



FOODWARE 365

FORWARD IN FOOD

Testing, a team effort

By Olaf Jorritsma

Powered by Microsoft Dynamics 365

Disclaimer



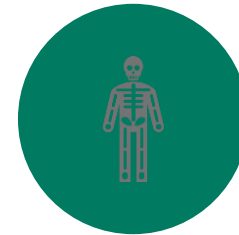
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THIS PRESENTATION IS PROVIDED "AS-IS".



THE PERSON WHO GIVES THIS PRESENTATION IS NOT A PROFESSIONAL SPEAKER.

Introduction Olaf Jorritsma



- Food technologist (middle professional level).
- 25 Years experience in Food manufacturing and international Food supply chain.
- ERP-software implementations as key user customer: SAP R3, BaaN, Navision, Exact Globe, Unit4.
- 4-5 years at Schouw Informatisering (an Aptean company)
 - 2 years ERP-implementation Consultant
 - > 2 years product development, > 1,5 year Test Coordinator



Why?



Test Process.



The approach & tools.



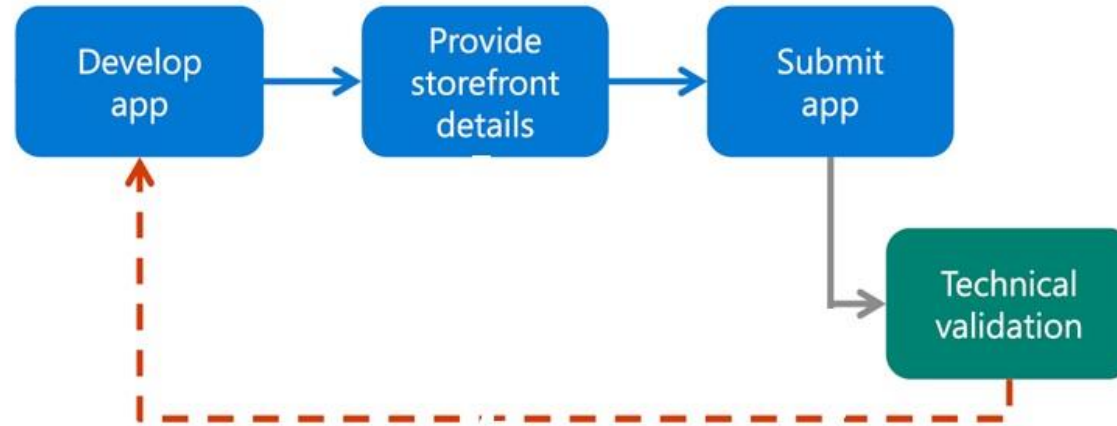
Testing lessons learned.

WHY TEST?

AppSource

Or...

The road to VALIDATION



- Automated test
- In Cronus
- 90% Code Coverage

OR...

Quality

Upgradability

Reduce risks

Higher customer
satisfaction

Focus on features
...not on bugs [Luc van Vugt]

- Functional suitability
- Performance efficiency
- Compatibility
- Usability
- Reliability
- Security
- Maintainability
- Portability

- Effectiveness
- Efficiency
- Satisfaction
- Freedom from risk
- Context coverage

How

- Unified Engineering – Testing is owned by the development teams
- Engineers spend between 20% - 50% of time writing tests
 - Average 2 days, max 4 days
 - Around 30-50 tests added per feature
- Tests are included in Definition of Done
 - Target 90% code coverage
 - Cross team testing after every slice
 - Manual test scenarios defined
 - Via Azure DevOps Test Plans
 - Extra Exploratory Testing via Test & Feedback extension in Google Chrome

a Good test

- Covers the risk

 - Tells us the state of the code

 - Test where the risk is

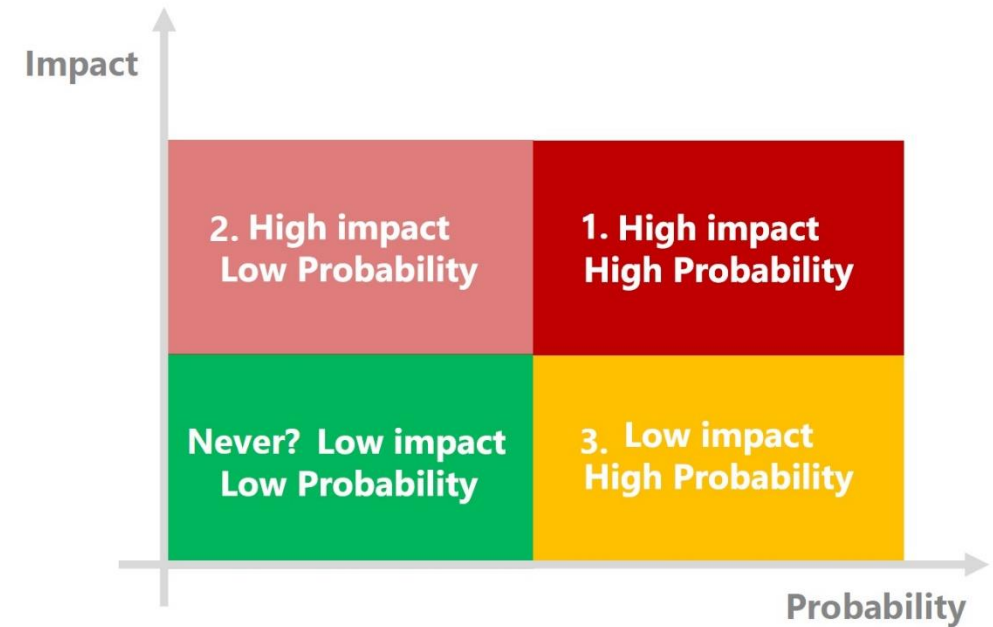
 - Test as close to the risk as possible

- Is simple to read

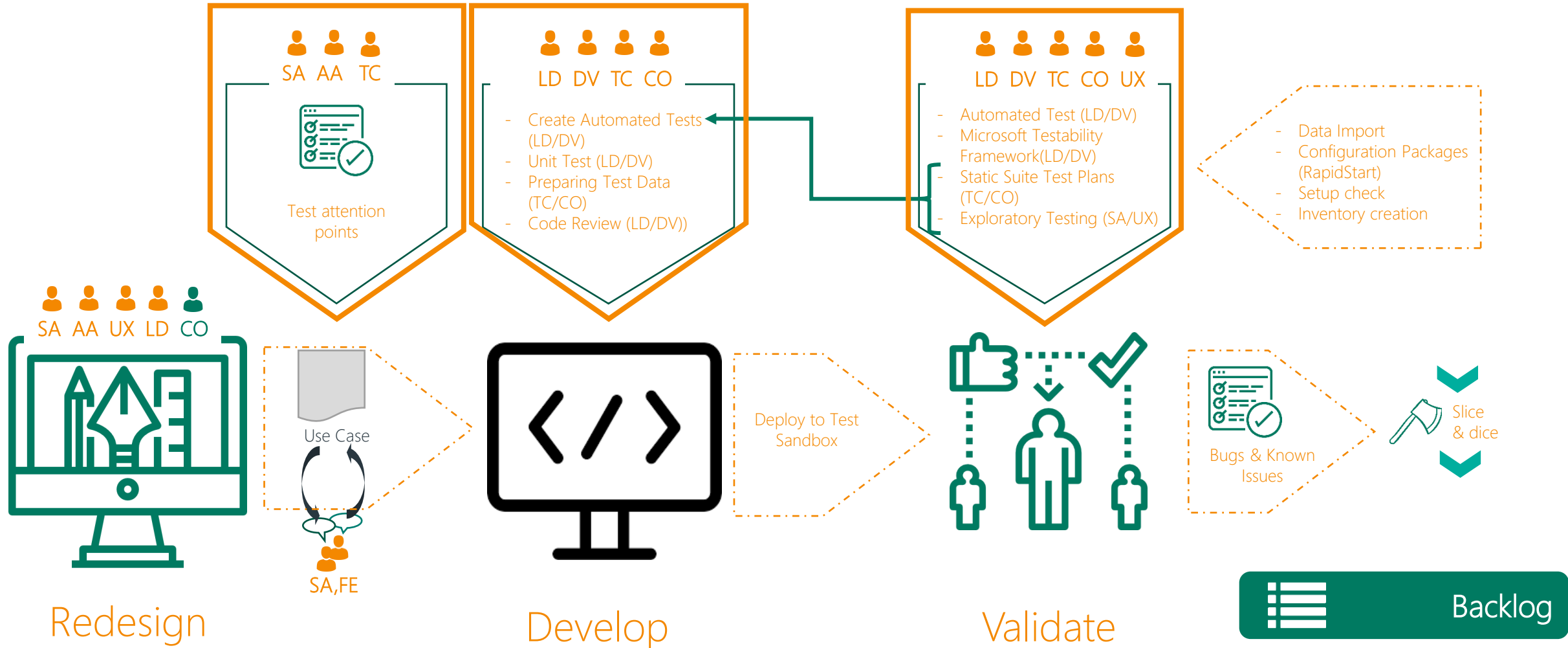
 - Person reading the test most likely not know anything about the functionality

- Just tests one thing (multiple asserts are OK)

- Is fast to execute



TEST PROCESS



Re-think phase:

- Out of Scope
- Variations documented
- Requirements documented

Re-design phase:

- Test scenarios (simple Gherkin English)
- Mark test scenarios as automated or manual

Development phase:

- Automated tests
- Unit tests (not mandatory, but developers fix their own mess)

Test phase:

- Automated tests
- Manual tests
- Exploratory testing
- Bug fixing

Release phase:

- Known Issues & Known Bugs reporting

Each extension contains accompanying documents:

- Functional Decomposition
- Use Case
- Testscripts (automated & manual)
- Process schemes (extension and E2E)
- Work instructions (Clicklearn)
- Demo data & script
- App validation testscript (based on Foodware data topped on Cronus)

Definition
of
Done

THE APPROACH & TOOLS



Test Approaches

- TDD – Test Driven Development
Focus on implementation of a feature.
Least important
- BDD – Behavior Driven Development
Focus on the systems behavior.
More important
- ATDD – Acceptant Test Driven Development
Focus on capturing the requirements.
More important
- SDD – Scream Driven Development
It is fixed if no one is screaming.
Most important



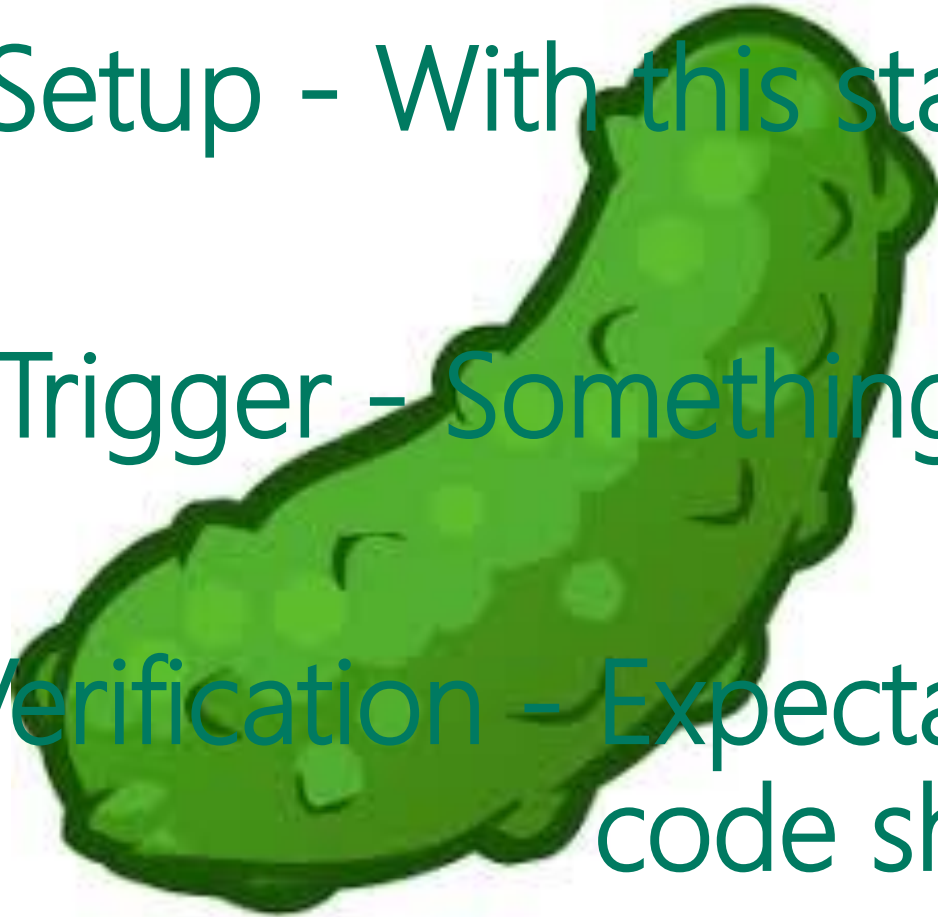
	TDD	BDD	ATDD
Definition	Focus on the implementation of a feature	Focus on the system's behavior	Focus on capturing the requirements
Participants	Developer	Developer, Consultant, Solution Architect, QA, (Customer)	Developer, Consultant, Solution Architect, QA, (Customer)
Language used	Same as Coding language	Simple English, (Gherkin)	Simple English, Gherkin
Main Focus	Unit Tests	Understanding Requirements	Write Acceptance Tests

What is Gherkin?

//[Given] = Setup - With this state

//[When] = Trigger - Something is done

//[Then] = Verification - Expectation what the code should do



Simple Examples

// [0026] Notification will be shown when Circuit Breaker
is Open and user triggers an Alert

// [GIVEN] Circuit Breaker Setup Status = Open

// **[WHEN] Alert is triggered and fails**

// [THEN] Notification is shown on current used page

// [0201] Message contains unknown Sender GLN

// [GIVEN] Message with unknown Sender GLN

// **[WHEN] Function Create Document is executed**

// [THEN] Error: Sender GLN not found as Customer

Example multiple GIVEN

// [0010] When applying a Production Scenario, show an error when there are reservations for the released production order line and the unit of measure code on the BOM is different from the one on the released production order line

// [GIVEN] A production item exists

// [GIVEN] A Sales order exists with the item

// [GIVEN] A Production Order exists with an item on the Prod. Order Line that contains Production Scenarios

// [GIVEN] A reservation exists from the sales order on the production order line

// [GIVEN] A second production BOM exists for the item with a different UOM

// [GIVEN] An Production Scenario is filled with a Routing and the second Production BOM

// [WHEN] Click on Change Production Scenario and select the Production Scenario

// [THEN] Show error 'This production order line has a reserved quantity, It is not possible to select a production scenario with a different unit of measure code when reservations exist.'

Example multiple THEN

```
// [0402] Same APERAK is sent again  
// [GIVEN] sent APERAK from Sales Order  
// [WHEN] Function Export Aperak is executed  
// [THEN] Message ID is incremented by 1  
// [THEN] Message Date contains new date of sending  
// [THEN] Message Time contains new time of sending  
// [THEN] Document Date contains new date of sending  
// [THEN] Document Time contains new time of sending
```

Example

With just 1 when

// [0025] When filling Input Quantity per Batch (WU) on Production BOM with Batch Size Calculation = "On Item" and the Production BOM Unit of Measure = BOX, check if the contents of the batch fields are correct

// [GIVEN] The Unit Of Measure Codes KG, BOX, LITER and CAN are setup

// [GIVEN] The Weight Unit (WU) in Production Batch Sizes Setup is filled with KG

// [GIVEN] Item No. 18 exist with Base Unit of Measure = BOX

// [GIVEN] Item No. 18 has in the Item Units of Measure Code = KG and Qty. per Unit of Measure = 0,894129681

// [GIVEN] Item No. 18 has in the Item Units of Measure Code = LITER and Qty. per Unit of Measure = 0,715307582

// [GIVEN] Item No. 30 exist with Base Unit of Measure = KG

// [GIVEN] Item No. 49 exist with Base Unit of Measure = LITER

// [GIVEN] Item No. 49 has in the Item Units of Measure Code = KG and Qty. per Unit of Measure = 1

// [GIVEN] Item No. 28 exist with Base Unit of Measure = KG

// [GIVEN] Item No. 52 exist with Base Unit of Measure = KG

// [GIVEN] Item No. 53 exist with Base Unit of Measure = KG

// [GIVEN] All items have Rounding Precision = 0.00001

// [GIVEN] A Production BOM exists with Unit of Measure = BOX

// [GIVEN] The Status of the Production BOM = New

// [GIVEN] The Batch Size Calculation in the Production BOM = On Item

// [GIVEN] The Batch Size for Item No. = Item No. 18

// [GIVEN] The Production BOM line is filled with Item No. 30 and Batch Size = True

// [GIVEN] The Production BOM line for Item No. 30 is filled with Input Quantity per batch (WU) = 24,038462

// [GIVEN] The Production BOM line is filled with Item No. 28 and Batch Size = True

// [GIVEN] The Production BOM line for Item No. 28 is filled with Input Quantity per batch (WU) = 2,8846154

// [GIVEN] The Production BOM line is filled with Item No. 52 and Batch Size = True

// [GIVEN] The Production BOM line for Item No. 52 is filled with Input Quantity per batch (WU) = 0,5769231

// [GIVEN] The Production BOM line is filled with Item No. 53 and Batch Size = True

// [GIVEN] The Production BOM line for Item No. 53 is filled with Input Quantity per batch (WU) = 1,34615

// [GIVEN] The Production BOM line is filled with Item No. 49 and Batch Size = True

// [GIVEN] The Production BOM line with Item No. 49 has Scrap % = 10

// [GIVEN] The Production BOM line for Item No. 49 is not filled with Input Quantity per batch (WU)

// [GIVEN] The Production BOM line for Item No.49 is not filled with Input Quantity per batch (UoM)

// [WHEN] Fill the Input Quantity per Batch (WU) on the Production BOM line for Item No. 49 with 21,153846

// [THEN] The Input Quantity per Batch (UoM) of the Production BOM line for Item No. 49 = 21,153846

// [THEN] The Output Quantity per Batch (UoM) of the Production BOM line for Item No. 49 = 19,23076909

// [THEN] The Output Quantity per Batch (WU) of the Production BOM line for Item No. 49 = 19,23076909

// [THEN] The Total Input Quantity per Batch (WU) of the Production BOM header = 49,9999965

// [THEN] The Total Input Quantity per Batch (UoM) of the Production BOM header = 44,70648092

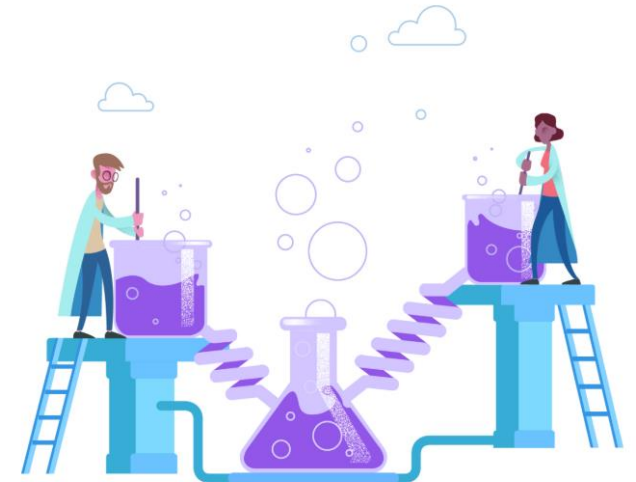
// [THEN] The Total Output Quantity per Batch (WU) of the Production BOM header = 48,07691959

// [THEN] The Total Output Quantity per Batch (UoM) of the Production BOM header = 42,98700078



Azure DevOps Test Plans

- Used for manual testing
- Hierarchical
 - Test Plans
 - Test Suites
 - Test Cases
- Following Gherkin (Given, When, Then)



- <https://docs.microsoft.com/en-us/azure/devops/test/?view=azure-devops>
- <https://www.youtube.com/watch?v=LF0hmSysWCg>

Azure DevOps Test Plans

TEST PLAN TEST SUITES

TEST CASES

Schouw / Foodware 365 BC / Test Plans / Test plans*

Customer Item Catalog Jan 10 - Jan 17 Past
100% run, 100% passed. [View report](#)

Test Suites

- Customer Item Catalog
 - 1.1 Set Item as Private label item (1)
 - 1.2 Set customer for Item Catalog Mandatory (1)
 - 1.3 Setup Item Catalog
 - 1.3.2 Sorting on line no. + move item up/down within sorting in Item Catalog lines (ID: 2009)
 - 1.4 Link Item Catalog to Customer/Ship-to Address
 - 4.1 Enter item sales line manually via page Sales Item Catalog (3)
 - 5.1 Check Item Catalog Mandatory when entering item sales line manually (3)
 - 5.2 Check Private Label Item when entering item sales line manually (3)
 - 2.1 Send mail to customer with attached file containing Customer item...
 - 3.1 Automatically process received file Customer Item Catalog in to sales o...
 - 3.2 Manually process received file Customer Item Catalog in to sales o...

1.3.2 Sorting on line no. + move item up/down within sorting in Item Catalog lines (ID: 2009)

Define Execute Chart

Test Cases (3 items)

<input type="checkbox"/>	Title	Order	Test Case Id	Assigned To	State
<input type="checkbox"/>	[0034] Move one Item Catalog line up	1	2014	Laura van der List	Closed
<input type="checkbox"/>	[0035] Move one Item Catalog line down	2	2015	Laura van der List	Closed
<input type="checkbox"/>	[0033] Insert a item catalog line between two existing item catalog lines	3	2016	Laura van der List	Closed

Use Case

Use Case	2.4.2 Change Non-Conformance status to Closed with existing actions
Status	Implemented in this version
Primary actor	Sales Person
Goal in context	To change the status of the NC to closed. To make sure various follow up actions are executed, various checks should exist
Pre-condition	<ul style="list-style-type: none">- Default non-conformance actions are setup- Non-conformance exists with various follow up actions and Status 'In progress'- One of the follow up actions has the checkmark 'Return or Credit Memo required' activated
Trigger	Non-conformance registration
Scenario	<ol style="list-style-type: none">1. Sales person changes status field from In Process to Closed2. System checks if there are follow up actions with checkmark 'Return or Credit Memo required' activated3. If Yes;<ol style="list-style-type: none">a. System Checks if a Sales Return Order, Posted Sales Return Receipt Sales Credit Memo or Posted Sales Credit Memo exists with a reference to the specific non-conformance<ol style="list-style-type: none">i. If Yes: NC status is changed to Closedii. If NO: Message 'This non-conformance requires a follow up Return Order or Credit Memo that currently does not exist. Are you sure you want to close this non-conformance?4. If NO; NC status is changed to Closed
Post condition	Non-conformance is closed
Variances	Synchronization with teams yes/no
Exceptions	

Testscenario

Change Non Conformance
2.4.2 status to Closed with existing actions M // [0118] Close NC when Return And Credit Required but only return Linked

// [GIVEN] NC in progress

// [GIVEN] Follow up action linked with Return required and credit required

// [GIVEN] sales return linked to NC

// [WHEN] NC change status from in progress to Closed

// [WHEN] Message pops up: This non-conformance requires a follow up Credit Memo that currently does not exist. Are you sure you want to close this Non-conformance? --> Click YES

// [THEN] NC status is closed

// [THEN] NC "closed on" is set to workdate

Test Case in Azure DevOps

[TEST CASE 3851](#)

3851 [0118] Close NC when Return And Credit Required but only return Linked

Olaf Jorritsma 0 comments [Add tag](#)

State Design Area Foodware 365 BC\BC NL2
Reason New Iteration Foodware 365 BC

Steps

Steps	Action	Expected result	Attachments
1.	NC in progress		
2.	Follow up action linked with Return required and credit required		
3.	sales return linked to NC		
4.	NC change status from in progress to Closed	This non-conformance requires a follow up Cre	
5.	Click YES	NC status is closed	
6.		NC "closed on" is set to workdate	

Click or type here to add a step

Run Test Case

Runner - Test Plans - Google Chrome

testExec...

Save and close | Create bug

3851: [0118] Close NC when Return And Credit R...

1. NC in progress
2. Follow up action linked with Return required and cre
3. sales return linked to NC
4. NC change status from in progress to Closed

EXPECTED RESULT

This non-conformance requires a follow up Credit M

5. Click YES

EXPECTED RESULT

NC status is closed

6. EXPECTED RESULT

NC "closed on" is set to workdate

Dynamics 365 Business Central

Sandbox

CUSTOMER NON-CONFORMANCE

Customer Non-Conformance · CNF0001

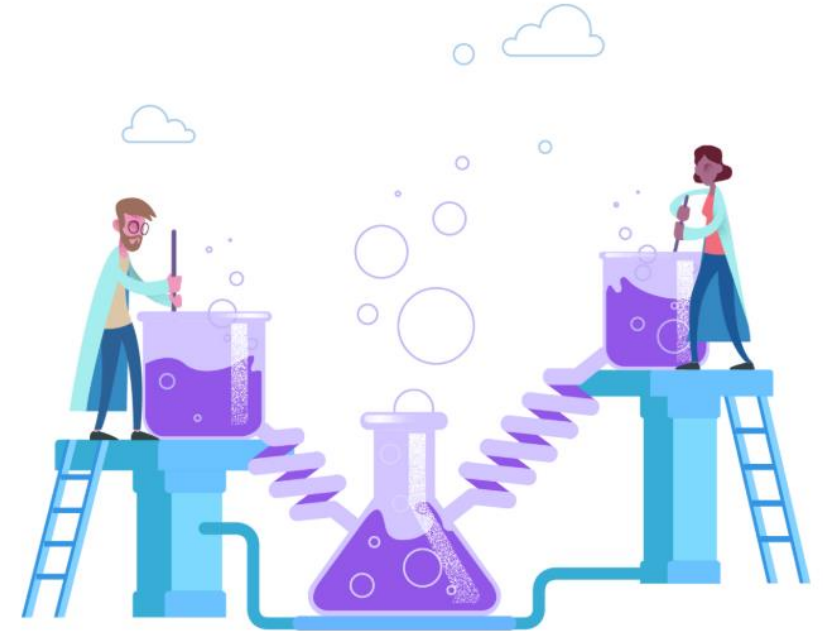
Get Posted Document To Reverse | Change Status | Create Follow Up Actions | More options

General

Status	In Progress	Subreason	
Communication Method	E-MAIL	Document No.	
Created On	6/9/2020	External Document No.	
Closed On		Return Location	
Category		No. of Open Follow Up...	0
Subcategory		Food Safety Issue	<input type="checkbox"/>
Reason		Related Non-Conform...	

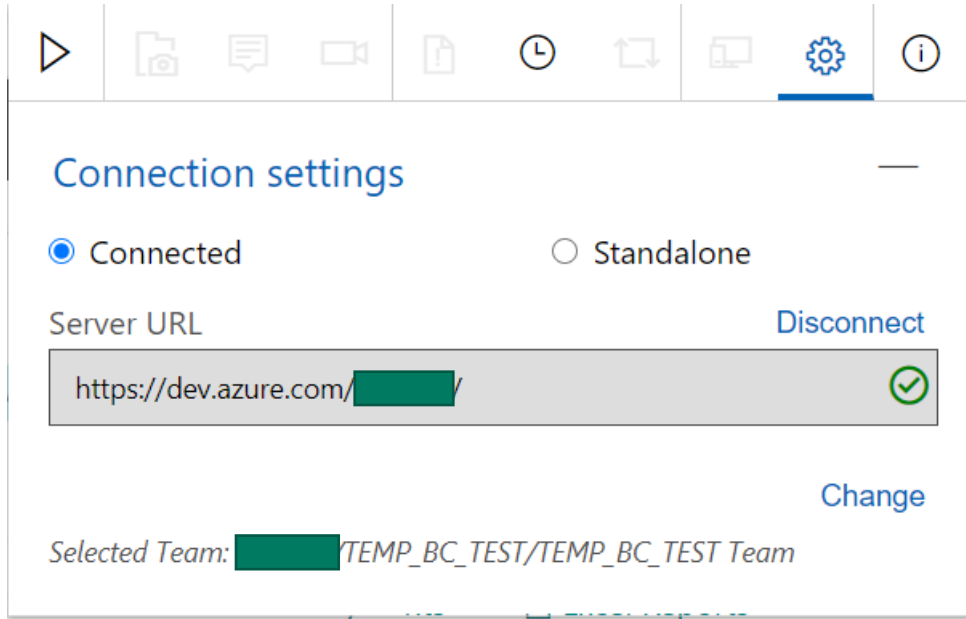
Test & Feedback extension in Google Chrome

- Capture screenshots
- Capture screen recording
- Capture notes
- Create bugs, tasks, test plans
- Create feedback requests

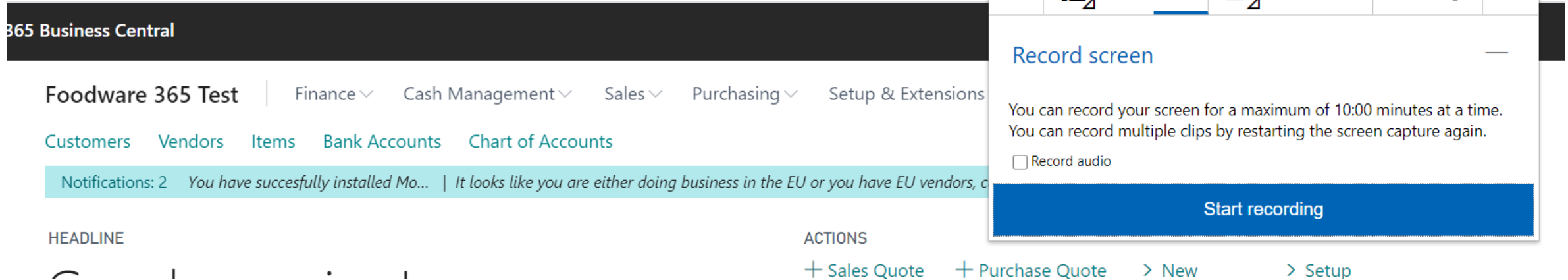


- <https://chrome.google.com/webstore/detail/test-feedback/gnldpbnocfnlkkicnapiImkaphfdnlplb>
- <https://marketplace.visualstudio.com/items?itemName=ms.vss-exploratorytesting-web>
- <https://docs.microsoft.com/en-us/azure/devops/test/provide-stakeholder-feedback?view=azure-devops>
- <https://channel9.msdn.com/Series/Test-Tools-in-Visual-Studio/IntroducingTestFeedbackextension>

Extension in browser connected to Azure DevOps



The screenshot shows the 'Connection settings' panel of a browser extension. It features a 'Connected' radio button selected over a 'Standalone' option. The 'Server URL' field contains 'https://dev.azure.com/[redacted]' with a green checkmark icon to its right. A 'Disconnect' link is positioned to the right of the URL field. Below the URL field is a 'Change' link. At the bottom, the 'Selected Team' is listed as '[redacted]TEMP_BC_TEST/TEMP_BC_TEST Team'.



The screenshot displays the 'Foodware 365 Test' web application interface. The top navigation bar includes 'Finance', 'Cash Management', 'Sales', 'Purchasing', and 'Setup & Extensions'. Below this, there are links for 'Customers', 'Vendors', 'Items', 'Bank Accounts', and 'Chart of Accounts'. A notification banner states: 'Notifications: 2 You have succesfully installed Mo... | It looks like you are either doing business in the EU or you have EU vendors, c'. The 'ACTIONS' section at the bottom shows '+ Sales Quote', '+ Purchase Quote', '> New', and '> Setup'. A 'Record screen' overlay is visible on the right side, providing instructions: 'You can record your screen for a maximum of 10:00 minutes at a time. You can record multiple clips by restarting the screen capture again.' It includes an unchecked 'Record audio' checkbox and a prominent blue 'Start recording' button.

Create..

The image shows a software interface with a top navigation bar containing icons for various actions. Below the navigation bar, there are three buttons: 'Create bug', 'Create task', and 'Create test case'. The 'Create bug' button is highlighted, and a 'New bug' dialog box is open. The dialog box has a title bar with a close button (X). Inside the dialog, there is a search bar with the placeholder text 'Create a new bug or search by title'. Below the search bar, there are two checked checkboxes: 'Image action log' and 'Page load data'. At the bottom of the dialog, there is a large empty text area and a 'Save' button.

Navigation bar icons: Home, Add, Chat, Video, Document, Clock, Refresh, Desktop, Settings, Info.

Buttons: Create bug, Create task, Create test case.

Dialog title: New bug

Search bar: Create a new bug or search by title

Include: Image action log Page load data

Save

Capture..

Repro Steps

- Click on 'Sales Quote Sales Order Sales Invoice Purchase Quote Purchase Order Purchase Invoice New Payments Reports Setup ...'.



[View full image](#)

- Click on link



[View full image](#)

- Update input field with value sales or



[View full image](#)

- Update input field with value 10

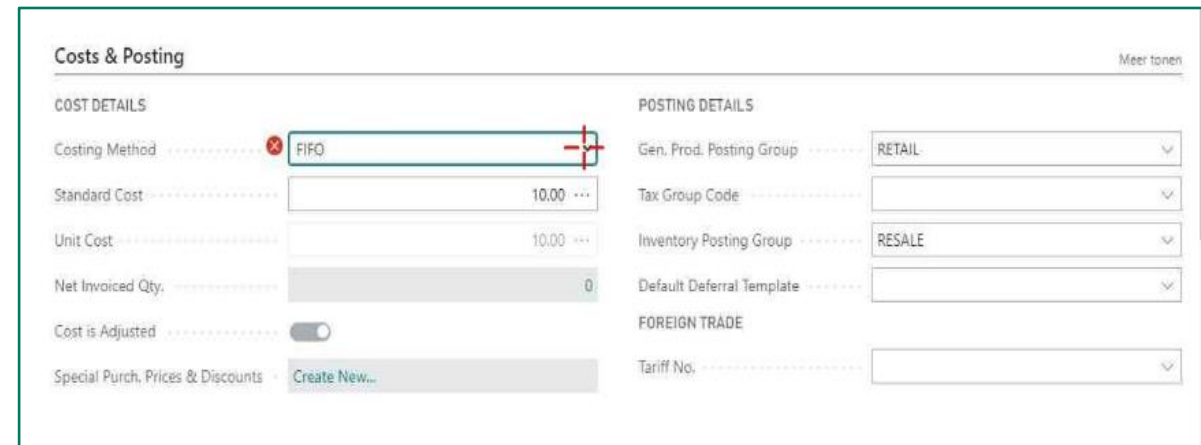
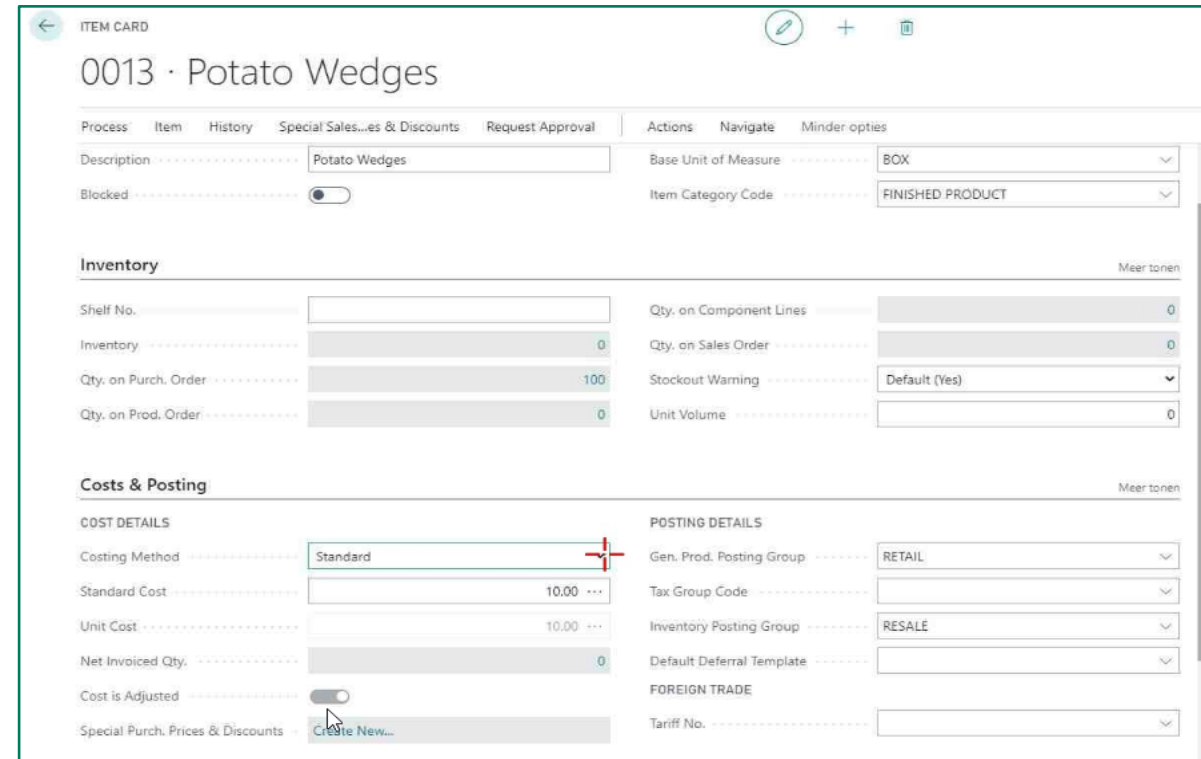


[View full image](#)

- Press <TAB>



[View full image](#)



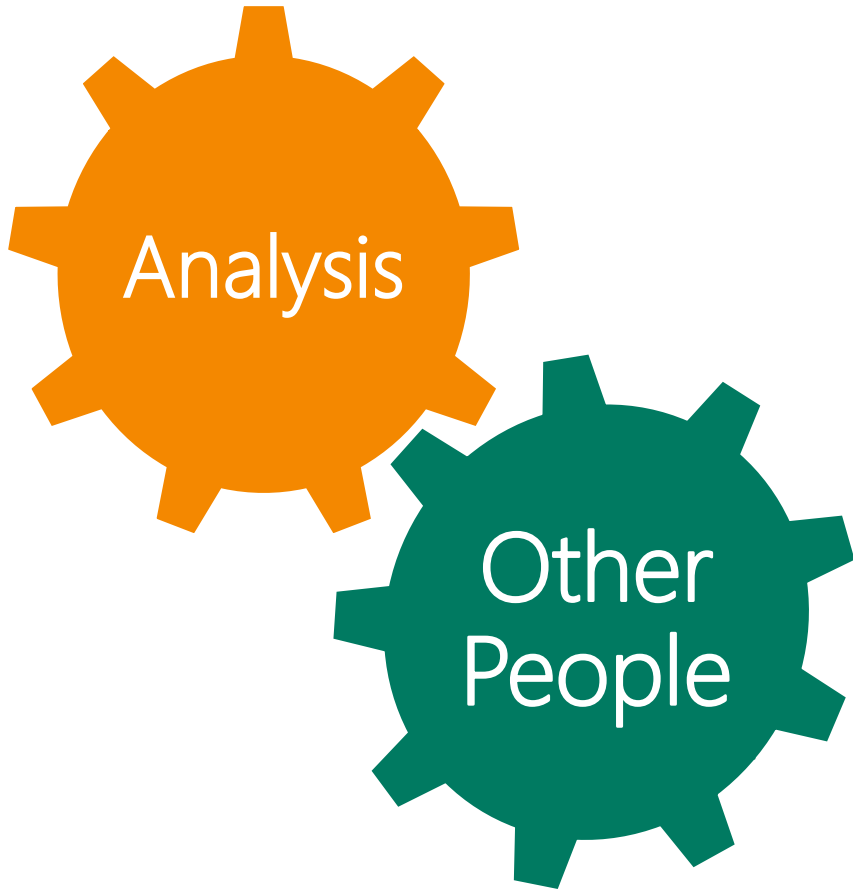
TESTING LESSONS LEARNED

Evaluating a product by learning about it through exploration and experimentation

[James Bach]



Collaboration



- Getting to know people
- Conversations
- Serving others
- Guiding others
- Ask for help
- Role visiting, learn from the other roles
- Telling your story
- Telling the product story

Self-Management



- Chartering your work
- Self-care
- Self-Criticism
- Focusing your work
- De-focusing your work
- Knowing when to stop
- Ethics
- Evaluation of your work

Learning



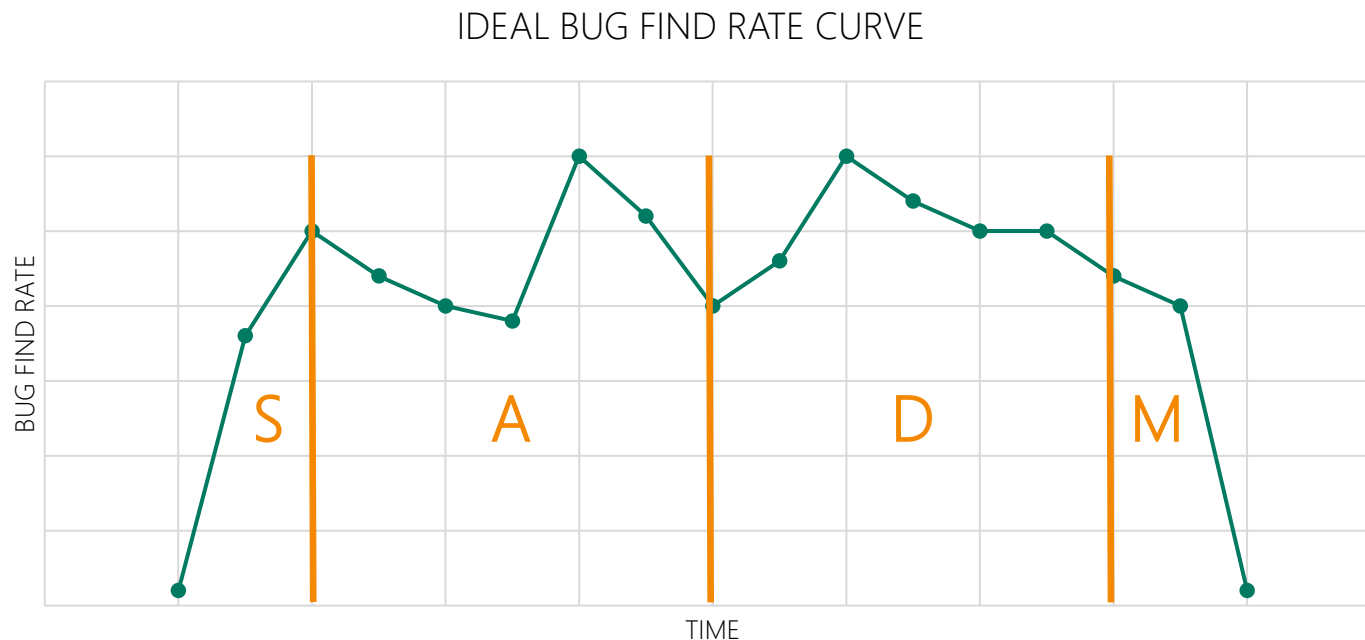
- Using the web
- Consider history
- Read and analyze documentation
- Indulge curiosity
- Generating a variety of ideas
- Overproduce ideas for better selection
- Abandon ideas for faster progress
- Reusing ideas for better economy

Testing



- Encountering the product
- Sensemaking
- Analyse product risk
- Experiment
- Observe
- Detecting potential problems
- Assessing validity
- Bug reporting and advocacy
- Testability advocacy

- Early in the project: test **sympathetically**, focus on working features
- Middle in the project: test **aggressively**, find as many bugs as you can
- Near end of the project: test **diversely**, use all your ideas to create bugs
- Final days: test **meticulously**, defensive and careful testing



Developers learned:

- Make library in extension with functions of [WHEN] as you can use them multiple times
- Don't place too much code between GIVEN, WHEN, THEN, this improves readability
- Always test in an environment without/or only with Cronus data
- Make always extra environment with data so you can test functionality yourself or a consultant can
- Only make testscripts that can be executed within the extension, when external source is needed, mock it (use events with handled pattern)
- Think good about needed tests to cover your code (code coverage)

Functional consultants learned:

- Gherkin technique (Given, When, Then) works good, you're triggered to think about the right things
- In the beginning still searching how to describe the best scenarios, after consultation with developers this has been improved, there is more clarity how to describe them
- Remains a critical process, always reviewing test scenarios with developer
- Still looking for distribution automatic/manual tests, how far do you want to go in describing test scripts. If you perform certain tests automatically, do you plan the others manually?

I learned:

- Gherkin technique (Given, When, Then) is easy to learn and understand and will give a good start
- Developers and consultants should understand each other and have to do it together
- Sometimes extra meetings are needed to put the noses in the same direction
- Consultants should mimic an example in the developer's environment so that the developer knows what kind of data or minimum data is required

The future:

- Continuous improvement.

- Software handover.

(Dutch standard NEN NPR 5325-2017)

- Risk management during development and maintenance of custom software.

(Dutch standard NEN NPR 5326-2019)

- Continuous risk management.

Thank you for
your attention



FOODWARE 365

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