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| POwer BI project “Get quick store” |
| Data Quality Strategy |

Introduction

Document Goal and Scope

This document describes strategy and techniques for testing a reporting solution. It provides insight into what activities and steps within the activities are needed to ensure that the solution provides end users with the correct data.

The scope of work for the QA activities defined to the verification of the quality for 3 BI Power BI dashboards in the following priorities:

1. Power BI dashboard “Sales”;

2. Power BI dashboard “Cost”;

3. Power BI dashboard “Stocks”.

Target audience

The document is to be used by:

Development Team 1 as a guideline of what needs to be tested, how it needs to be

Development Team 2 tested, what tools are to be used, etc.

Power BI Development Team

Testing Team – to verify that all the essential testing requirements are covered and that proposed strategies and techniques cover the testing requirement.

ENTRY CRITERIA

The Testing Team may **start** testing activities on a given report version if all of the following occurs:

* Report requirements are available to use;
* Test-documentation including checklists, test cases, test plans were written;
* Power BI tool is available and it needs to be able to connect to the data sources;
* Data are loaded from DWH to Power BI tool;
* RLS with necessary permissions were configured.

The Testing Team may **suspend** partial or full-testing activities on a given build if any of the following occurs:

* There is a fault with Power BI that prevents its testing.
* A severe problem has occurred that does not allow testing to continue.
* It is impossible to open successfully the new version of Power BI report following the Installation Guide.
* It’s impossible to open successfully the new version of Power BI report because of an Errors.
* A new version of the software is available to test new version of Power BI report.
* Development has not corrected the problem that previously suspended testing (Smoke Test Failed status).
* New claimed functionality in report doesn’t work or works improperly (Smoke Test Failed status).

Testing Tools

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| **#** | **Tool** | **Comment** |
| 1 | TestRail | Test Case Management Tool |
| 2 | JIRA | Bug Tracking System |
| 3 | Oracle SQL Developer | Oracle Database Integrated development environment |
| 4 | Power BI | BI Tool |
| 5 | Confluence | Documentation Tool |
| 6 | Power BI Performance Analyzer | Performance Analyzer Tool |

Testing APPROACH

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| Data Quality Dimensions | Checks |
| Consistency | Is the data in the Power BI consistent with the data in the source system?  Check auto computed values based on other attributes. |
| Completeness | Are all the fields available as specified (parameters, values, etc)? |
| Accessibility | Can multiple users access the report at the same time?  How many of them should be able to do that? |
| Performance | Is the performance of the report and navigating within the report acceptable? |
| Uniqueness | Are there duplicated data? |
| Accuracy | Does the data reflect the reality? |
| Validity | Check precision of each numeric field;  Check data types;  Check that calculated metrics contain correct values. |
| Timeliness | Does the report deliver to business process in time?  Have all records been refreshed in time? |

Test Phases

1. **Check the Data at the source and data transformation**: compare the source data and data in report to meet the accuracy for further processing. The data from the source and the PowerBI report data should match with each other. Also data types should match. E.g.: You can’t store the date as text.
2. **Check the data loading**: Here it needs to check whether the data scripts loads into the testing area properly. Are all the fields available as specified? Is there any schedule to update report?

Performance: As systems become more intricate, there are relationships formed between multiple entities to make several co-relations. This kind of complexity often results in queries taking too long to retrieve results. Therefore, performance testing plays an important role here.

1. **Chect Power BI report:**

* Dashboard design: colors, fonts, visual types, etc.;
* Drill-down report checking;
* Cross-browser usage checking;
* Mobile view checking;
* Authorization checking;
* Row-level security checking;
* Base and derived data correctness (e.g., calculations);
* Data aggregation accuracy (e.g., totals and sub-totals);
* Entity attribute hierarchies (e.g., data entry points and beyond);
* Report layout (e.g., usability);
* Prompts (e.g., invalid entries);
* Filters (e.g., cascade filtering);
* Summarized and aggregated data;
* Table/chart formatting (e.g., rounding, decimal places);
* Naming conventions;
* Sorting checking;
* Export functions (e.g., export to Excel, printing);
* Web browser compatibility;
* Linking correctness among tables/data entities.

Risk Analysis

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| Risk ID | Risk description | Probability | Impact | Mitigation |
| RI.1 | QA/DQE illness | High | Medium | DQE and QA need to know each other’s work; engage Data Engineering Lab resources. |
| RI.2 | Insufficiently qualified specialists with required knowledge of DWH and BI testing; lack of skills with data testing tools, methods. | Medium | High | Engage Data Engineering Lab resources, recruit well-experienced staff. |
| RI.3 | Data integration effort may not meet the planned schedule because the quality of source data is unknown. | High | High | Use early data profiling to understand whether data quality meets project needs. All inconsistencies in the source data should be identified and resolved before the extract / transform process. |
| RI.4 | Source data may be inaccurately mapped because data dictionaries are absent. | Medium | Medium | Data dictionaries associated with the project should be developed. |
| RI.5 | Quality issues due to unclear or non-existent data  requirements documentation. | Medium | High | Ensure that requirements are always updated after change requests are approved.  Perform validation and clarification of requirements. |

Acceptance Criteria

Final acceptance of the Power BI report will be based on the following criteria:

• The report should work according to the Functional Specification and the other functional requirements.

• The product bug level of defect related to the Functional Checklist defined for the acceptance testing shouldn't have bugs with severity Critical and Major to be released. No more than 10 bugs with the severity Minor are allowed to be released for production.

• All test documentation defined for the acceptance testing are passed except those having a related known Minor severity defect or not executed during the acceptance tests.