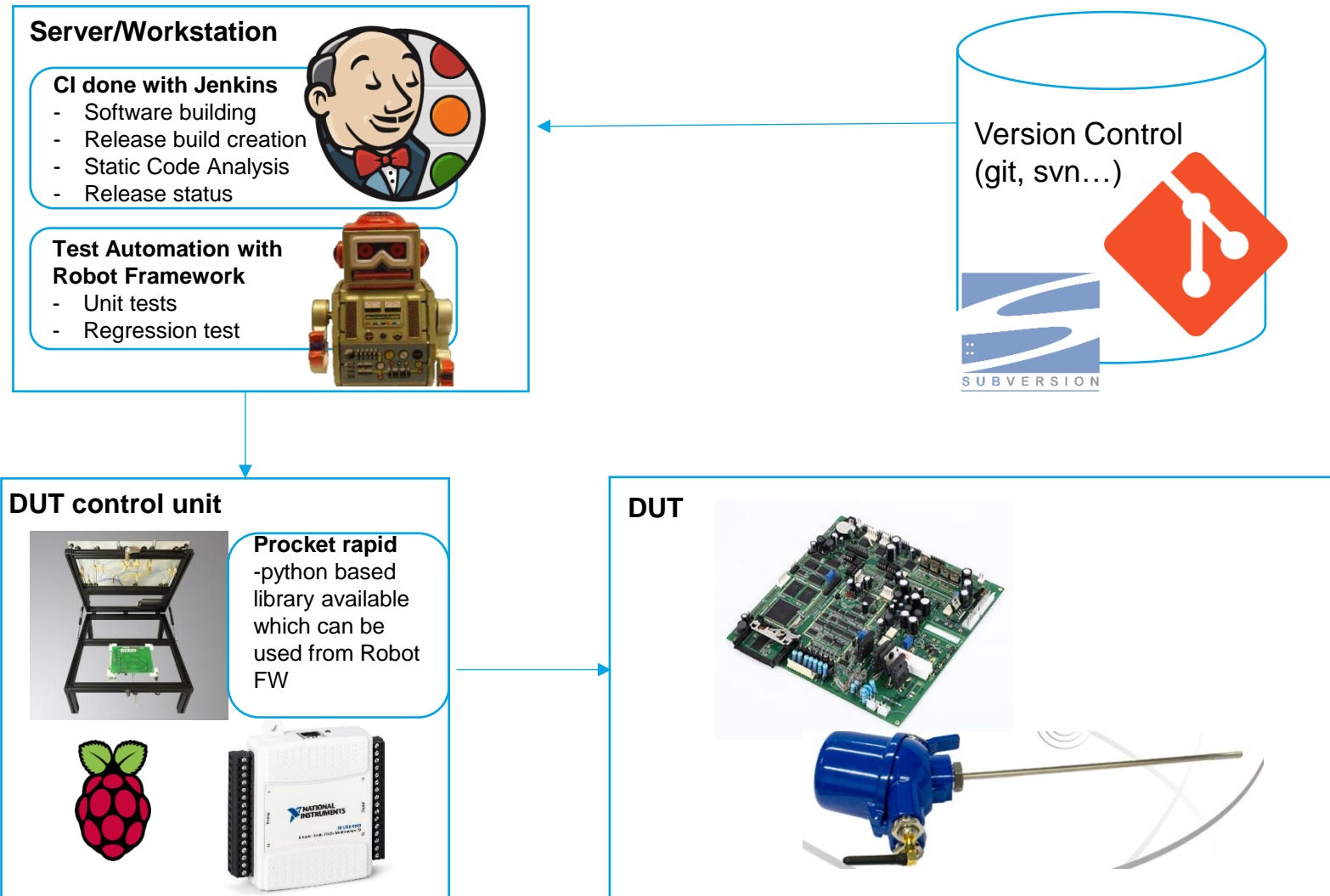
## Schedule and budget

- Quicker releases
- Less time & cost in development & testing
- Effectiveness – Reusing tests is easy
- Visibility – Realtime visibility for progress, stability and workload

## Extended testing possibilities

- Traceability & repeatability
- Regression testing & compatibility
- Testing without supervision
- Manual testing time for exploratory testing

# TA/CI example for embedded system



# Etteplan Service portfolio for SW testing

## TA/CI consultation

- Customer wants to improve their Test (or SW development) process but does not know how
- Tools: R&D SW test lean consultation, TA, CI

Continuous Test service in Etteplan premises

## TA/CI project for Embedded Software

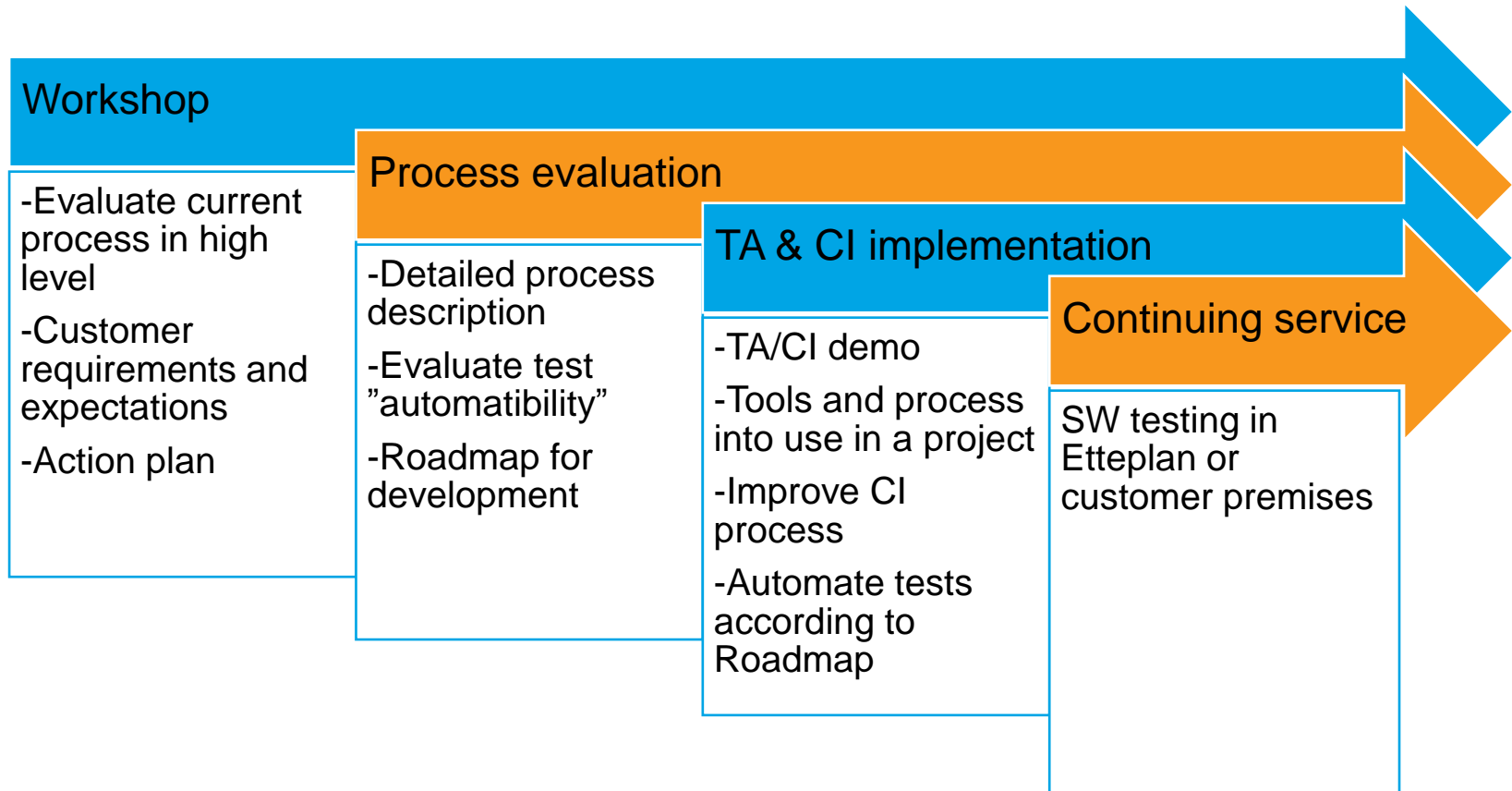
- Customer knows what to be automated
- Ette delivers solution with open or specified technology

Continuous Test service in customer premises

TA/CI Consultants



# TA/CI Test process development





**Etteplan**