Challenging TESTAR in an industrial setting

Hatim Chahim & Mehmet Duran
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Experience with Test Automation?

Who is doing test automation?

Are you using test scripts?

“Once you abandon the maintenance of the automation, it is likely to die. For a better chance of success, choose a test automation approach that will require the least maintenance”

(Dorothy Graham & Mark Fewster)
Context – Manual test approach at ProRail

New or changed software → Software testing → Tested software

Preparation → Specification → Execution → Completion
Automation is currently under-exploited in QA & Testing.

The average level of automation for test activities is around 16%.
UI Test Automation – Capture and replay

Capture and replay

Automates execution

User Interface (UI) test automation
UI Test Automation – Scripting based

Capture and replay

Automates execution

Scripting based

Automates execution

User Interface (UI) test automation
UI Test Automation – Visual based

Capture and replay

Scripting based

Visual based

Automates execution

Automates execution

Automates execution

User Interface (UI) test automation
UI Test Automation – Traversal based

Capture and replay
Automates execution

Scripting based
Automates execution

Visual based
Automates execution

Traversal based
Automates design and execution - TESTAR

User Interface (UI) test automation
String titleRegEx = settings().get(SuspiciousTitles);
for(Widget w : state){
    String title = w.get("Title");
    if(title.matches(titleRegEx)){
        // Check oracles
    }
}
Framework for comparison (1)
## Framework for comparison (2)

<table>
<thead>
<tr>
<th>Learnability</th>
<th>Effectivity</th>
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</thead>
<tbody>
<tr>
<td>• Time-tracked learning process</td>
<td>• Number of faults</td>
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<tr>
<td>• Knowledge level</td>
<td>• Functional test coverage</td>
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<tr>
<td>• Observation hands on learning process</td>
<td>• Interviews</td>
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Results - Learnability

Learnability

- Time needed 10h
- Level of knowledge sufficient
- Knowledge has grown positively

Effectivity

- Four faults
- Impact seriously
- 80% coverage
- Offers variety

Efficiency

- Preparation: 44h
- Execution: 71h
- Evaluation: 5h

Satisfaction

- Impression grown
- User-friendliness prone to improvement
- Satisfaction rate 7

TESTAR

Effectivity

- No faults found
- 73% coverage
- Offers structure and focus

Efficiency

- Preparation: 43h
- Execution: 6h
- Evaluation: 2h

Satisfaction

- Personal and familiar
- Time-consuming to use
- Satisfaction rate 7
Results - Effectivity

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**Efficiency**
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- Execution: 6h
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**Satisfaction**
- Personal and familiar
- Time-consuming to use
- Satisfaction rate 7
Lessons learned

• Complementary Framework in the railway sector
• GAP between theory and practice
Challenging TESTAR in an industrial setting

Thank you for listening!

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