Benchmark

Alerts

Requirement and

Design Document

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# Document References

## Document History

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| **#** | **Date** | **Version No.** | **Description** | **By** |
| 1 | 16-11-2012 | V0.1 | Created the base version document | MSA |
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## References

Following documents have been used as the inputs for preparing this document.

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Document** | **Document description** | **Version** |
| 1 | Hexhibit Features (Word document) | Document describing Hexhibit Features – Specifically refer to Section K – ii) | N/A |
| 2 | Benchmark Alerts Sample Data ver 0.1 (Excel) | Document lists down   1. Sample data (Sheet: Sales Target Alerts) 2. Template of Alert manual data collection – (Sheet: Alert Template) 3. Database Design (Sheet: DB Design) | 0.1 |
| 3 |  |  |  |
| 4 |  |  |  |

## Abbreviations

The following abbreviations or short forms are used in this document.

|  |  |  |
| --- | --- | --- |
| **#** | **Abbreviation** | **Stands for** |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |

# Requirement

## Benchmark Analysis with Alert mechanism and Forecasting:

## [Scheduled Alerts](#_Benchmark_Analysis_–):

Hexhibit facilitates alerts based on user defined schedule. For example, while Business Head for Western Region may like to get the position of actual vs. benchmarks on every Monday of the week, Business Head for Eastern Region would like to get an update on performance against benchmark on every alternate day. Hexhibit allows the users to define their own preferred schedule of when they would like the system to send them positional data vis-à-vis benchmarks.

## [Data-point Alerts](#_Benchmark_Analysis_–_1):

Hexhibit allows the users to define their own threshold limit so that system may alert them as and when this limit is crossed.



## Setting only Threshold:

At times this limit may be defined by the users as a “data point”. For example, a Branch Manager may define that he wants to get notified if the Turn-Around-Time (TAT) for processing Home Loan application in his branch goes beyond 5 working days. Similarly, Business Head may like to get an alert if any of the branches under him cross 6 working days TAT for processing Home Loan, and 3 working days for processing Personal Loan.



## Setting Threshold and Timeline:

At some other times, the users may use their own judgement to decide at what point of time they want the system to check the threshold limit. E.g. If a monthly target for Sales Head is Rs. 5 Mil. He may decide that he wants to get a data point alert 10 days before the end of month, should he reach less than 4 mil till that time. In this case, user is defining not just data point (threshold limit) to 4 mil. but he is also defining the time when system should alert him (i.e. 10 days before the target date). This threshold limit as well as the time for alerting is definable by each users as per their git feel.

The alert mechanism is thus configurable.

Hexhibit allows the users to define their own preferred schedule or data point of when they would like the system to send them positional data vis-à-vis benchmarks.

## [Early Warning (Alert)](#_Benchmark_Analysis_–_2):

Lastly, Hexhibit is capable of forecasting certain measures. Based on the system generated forecasts, Hexhibit provides early warning to selected users if a specific benchmark is likely to remain unaccomplished. For example if for Thane Branch, the benchmark for achieving loan numbers is set at Rs. 10,00,000 for Q1. In the first month of the Q1, the said branch has been able to achieve only Rs. 1,00,000. Hexhibit during its routine to calculate the projections, will automatically flag out this case as a likely for failure to attain benchmark in Q1. This powerful feature allows the decision-makers to take timely corrective actions.

# Design

In general, Alerts may be segregated into two logical parts:-

* KPI or Measure (e.g. Sales, TAT, Profitability etc.) for which the alerts are set
* Users (Each user may define his or her own alerts) for whom the alerts are set

The process of Alerts may be divided into following 3 broad level processes as described below:-

<To review Database Design, please refer to “DB Design” sheet of Benchmark Alerts Sample Data ver 0.1.xls (Excel).>

Each of these processes is described below in detail:-

## Setting up alerts

* + This includes setting up new alerts
  + Changing (Deactivating or modifying) existing alerts

In order to set up alerts, following pre-requisites must be complied with:-

1. Set up of Users (Creation of users with their roles and access rights)
2. Set up of Data Access Matrix
3. Set up / finalization of budget and/or projections/target related excel templates. Budgets/Projections have to created for the desired KPI / Measure (e.g. Sales, TAT, Profitability etc.) for which alerts are to be set.
   * 1. Setting up new alerts

Alert set up may be done by uploading excels in predefined templates.

The dimension columns of the upload excels are pre-populated using projections/budgets.

Depending on the KPI / Measure, there will be a different worksheet (excel) created. (e.g. worksheet template for uploading alerts for TAT may be different than the worksheet template for uploading alerts for Sales.)

*<Please refer to Benchmarks Alerts Sample Data ver. 0.1.xls - Alert template and SALES TARGET Alerts sheets>*

* + 1. Changing (Deactivating or modifying) existing alerts

For changing existing alerts, the administrator will have a choice to:

* + - Upload changed alerts for a specific KPI / Measure for all users
    - Upload changed alerts for a specific user for all KPIs / Measures
    - Upload changed alerts for a specific KPI / Measure and for a specific user

The process will have following two steps:-

* + - 1. Creating excel file

System will create the pre-populated base excel (using Crystal Report? with the help of parameters passed as given under bullet points above i.e. beginning of section 3.1.2). The base tables used for creating this excel will be

1. Budgets\_Targets, b) Alerts\* (where early\_warning\_flag is set to N) and c) Alerts\_Delivery\_Channels

This base excel will contain user preferences as well as ‘active/inactive’ status. The administrator will carefully update the data in excel and save is as per standard naming conventions given below:

|  |  |  |
| --- | --- | --- |
| Sr. No. | Type of alert upload | File name |
| 1. | For changed alerts for a specific KPI / Measure for ALL users, for given month and year | < Measure>-ALL-<MMYYYY>.xls  e.g. SALES-ALL-092912.xls |
| 2. | For changed alerts for ALL KPIs / Measures for a specific user, for given month and year | ALL-<User ID>-<MMYYYY>.xls  e.g. ALL-U001-092012.xls |
| 3. | For changed alerts for a specific KPI / Measure for a specific user, for given month and year | <Measure>-<User ID>-<MMYYYY>.xls  e.g. TAT-U003-092012.xls |

* + - 1. ETL Job processing

The administrator will save the file(s) in pre-designated directory (folder). The actual alert job may be executed in following three ways:-

1. Administrator manually uploads the file as a ‘job’ of ETL.
2. A batch program periodically picks up files from ‘job’ folder and auto-starts execution of the appropriate job.
3. Upload for alerts is a scheduled job for every eod.

The above choices of upload jobs are not restricted to ‘alerts’ only. The system may be designed to use any one or all of these three methods.

As per the assumptions for processing excel upload jobs, the system will overwrite either all users’ alerts for a specific KPI / Measure (case 1), Or specific user’s alerts for all KPIs / Measures (case 2), Or specific user’s alerts for a specific KPI / Measure (case 3).

## Validating and transforming alerts into BI readable form

This stage involves reading and processing the alerts uploaded by the administrator, and populating the LDM. It includes:

* + Apply row level data security for individual users against the alerts (Because alerts would be set up / changed by users manually, this step is necessary to filter out ‘unauthorized’ access to data.)
  + Validate active alerts against existing data (such as system date, existing KPIs / measures (such as TAT, sale etc.) and pre-calculated projections.
  + Store ‘valid’ alert transactions in ticker data store, sms data store, email data store, alert-scheduler data store and alert-report data store

This stage (or set of actions under it) is triggered at the instance any one of following two events:-

1. Uploading of new / modified alerts as described in section 3.1 OR
2. Successful ETL for CDC for any source system

(As a measure of improvement, we may add a flag/indicator against each of the source system to indicate whether alerts need to be re-processed or not. E.g. If HRMS is one of the source systems, and if its data upload does not have any impact on alert computation, then the indicator will be stored as NA or N. The Alerts may be processed only after the data in that source system having impact on alerts is uploaded.)

This stage involves following sequential steps:-

* + 1. Apply row level data security for individual users against the active alerts and identify valid alerts
    2. Evaluate active as well as valid alerts against existing data (such as system date, existing KPIs / measures (such as TAT, sale etc.) and pre-calculated projections.

At a broad level this has 3 parts as depicted below:-

* + - 1. Processing Data Point Alerts (as per sec. 2.1.2.1 requirement):

For each record in Alerts,

For each record, Check Data Point Frequency and Alert\_complete flag

If Frequency = “ONCE” AND Complete\_flag = “Y”

1

Get ‘Measure’ and accordingly get the LDM table for comparison

e.g. If the Measure ( functional area) = TAT, then pick up “ACTUAL” data from HD\_TAT…

Yes

No

1

1

From respective LDM table get the ‘measure’ for comparison.

Compare Data Point Alert with measure from LDM

Is Data Point Qty = ‘MORE’ AND Data Point Alert >Measure from LDM>?

No

Yes

Is Data Point Qty = ‘LESS’ AND Data Point Alert <= Measure from LDM>?

No

Store in Alerts\_for\_delivery table.

Set Alert\_complete\_flag = ‘Y’

Yes

Go, fetch the next row!!

* + - 1. Processing Data Point Alerts (as per sec. 2.1.2.2 requirement):

For each record in Alerts,

For each record, Check Data Point Frequency and Alert\_complete flag

If Frequency = “ONCE” AND Complete\_flag = “Y”

Yes

No

If (EOM-Early\_num\_of\_days) <= sysdate

No

Is it time to give warning?? If yes, then check if there is a valid reason enough to give the warning…

Yes

2

Get ‘Measure’ and accordingly get the LDM table for comparison

2

From respective LDM table get the ‘measure’ for comparison.

Compare Early Warning Alert with measure from LDM

Is Early Qty = ‘MORE’ AND Early Data Point Alert > Measure from LDM>?

No

Yes

Is Early Qty = ‘LESS’ AND Early Data Point Alert <= Measure from LDM>?

Store in Alerts\_for\_delivery table.

Set Alert\_complete\_flag = ‘Y’

No

Yes

Go, fetch the next row!!

* + - 1. Processing Early Warning Alerts (as per sec. 2.1.3 requirement):

Early Warning Alerts compare the forecasting data with the budget/target data and warns the users if any particular target seems unachievable or any particular budget looks set to overshoot.

There are two Pre-requisites for this step:

1. To have projections (forecasting) data populated in data mart. This means that the projection routine must be successfully executed before processing early warning alerts routine.
2. To have budgets / targets uploaded in the data mart.

A distinguishing factor between Data Point Alerts and Early Warning Alerts is that unlike Data Point Alerts, Early Warning Alerts do not require any separate manual data upload. Because there is no manual data load expected, the delivery channel for Early Warning Alerts is a standard one. These alerts are viewed as part of canned reports.

The process flow is as follows:-

For each of the KPI / Measure,

Compare Budgets\_Targets to Projections

Store in Alerts (Early\_warning\_flag will be Y) , Store in Alerts\_for\_delivery table and Store in Alerts\_Delivery\_Channels. The delivery mode will be Canned Reports

Is the difference beyond Tolerance Limit for the KPI

Yes

Ignore this KPI for Early Warning Reporting

No

* + 1. Store ‘valid’ alert transactions in sms data store, ticker data store, email data store, alert-scheduler data store and alert-report data store

For each record in Alerts\_for\_Delivery

Is SMSgenerated = N

Yes

Go to SMS\_Generate routine

No

Is Ticker generated = N

Yes

Go to Ticker\_Generate routine

No

Is Email generated = N

Yes

Go to Email\_Generate routine

No

3

3

Is Schedule d = N

Yes

Go to Schedule\_Generate routine

No

Is Canned generate d = N

Yes

Go to Canned\_Generate routine

No

Go, fetch the next row!!

* + - 1. SMS Generate Routine:

1. If Alert.Early\_Warning\_Flag = Y

Create Message text for Early Warning

“<Measure> Early Warning Alert:

For <MM>-<YY>, target date <Target\_date> Actual data is <data\_point\_actual> vis-à-vis Expected data <data\_point\_projected>. For more details please logon to Hexhibit. Have a good day!”

Else

Create Message text for others

“<Measure> Alert:

For <MM>-<YY>, target date <Target\_date> Actual data is <data\_point\_actual> vis-à-vis Expected data <data\_point\_budgeted\_targeted>. For more details please logon to Hexhibit. Have a good day!”

1. Select User details from UDM\_Users (get User Name and Mobile number for Alerts.User\_id)
2. Save data in SMS Store (Delivery\_date null and Completion flag = N, CR\_Date=sysdate)
3. Update Alerts\_For\_delivery, Set SMS\_Generated=’Y’

* + - 1. Ticker Generate Routine

<To be updated post discussion>

* + - 1. Email Generate Routine

1. If Alert.Early\_Warning\_Flag = Y

Create Subject “<Measure> Early Warning Alert”

Create Message text for Early Warning

“Dear <User Name>.

For <MM>-<YY>, target date <Target\_date> Actual data is <data\_point\_actual> vis-à-vis Expected data <data\_point\_projected>. For more details please logon to Hexhibit. Have a good day!

Regards

*\*This is a system generated message. Please do not reply to it.*”

Else

Create Message text for others

Create Subject “<Measure> Alert”

Create Message text

“Dear <User Name>.

For <MM>-<YY>, target date <Target\_date> Actual data is <data\_point\_actual> vis-à-vis Expected data <data\_point\_budgeted\_targeted>. For more details please logon to Hexhibit. Have a good day!

Regards

*\*This is a system generated message. Please do not reply to it.*”

1. Select User details from UDM\_Users (get User Name and email id for Alerts.User\_id)
2. Save data in Email Store (Delivery\_date null and Completion flag = N, CR\_Date=sysdate)
3. Update Alerts\_For\_delivery, Set Email\_Generated=’Y’
   * + 1. Schedule Generate Routine

<To be updated post discussion>

* + - 1. Canned Generate Routine

<To be updated post discussion>

## Delivery of Alerts

Delivery of alerts includes

* + Sending alerts as a text message (sms) over phone (based on sms data store)
  + Sending alerts as a ticker for individual logged in users (based on ticker data store)
  + Sending reports as attachments through emails (based on email data store)
  + Scheduling reports and send as an email attachment (based on alert-scheduler data store)
  + Providing Alert based reports to appear as canned reports for an individual user (based on alert-report data store)

# Assumptions

* The design does not cover requirement mentioned under 2.1.1 (Scheduled Alerts). It is assumed that scheduled reports may be handled using SAP BO’s inherent scheduling functionality.
* The design assumes that the lowest level of piece (in terms of time lot) will be monthly for budget, target as well as forecast. This means that the users would provide budgets and targets for various dimensions, and the minimum unit of measurement will be a month, followed by a quarter, and a year. Similarly forecasting will too be done for minimum a month.

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**Open Items:**

1. Section 3.2.3.2 Ticker Generate Routine
2. Section 3.2.3.3 Email Generate Routine (How to provide link to the report OR should we attach the report?)
3. Section 3.2.3.4 Schedule Generate Routine
4. Section 3.2.3.5 Canned Reports Generate Routine
5. “How” part of delivery of alerts – need to understand technical feasibility and work arounds before this can be documented.

**Note**:

In the Requirement section, the yellow highlighted text indicates that the said requirement has been elaborated / added in this document. It was not explicitly mentioned in Feature List document. The green highlighted text indicates that a discussion is needed to further analyze the need.