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Implimentation Plan

Automating the Reporting Process of Plainwear

# Version Information

## Revision

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| 1 | Complete | 20.12.20 | Added missing content |
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## Approval

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| ***Version*** | ***Date Ap.*** | ***Name*** | ***Function*** | ***Signature*** |
| 1 | 20.12.20 | Jędrzej Kajkowski | Group Member | Jędrzej Kajkowski |
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## Distribution list

|  |  |  |  |  |
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# Executive Summary

Plainwear is a Dutch apparel company that specializes mainly in menswear but also has a womenswear department. The company opened its doors in Amsterdam and now has 64 different locations across the globe and has no plans of stopping.

Along with opening new stores, the company occasionally closes down some stores for refitting or for renovation. The closure of a store usually lasts a few months. Occasionally, some stores are closed permanently for underperforming.

In a highly competitive environment that is the modern fashion industry, the use of data is invaluable in keeping track of the performance of a business’s retail stores. Plainwear’s executive management recently adopted a Like For Like (L4L) reporting method to monitor the performance of existing stores in their business and have a large amount of data regarding its stores.

However, Plainwear’s current reporting system does not reflect the changes on a store’s status. The company is left with the combined data from both opened and closed stores which make their way into regular reports. This can have great consequences especially when major business decisions are made based on those reports.

Simply put, in the current state of affairs, the executive management cannot make use of the company’s data properly to make meaningful decisions albeit with some difficulty.

In response, Plainwear’s CFO has asked us to completely redesign and automate the company's reporting system.

This paper details our analysis of Plainwear’s reporting issues and proposals to mitigate those issues with the creation of a Power BI dashboard along with improving the reporting process altogether.

# Current Reporting Process

## Initial process

We find it best to begin discussing the matter with Plainwear’s current reporting process. Below is a BPMN chart of the process:

Diagram

Description automatically generated

*Figure 1, Current Process BPMN*

## Bottlenecks

We’ve identified three major areas in which bottlenecks persist. Simply put, Plainwear is having issues in three key areas in their reporting process: when pulling data from a database, when filtering data, and visualizing data through Excel:

1. Data pulling

When data is transferred to Microsoft Excel, the error risk is very high because Excel is not a tool for data design and storage, thus unneeded data will be lost and every time something new has to be done with updated or different data will require all steps to be repeated, increasing the chance of making mistakes

1. Filtering data

There is no guarantee the filtered data is correct due to the fact that part of the data is already missing. Manual filtering is also a major inconvenience because it relies on human factors and the interpretation may be different for certain conditions and requirements.

1. Visualizing data

The possibilities of generating meaningful visual graphs are not present because different KPIs require different data which can’t be put together. Finally, if the CFO isn’t actually satisfied with the presented report, this cumbersome process has to be repeated again and again until level of acceptance of the management is reached.

# Requirements

## Business requirements

The customer wishes to know when the revenue of its active stores only is increasing and decreasing. Plainwear wants to be able to filter and monitor the performance of those stores in a fully automated system.

## User requirements

This new reporting process should be performed in major part through a Power BI dashboard. Graphs should display same-store sales (L4L) from the current and previous years on a monthly basis. Only stores that have been active throughout the 2-year period (current and previous years) should be accounted for. The customer should be able to compare the sales current year’s growth to the previous year and observe an increase or a decrease in revenue. The dashboard should have a number of filters and slicers including a year slicer, filters for store type, and geo-localization filters. From there, the user should be able to generate a report for printing.

Also, if the dashboard ever fails to display the desired numbers, the dashboard must notify the user and he/she should be able to perform a quick diagnosis on the data.

## Functional requirements

|  |  |  |
| --- | --- | --- |
| ***ID*** | ***Requirements*** | ***Description*** |
| F1 | Automated Data Import | The data must be imported from the database automatically. No human intervention should be necessary. |
| F2 | L4L filtering | Stores that have gone through either an opening, a closing, or a refitting within the period should be excluded. |
| F3 | Yearly Comparisons | A graph should be able to display the sales of the current and previous years in terms of months. |
| F4 | Growth Calculations | Growth calculations should be performed on the current and previous years and presented to the user. |
| F5 | Data Filters | Localisation filters, store type filters, and a year slicer should be available for the user. |
| F6 | Generating Reports | The dashboard should be able to generate report with the user’s desired numbers in the universal PDF format. |

*Table 1, Functional Requirements*

## Non-functional requirements

|  |  |  |
| --- | --- | --- |
| ***ID*** | ***Requirements*** | ***Description*** |
| NF1 | Seamless comparisons | Comparing the revenue growth should be made easy and seamless. |
| NF2 | Intuitive Design | The UI should be intuitive/simple and should not necessitate training sessions for a user to understand. |
| NF3 | Secure Data | The data should not be accessible by unauthorized personnel. |
| NF4 | Scalable and Maintainable | The dashboard should not necessitate a complete revamp of the customers database structure and should work with updated data in the future. |
| NF5 | Power BI | The system should revolve almost entirely around the Power BI software. |

*Table 2, Non-Functional Requirements*

# Improved Reporting Process

## New process

This is an improved reporting process using the Power BI dashboard. The following may only apply if all the one-time setups have been completed, including installation of necessary programs (Power BI) and connections to the database are ready:

A picture containing diagram

Description automatically generated

*Figure 2, Improved Process BPMN*

## Information flow

In the new process, we’ve removed a significant portion of involvement of the IT staff when generating a report. Only when an error or missing values are present will the IT specialists be notified for reparations. Otherwise, upper management is free to filter the data according to a large number of options available within the Power BI dashboard (more on that later in the report). Unlike the previous process, if the visuals don’t satisfy, changes can be made very simply and much faster than before.

## Improvements

The new process has a number of improvements over the older reporting process. One major improvement is the almost complete removal of the IT department in regular report generation. Manual filtering is no longer a bottleneck since it is being taken care of by the dashboard. Finally, the data does not need to be imported manually into Excel as well. Power BI has integration for directly connecting to a database already.

# Monitoring Risks

Here we illustrate some of the risks we may come across using a risk table. Below is a legend that shows what actions need to be taken according to the risk’s probability and impact.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | |  | **Probability** | | |
|  | |  | Low | Medium | High |
| **Impact** | | Significant | | Monitor and manage risks | Mitigation efforts required | Extensive Management |
| Moderate | | Accept risks but monitor them | Monitor and manage risks | Mitigation efforts required |
| Minor | | Accept risks | Accept risks but monitor them | Monitor and manage risks |

*Table 3, Risk Analysis Legend*

|  |  |  |
| --- | --- | --- |
| **Risk** | **Action** | **Mitigation** |
| Not managing to complete set targets before internal deadlines. Example: certain required documentation | Planning a time pipeline, make minutes of meetings and consider each task by priority versus implementation time. | Cut down on lower priority features or push back tasks to between internal and final deadlines. |
| Client displeased with current direction and drastic changes are required to adjust. | Clear agreements and frequent check-ups. | Find compromise and adjust existing features to better suit the demands of client. |
| Unable to link any software systems to function in unison. | Leave plenty of time to address this specifically. | Might be forced to cut functionalities of problem cases, or work with whatever leftover time. |
| Conducting field research. | Using the business detail from the client Plainwear without assumption | Verify with the client before executing any solution in the Dashboard. |
| Dashboard set-up | Proper preparation and implementation | Assign member to be responsible for task at hand. Prepare plan and work on it early |

*Table 4, Risk Analysis Table*

# Use Case

## Use case diagram

Here we discuss in more detail who the actors interact with the new Power BI dashboard. Actors include a Plainwear employee that has been requested a report and a Plainwear employee from the IT department.

Diagram

Description automatically generated

*Figure 3, Use Case Diagram*

## Information flow

|  |  |
| --- | --- |
| ***Actor*** | ***Role*** |
| Employee | Filters and generates a report. The only interaction the actor has with the system is through the Power BI dashboard. |
| IT Employee | If the data fails to display, the IT department may investigate the data from the database. |

*Table 5, Use Case Information Flow*

## Use case specification

|  |  |
| --- | --- |
| ***Use Case*** | ***Pay Supplier Invoice*** |
| ID | US101 |
| Scope | Generating a Report |
| Summary | User generating a PDF report through Power BI dashboard |
| Primary Actors | Plainwear employee |
| Supporting Actors |  |
| Stakeholders | Plainwear employees, Plainwear IT staff |
| Level | Fish |
| Precondition | Data must be available for the dashboard |
| Trigger | Report requested |
| Normal Flow | 1. Open Power BI dashboard 2. Select appropriate filters through Performance tab 3. Export as PDF 4. Send requested report |
| Alternate Flow | - |
| Exception Flow | 1. a. If null values present, consult IT for verification |
| Postcondition | Report created |

*Table 6, Use Case Specification*

# Prototyping

For this project we used Lean principles. As the solution is being developed, we developed multiple iterations of an MVP. Our solution took shaped as the more feedback we received from the mediators and client.

## Basic Wireframe

Our dashboard is split into three tabs: the overview tab, the performance tab, and the instructions. The overview tab consists of basic statistics of the current such as total revenue of average revenue per order. The instruction holds information on how the dashboard works. The performance tab is by far the most important and is what the client is most interested in. This tab holds one graph with the desired filters like so:

*Chart, bar chart

Description automatically generated*

*Figure 4, Basic Wireframe*

## Minimum Viable Product

We focused our attention on the most important requirement: properly removing unwanted stores in a same-store sales graph. Once this was complete and all functional requirements were accounted for, we moved on to non-functional requirements. This included decluttering the visuals of the filters by moving them into a secondary panel that is closable:

Chart, bar chart

Description automatically generated

*Figure 5, Final Dashboard Design*

We made the UI more appealing but still seem professional by changing colours, adding icons, and shading at times. Some design elements were left untouched as performance reduced. This includes the default buttons instead of customer ones or implementing ‘IF statements’ to avoid triggering longer measures that are not needed. This increases performance from 800 milliseconds of latency to just 140 milliseconds at times, all in the effort of making the dashboard as usable as possible.

# Acceptants and Acceptance Criteria

The acceptance criteria determine whether after testing the product will be accepted or not. These criteria are important to indicate whether the testing outcome was positive or negative, and if the outcome would be negative (acceptance criteria not met) it will be easy to see where the product would need improvement. The norms/criteria are as followed:

* *Severity A* = The dashboard displays wrong data
* *Severity B =* Error occurred when connecting to the customers database
* *Severity C =* Reports cannot be generated
* *Severity D =* The dashboard is at times unresponsive

## Acceptants

|  |  |
| --- | --- |
| ***Name*** | ***Function*** |
| Joey Verhoeven | Client |
| Femke Straatman | Client |
| Mark/Nguyen Phat Thien Phuc | Fontys IT development team |
| Stefan Angelov | Fontys IT development team |
| Jędrzej Kajkowski | Fontys IT development team |
| Tim van Lierop | Fontys IT development team |
| Chandler Greff | Fontys IT development team |
| Anouk Min | Fontys IT development team |
| Marco Hormes | Fontys consulting staff / Mediator |
| Karthika Sivaramakrishnan | Fontys consulting staff |

*Table 7, Acceptants Table*

## Acceptance Criteria

|  |  |  |
| --- | --- | --- |
| ***Use Case*** | ***Test Objective*** | ***Norm*** |
| US101 | Applying desired filters through the dashboard and exporting the data as a PDF report. | A = 0  B = 0  C = 0  D = 1 |

# Test Strategy

## Product Risk Analysis

The product risk analysis determines the risk class (RC, under PRA table) which is a composite number of both risk level and damage involved in a particular characteristic of the use case. This gives us an idea of the impact associated with a characteristic of our solution and the amount of attention that should allocated for each of them.

## Test Goals

|  |  |  |
| --- | --- | --- |
| ***Test Goal*** | ***Description*** | ***Characteristic*** |
| US101 | The data can be updated without introducing errors | Maintainability |
| US101 | The dashboard performs its basic function of filtering data and generating a report | Functionality |
| US101 | The dashboard runs without noticeable delays and is responsive | Performance |
| US101 | There are no ways someone can access and temper the data from the customers database | Security |
| US101 | The dashboard is simple is to read and users are able to determine whether the business is improving or not | User Friendliness |

*Table 9, Test Goals*

## PRA Table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Test Goals*** | ***Characteristic*** | ***Risk*** | ***Damage*** | ***RC*** | ***Argumentation*** |
| US101 | Maintainability | 2 | 8 | 16 | Errors should not occur when connecting a DB, otherwise the system cannot work. |
| US101 | Functionality | 5 | 8 | 40 | The report must perform its basic function, otherwise it has no use for the customer |
| US101 | Performance | 1 | 6 | 6 | Performance should not be an issue. Performance only affects the users experience |
| US101 | Security | 4 | 9 | 36 | Data as critical as sales absolutely must be kept safe |
| US101 | User Friendliness | 3 | 6 | 18 | User friendliness is important, though, not has much as functionality for instance |

*Table 10, PRA Table*

## Test Cases

Diagram

Description automatically generatedThe testing strategy will be performed on test cases examined here. Each test case corresponds to a pathway in the improved reporting system. These pathways are identifiable in the simplified flowchart below (more information in Resources):

*Figure 6, Simplified Process Flowchart*

|  |  |
| --- | --- |
| ***Test Case*** | ***Description*** |
| TC1 | This instance occurs when no errors are prompt when applying filters in the dashboard. This is the ideal and normal flow. |
| TC2 | Occurs when null values are found after applying a filter. This is the only instance where the IT department are consulted. |

*Table 10, Test Cases*

# Functional Management

Functional Management is the most common type of organizational management. The organization is grouped by areas of speciality within different functional areas (e.g., finance, marketing, and engineering)

We will be following the framework of BiSL Next. This is a framework that helps to structure our project. The centre of attention of this framework is ‘Operational Domain’ and ‘Improvement Domain’ which includes concrete actions into our implementation plan. There are two prerequisites:

* Monitoring of usage and changing need must be part of the domain.
* Service Level Agreement (SLA) and Request for Change (RfC).

## Operational Domain

|  |  |
| --- | --- |
| ***Operation*** | ***Activities*** |
| Business Operations | * Reach the standard of like4Like reporting. * Face to face online support. * Mapping users of Dashboard. |
| Data Operations | * Good data management in the Dashboard. * Operate the enterprise data environment. * Correcting and monitoring incorrect data. * Design for update data growth, scalability. |
| Service Operations | * Perform operation activities. * Provide input for adaption automated control measures. |
| Technology Operations | * Apply the Power Bi dashboard software to visualize the data. * Mitigate the risk of software damaging data. * Manage the configurations of Dashboard. * Testing Validation processed. |

*Table 11, Operational Domain*

## Improvement Domain

|  |  |
| --- | --- |
| ***Business Improvements*** | |
| ***Activity*** | ***Agreement from client*** |
| Must fulfil all business requirement of the product | the system contains all the business requirements |
| Prepare and implement transition (rollout) | When changing position happened in the company within new employee will have the guideline into the software. |
| Our Service could offer a face to face calling to maintain the product. | it will offer the link and contact whenever required |
| Documenting changes and the training session for new user, and the guideline explanation. | Training sessions will be offered when the new team or new people access the software. |

*Table 12, Business Improvements*

|  |  |
| --- | --- |
| ***Data Improvements*** | |
| **Objective area** | **Target measure** |
| Analyse the enterprise data environment requirements | The requirement designed with client Plainwear and business satisfaction |
| Good Data Management. | The data from different stores can work with each other and easy to visualize. |
| Specify acceptable limits on uncertainty. | IT and business satisfaction (survey). |
| Automated information. | Data should be automatically transferred to graphs when it input from different source. |
| Increase in Data Quality. | Data from the source will show the performance in good graphs. |
| Agree on Update Frequency | Every year and quarter KPI should be updated into the database. |
| Draft cost Quality of Dashboard | Minimize the cost of dashboard process. |

*Table 13, Data Improvements*

Service Improvement:

* Validate the design of new information services: validation steps will include R to validate the data.
* Assembling various underlying services into on information service for the user: All information will perform in one system for all departments in the company to use.
* Making the service agreement with IT supplier and information chain partner.
* Giving order to our IT Supplier(s) to make changes to the services.

Technology Improvement:

* Change process: change process will work online within the Power Bi server with the client.
* Technology Monitoring: Only the authorized employees of Plainwear can monitor the dashboard.
* Testing: Testing already included in the above with multiple testing parts.

# Resources

## Test Cases

Table

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