

Methods of test automation

Overview

Definition

What activities?

Which test phases?

Test automation procedure

TDD

GUI test automation

Experience

Tools

Summary

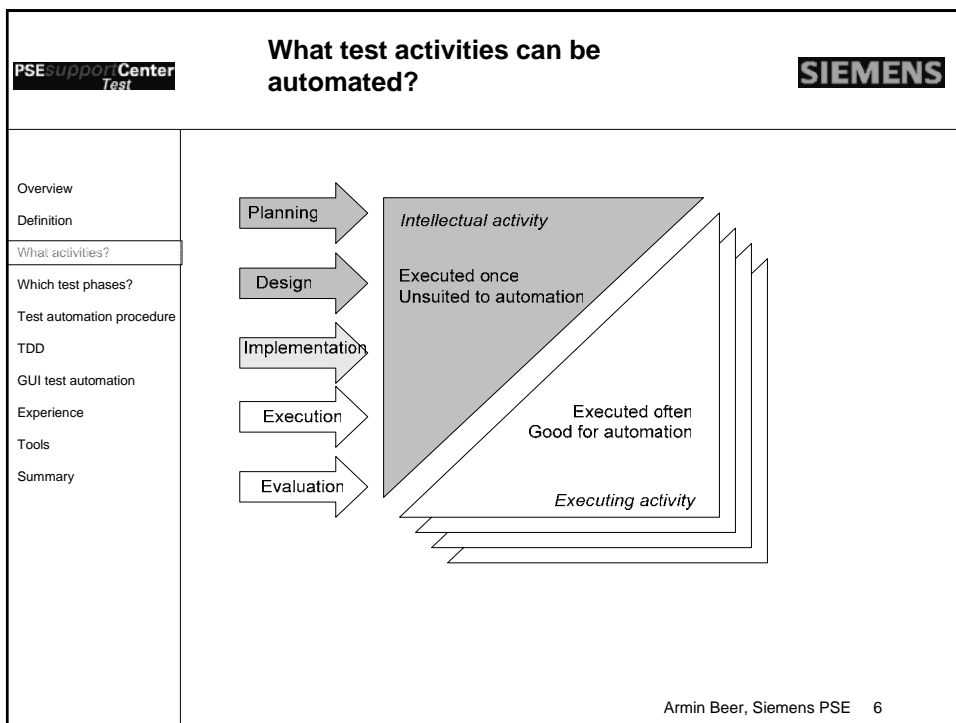
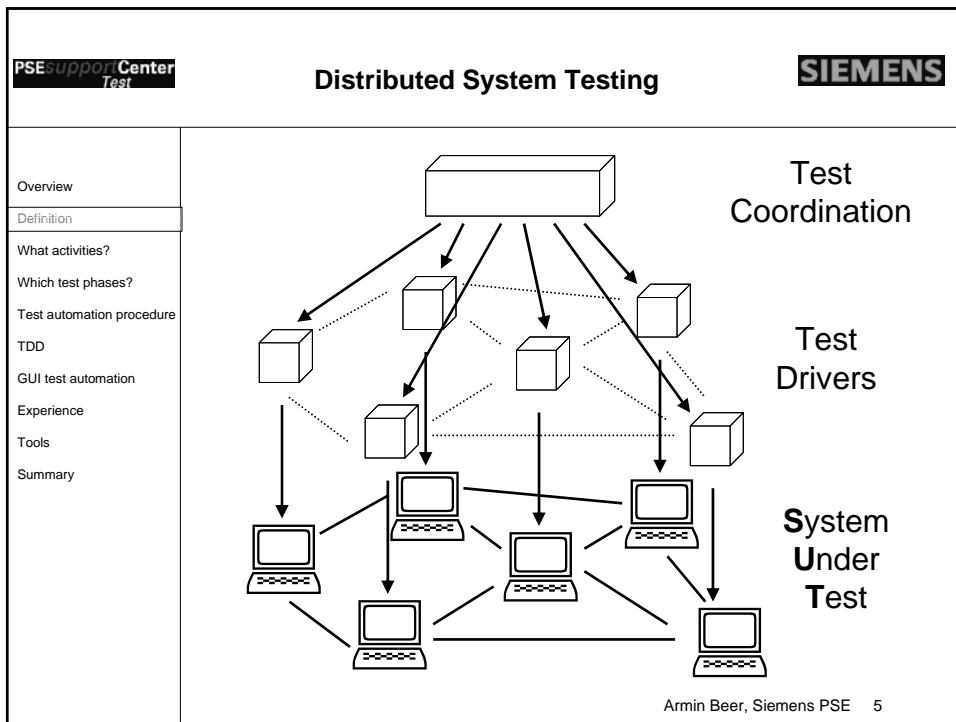
- **Definition of test automation**
- **What test activities can be automated?**
- **How to automate?**
- **Which test phases?**
- **TDD (test-driven development)**
- **GUI test automation**
- **Experience with test automation**
- **Tools**
- **Summary**

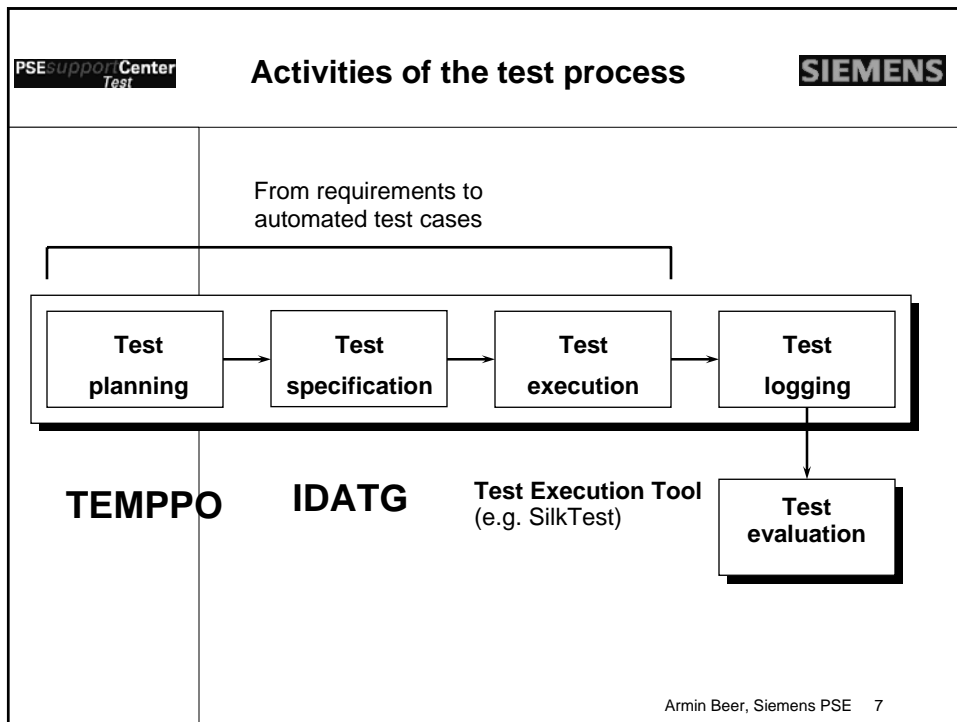
Summary

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Summary

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Extreme Programming (XP) and TDD

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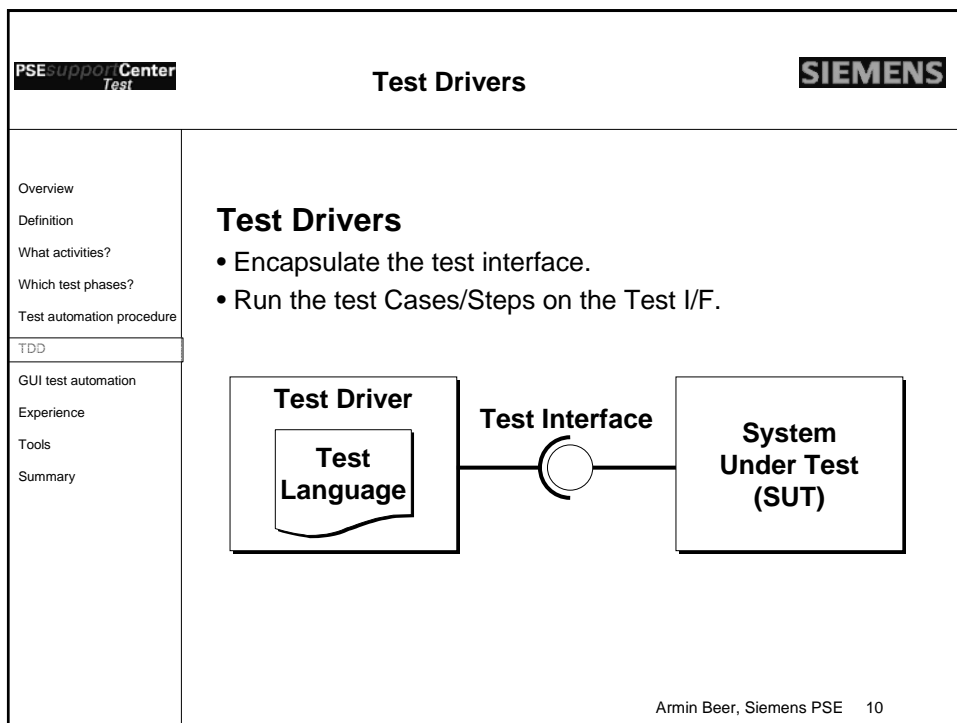
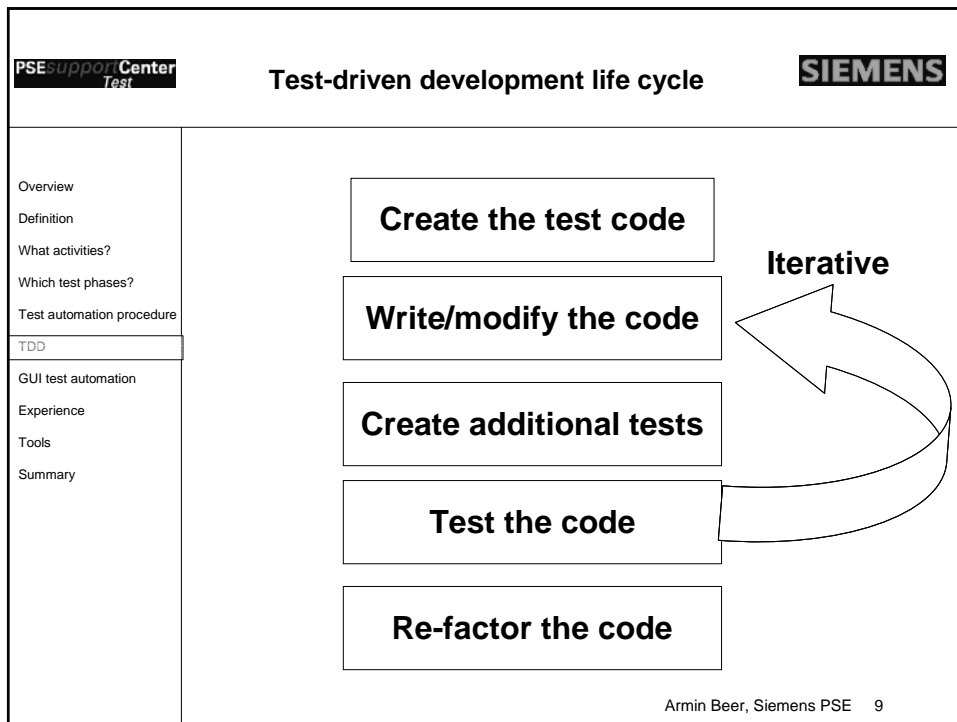
XP created 1996 by Kent Beck, its core

- change is inevitable
- change is essential
- change cannot be predicted

The solution is the “test first programming” approach called TDD (test-driven development)

Use TDD to build software faster and better!

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PSEsupportCenter <small>Test</small>	Benefits of TDD	SIEMENS
<div>Overview</div> <div>Definition</div> <div>What activities?</div> <div>Which test phases?</div> <div>Test automation procedure</div> <div style="border: 1px solid black; padding: 2px;">TDD</div> <div>GUI test automation</div> <div>Experience</div> <div>Tools</div> <div>Summary</div>	<ul style="list-style-type: none"> • Shortens programming feedback loop • Provides detailed specification • Promotes the development of high-quality code • Provides evidence that your software works • Ensures that your design is clean 	
<div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: 80%;"> <p>Use TDD to find bugs early in development!</p> </div>		
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PSEsupportCenter <small>Test</small>	Goals of GUI Test Automation	SIEMENS
<div>Overview</div> <div>Definition</div> <div>What activities?</div> <div>Which test phases?</div> <div>Test automation procedure</div> <div style="border: 1px solid black; padding: 2px;">TDD</div> <div>GUI test automation</div> <div>Experience</div> <div>Tools</div> <div>Summary</div>	<ul style="list-style-type: none"> • Support of manual system test • Regression testing for fast locating of bugs • All GUI elements should be tested at least once • High coverage of functionality 	
<div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: 80%;"> <p>GUI test automation is an investment, but also a precondition for quality software!</p> </div>		
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PSEsupportCenter Test	Test automation procedure - 1 SIEMENS
Overview Definition What activities? Which test phases? Test automation procedure	1. Decision to automate <ul style="list-style-type: none"> – Analysis of test process – “Proof of concept” – Economic aspects
TDD GUI test automation Experience Tools Summary	2. Selection phase <ul style="list-style-type: none"> • Appropriate time of introduction? • Is the GUI testable? • Which tool? 3. Introduction of test automation <ul style="list-style-type: none"> • Definition of test goals • Establish framework • Training • Regression test plan Armin Beer, Siemens PSE 13

PSEsupportCenter Test	Test automation procedure - 2 SIEMENS
Overview Definition What activities? Which test phases? Test automation procedure	4. Implementation phase <ul style="list-style-type: none"> – Automate manual test cases – Create test data – Establish recovery measures
TDD GUI test automation Experience Tools Summary	5. Test execution <ul style="list-style-type: none"> • Test “over night” • Generate test report with logging of state of dialog 6. Evaluation phase <ul style="list-style-type: none"> • Improve test process • Maintain test cases Armin Beer, Siemens PSE 14

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PSEsupportCenter Test	Tools	SIEMENS
<div>Overview</div> <div>Definition</div> <div>What activities?</div> <div>Which test phases?</div> <div>Test automation procedure</div> <div>TDD</div> <div>GUI test automation</div> <div>Experience</div> <div>Tools</div> <div>Summary</div>	<ul style="list-style-type: none"> • For GUI testing, capture & replay tools: Mercury Interactive WinRunner, Segue Silktest • http://www.mercuryinteractive.de • http://www.planit.net.au • Open-source tools e.g. Junit 	Armin Beer, Siemens PSE 17

PSEsupportCenter Test	Summary	SIEMENS
<div>Overview</div> <div>Definition</div> <div>What activities?</div> <div>Which test phases?</div> <div>Test automation procedure</div> <div>TDD</div> <div>GUI test automation</div> <div>Experience</div> <div>Tools</div> <div>Summary</div>	<ul style="list-style-type: none"> • Many errors already found in design phase • Development of quality code by TDD • GUI test automation needs special skills • Load testing only feasible when automated • Change of test cases after change of requirements in a short time 	Armin Beer, Siemens PSE 18