STAR-Trak Data Warehouse Schema

Requirement Specification

Presented to: Leeds Metropolitan University

VERSION 0.1

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Document Revision List

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1	0.1	Created	Jul 19, 2011	Praveen Kumar	Draft	--

[1] Action denotes Created, Updated, Reviewed or Approved

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1. Introduction

1.1 Purpose

The purpose of this SRS is to outline the Requirement Specification for STAR-Trak – BI.

1.2 Scope

The aim of the STAR-Trak – BI project is to provide Leeds Met University to address the current business challenges as listed below

- An easy way of analysis of student activity.
- To provide important KPI's regarding student retention
- Highlight the gap areas which help in improving retention.
- Create data warehouse and data marts for the BI purposes.
- Build ETL Packages that will pull the information from the STAR TRAK Staging Tables and populate the data marts.
- Create a reporting user interface to display the analysis reports as per Leeds Met requirement.

1.3 Definitions, Acronyms, and Abbreviations

DWH – Data Warehouse
OLAP – Online Analytical Process
BI - Business Intelligence
KPI – Key Performance Indicators
ETL- Extract Transform and load

1.4 References

- STAR TRAK Table ER diagram

2. Stakeholders and User Descriptions

2.1 Stakeholder Summary

Leeds Metropolitan University offers a range of undergraduate and post-graduate courses across four faculties - the Faculty of Arts, Environment & Technology, Faculty of Business & Law, Carnegie Faculty, and the Faculty of Health & Social Sciences. Leeds Met led the initiative for the STAR-Trak project, a key deliverable from the JISC Building Capacity Programme.

Fulcrum provides an extensive team of architects, designers and integration experts from their Global Enterprise Solution team to develop the Data Warehouse solution. They will commit an equivalent/large contingent of staff to ensure that this project is a run-away success and hits every deadline for quality, time and cost. The project would be reviewed by senior management of Fulcrum to assure quality delivery.

Name	Description	Responsibilities
Praveen Konda	Owner of this document	Responsible to edit the Document.
Ravi Pinninty	Senior Reviewer	Responsible to Review the Document.
Robert Moores	Authority to sign off	Responsible to Sign Off.

2.2 Elaborated Business Concept

Student retention is an important issue for the University as it has funding consequences; it is used by government as a measure of performance and is a reflection of the student experience. Currently about 13% of undergraduates at Leeds Metropolitan University fail to complete their course.

There are known to be several indicators of a student's behaviour, course of study and demographics, which can be used to highlight a student at risk of dropping out of their course. These behaviours concern how students make contact with the University and how often. By defining these touch points and measuring them a scorecard of the students contact with the University can be created and students can be identified as being at risk.

The STAR-Trak BI will be a key initiative to build such Key performance Indicators that will showcase the information from Data Warehouse which is populated from the STAR-TRAK application tables through an ETL approach. And also create a reporting user interface to display the analysis reports and Dashboards as per Leeds Met requirement.

2.3 Assumptions and Dependencies

- As the Data warehouse concern, no data type or no table structure will be changed.
- The database names and table names and structures should be replica of the expected production system only and LEEDS MET will provide the details of the same.
- Below Mentioned KPI's and Elements will be confirmed by Leeds Met.
- Field-by-field mapping from Star Trak staging tables to Data Warehouse will be provided by respective systems owners after finalising the KPI's and other Elements.
- Fulcrum will also provide a comparative analysis of BI tools (Open source and Commercial) and based on Leeds Met input the final tool will be selected.
- Based on the Selected BI Tool, Reports, Cubes, Dashboards and User Interface will be finalised.
- Leeds Met expects the project to be developed and deployed on the development server within the Leeds Met environment. However Fulcrum will host the application in UK (Reading office) till Dec 2011. From 1st Jan 2012 Leeds Met is requested to hold the application on their server.
- All ETL Packages, Cube, Reports and documentation artefacts' developed would be provided to Leeds Met.
- Estimation doesn't include and installation and configuration of relevant infrastructure related activities. It is assumed that Leeds Met will be taking care of BI Tool Installation & configuration.

3. Specific Requirements

3.1 Functionality Based Requirements

3.1.1 Student Dimension

Req. ID	REBI01

Following Elements will be considered as part of Student Details.

Source Table	Source Column	Target Element
SRS_STUDENTS	SST_STUDENT_ID	Student ID
	SST_SURNAME	Student Name
	SST_FORNAMES	
	SST_DOB	Date of Birth
LOV_ETHNICITY	LET_DESC	Ethnicity
LOV_NATIONALITY	LNA_DESC	Nationality
LOV_NATION	LNT_DESC	Nation
LOV_DISABILITY	LDI_DESC	Disability
SRS_STUDENTS	SST_PR_LINE1	Address
	SST_PR_LINE2	
	SST_PR_LINE3	
	SST_PR_CITY	City
	SST_PR_POSTCODE	Post Code
	?	State
	?	Country
SRS_STUDENTS	SST_HOME_TELEPHONE	Home Telephone
	SST_MOBILE_TELEPHONE	Mobile Phone
	SST_EMAIL_ADDRESS	Email Address

Once the Mapping is done from STAR TRAK Staging Tables to Data Warehouse tables, the detailed information will be provided in separate mapping document.

3.1.2 Lecturer Dimension

Req. ID	REBI02

Following Elements will be considered part of Lecturer Details.

Source Table	Source Column	Target Element
SRS_LECTURERS	SLE_LECTURER_ID	Lecturer ID
	SLE_FORENAMES	Lecturer Name
	SLE_SURNAME	

Once the Mapping is done from STAR TRAK Staging Tables to Data Warehouse tables, the detailed information will be provided in separate mapping document.

3.1.3 Module Dimension

Req. ID	REBI03

Following Elements will be considered part of Module Details.

Source Table	Source Column	Target Element
SRS_MODULES	SMO_MODULE_ID	Module ID
	SMO_MODULE_DESC	Module Name

Once the Mapping is done from STAR TRAK Staging Tables to Data Warehouse tables, the detailed information will be provided in separate mapping document.

3.1.4 Course Dimension

Req. ID	REBI04

Following Elements will be considered part of Course Details.

Source Table	Source Column	Target Element
SRS_COURSE	SCO_COURSE_CODE	Course ID
	SCO_COURSE_TITLE	Course Name

Once the Mapping is done from STAR TRAK Staging Tables to Data Warehouse tables, the detailed information will be provided in separate mapping document.

3.1.5 Time Dimension

Req. ID	REBI05

Following Elements will be considered part of Time Details.

Source Table	Condition	Target Elements
SQL scripts/stored procedures will be written which will act as a feed and populate the data to the target dimension.	Based on Min(SCO_START_DATE) and Max(SCO_END_DATE) from SRS_COURSE.	Financial Year
		Financial Quarter
		Financial Month
		Financial Week
		Year
		Quarter
		Month
		Week
		Full Date

Once the Mapping is done from STAR TRAK Staging Tables to Data Warehouse tables, the detailed information will be provided in separate mapping document.

3.1.6 Attendance Fact

Req. ID	REBI06

Following KPI's will be considered part of Attendance.

Source Table	Source Column	Target Element
SRS_STUDENT_ATTENDANCE	SSA_ATTENDED	Attended
	SSA_MISSED	Missed
	SSA_EXCUSED	Excused
	SSA_NORECORD	No Record
	SSA_FEED_TYPE	Feed Type
	SSA_DAY_SCORE	Day Score
	SSA_NOLOGIN	No Login

Once the Mapping is done from STAR TRAK Staging Tables to Data Warehouse tables, the detailed information will be provided in separate mapping document.

3.1.7 Results Fact

Req. ID	REBI07

Following KPI's will be considered part of Results.

Source Table	Source Column	Target Element
SRS_ATTENDANCE_WEEK	SAW_WEEKLY_SCORE	Weekly Score
	SAW_MAXPOINTS	Max Points
	SAW_FEED_TYPE	Feed Type
	SAW_WEEKNO	Week No
	Calculated	Red
	Calculated	Amber
	Calculated	Green

Week wise Granularity of Data is available in SRS_ATTENDANCE_WEEK, Weekly data will be populated in Results Fact.

Once the Mapping is done from STAR TRAK Staging Tables to Data Warehouse tables, the detailed information will be provided in separate mapping document.

3.1.8 System Technical Details

TBD

3.1.9 Report Formats

Req. ID	REBI08

TBD
Reports Design will be elaborated based on BI tool selected and PHP compatibility to the BI Tool.

4. GUI Requirements

TBD

4.1 GUI Design

As mentioned in the STAR TRAK Architecture Diagram, GUI will be done using PHP MVC.

5. Security

The industry standard security mechanisms need to be implemented in this project. In case any security that needs to be implemented based on Users and their Roles, then these User List would need to be provided by LEEDS MET.

6. Availability and Performance

The user would normally expect the application to perform with optimal performance. Parameterised and Drill down Reports will be provided based on the BI Tool Selected.

7. Design Constraints

NA

8. Applicable Standards

Currently only the default standards that are defined by LEEDS MET University and Fulcrum will be followed for the message flow and the naming convention used for building the solution.