

Visual Portfolio	Version: 1.0
User Acceptance Test Document	Date: 2017-11-28



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Revision History

Date	Version	Description	Author
2017-11-28	1.0	Version 1	Rodrigo P. Coelho
2018-01-06	2.0	Final revisions and checks	Rodrigo P. Coelho

Visual Portfolio	Version: 1.0
User Acceptance Test Document	Date: 2017-11-28

1. Introduction

1.1 Purpose of this document

The User Acceptance Test document shows the tests that were executed, coverage (including any missed requirements), metrics (including status of test cases), and recommendations for continuous product improvement.

These tests were used to verify that the product meets the functionality requested by the client and the requirements defined in the Requirements Document as well as the quality of the final product.

1.2 Document organization

The document is organized as follows:

- Section 1, *Introduction*, describes the content of this guide, the documentation used during the development process etc.
- Section 2, *Testing*, describes the testes that were executed and how.
- Section 3, *Conclusions*, describe the conclusions of the Tests performed.

1.3 Intended Audience

The intended audience is:

- Team members;
- Supervisors;
- Customer and his clients;
- Consultants that will continue our work.

1.4 Scope

The scope of this User Acceptance Test Plan contains the tests that were planned to be carried out during the meeting with the client, as well as the results from these meetings. If successful, tests are marked Pass, if not, tests are marked Failed and the reasons are specified

1.5 Definitions and acronyms

1.5.1 Definitions

Keyword	Definitions
Pass	The tested resulted as expected
Fail	The test results are not as intended

1.5.2 Acronyms and abbreviations

Acronym or abbreviation	Definitions
NTR	Nothing to Report. There is no information to a specific topic available or necessary.
Polimi	Politecnico di Milano
MDH	Malardalen University

1.6 References

This document creates tests to guarantee the functionality described in the Requirements Definition Document.

2. Testing

2.1 Manual Testing

Apart from the manual tests performed by the team on their own work, the team had real Acceptance tests in

Visual Portfolio	Version: 1.0
User Acceptance Test Document	Date: 2017-11-28

the field with the Client and its Customers. To be more specific, the students from MDH branch of the team went to the Kommuninvest's office in Orebro and had an opportunity to present the product, both alpha and beta prototypes. This was done in two sessions, dates of which are mentioned below:

- Alpha prototype presentation: 06/12/2017
- Beta prototype presentation: 18/12/2017

During those two presentations, the progress of the prototype was shown, any doubts and misunderstandings were clarified and additional proposals and suggestions were noted. Both the client and its customers had an opportunity to “play” with the prototype and check its capabilities. Test Cases executed during those meetings are listed in the section 3: Test Cases.

2.2 Automatic Testing

As was explicitly stated in the project specifications and requirements (please see the required document) the team was not supposed to implement any unit testing or security testing. However, for our code to be easily maintained after the project delivery some automatic JavaScript plugin tool like ESLint¹ was used. That would save us from dirty and unreadable code and improves overall quality.

ESLint is a syntax checker and validator that scans the source code looking for suspicious non-portable constructs. It looks at style conventions and structural problems making the code more consistent and less prone to bugs. If a problem is found, a message describing the issue is displayed and the approximate location within the code is flagged.

It detects errors like:

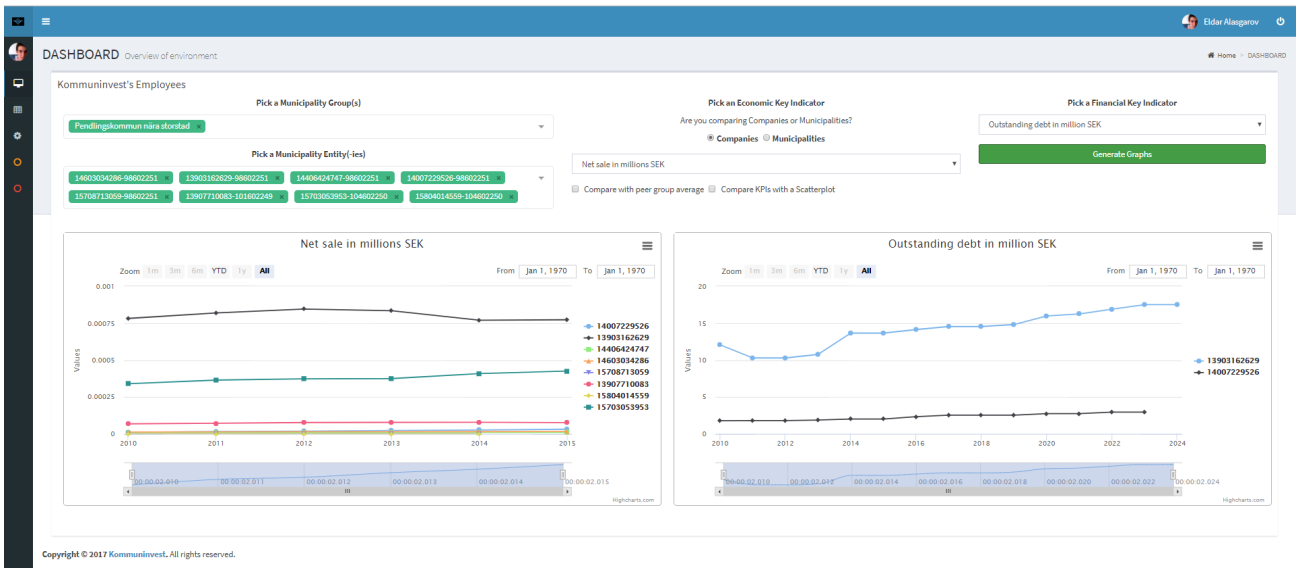
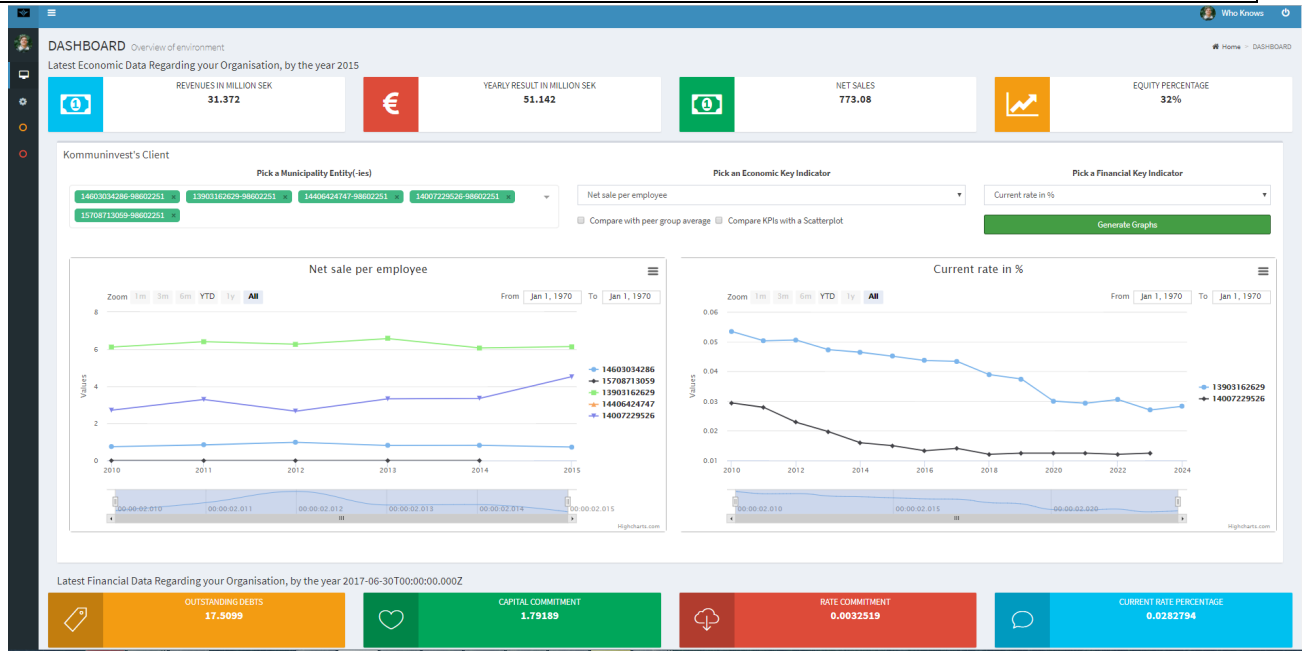
- Duplicated and missing variable;
- Unnecessary spaces and lines;
- Declared but not used variables;
- Variable scope issues;
- Issues with operators;
- and others.

This added another layer of safety to guarantee product quality for the customer.

3. Test Cases

The tests described in the next page were done manually by the testing team, following the use cases created for the Visual Portfolio project. The picture below can serve as a reference to lookup the name of each control:

¹ <https://eslint.org/>



Visual Portfolio	Version: 1.0
User Acceptance Test Document	Date: 2017-11-28

Test ID	VP1
Test Name	Login with correct email and password
Test Description	Simulates normal login with a valid email and password.
Prerequisite(s)	Web site is up and running.
Input Specification	The user types in a valid email and password and clicks in the submit button.
Output Specification	The system logs in and opens the Dashboard.
Pass/Fail	Pass

Test ID	VP2
Test Name	Login with correct email and incorrect or no password.
Test Description	Test system messages if the user types an empty or incorrect password.
Prerequisite(s)	Web site is up and running.
Input Specification	The user types a correct email but wrong password and clicks the submit button.
Output Specification	The user gets a message that the password is incorrect.
Pass/Fail	Pass

Test ID	VP3
Test Name	Login with incorrect or empty email and correct password.
Test Description	Test system messages if the user types an empty or incorrect email.
Prerequisite(s)	Web site is up and running.
Input Specification	The user types an incorrect email and correct password and clicks the submit button.
Output Specification	The user gets a message that the email is incorrect.
Pass/Fail	Pass

Visual Portfolio	Version: 1.0
User Acceptance Test Document	Date: 2017-11-28

Test ID	VP4
Test Name	Check that Municipality Group, Municipality Entity, Financial Key Indicators and Economic Key Indicators have loaded correctly.
Test Description	Click on the Municipality Groups, Financial Key, and Economic Key indicators dropdowns and verify that they have loaded in correspondence to the spreadsheet. Select a value for each and click on “Generate Graphs” button.
Prerequisite(s)	User is in the Dashboard screen.
Input Specification	User is able to select a value in each of the separate controls.
Output Specification	Graphs change according to user selection.
Pass/Fail	Pass

Test ID	VP5
Test Name	Check visualization of a single portfolio (Standard User)
Test Description	Standard User needs to be able to login and view the portfolio of his company only.
Prerequisite(s)	User is in the Dashboard screen.
Input Specification	User is able to select a value in each of the separate controls.
Output Specification	Portfolio changes according to user selection.
Pass/Fail	Failed - due to the fact that even through the portfolio is visualized, portfolio of the other companies should not be seen for privacy purposes, only the peer group average.

Test ID	VP6
Test Name	Check visualization of more portfolios. (Account Manager)
Test Description	The Account Manager from Kommuninvest should be able to visualize not only one portfolio from one municipality or company, but from as many as he wants.
Prerequisite(s)	Account Manager is logged and in the Dashboard screen.
Input Specification	Select Municipality Group, Entity, Indicators and generate the graph
Output Specification	Generated graph with multiple lines for separate entities
Pass/Fail	Pass

Test ID	VP7
Test Name	The user selects between different entities: municipality, municipality group, company.

Visual Portfolio	Version: 1.0
User Acceptance Test Document	Date: 2017-11-28

Test Description	Click on "Pick a Municipality Group"; Click on "Pick a Municipality Entity(-ies); Select companies or Municipalities; click on "Pick Economic Key indicators" dropdowns. Select an appropriate value for each and click on "Generate Graphs" button.
Prerequisite(s)	User is in the Dashboard screen.
Input Specification	Select Municipality and Municipality Group,
Output Specification	Graph is generated
Pass/Fail	Pass

Test ID	VP8
Test Name	The Customer compares their company's portfolio with their peers.
Test Description	Click on "Pick a Municipality Group"; Click on "Pick a Municipality Entity(-ies); Select companies or Municipalities; click on "Pick Economic Key indicators" dropdowns. Select an appropriate value for each and click on "Generate Graphs" button.
Prerequisite(s)	User is in the Dashboard screen.
Input Specification	User is able to select a value in each of the separate controls.
Output Specification	Comparison graph is generated
Pass/Fail	Fail: <ol style="list-style-type: none"> 1. The customer can see all companies owned by the municipality in the dropdown. They should only be able to see their own company. 2. The customer has to select the company in the dropdown. This should not be needed. 3. Empty graphs are displayed

Test ID	VP9
Test Name	The Account Manager compares any kind of portfolios.
Test Description	Click on "Pick a Municipality Group"; Click on "Pick a Municipality Entity(-ies); Select companies or Municipalities; click on "Pick Economic Key indicators" dropdowns. Select an appropriate value for each. Select "compare with peer group average" or "compare KPIs with Scatter-Plot " and click on "Generate Graphs" button.
Prerequisite(s)	User is in the Dashboard screen.
Input Specification	User is able to select different portfolios to compare.
Output Specification	Appropriate comparison graphs are generated
Pass/Fail	Pass

Visual Portfolio	Version: 1.0
User Acceptance Test Document	Date: 2017-11-28

Test ID	VP10
Test Name	The user generates a graph.
Test Description	Click on "Pick a Municipality Group"; Click on "Pick a Municipality Entity(-ies)"; Select companies or Municipalities; click on "Pick Economic Key indicators" dropdowns. Select an appropriate value for each and click on "Generate Graphs" button.
Prerequisite(s)	User is in the Dashboard screen.
Input Specification	User is able to select different portfolios to compare.
Output Specification	Graph is generated
Pass/Fail	Pass

Test ID	VP11
Test Name	The user decides which kind of graph to plot.
Test Description	Selects between the types of graphs to be displayed. Either Line charts or Scatter-plot with Histograms.
Prerequisite(s)	User is in the Dashboard screen.
Input Specification	Financial Key Indicators, Entities and Group types
Output Specification	Graphs built in Highchart JavaScript Library
Pass/Fail	Fail - Only one type of graph available, at this point. Scatter plot and bar graphs to be added in the final product.

Test ID	VP12
Test Name	The user decides which kind of data the graph should show.
Test Description	The user selects between the types of graphs to be displayed. They should be different from the previous test case.
Prerequisite(s)	User is in the Dashboard screen.
Input Specification	Financial Key Indicators, Entities and Group types. Hide/Show checkbox
Output Specification	Graphs built in Highchart JavaScript Library
Pass/Fail	Fail - Only one type of graph available, at this point. Scatter plot and bar graphs to be added in the final product.

Visual Portfolio	Version: 1.0
User Acceptance Test Document	Date: 2017-11-28

Test ID	VP13
Test Name	The user can apply filters on graphs and tables he/she generated.
Test Description	After changing to the Highstock library the user now can scroll, through the timeline and select specific period to be displayed. Also, you can hide/show specific Entities of already generated graph to make it easier to view the ones you are more interested in.
Prerequisite(s)	User is in the Dashboard screen.
Input Specification	User can select different filters to be applied. Filter controls are enabled.
Output Specification	Filtered Graph
Pass/Fail	Pass

Test ID	VP14
Test Name	The user downloads data as an image (PNG or JPEG format) or as row data (SVG with images).
Test Description	On the top right corner of every chart, there is a download menu, submenus of which are types in which u want to download the chart. So far the types are: SVG, PNG, JPEG, XLS, PDF, CSV, or just view it as a table.
Prerequisite(s)	User is in the Dashboard screen.
Input Specification	Download button on the top right corner of the graph
Output Specification	File containing the graph data in corresponding format
Pass/Fail	Pass (However, to be fixed: downloaded image does not look good if many (>7) entities are selected).

Test ID	VP15
Test Name	Check that the Municipalities table screen is opening and loading correctly.
Test Description	Click in the "Municipalities" button on the left of the Dashboard.
Prerequisite(s)	User is in the Dashboard screen.
Input Specification	Button displays in the sidebar.
Output Specification	Municipalities screen opens and displays the appropriate data.
Pass/Fail	Pass

Test ID	VP16
Test Name	Docker environment installation.
Test Description	Test that the whole Docker environment is installed appropriately and each container keeps on running after environment is started.

Visual Portfolio	Version: 1.0
User Acceptance Test Document	Date: 2017-11-28
Prerequisite(s)	<i>Docker</i> installed. <i>Docker-compose</i> installed. Internet connection. Docker images up to date (could be updated with: <i>docker-compose pull</i>) Git repository of the project cloned locally.
Input Specification	<i>Docker-compose up</i> command should be executed in the root of the project.
Output Specification	All 4 Docker containers run and show their logs in the console.
Pass/Fail	Pass with remarks to improve documentation.

4. Acceptance Test Summary and Customer Feedback

The customer was generally satisfied with the results and gave good feedback of small cosmetic items that had to be fixed. These included things such as:

- If the user logging into the system is the CFO of the municipality, that should allow him to see economic and financial indicators for all entities within his group.
- Revenues would be best expressed in million SEKs, Yearly result also in million SEK
- Number of employees and Equity should be in percentage without decimals.

A complete list of the customer's requests can be seen in Appendix A, where the email sent by the client is transcribed and some of the observations from our teammates that went to Komuninvest were also added.

Officially, as can be seen from the Test Cases above 12 out of 16 test cases have Passed. The Reasons for the failures are described in detail in each test case. Failures described are considered not drastic and will not affect overall time schedule of the project and are easy to be dealt with.

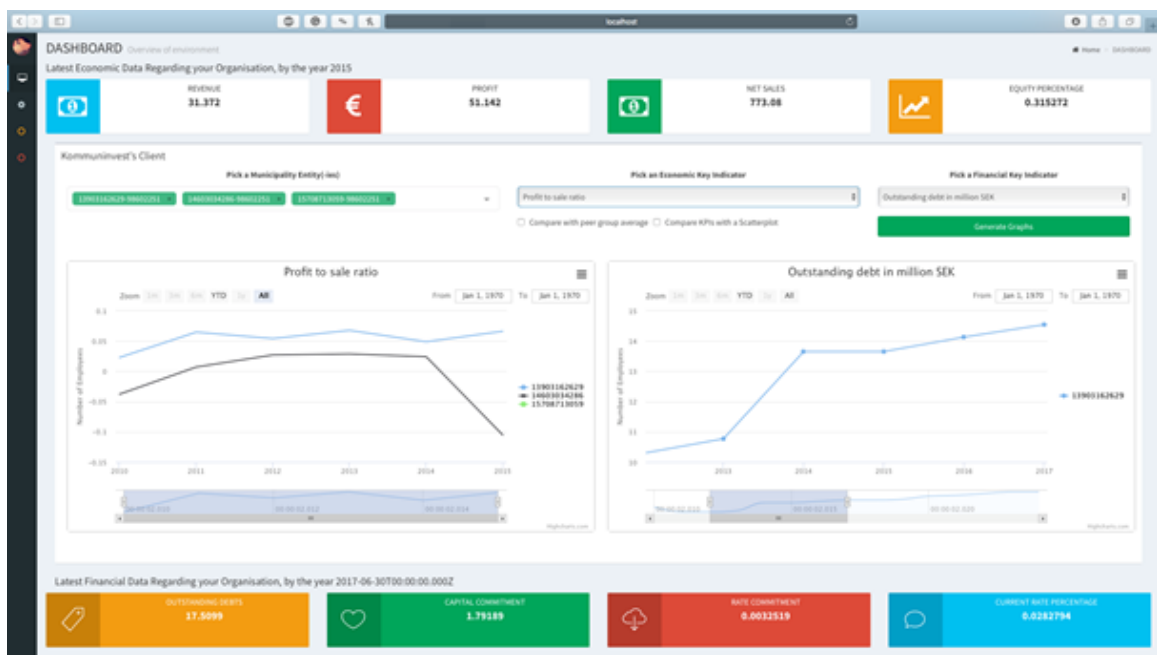
Moreover, the team was lucky enough to get a full and detailed description of their notes during those meetings where they describe what already has been achieved and their suggestions and clarifications on a few matters.

Visual Portfolio	Version: 1.0
User Acceptance Test Document	Date: 2017-11-28

Appendix A

Customer Requested Changes (MoM)

- If the user logging into the system is the CFO of the municipality, that should allow him to see economic and financial indicators for all entities within his group.
- Revenues would be best expressed in million SEKs, Yearly result also in million SEK
- Number of employees and Equity should be in percentage without decimals.
- If financial indicators are available they should be shown in the boxes in the bottom of the screen.
- The CFO is able to pick one entity from the list of entities within the municipality group. They are municipality group, municipality and all the municipal companies. When a company is chosen the information in top boxes is changed.
- The CFO picks one economic indicators and one financial indicator and lines appear in the figure in the next page.
- When peer group averages is chosen an additional line is plotted in the time series graphs.
- Peer group is defined for
 1. a municipality group as all the other municipality groups
 2. a municipality, all other municipalities
 3. a housing company, all other housing companies (in other municipality groups)
 4. an energy company, all other energy companies (in other municipality groups)



- If the CFO might be interested in looking at the distribution of a certain indicator within the chosen entities peer group:
 - Histograms and scatter-plots are created by choosing one or two variables for either the economic or financial indicator list (or both) and then choosing for which point in time the histogram or scatter-plot should be displayed. For example, CFO in muni A picks his housing company as the entity of choice and chooses revenue in million SEK and profit in million SEK for the year 2015 as his economic indicators. Interest rate is the choice of financial indicator for quarter 4 2015. In the left side graph, the scatter-plot will show the relationship between revenue in million SEK and profit in million SEK in 2015 for all housing companies (the peers) and in the right-hand graph the histogram will show the distribution of the interest rate paid by the housing companies in the fourth quarter 2015.
 - A suggestion: Skip the outliers if they tend to mess up the charts.

Visual Portfolio	Version: 1.0
User Acceptance Test Document	Date: 2017-11-28

- The same logic as above applies to my coworkers at Kommuninvest, with the exception that they can choose more than one entity of the same kind (muni or company) to be displayed in the graphs at the same time.
- The dropdowns that should be shown on the dashboard should be different depending on the logged in user:
 - For manager users, there should be a dropdown of municipalities and one for entities.
 - For customers on municipality level, there should be a dropdown for entities only, since they only have access to one municipality
 - For customers on company level there should not be a dropdown. They only have access to their own company
- The "Pick a Municipality Group(s)" dropdown that we have now is not needed.