



# Modelization: An introduction to MBT

*Model Based Thinking*

# MBT - Model Based *Thinking*



**MBT (model based testing) traditionally entails creating automated test suites from one or more models.**

**Model Based Thinking aims at automating *any* manual test activity.**

- **Generating logical test cases**
- **Generating physical test cases**
- **Providing automated test execution capabilities, be it through COTS tooling, custom made tooling or generic framework solutions.**

**All of which are based on one or more models.**

# MBT - Model Based *Thinking*



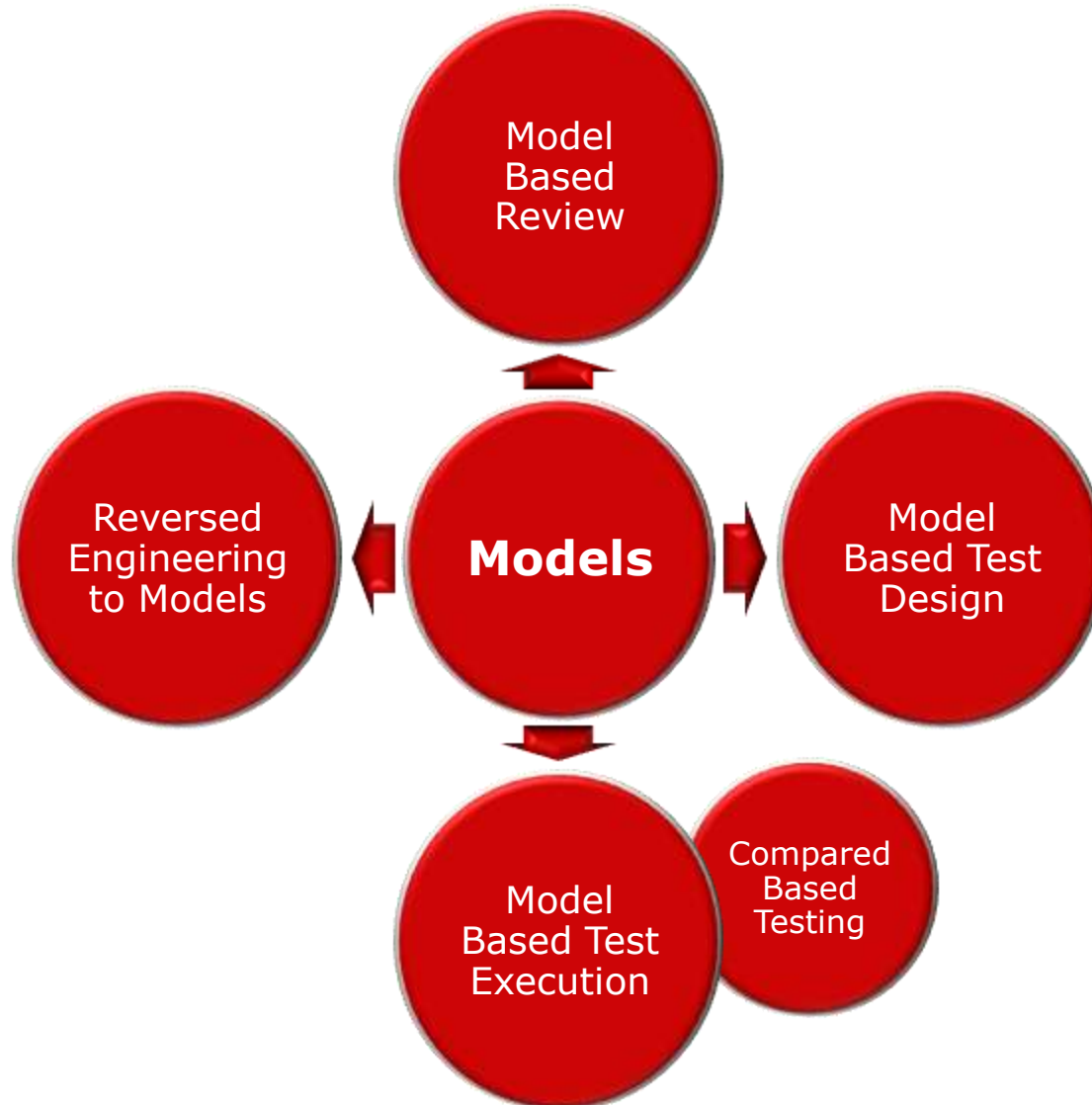
**A model is the formal and unambiguous representation of one or more aspects of reality.**

- Standardized, to the point it can be processed by a computer!**
- Supporting collaboration, preventing miscommunication**

**Modelization: the pursuit of catching reality in one or more models.**

**Note:**  
**This is not merely automating the manual test process ...**  
**It is employing automation to meet your test goals!**

# Model Based Thinking



# Advantages of Modelization



- **ROI for MBR, in terms of time and budget: within one release or project!**
- **Known coverage, test metrics readily available for reporting purposes**
- **Consistent quality of generated test cases**
- **Maintenance of only one or a few models, instead of dozens or hundreds of test cases**
- **But, there is no 'one size fits all' solution ... models are no silver bullet!**



staat voor resultaat

# Model Based Review



You buy for 2 euro 50 roses and pay 4 euros.  
How much change do you get?



# Model Based Review



Who owns a green lease car?  
So, green is your favorite color?





# Model Based Review



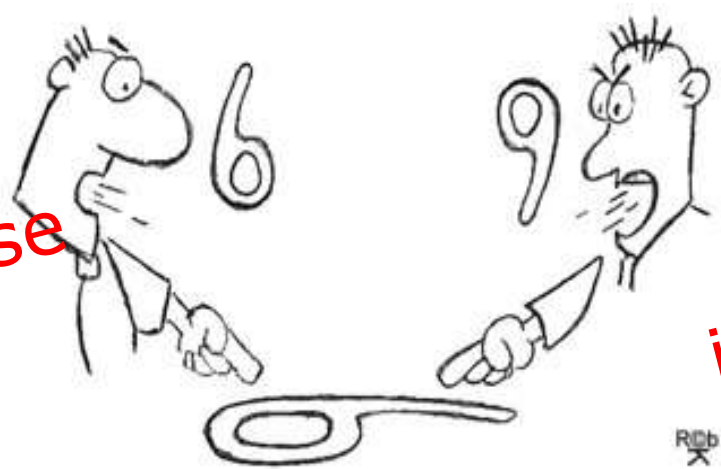
Requirements/Design

Defects

Test Cases

text text text text text  
text text text text text  
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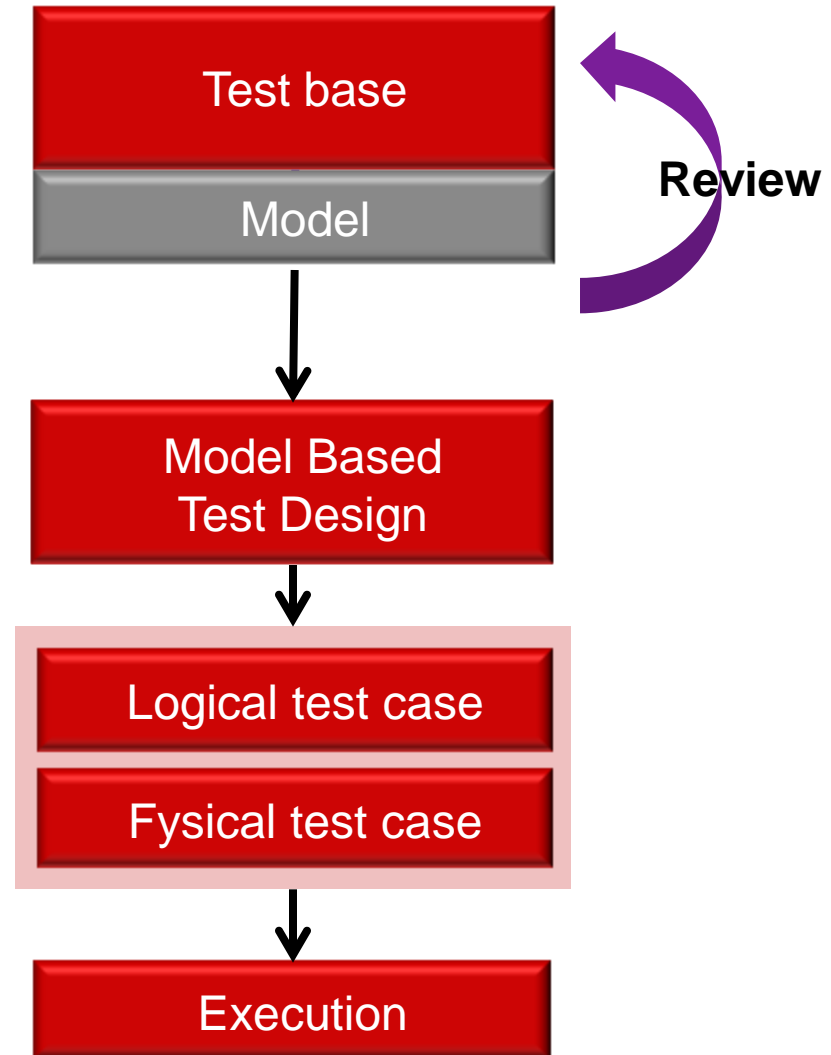
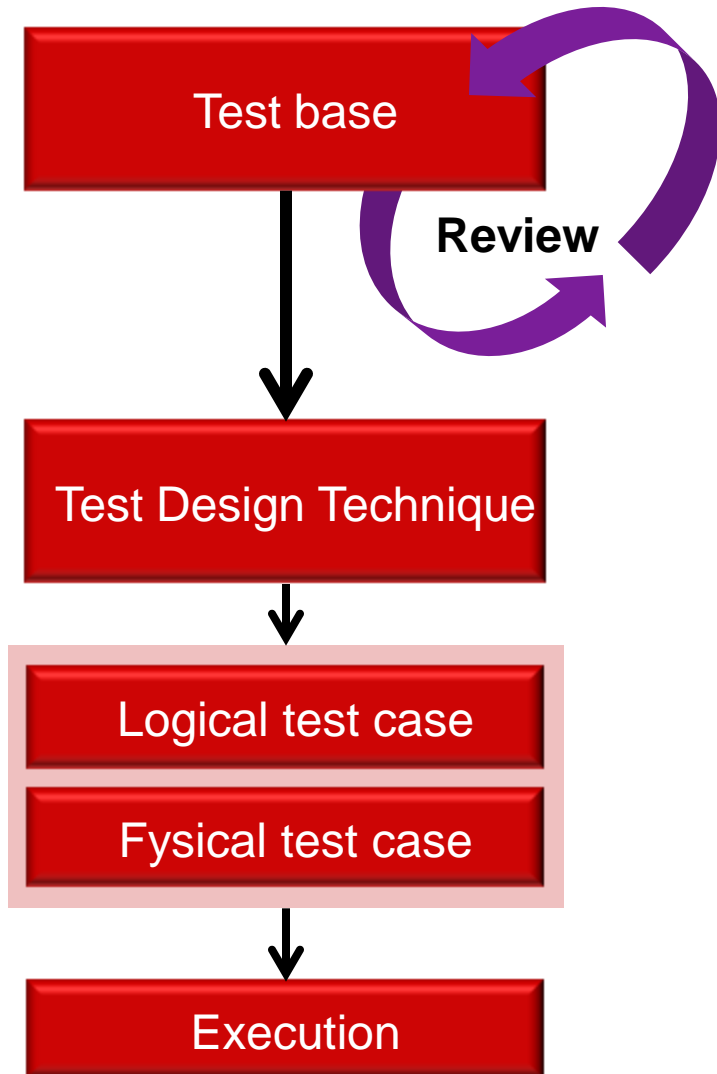
*OK,  
in general sense*



*OK,  
in general sense*

Endless discussions,  
often much too late!

# 'Normal' intake vs Model Based Review

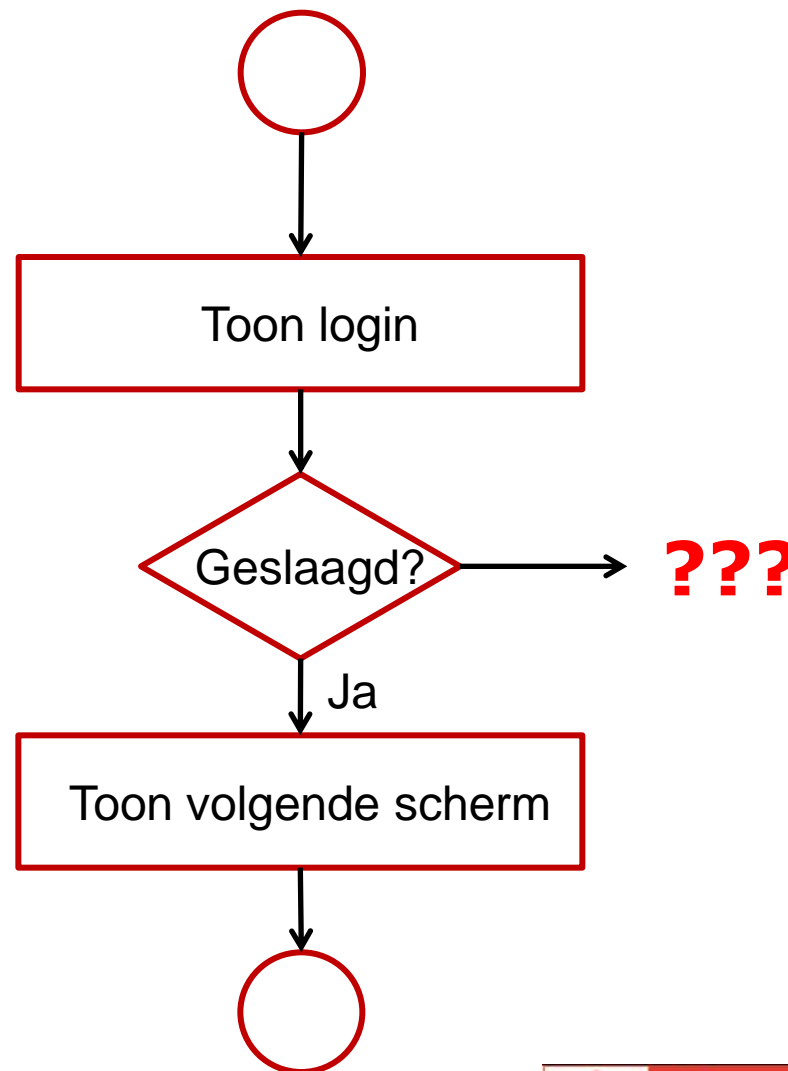


# Model Based Review



Wat voor soort fouten vind je tijdens het toepassen van MBR?

“Na het openen van de webpagina wordt het scherm ‘login’ getoond. nadat de gebruiker zijn gegevens heeft ingevoerd en deze zijn gevalideerd, komt hij op het volgende scherm.”



# Findings in Model Based Review

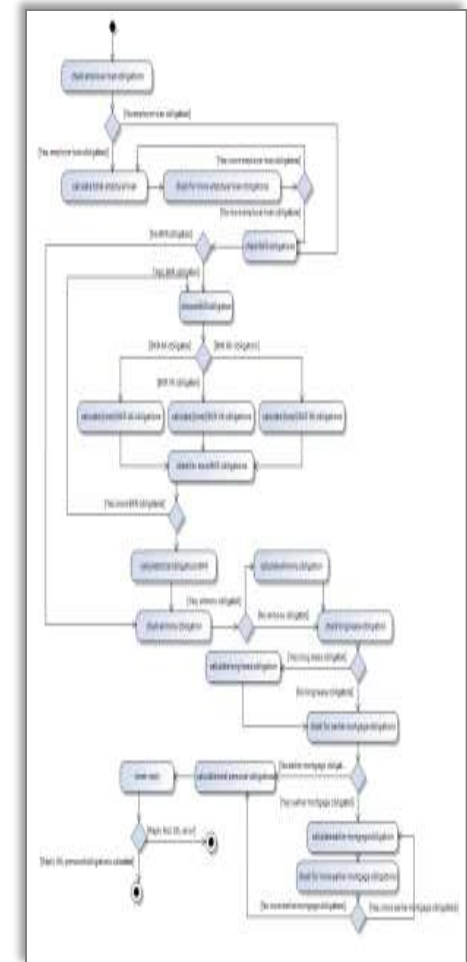


- **Condition with 1 exit**
- **“Alternate” path not specified**
- **Process with multiple exits**
- **Description in text does not match process in flow**

## Note:

From a wider prospective, *industrialization* also brings other benefits (‘text mining’):

- forbidden & expected words
- condition finder



# Model Based Test Design



## • Model Based Test Design for Process Cycle Test and Algorithm Test

Suited for manual test execution



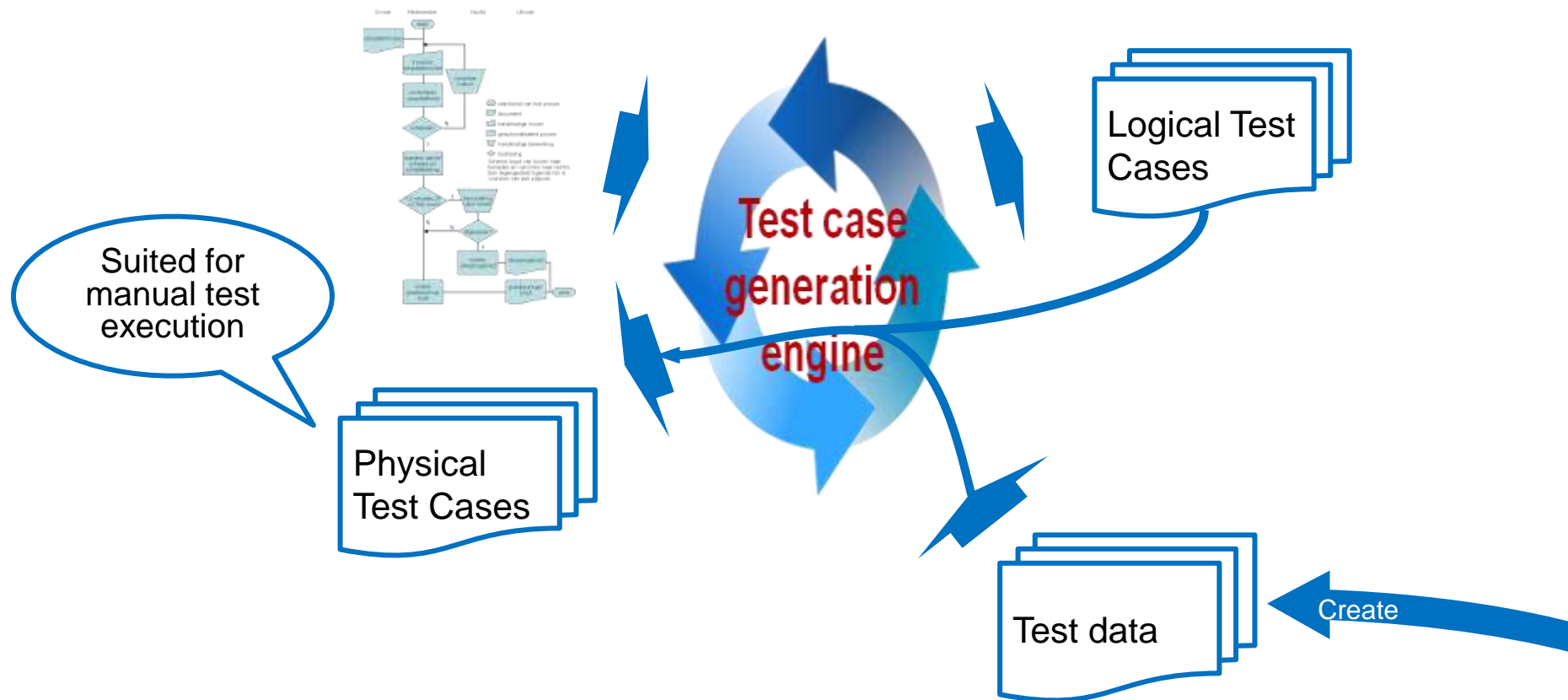
Logical Test Cases



# Model Based Test Design



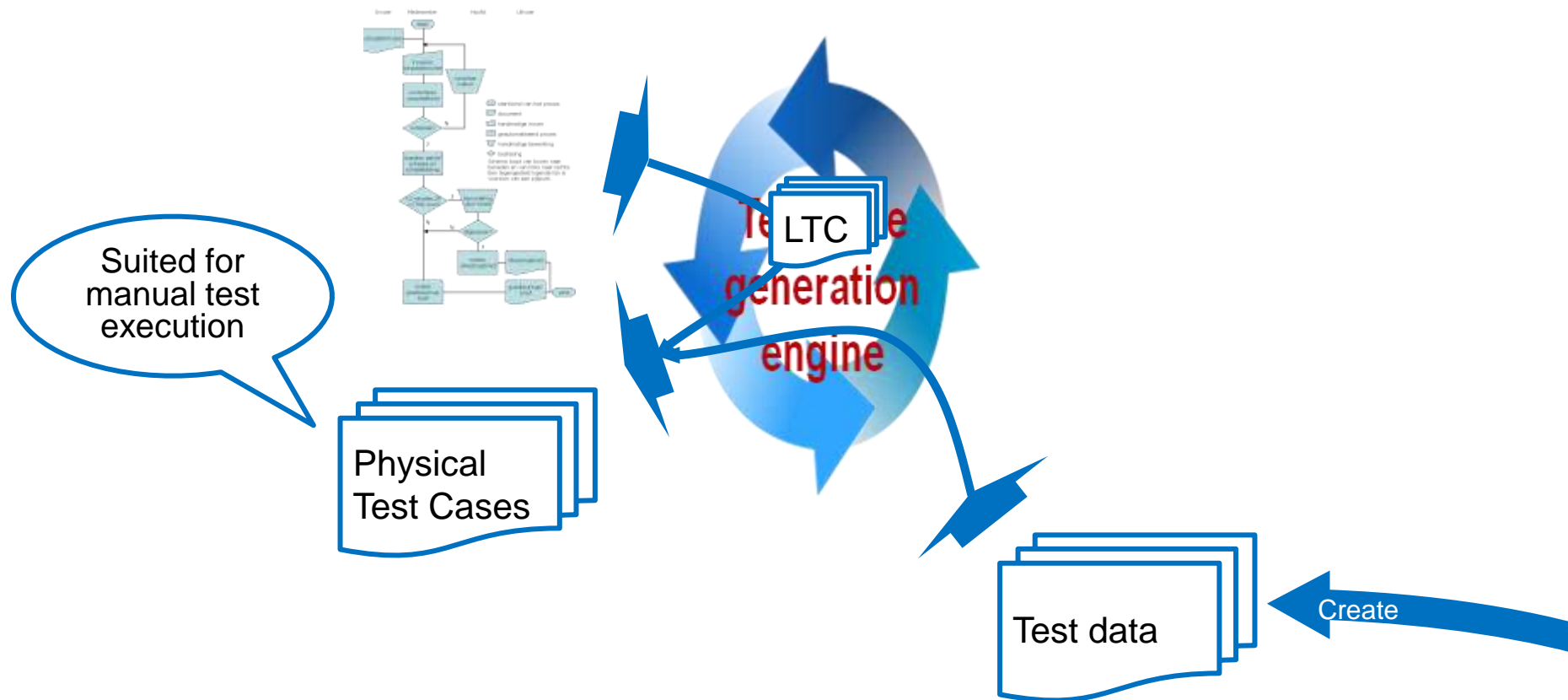
## • Model Based Test Design for Process Cycle Test and Algorithm Test



# Model Based Test Design



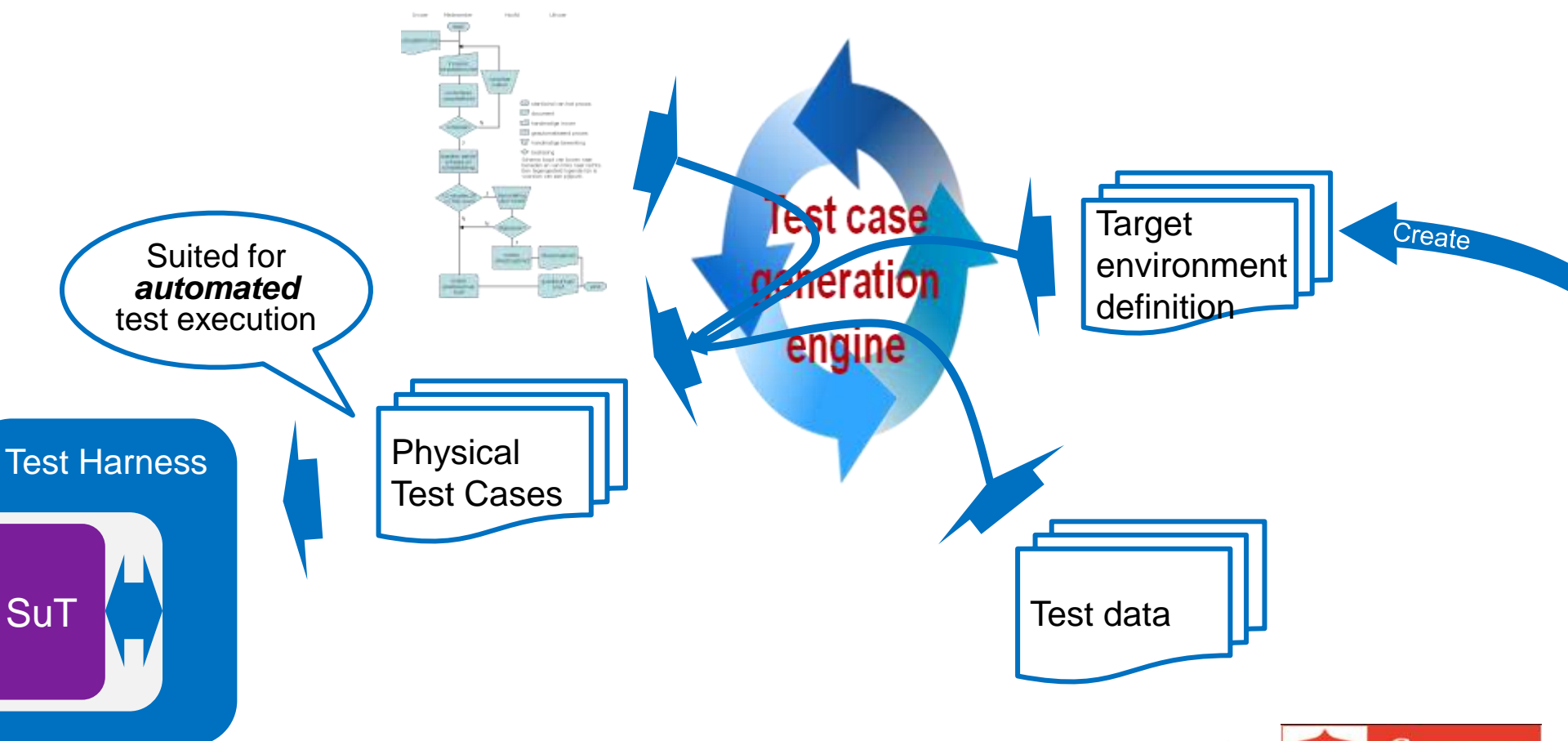
## • Model Based Test Design for Process Cycle Test and Algorithm Test



# Model Based Test Execution



- **Model Based Test *Execution* for Process Cycle Test and Algorithm Test**





# Reversed Engineering To Models

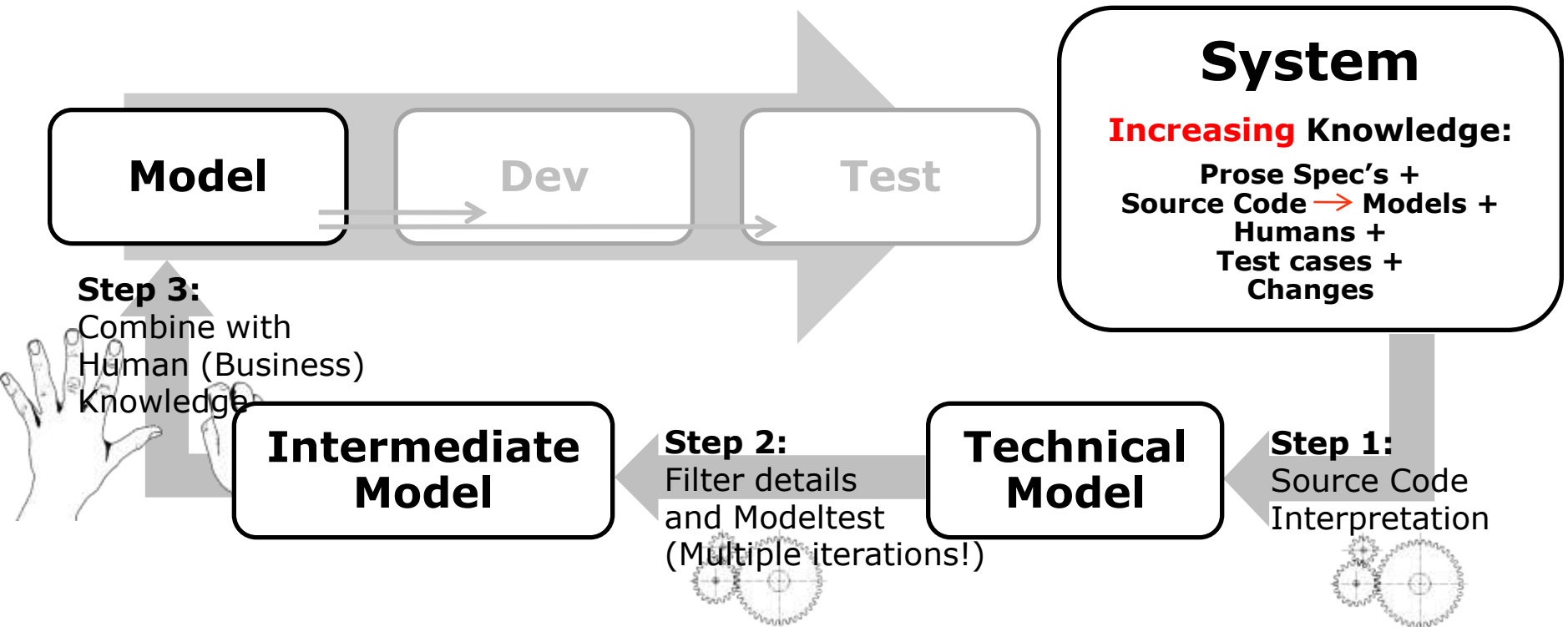


# Reversed Engineering To Models



## Input from Source Code

Source Code is any collection of statements or declarations written in some human-readable computer programming language



# Cost factors in testing



Model Based Review

→ Late defects caused by interpretations and assumptions,

Model Based Test Design

→ Manual test design (especially determining the predictions),

→ Maintenance of unnecessary test cases in regression sets,

Compared Based Testing

→ Maintenance of predictions in regression sets,

Model Based Test Execution

→ Manual test execution,

→ Analysis of unclear findings after (automated) regression runs.