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AQA Checklist Score for integrating of AT into existing Agile processes of QA

Anton Semenchenko

Anton Semenchenko

- QA community **COMAQA** founder
- C++ community **CoreHard** co-founder
- “International IT” community **InterIT** founder
- 50+ international conferences organizer
- IT evangelist (300+ speeches on meetups and conferences)
- Field of scientific interest: using math for differential diagnostic in cardiology, psychiatry, virology and immunology
- **BSU** Senior Lecturer
- C++ books editor
- QA Automation, Management
- ICAgile Certified Professional

Agenda, part 1

1. General **problem** statement;
2. General **solution** statement;
3. **Your solutions** option?
4. Example;
5. Define PI scope (MMFs);
6. Define PI scope (Backlog items);
7. Define Gantt chart both MMFs and Backlog Items granularity;
8. Define MMF DoR;
9. Define MMF DoD;

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Agenda, part 2

10. Define Backlog item DoR;
11. Define Backlog item DoD;
12. Define high level priorities;
13. Define high-level Traceability Matrix;
14. AQA checklist;
15. Maturity score;

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Agenda, part 3

16. Conclusions
17. What next?
18. *Appendix A: Terminology*
19. *Appendix B: Methodology*
20. *Appendix C: Example*

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General **problem** statement

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General **solution** statement

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Your solutions option?

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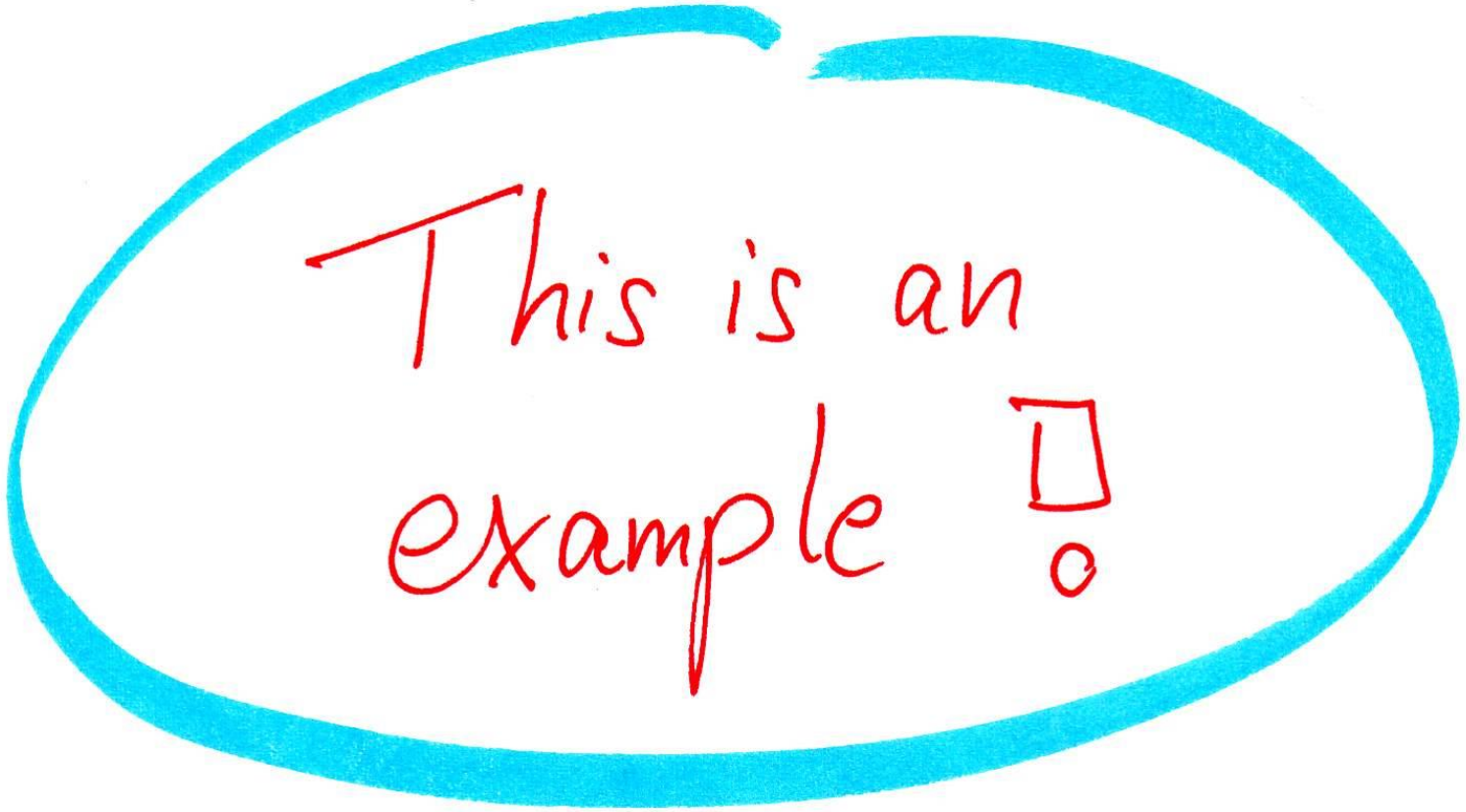
Example



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Define PI scope (MMFs)

Who: **BVT**
What: **Define** PI **scope** (MMFs)
Description: **A set** of MMFs, each consists of one or more Backlog Items, for the PI;

Define PI scope (Backlog items)

Who: **BVT**
What: **Define** PI **scope** (Backlog items)
Description: **A set** of high-level Backlog Items for the PI;

Define Gantt chart both MMFs and Backlog Items granularity

Who: **Experts**
What: **Define Gantt chart** both MMFs and Backlog Items granularity
Description:

Define MMF DoR

Who: **Experts**
What: **Define MMF DoR**
Description:

1. For each MMF 20 or more examples with exact input data and expected results are created;
2. 5 or more Acceptance tests are formulated;

Define MMF DoD

Who: **Experts**

What: **Define MMF DoD**

Description:

1. Conduct special MMF demo, invite all product participants;
2. All Acceptance tests are implemented via UI;
3. All tests are Green on Demo (potentially shippable increment ready to go);
4. UI Auto Tests are obligatory shown on Demo;
5. Updated PI Gantt chart are obligatory shown on Demo;
6. Updated high-level Traceability Matrix are obligatory shown on Demo;

Define Backlog item DoD

Who: **Experts**

What: **Define Backlog item DoD**

Description:

1. Backlog item is implemented, tested manually and Demo-able;
2. Unit Test coverage is bigger that 80% (auto tools calculation);
3. All Acceptance tests are implemented via UI [with 1-2 iterations gap];
4. At least 2 times more API Auto tests are implemented in comparison to UI Auto Tests [with 1-2 iterations gap];
5. All tests starting from Unit to UI are Green on Demo (potentially shippable increment ready to go);
6. UI Auto Tests are obligatory shown on Demo;

Define Backlog item DoD

Who: **Experts**
What: **Define Backlog item DoD**
Description:

7. Auto generated results report of latest full run of automation is obligatory shown on Demo;
8. Auto [Manually] generated by TMS Traceability Matrix for current iteration and project in general is obligatory shown on Demo;
9. Auto generated report with quality metrics for the latest iteration and cumulative metrics are obligatory shown on Demo;
10. All open cross project \ team AQA defects should be assign to X (temporary solution);

Define Backlog item DoD

Who: **Experts**
What: **Define Backlog item DoD**
Note:
All open by AQA tickets during iteration should be either closed or move to next iteration with high priority;

Define-high level priorities

Who: **Experts**
What: **Define high level priorities**
Description:

1. PI Gantt chart;
2. AQA MVP;
3. Current iteration priorities;

Define high-level Traceability Matrix

Who: **Experts**

What: **Define high-level Traceability Matrix**

Description:

1. PI Gantt chart;
2. AQA MVP;
3. Current iteration priorities;

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AQA checklist

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Before planning

1) Team: Study cross dependencies on other teams, not only functional but test automation ones also. Define, that all the dependencies are clearly stated and described, and works on them are conformed with responsible teams.

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Before planning

2) Team: For each MMF defined UI Mocks (even in form of photos of the board);

Before planning

3) Team: For each MMF 20 or more examples with exact input data and expected results are created;

Before planning

4) Team: For each MMF 5 or more Acceptance tests are formulated;

Before planning

5) Team: For each Backlog item defined UI Mocks (even in form of photos of the board);

Before planning

6) Team: For each Backlog item 5 or more examples with exact input data and expected results are created;

Before planning

7) Team: For each Backlog item 1 or more Acceptance tests are formulated;

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Before planning

8) AQA: Create a plan for implementing UI E2E tests, number of them should be lower, than API tests (see test pyramid best practices);

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Before planning

9) AQA: At least 2 times more API Auto tests are implemented in comparison to UI Auto Tests;

Before planning

10) AQA: Plan on creating API E2E tests, which should cover all the main and boundary testing scenarios;

Before planning

11) AQA: Optionally plan API E2E tests with mocking for 2nd (our services);

Before planning

12) AQA: Obligatory plan API E2E tests with mocking for 3rd (external service-partners), integration functionality should be covered by tests using managed mocks;

Before planning

13) AQA: CI \ CD Pipeline [*except 1 iteration]*

Before planning

14) AQA: Reporting: high level for business and low level with tech info
[except 1 iteration]

Before planning

15) AQA: Run on event (nightly, on demand, as a post build \ setting up env); *[except 1 iteration]*

At the end of increment

1) Team: Pure Unit tests coverage for developed functionality must be not less than 80% (ref to quality standard);

At the end of increment

2) AQA: All Acceptance tests are implemented via UI;

At the end of increment

3) AQA: UI Auto Tests are obligatory shown on Intermediate, MMF and Final Demos;

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At the end of increment

4) Team: All tests starting from Unit to UI are Green on Demo;

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At the end of increment

5) AQA: Auto generated results report of latest full run of automation is obligatory shown on Demo;

At the end of increment

6) AQA: Auto generated report with quality metrics for the latest iteration and cumulative metrics are obligatory shown on Demo;

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At the end of increment

7) AQA: Make sure that the most tests cases implemented on API layer;

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At the end of increment

8) AQA: Make sure that AQA follows tests pyramid practice and properly balance tests between E2E and integration parts;

At the end of increment

9) QA & AQA: All tests inside test automation should be traceable with main QA checklists (integration with TMS later);

At the end of increment

10) QA & AQA: Auto [Manually] generated by TMS Traceability Matrix for current iteration and project in general is obligatory shown on Demo;

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At the end of increment

11) AQA : All open cross project \ team AQA defects should be assign to X (temporary solution);

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At the end of increment

12) Team: All open by AQA tickets during iteration should be either closed or move to next iteration with high priority;

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Your TMS and co?

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Maturity score

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Questions?

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Conclusions

1. Developed obvious communication infrastructure, **AQA checklist** and **Maturity Score**!
2. Appendix A, B and C :)

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Traceability Matrix

A Traceability Matrix is a document that co-relates any **two-baseline** documents that require a **many-to-many relationship** to check the completeness of the relationship. It is used to **track the requirements** and to **check the current project requirements** are met.

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Requirement Traceability Matrix

Requirement Traceability Matrix is a document that **maps and traces user requirement with test cases**. It captures all requirements proposed by the client and requirement traceability in a single document, delivered at the conclusion of the Software development life cycle. The main purpose of Requirement Traceability Matrix is to **validate that all requirements are checked via test cases** such that no functionality is unchecked during Software testing.

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Requirement Traceability Matrix

MMF	Feature	Backlog Item	Acceptance Test	Project	Module	Automation Level	Dependency	Status

Requirement Traceability Matrix

MMF	Feature	Backlog Item	Acceptance Test	Project	Module	Automation Level	Dependency	Status

MMF	Feature	Backlog Item	Acceptance Test	AQA TC	#	Project	Module	Automation Level	Dependency	Status

Usage example

AQA planning:

When planning PI, we need to formulate 5 or more Acceptance Tests for each MMF. Therefore, we will get an extra high-level Traceability Matrix of the following way:

Also, it will help to build **simplified Gantt Chart**.

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Usage example

Those 2 artifacts will allow us to:

1. See the **tasks** which are on the **critical path**;
2. **Prioritize** the effort of each team in the scope of every sprint in the context of AQA and development (1 or more critical tasks will be marked as priority tasks outside the general flow);
3. **Receive general** high-level **status**;

As result we will guarantee full automated PI Demo, as the top of Automated testing pyramid.

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Usage example

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Additional pros of full automation of MMF Acceptance Tests:

1. We will be able to **show demo** to the customer at any moment without attracting technical specialists;
2. We will be **easily able to organize Demo by our customer to the stakeholders without our participation** (deployed by one-click Amazon UI Auto Tests with required environment, run those tests with additional parameter as longer timeouts to make the clicks perform slowly in order to see them);
3. We will be able to show that everything **works on the customers environment** (Unit tests and other very important tools which guarantees stable work are not representative for the business owners);

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Usage example

AQA planning:

When planning PI, we need to formulate 5 or more Acceptance Tests for each MMF. Therefore, we will get an extra high-level Traceability Matrix of the following way:

Also, it will help to build simplified Gantt Chart.

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Minimum Valuable Product

QA Automation MVP for project:

1. CI \ CD Pipeline;
2. 3 Auto Tests (UI, API, Unit level);
3. Reporting: high level for business and low level with tech info;
4. Run on event (nightly, on demand, as a post build \ setting up env);
5. B.E. Reporting: Auto calculation progress and some other metrics based over a period of time;

QA Automation MVP for product:

1. CI \ CD Pipeline;
2. 1 successful pass user flow;
3. Reporting focusing on Business;
4. Run on event (on demand, as a post build \ setting up env);

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Thank you for you attention!

Bid you farewell!

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