COUNCIL ON HIGHER EDUCATION

SOUTH AFRICA

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The CHE QAF-MIS:
The Design and
Implementation Plan
For a MVP of the QA Dashboards

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1. Abbreviations & Definitions

The following abbreviations are applicable for this process:

ACRONYMS/ABBREVIATIONS	Definition
BI	Business Intelligence
CHE	Council on Higher Education
DM	Data Mart
DW	Data Warehouse
ERD	Entity Relationship Diagram
EQA	External Quality Assurance
ETL	Extraction, Transformation and Loading
HEI	Higher Education Institutions
HEQC	Higher Education Quality Committee
HEPS	Higher Education Practice Standards
HEQSF	Higher Education Qualifications Sub-Framework
HEQCIS	Higher Education Quality Committee Information System (for private higher education institutions)
IQA	Internal Quality Assurance
MIS	Management Information System
MVP	Minimum Viable Product
OLTP	Online Transaction Processing
QAF	Quality Assurance Framework
QA	Quality Assurance
QPCD	Quality Promotion and Capacity Development

2. Background

The vision of the Council on Higher Education (CHE) is to be a dynamic organisation contributing to a transformed, equitable, and quality higher education and training system in South Africa. Its legislative mandate as the sole independent statutory quality council for South African higher education, is to: lead and manage quality assurance; research and monitor trends and development initiate critical discourse on contemporary higher education issues; and provide advice to the Minister of Higher Education, Science, and Technology on strategy and policy.

The main areas of work of the CHE are to provide advice to the Minister of Higher Education, Science, and Technology on all higher education matters on request, and proactively; promote a system of quality assurance for all higher education institutions, including private providers of higher education, which focuses on programme accreditation, institutional audits, national reviews, standards development, quality promotion, and capacity development; monitor the state of higher education and publish information regarding developments in higher education on a regular basis; and contribute to the development of higher education through intellectual engagement with key issues in a number of activities in partnership with relevant stakeholders.

The Council evaluated its current practices and developed a new vision for its EQA mandate in the form of the *Quality Assurance Framework* which was approved by the Council in September 2020. The Council also approved a Digitization Strategy Framework and Road Map on 9 March 2022. The new QAF identifies digital institutional track records, called QA Dashboards, as a central pivot for the implementation of the new QA Functions of Standards Development, Accreditation, and Quality Reviews. The CHE, therefore, aims to implement a digitized solution that will efficiently facilitate and support its EQA processes and data sourcing and management across all institutions of higher learning in South Africa.

3. Executive Summary

The CHE plans to build and implement a Management Information System (MIS) for its Quality Assurance Framework (QAF) to assist in their mandate of facilitating its external quality assurance mandate through the monitoring and evaluation of institutions in the higher education sector within the parameters set out in the QAF, and against the new Standards that will be developed for the first phase of the implementation of the QAF.

It is anticipated that the QAF will be able to steer institutions towards assuming greater accountability and responsibility for revitalised internal quality assurance (IQA) systems. Its differentiated approach is expected to incentivise HEIs to demonstrate their high-quality internal quality assurance (IQA) mechanisms. In order to base the HEQC decisions for this incentivization on coherent, reliable, and quality QA data, a digitized system for capturing, analyzing, and displaying this data in an up-to-date fashion is required.

The implementation of the QAF will be phased in over a defined period, starting in 2024. The scope of the work described in this document is limited to an agreed minimum viable product (MVP) with the CHE. The MVP aims to provide a set of dashboards for the CHE to use to gain insights into institutional internal quality assurance mechanisms from the different external quality assurance (EQA) functions that relate to a particular institution. Additionally, dashboards using institutional profile data will be created to provide a holistic picture of an institution but will not form part of the initial MVP. The dashboards will also provide CHE the ability to evaluate certain areas of interest at a national level in terms of the efficiency and effectiveness of IQA within the higher education sector.

The project will require a data input system to be built in the first phase. This data input system will act as a source of data from the various EQA functions in the data warehouse. The data warehouse will in turn drive the dashboards which will provide the CHE with oversight of the IQA functionality for each institution. The source data for the data warehouse will change once the CHE has the operational systems for the core functions in place.

The CHE has undertaken to license the Azure platform and configure the required services before the project is initiated in 1 October 2023. It is envisaged that the project will be completed within 16 months (includes 4 months for developing, 3 months for distabilizetion and monitoring, 9 months for support and maintenance).

4. Plan to implement CHE QAF-MIS

The project is divided into three phases as shown below in Figure 1. The first phase comprises the gathering of requirements, designing, planning, and costing of the MVP for the QA Dashboards of the QAF-MIS to be in place by 2024. As per the plan, Phase 2 will start on March 2023, with the interim input system implemented as a first step, followed by the implementation of the data warehouse and reporting and analytics systems. Phase 3 is based on the maintenance of the (MVP) and project plan for the enhancements to QAF-MIS.

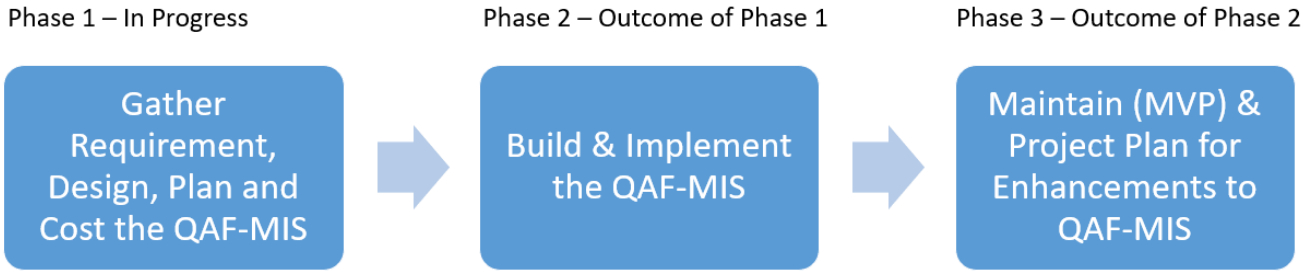


Figure 1 Major Phases of CHE QAF-MIS

5. Benefits

The key benefits of the QAF-MIS:

- Enable and support the implementation of the QAF
- Facilitate an integrated, streamlined, and simplified approach to the External Quality Assurance functions of the CHE
- Provide institutional quality assurance dashboards for the assessment of IQA functionality of each institution.
- Enable the CHE to have a differentiated approach to each institution based on their internal quality assurance functionality.
- Track an institution's IQA progress over time.
- Highlight quality inefficiencies in the sector and at the institutional level.
- Compliment the current qualitative view on quality with a quantitative view for better quality assurance management, oversight, and process management.
- Provide a platform for the future integration of the individual information management information systems that support the currently separate QA functions (Standards Development, Accreditation, and Quality Reviews)
- Enable institutions to access and view their current quality assurance status and trends.
- Store digital profiles of institutions for comparative purposes over time.

6. Purpose of QAF

The purpose of QAF is to put in place a QA system that strengthens and enhances the quality of higher education provisioning, thereby contributing to knowledge generation and construction, dissemination, and application. The focus entails connecting the quality of the academic project, which includes learning and teaching, research, and community engagement, to the broader social purpose of building a sustainable and equitable social order in South Africa while simultaneously ensuring global relevance [CHE, 2021].

Figure 2, provides a summary of QAF components, Quality reviews and Qualification Accreditation and Figure 3 provides the QAF framework. The QAF-MIS datamarts have been designed around these two major QAF components, (quality reviews and qualification accreditation), to provide management reporting and analytics.

	Development of standards and guidelines by Communities of Practice	
	Quality promotion and capacity development	
CHE functions	**Quality reviews**	**Qualification accreditation**
HEQC functions	Evidence-based judgements on the quality management and effectiveness of the IQA systems of institutions for assuring quality of educational provision. The outcomes of reviews form the basis for QPCD and institutional development and improvement initiatives at various levels.	Accreditation of new qualifications and their recommendation to SAQA for registration on the NQF and the DHET. The HEQC grants every HEI a specified number of years for the accreditation of its qualifications, after which time the continued accreditation has to be confirmed. Confirmation of accreditation of existing qualifications for private providers for a specified period, linked to their re-registration by the DHET. The differentiated period of time is based on the institution's integrated quality track record.
HEQSF management	HEQSF data warehouse, HEQSF online systems Integrated institutional quality – track record (QA-dashboards) HEQCIS data HEMIS data HEQSF data Analytical tools Provider's submission of data to the shared, aligned and coherent integrated online submission system between the DHET, the CHE and SAQA (and PBs)	
Sector-level information and intelligence system, analysis, knowledge generation and quality-promotion advice to the minister Reports to the DHET Public accountability		

Figure 2 Summary of QAF Components

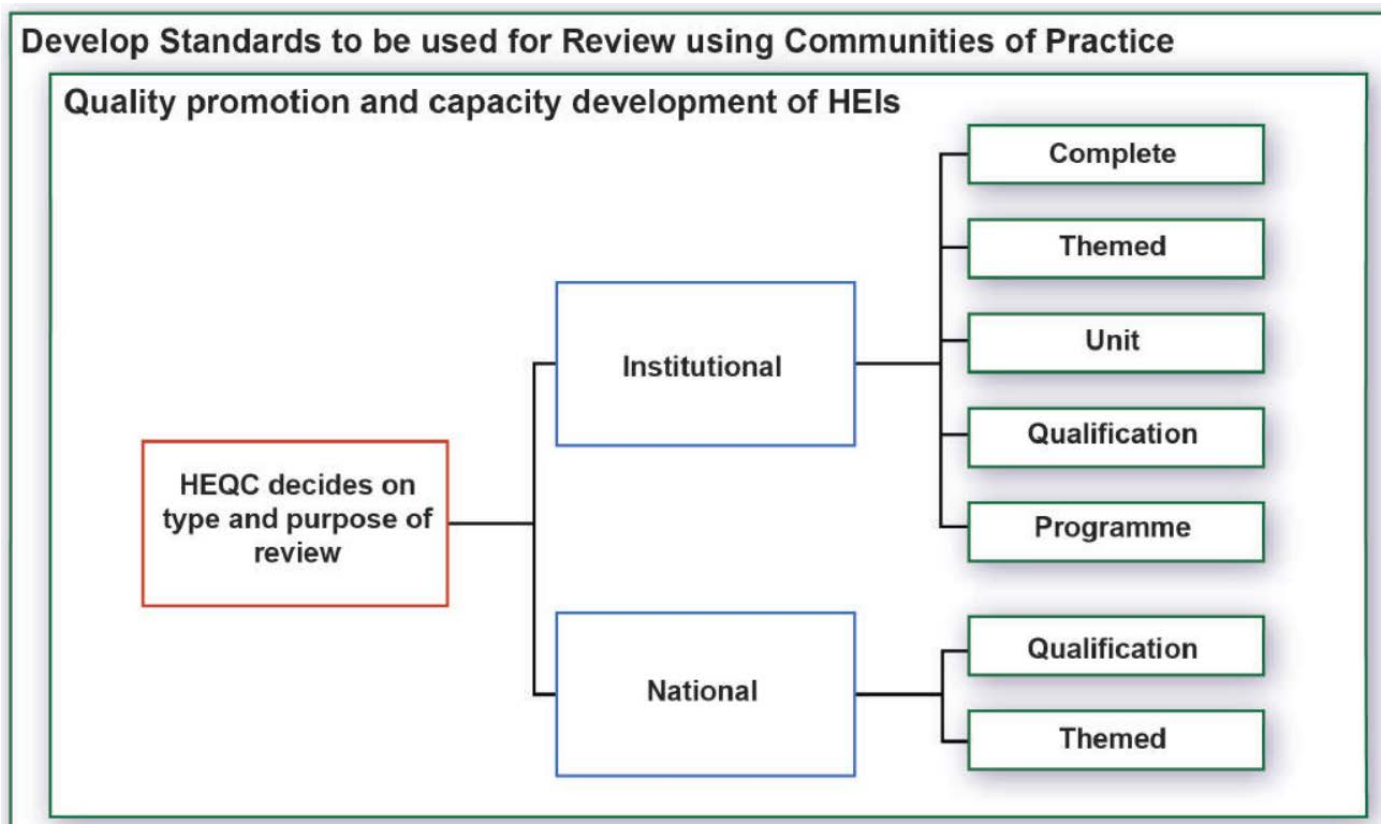


Figure 3 A Quality Assurance Framework (QAF) For Higher Education In South Africa

7. Minimum Viable Product (MVP)

The CHE plans to build and implement a Management Information System (MIS) for the implementation of their Quality Assurance Framework (QAF) to assist in the monitoring and evaluation of Institutions in the higher education sector with the parameters set out in the QAF, against the newly developed Higher Education Practice Standards. Based on the discussions with the CHE the following diagram illustrates the CHE data sources from the EQA core processes and functions that will eventually feed the Data Warehouse to produce all the required reports and dashboards to support the QAF. None of the data sources presented in the diagram are currently able to provide input to the data warehouse. The data warehouse requires a stable digital source system to feed the data warehouse, so an interim data input system is proposed where the data of the rating against the different Standards will be captured into the data input system that will feed the data warehouse.

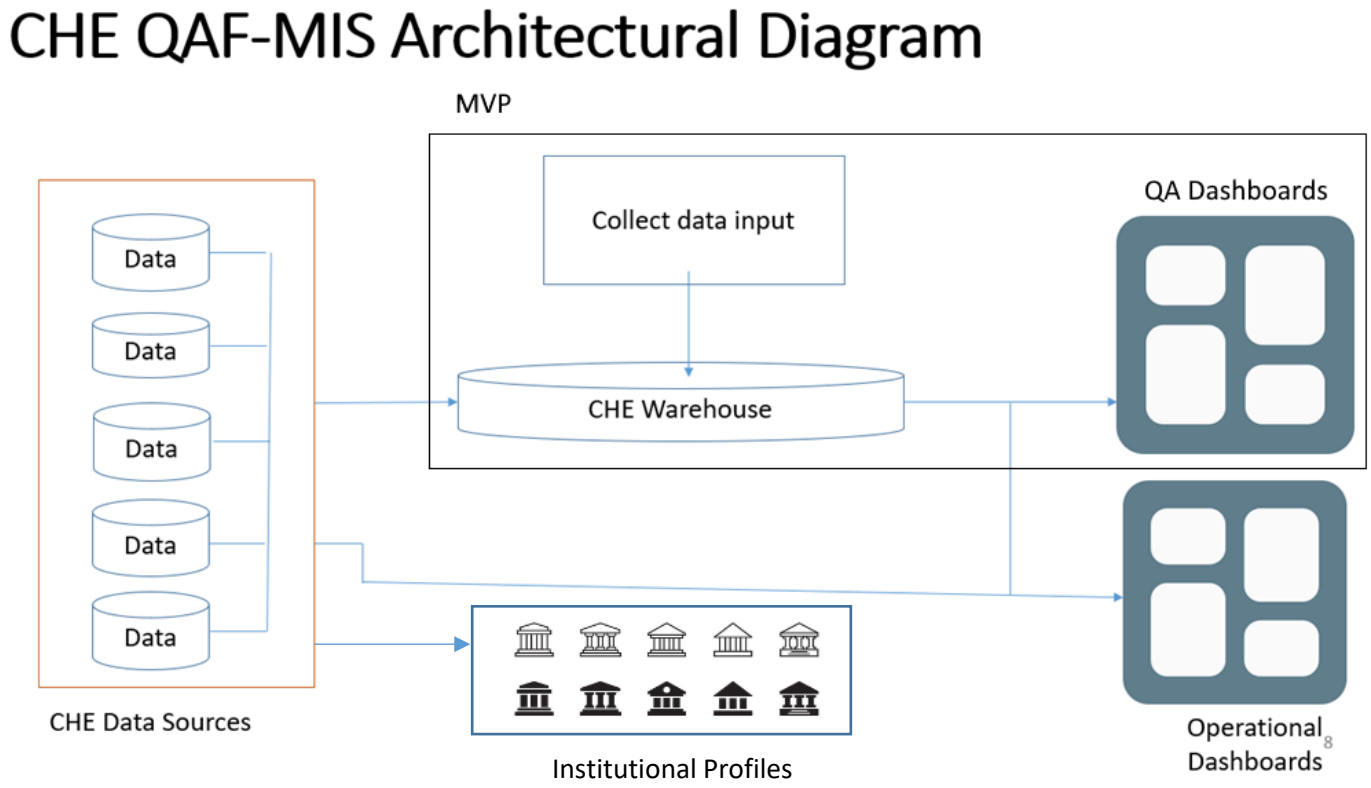


Figure 4 QAF-MIS Architectural Diagram

The scope of the project is reduced to the Minimum Viable Product (MVP), presented in Figure 5, which consists of the following three components.

a. A data input system

The details of what will be included in the data input system are described in Section 12.

b. A data warehouse platform and data marts

The details of the extraction, transformation, and loading framework along with the data marts in scope are presented in section 13.

c. Dashboards and reports

BIS requested CHE to provide a list of reports and dashboards that are required to support the QAF and CHE shared the list. The list also contains reports and dashboards that are not part of the MVP. Section 15 lists all the reports and dashboards that are within the scope of MVP that will be delivered.

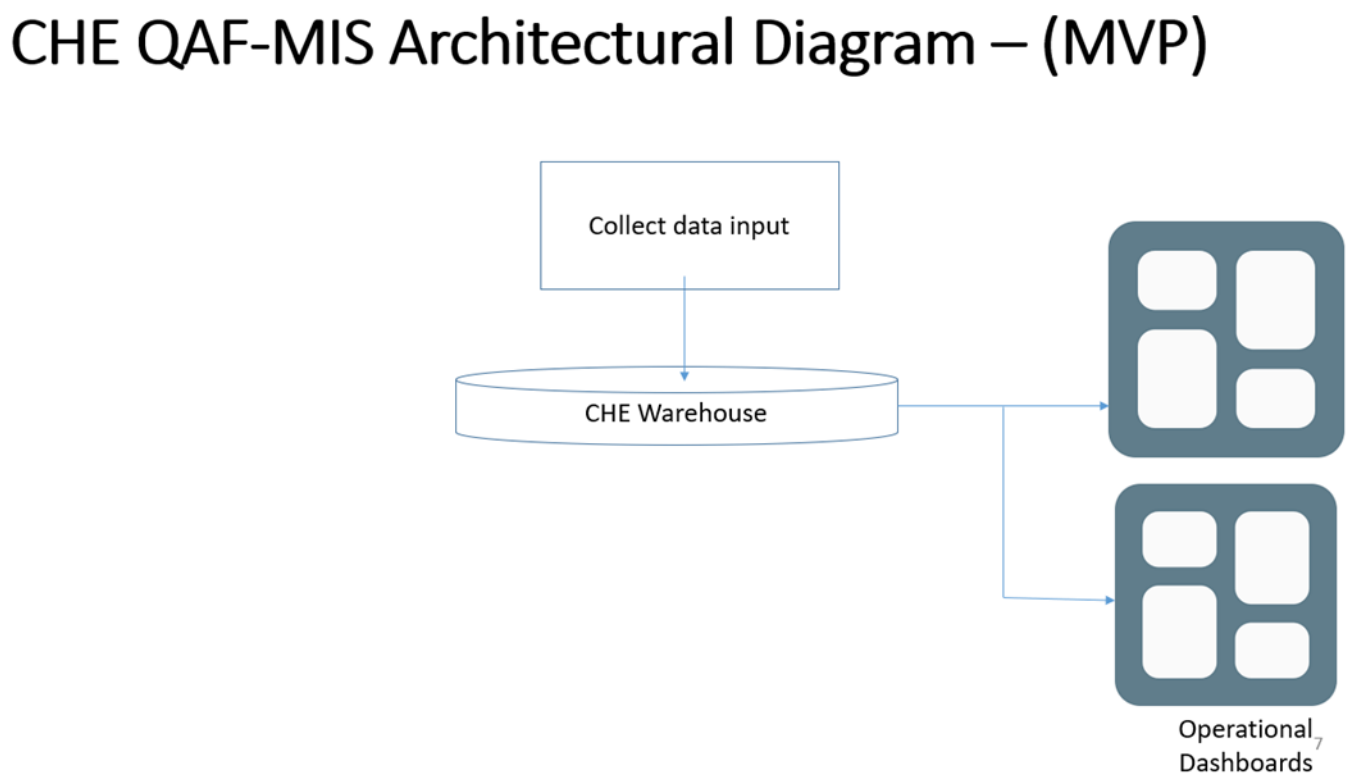


Figure 5 MVP

8. Cloud Platform and Architecture

The CHE has decided to use a cloud platform for QAF-MIS implementation. The landing zone described below in Figure 6 of the services is required on MS Azure to host and run the QAF-MIS. The CHE has undertaken to license the Azure platform and configure the required services before the project is initiated. The landing zone file is also provided along with this document, so it can be zoomed in to view the details.

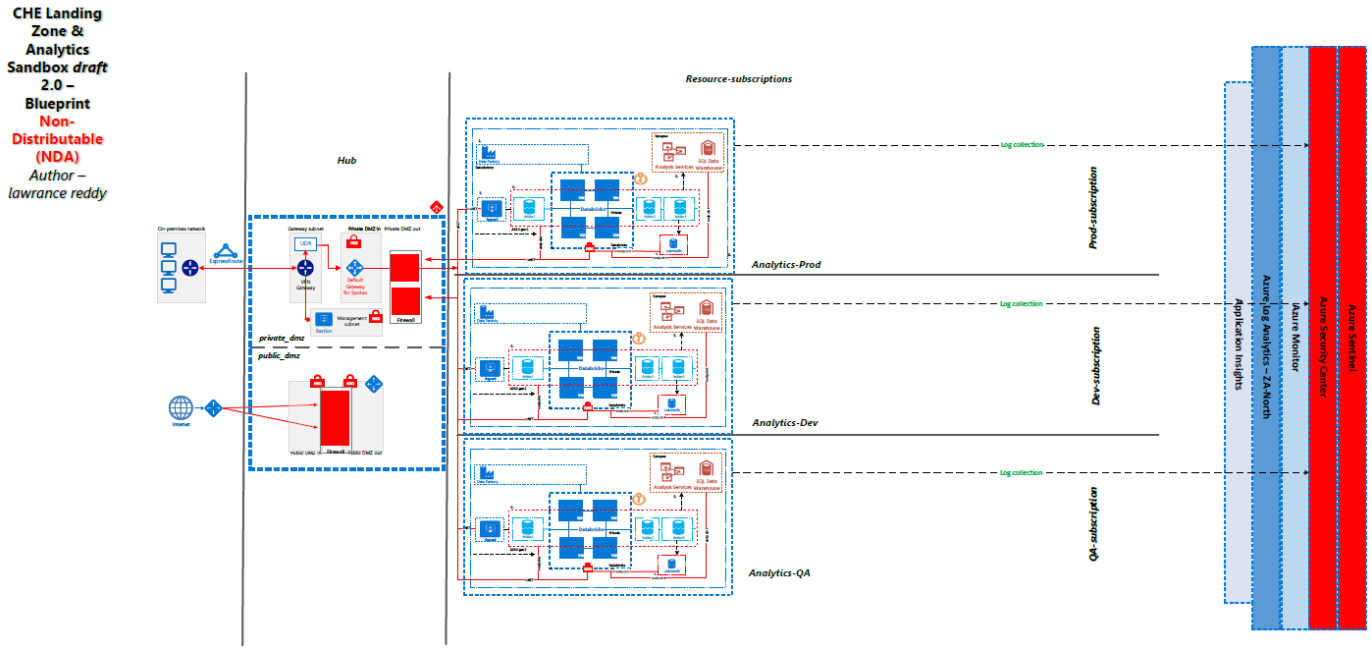


Figure 6 MS Azure Cloud Platform and Architecture

12. Data Input systems

The main goal of CHE is to implement a digital solution that enables the collection and evaluation of EQA outcomes from Accreditation and Quality Reviews (such as institutional and qualification and themed reviews) Figure 7 presents components of the Data Input system.

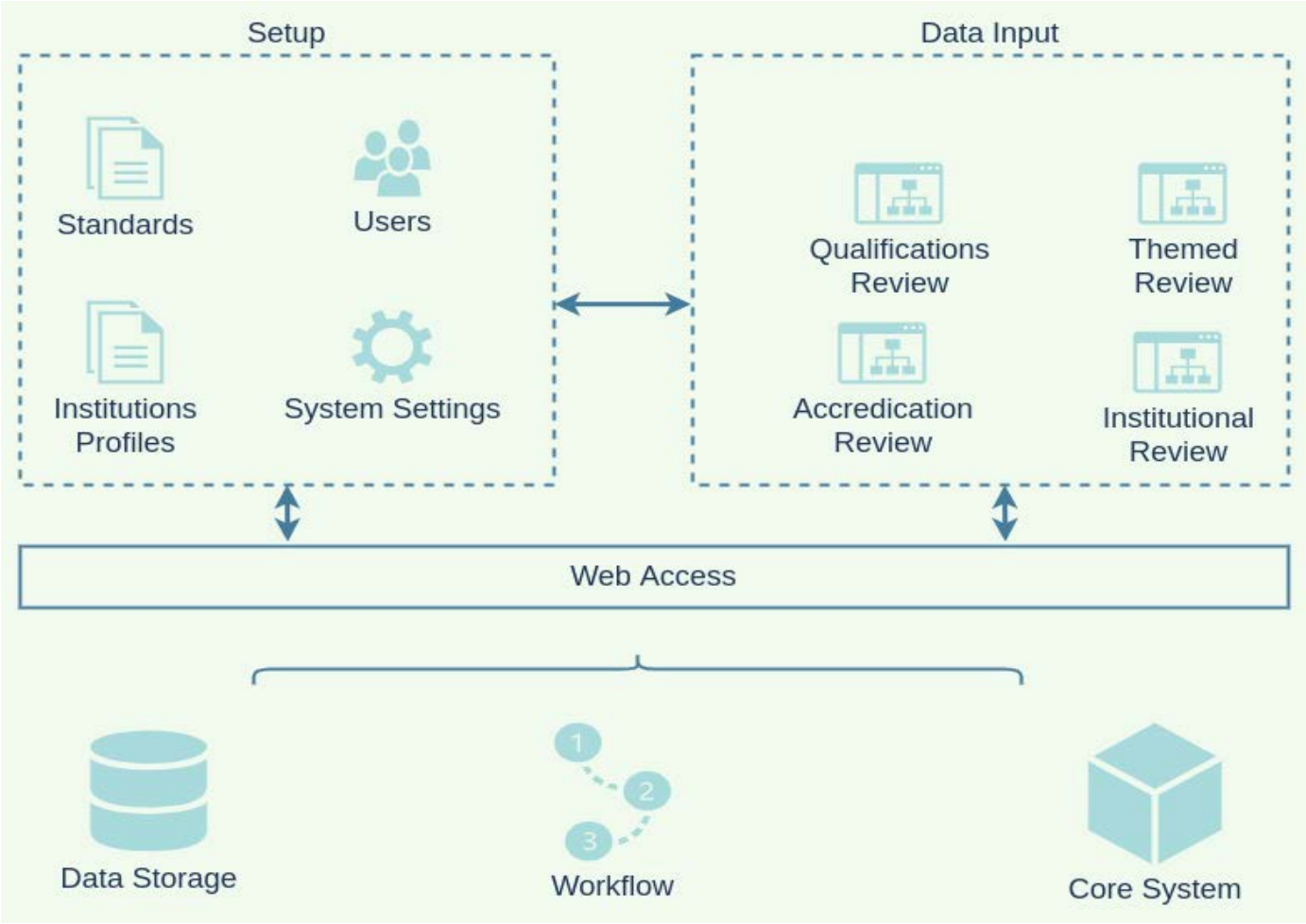


Figure 7 Data Input Systems Framework

12.1 Business Objectives

- Provide a solution for capturing the outcomes of institutional, and eventually other Quality Reviews.
- Provide Institutional Dashboards for analysis, planning, and HEQC decisions.
- Capturing the outcomes of institutional reviews is a time-consuming exercise because of the many manual processes involved and the lack of a standardized central platform for capturing the information in an automated way.

12.2 Business Problem

The Below table provides details on the data input system requirements.

#	Requirement	Description
1.	Institutions Profile Setup	• The system must allow backend users to populate basic institutional information: 1. Institution name 2. Institution category 3. Institution type 4. Campus type 5. Institution contact name 6. Institution contact email address
2.	Standards Setup	• The system must allow back-end users to pre-populate Standards in the system 1. Standard title 2. Standard description 3. Weighting: a percentage value 4. Year 5. Captured by 6. Version 7. Review Type/Activity Type • The system must allow standard versioning
3.	Institution Levels Setup	• The system must allow backend users to setup 4 Institution levels to be used on rating: 1. Level name (Level 1, Level 2, Level 3, Level 4) 2. Level description
4.	Audit Trail	• The system must record all the actions in the system as an audit trail ◦ Time ◦ Action Type ◦ User • The system must allow an access-controlled view of audit trails.
5.	Accreditation	• The system must allow capturing of Accreditation data by selecting an institution (on selection, basic data for the institution will be pre-populated) and capturing the following data: 1. Outcome Year (The year of capturing the

#	Requirement	Description
		outcome/rating) 2. Rating against each of the standards (a number between 1-4)
6.	Quality reviews	• The system must allow capturing of quality reviews data by selecting an institution (on selection, basic data for the institution will be pre-populated) and capturing the following data: 1. Outcome Year (The year of capturing the outcome/rating) 2. Rating against specific standards for qualification (a number between 1-4)
7.	Users	• The system must allow setting up users with the following different types of roles: 1. Super Admin 2. Administrators 3. Capturers

12.3 Input System Screens

The following section presents the screens that were designed for the data input system.

12.3.1 Institution details

The following Figure 8, is the data field that will allow capturing info on the institution. The “CHE Institution Code” is not an auto-generated unique number, this number will be provided by CHE, the same number that is used in other CHE systems.

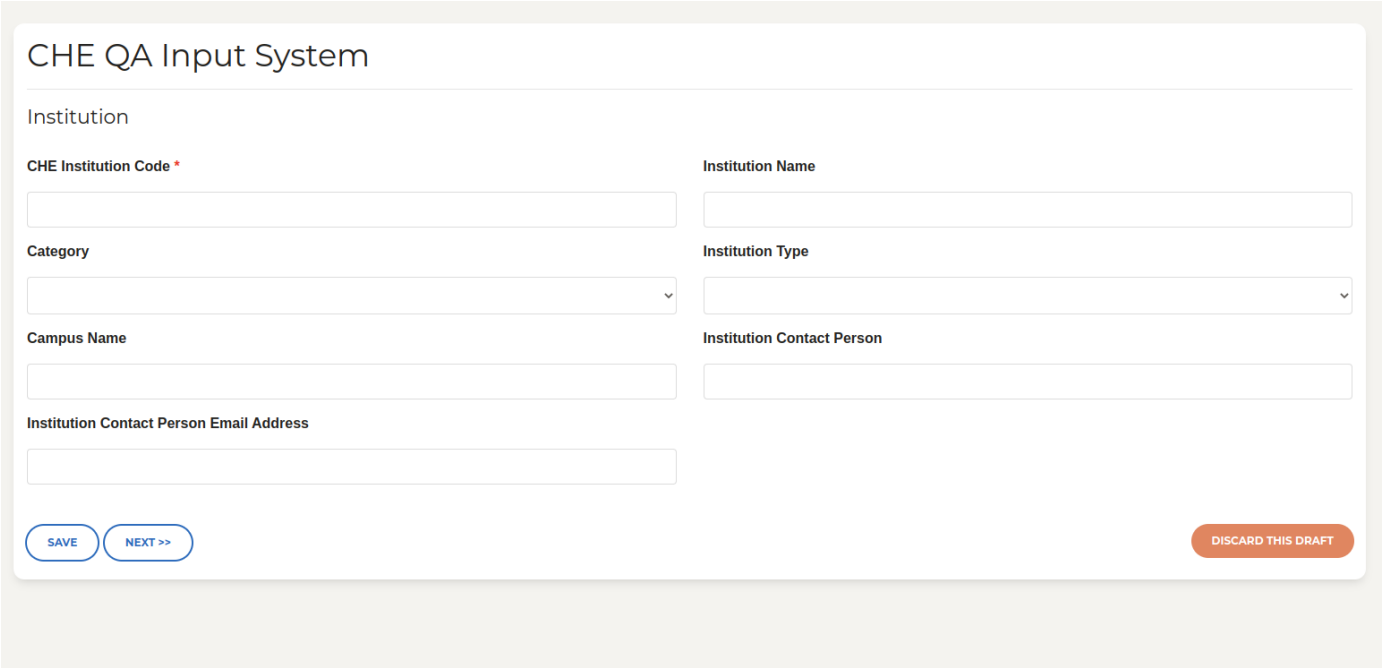


Figure 8 Institution Details

12.3.2 Standard data entry screen

The following screen, Figure 9 provides details of the input fields for capturing standards

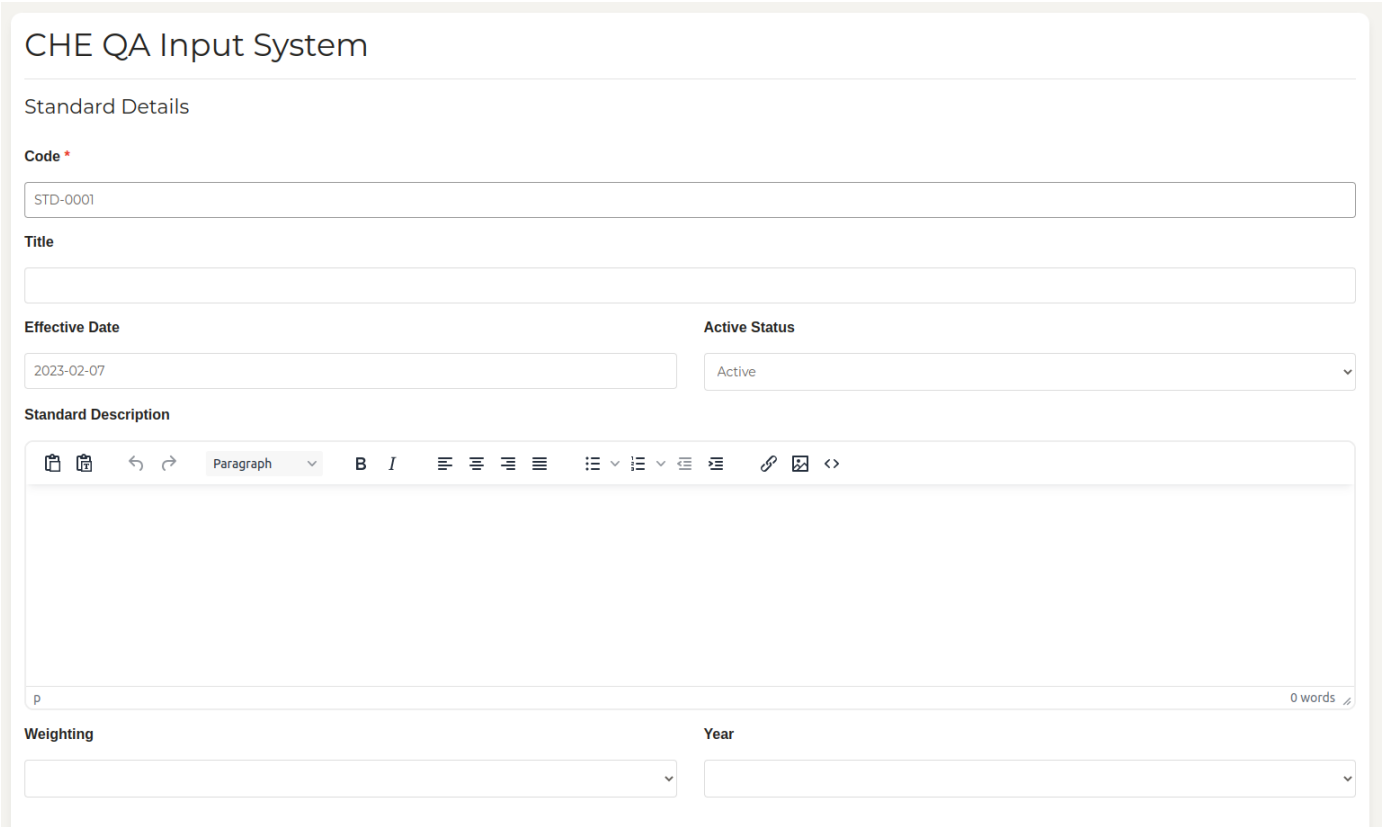


Figure 9 Standard Data Entry Screen

12.3.3 Accreditation

The following Figure 10, shows the screen design to capture data against accreditation - one can capture multiple standards/sub-standards

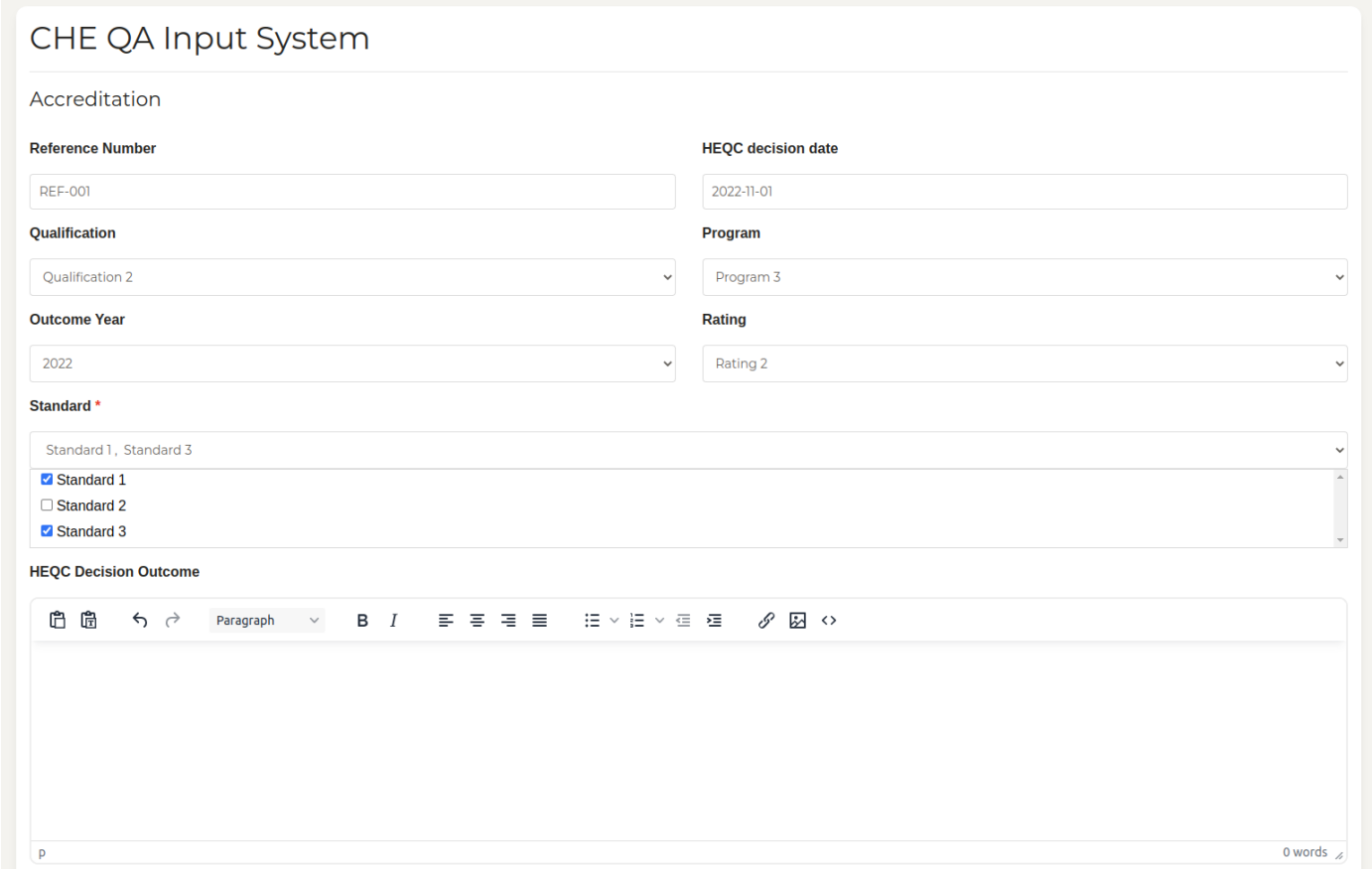


Figure 10 Accreditation data entry screen

12.3.4 Quality Reviews

The Quality Review data input screen as illustrated in Figure 11 allows capturing reviews against review types, complete, themed, unit, qualification, and program.

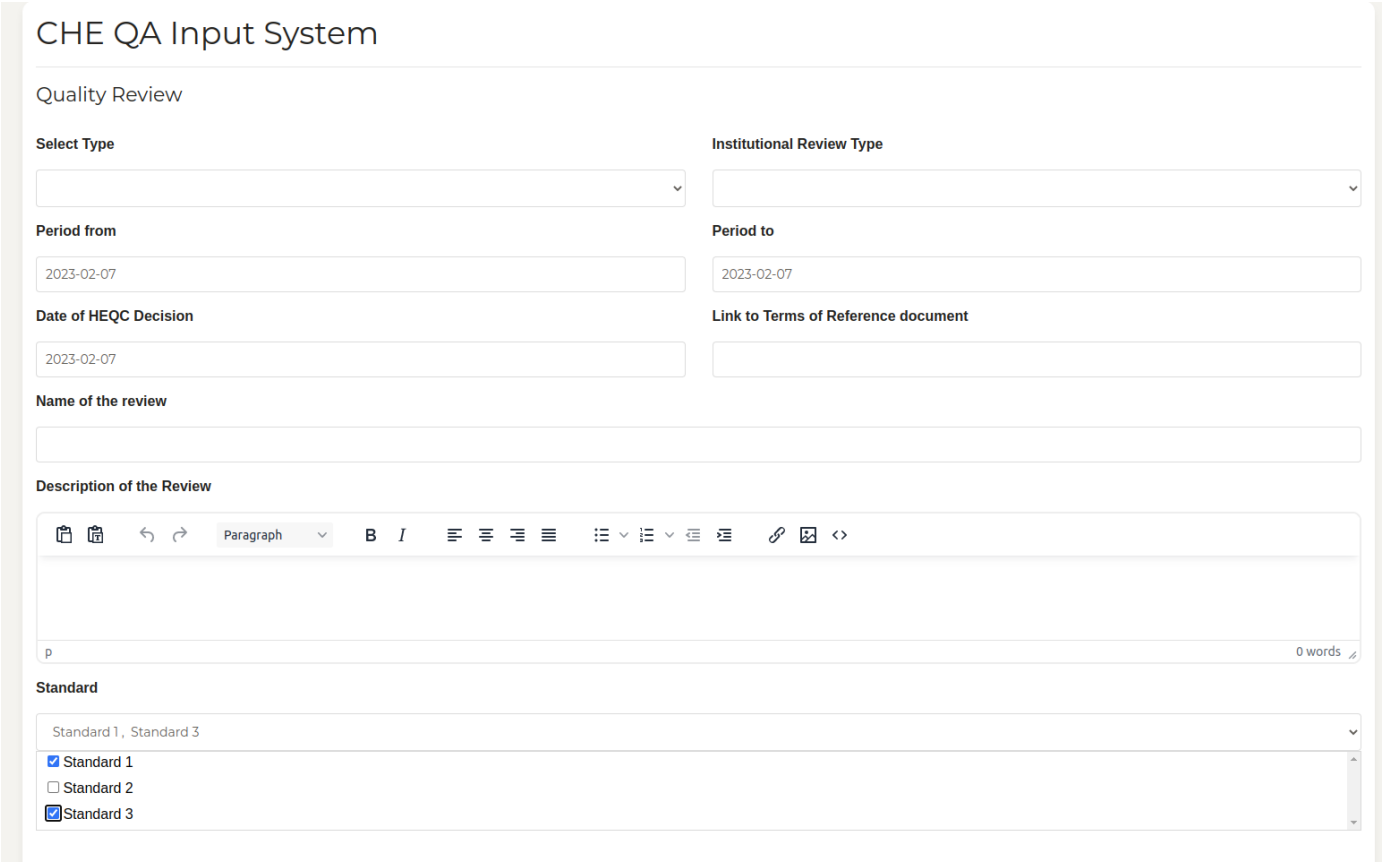
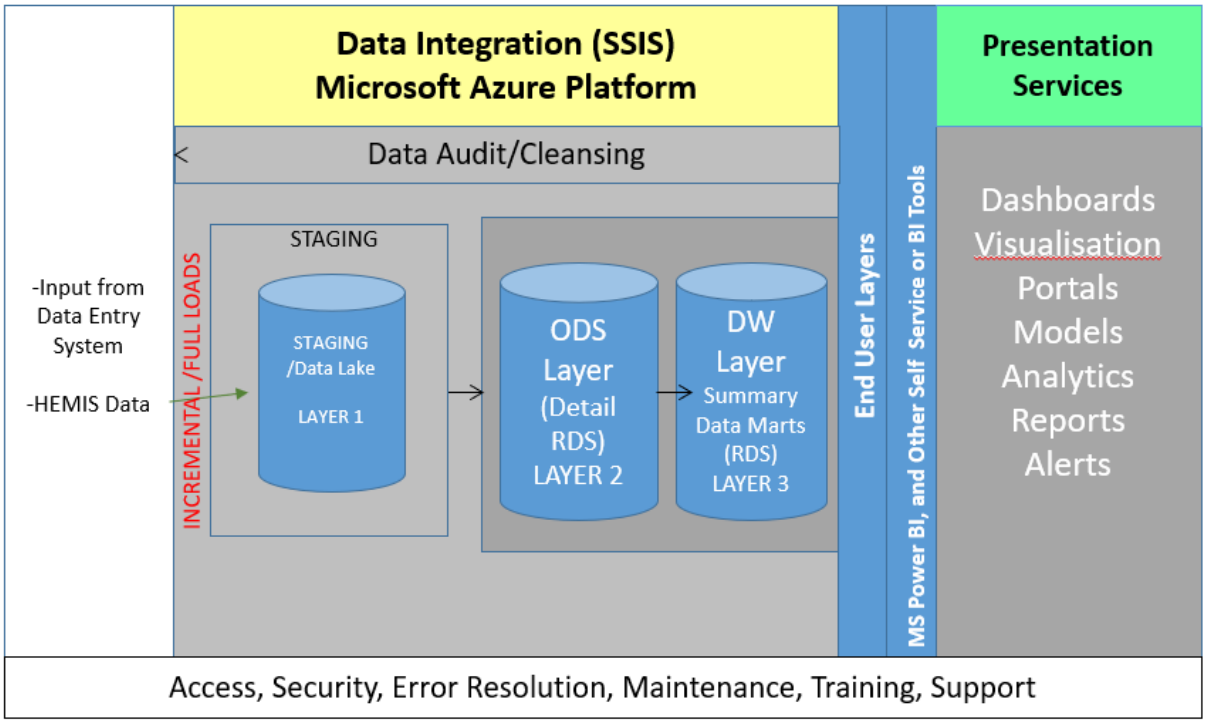


Figure 11 Data input screen for Quality Reviews

13 Data Warehouse Platform and Data Marts

This section provides details on the data warehouse ETL framework, Figure 12, and the data marts that will be built to satisfy the reporting and analytics requirements.



SSIS: SQL Server Integration Services, ODS: Operational Data Store, DW: Data Warehouse

Figure 12 ETL Framework

13.1 Data warehousing basics

Successful knowledge management needs to integrate databases, information systems, and knowledge base systems. The Data warehouse (DW) can connect these three kinds of systems. It provides a wide basis of integrated data and this data can be presented via MIS or enterprise information system (EIS). It could be interpreted as knowledge if analysis algorithms discover currently unknown patterns in large amounts of DW data. Newly derived knowledge or visualized information may be incorporated into the management's decision-making process [Erdmann, 1997].

13.2 Data warehousing

A data warehouse (DW) is a copy of transaction data specifically structured for querying and analysis [Kimball, 1996]. Ponniah (2001, p.13) indicates that the data warehouse is an informational environment that:

- Provides an integrated and total view of the enterprise

- Makes the enterprise's current and historical information easily available for decision making
- Makes decision-support transactions possible without hindering operational systems
- Renders the organization's information consistent
- Presents a flexible and interactive source of strategic information.

The five key defining features of DW are subject-oriented data, integrated data, time-variant data, non-volatile data, and data granularity [Ponniah, 2001, p.20].

Before further exploring DW systems let us have a look at OLTP systems and why they are different from DW systems.

13.3 Dimension modelling

The dimensional model is very asymmetric. The dimensional data model places all relevant data fields into one of two types of tables: fact tables or dimension tables. There is one large dominant table in the centre of the schema. It is the only table in the schema with multiple joins connecting it to other tables. The other tables are connected with the central table with a single join. The central table is called the fact table and the other tables are called dimension tables [Kimball, 1996, p.11]. In data warehousing, 80% of the queries are single-table browsers, and 20% are multi-table joins. This allows for a tremendously simple data structure. This structure is the dimensional model, or the star join schema. [Kirpekar, 2005].

Ponniah (2001, p.90) stated that: "Managers think of the business in terms of business dimensions. For example, the Marketing Vice President is interested in the revenue generated by her new product. She wants the revenue numbers broken down by month, division, customer demographic, sales office, product version and plan. These are her business dimensions along which she wants to analyze her numbers. Users can transverse among the hierarchical levels of a business dimension for getting the details at various levels."

13.3.1 Grain

Declaring the grain is the pivotal step in a dimensional design. The grain establishes exactly what a single fact table row represents. The grain declaration becomes a binding contract on the design. The grain must be declared before choosing dimensions or facts because every candidate dimension or fact must be consistent with the grain. This consistency enforces uniformity on all dimensional designs which is critical to BI application performance and ease of use. Atomic grain refers to the lowest level at which data is captured by a given business process. We strongly encourage you to start by focusing on atomic-grained data because it withstands the assault of unpredictable user queries; rolled-up summary grains are important for performance tuning, but they pre-suppose the business's common questions. Each proposed fact table grain results in a separate physical table; different grains must not be mixed in the same fact table.

13.3.2 Fact table

The fact table stores the measures of the business. The best and most useful facts are numeric, continuously valued, and additive. In general, facts are those attributes, usually quantitative, that users wish to measure about a subject. The data grain is an important characteristic of the fact table and is the level of detail for the measurements or metrics [Ponniah, 2001]. Due to data grain (summarization or aggregation), the large number of records will be compressed into a few dozen rows of the user's answer set. If the measurements are numbers and if they are additive it is very easy to build the answer set [Kimball, 1999, p.12]. Some of the business facts are semi-additive and non-additive. Semi-additive facts can be added along only some of the dimensions, and non-additive facts simply can't be added at all. For non-additive facts, the only option is to summarize the records using the count. There are different types of fact tables: transaction fact tables, periodic snapshot fact tables, accumulating snapshot fact tables, fact-less fact tables, aggregate fact tables, and consolidated fact tables.

13.3.3 Dimension table

The dimensions tables are where the textual descriptions of the dimensions of the business are stored. The best attributes are textual, discrete, and used as the source of constraints and row headers in the user's answer set [Kimball, 1996, p.13]. A key role for dimension table attributes is to serve as the source of constraints in a query or to serve as row headers in the user's answer set. Dimension tables consist of sets of highly correlated descriptive attributes that can be placed in an obvious category [Allan, 2000].

13.3.4 Conformed dimensions

Dimension tables conform when attributes in separate dimension tables have the same column names and domain contents. Information from separate fact tables can be combined in a single report by using conformed dimension attributes that are associated with each fact table. When a conformed attribute is used as the row header (that is, the grouping column in the SQL query), the results from the separate fact tables can be aligned on the same rows in a drill-across report. This is the essence of integration in an enterprise DW/ BI system. Conformed dimensions, defined once in collaboration with the business's data governance representatives, are reused across fact tables; they deliver both analytic consistency and reduced future development costs because the wheel is not repeatedly re-created.

Below is the list of dimensions that are conformed and used in different CHE QAF-MIS data marts. The conformed dimensions that are used across all the models are marked with a dark blue colour on the design.

Conformed Dimensions	Description	Data Marts
QAF_Outcome_Year_Dim	**Outcome Year**	**All**
QAF_Institution_DIM	**Higher Education Institution**	**All**
QAF_Standard_DIM	**Internal Quality Assurance Standards**	**All**
QAF_Institution_Level_DIM	Institution levels to be used on rating	
QAF_Quality_Review_Type_DIM	Activity Type	
QAF_Institution_Review_Cycle_DIM	Institution Cycle	
QAF_Functional_Level_DIM	With values Functional, Not Functional, and No Rating	
QAF_Overall_IQA_Status_Rating_DIM	Overall Internal Quality Assurance Status Rating	
QAF_User_DIM	User who captured or modified the data	**All**
QAF_Reporting_Level_DIM	Provides a mechanism for reporting at Overall Status, standard or sub-standard levels	

13.3.5 Data Cleansing

The best option for data warehousing is to get the data fixed at the source system however, this may not be an option for then CHE as data is collected from various institutions and historical data may not have all the required fields populated.

When loading data into the data warehouse an “all or nothing” strategy should be adopted. If there are missing dimensional values, then a dummy value (e.g. Unknown/Unavailable) foreign key should load when loading the fact table. If the missing value is a numeric or a date, then a default key for a null value should be used for the fact table.

Other types of data errors could be due to inconsistent values in certain source data fields or duplicates in the data sets. Inconsistent values from different data sets will be handled using conformed dimensions. For example, nationality codes may be different for the same country.

In the conformed dimension both codes will be loaded against the same country. The duplicate rows from source data will be managed by the ETL strategy, which will log the duplicates in an error table, and these errors can then be fixed on the source systems.

Further steps to ensure the data quality is to implement discrepancy reports that highlight whether there are missing rows or extra rows in the data warehouse. Extra rows could be a result of data being deleted

in the source system after being added to the data warehouse. The missing rows could result if there is a gap in the loading of the warehouse.

The ETL loading strategy will have both a full load option and an incremental load option. The full load option will rectify cases where there are missing rows in the data warehouse.

13.4 Data marts

Data marts contain subsets of system-wide data. Data marts are easy-to-use reporting and analytic data structures that represent data in the form of dimensions (e.g., year, institution, subject) and measures (e.g., enrolments). Data marts are designed to make it easy to extract and manipulate information pertaining to a specific process or subject area (e.g., Institution). The information in each data mart is structured in a multidimensional manner that enables an analyst to apply filters (e.g., year, region) and to slice and dice the information (e.g., by qualification, institution, etc.) to answer specific questions and to make further diagnostic inquiries by drilling through to more detailed information. The analyst does not need to have the technical expertise to write SQL to produce reports since the translation to SQL is done automatically by the reporting tool. The different QAF-MIS data marts are designed to enable analysts to answer questions regarding different aspects of the QAF-MIS.

1. **Accreditation**
2. **Quality Reviews**

13.4.1 Accreditation Datamart

Accreditation of new qualifications and their recommendation to SAQA for registration on the NQF and the DHET. The HEQC grants every HEI a specified number of years for the accreditation of its qualifications, after which time the continued accreditation has to be confirmed. Confirmation of accreditation of existing qualifications for private providers for a specified period, linked to their re-registration by the DHET. The differentiated period of time is based on the institution's integrated quality track record. The star model diagram, Figure 13 is to cater facts and dimensions for accreditation.

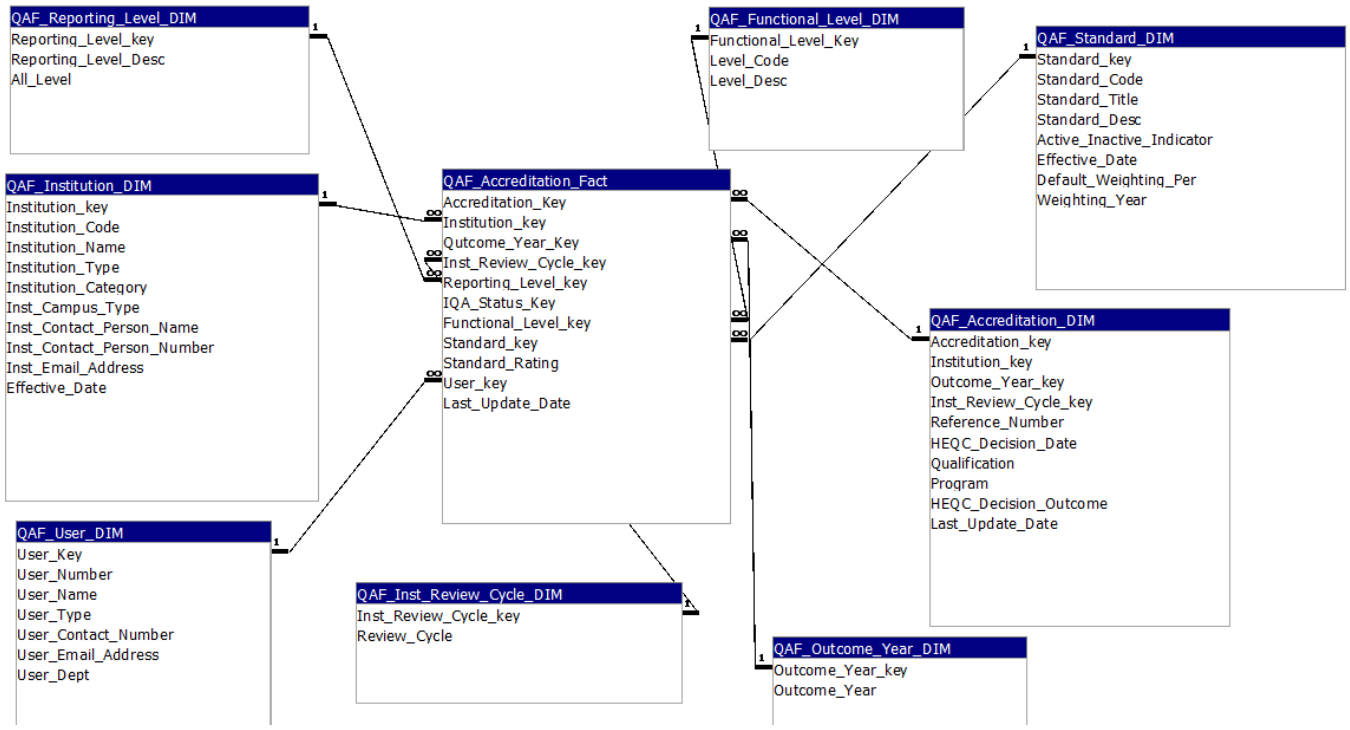


Figure 13 Accreditation Star Model

13.4.2 Quality Reviews Datamart

Evidence-based judgments on the quality management and effectiveness of the IQA systems of institutions for assuring the quality of educational provision. The outcomes of reviews form the basis for QPCD and institutional development and improvement initiatives at various levels. The star model on quality reviews, Figure 14 allows to slice and dice info against different dimensions and the same model is cater to provide reporting and analytics against the review types complete, themed, unit, qualification, and programme by using dimension QAF_Quality_Review_Type.

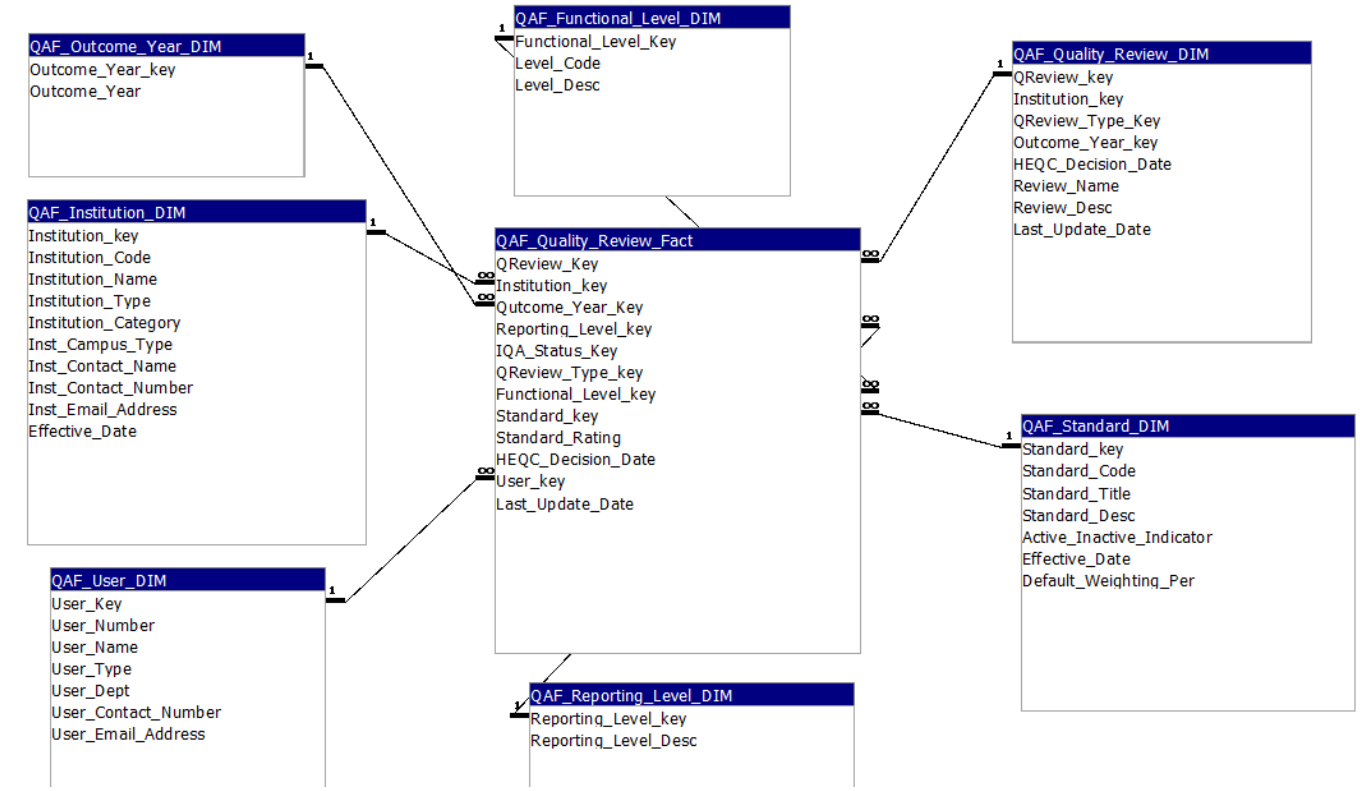


Figure 14 Quality Reviews Star Model

14. Privacy and Security

The following security levels platinum, gold, and silver have been presented to secure the QAF-MIS data warehouse and provide access as per the appropriate level.

Platinum: CHE having access to all the detailed institutional information

Gold: Universities having access to the detailed quality assurance status of their own institution

Silver: Universities/Organisations having access to the detailed anonymised information of other institutions

15. Dashboards and Reporting

The dashboard will be a collection of displays that allows a recommendation writer to examine the range of information displayed on the institutional dashboards and any other supporting information to make a recommendation on the overall IQA status of the institution, for consideration by the HEQC

15.1 List of dashboards

The following sections are listing reports and dashboards that will build to satisfy reporting and analytics requirements.

15.1.1 Institution Standard Dashboards

The Standards below are Standards from the Insitutional Audits. The final MVP will be based on the Higher Education Practice Standards that will be developed for the QAF. The development of the MVP must allow the archiving of a set of Standards and the introduction of a new set of Standards. It must be possible to see an institutional dashboard based on all or a subset of Standards.

15.1.2 Commendation and recommendation Dashboard

What are consistent areas of strength evident in individual institutions, which could be shared with other institutions?
Which are consistent areas of weakness evident in individual institutions, which could benefit from the focussed intervention?
Which are consistent areas of weakness across the sector or a grouping of institutions, that could be addressed through sector and national initiatives?

15.1.3 CHE Overall Summary of Institutional Status

Dashboard 1- Pulling together of all other reviews to display the current status
Dashboard 2 - Pulling together of all other reviews to display the current status
Dashboard 3- Pulling together of all other reviews to display the current status

15.1.4 Patterns Trends and Insight

Alert on the next review cycle of an institution based on the HEQC decision
Audit / Review dashboard - showing the history of the outcomes - which institution performing badly in certain areas
Institutional status dashboard - registered / not registered, accredited / not accredited

16. Activity Plan

The project is comprised of 16 activities and this section list each activity in the project and target dates for completion over the year of implementation (2023/24).

Activity #	Activity Description	Completion date
1	Pre-Implementation	
2	Platform, Database setup, and Maintenance	
3	Data Input System Development, Testing, and UAT	
4	Hand Holding and Handover for Capturing	
5	Staging Implementation Testing and UAT	
6	ODS Implementation Testing and UAT	
7	DW Dimension Implementation Testing and UAT	
8	DW Implementation - Accreditation	
9	DW Implementation - Quality Reviews	
10	Setting up and configuring the environment, security, and EUL (start after the completion of activity 8)	
11	Inst. Std Dashboards, testing UAT and Deployment	
12	CHE Overall Summary of Institutional Status, testing UAT, and Deployment	
13	Patterns Trends and Insight, testing UAT and Deployment	
14	Commendation and recommendation Dashboards, testing UAT, and Deployment	
15a	Data Engineering - Consultation, Project Management, and other expenses	
15b	Data Science - Consultation, Project Management, and other expenses	January 2024
16	Maintenance of the system for 3 Months	April 2024
17	Renewal of maintenance of the system for another 3 months in 3 iterations as required	January 2025

17. Annexure B

The following tables show the database tables structure of the star models presented in sections 13.4.1 and 13.4.2 for the Accreditation and Quality Reviews.

QAF_Outcome_Year_DIM

Description: Outcome year

Unique Key: Outcome_Year

Column Name	Description	Data Type	Width
Outcome_Year_Key	Surrogate Key for Outcome Year (Autonumber)	Number	3
Outcome_Year	Year of the outcome (e.g 2022, 2023…)	Number	4

QAF_Institution_DIM

Description: Institution details

Unique Key: CHE_Institution_Code

Column Name	Description	Data Type	Width
Institution_Key	Surrogate Key for Institution (Autonumber)	Number	15
CHE_Institution_Code	Institution Code	String	4
Institution_Name	Institution Name	String	100
Institution_Category	Institution Category	String	50
Institution_Type	Institution Type	String	50
Institution_Category	Institution Category	String	50

Inst_Campus_Type	Campus Type	String	50
Inst_Contact_Person_Name	Contact Name	String	100
Inst_Contact_Person_Number	Contact Number	String	50
Inst_Contact_Email_Address	Institution Contact Email Address	String	100
Effective_Date	Effective Date	Date	

QAF_Standard_DIM

Description: QAF Standards

Unique Key: Standard_Code

Column Name	Description	Data Type	Width
Standard_key	Surrogate Key for Standard Rating (Autonumber)	Number	15
Standard_Code	Standard Code, Unique value that will be used in the other CHE systems	String	15
Standard_Title	Standard Title	String	2000
Standard_Desc	Standard Description	String	4000
Active_Inactive_Indicator	Indicator with the value Y/N. If the standard is active the value will be Y, if inactive the value will be N	Char	1
Effective_Date	Date from which the standard will be active	Date	
Default_Weighting_Per	A default value at the setup level	Number	5,2

QAF_Quality_Review_Type_DIM

Description: Dimension stores institution types (institutional and national) and review types, (complete, themed, unit, qualification, and programme).

Unique Key: Review_Type_Lvl1, Review_Type_Lvl2

Column Name	Description	Data Type	Width
QReview_Type_Key	Surrogate Key for each Quality Review (Autonumber)	Number	15
Review_Type_Lvl1	Review_Type_Lvl1, values, Institutional and National	String	2
Review_Type_Lvl2	Review_Type_Lvl2, values, Complete, Themed, Unit, Qualification, and Programme	String	50

QAF_Functionality_Level_DIM

Description: Level details (Level 1 to Level 4)

Unique Key: Func_Level_Code

Column Name	Description	Data Type	Width
Level_Functionality_Key	Surrogate Key for each Level of Functionality (Autonumber)	Number	15

Func_Level_Code	Level Functionality Code	Char	2
Func_Level_Desc	Level Functionality Description	String	150

QAF_Institutioin_Cycle_DIM

Description: Institution review cycle dimension

Unique Key: Cycle_Value

Column Name	Description	Data Type	Width
Institution_Cycle_Key	Surrogate Key for each Institution Cycle (Autonumber)	Number	15
Cycle_Value	Cycle value	Number	1

QAF_Overall_IQA_Status_DIM

Description: Overall rating

Unique Key: IQA_Status_Code

Column Name	Description	Data Type	Width
IQA_Status_Key	Surrogate Key for each IQA status (Autonumber)	Number	15
IQA_Status_Code	Status Code	String	50
IQA_Status_Desc	Status Description	String	500

QAF_Repoting_Level_DIM

Description: For ease of reporting at standard level and at the overall status level

Unique Key: Reporting_Level_Desc

Column Name	Description	Data Type	Width
Reporting_Level_Key	Surrogate Key for each reporting level (Autonumber)	Number	15
Reporting_Level_Desc	Reporting Level Description	String	100

QAF_User_DIM

Description: Details of the user who has captured and changed the data.

Unique Key: User_Number

Column Name	Description	Data Type	Width
User_Key	Surrogate Key for each user of the system (Autonumber)	Number	15
User_Number	Staff Number or other unique identity	String	50
User_Name	User Name	String	100
User_Type	1. Super Admin 2. Administrators 3. Capturers	String	50
User_Dept	User Department	String	100
User_Contact_Number	User Contact Number	String	100

User_Email_Address	User Email Address	String	300

QAF_Quality_Review_DIM

Description: Dimension to keep description or textual data on quality review

Unique Key: Outcome_Year_key, Institution_key, QReview_Type_Key

Column Name	Description	Data Type	Width
QReview_Key	Surrogate Key for each new quality review (Autonumber)	Number	15
Outcome_Year_key	Reference to the **QAF_Outcome_Year_DIM**	Number	15
Institution_key	Reference to **QAF_Institution_DIM**		
QReview_Type_Key	Reference to **QAF_Quality_Review_Type_DIM**		
HEQC_Decision_Date	Decision Date	Date	
Review_Period_From	Review Period From	Date	
Review_Period_To	Review Period To	Date	
Review_Name	Review Name	String	1000
Review_Desc	Review Description	String	4000
Last_Update_Date	Date Record changed	Date	

QAF_Quality_Review_FACT

Description: Fact table for accreditation

Unique Key: QReview_Key, Standard_Key, Reporting_Level_key

Column Name	Description	Data Type	Width
QReview_Key	Reference to **QAF_Quality_Review_DIM**	Number	15
Institution_key	Reference to **QAF_Institution_DIM**		
Outcome_Year_key	Reference to the **QAF_Outcome_Year_DIM**	Number	15
Reporting_Level_key	Reference to **QAF_Reporting_Level_DIM**		
QReview_Type_Key	Reference to the **QAF_Quality_Review_Type_DIM**	Number	15
IQA_Status_Key	Reference to **QAF_Overall_IQA_Status_DIM**		
Functionality_Level_Key	Reference to the **QAF_Functional_Level_DIM**	Number	15
Standard_Key	Reference to the **QAF_Standard_DIM**	Number	15
User_Key	Reference to the **QAF_User_DIM**	Number	15
Standard_Rating	Rating Value	Number	1
HEQC_Decision_Date	Decision Date	Date	

Last_Update_Date	Date record changed	Date	

QAF_Accreditation_DIM

Description: Dimension to store descriptive and textual data on accreditation

Unique Key: Outcome_Year_key, Institution_key, Reference_Number

Column Name	Description	Data Type	Width
Accreditation_Key	Surrogate Key for each new accreditation (Autonumber)	Number	15
Outcome_Year_key	Reference to the **QAF_Outcome_Year_DIM**	Number	15
Institution_key	Reference to **QAF_Institution_DIM**		
Inst_Review_Cycle_Key	Reference to **QAF_Inst_Review_Cycle_DIM**		
HEQC_Decision_Date	Decision Date	Date	
Reference_Number	Unique number	String	200
Qualification	Qualification	String	500
Program	Program	String	500
HEQC_Decision_Outcome	Decision Outcome	String	4000
Last_Update_Date	Date Record changed	Date	

QAF_Accreditation_FACT

Description: Fact table to stotre accreditation facts

Unique Key: Accreditation_Key, Standard_Key, Reporting_Level_key

Column Name	Description	Data Type	Width
Accreditation_Key	Reference to **QAF_Accreditation_DIM**	Number	15
Institution_key	Reference to **QAF_Institution_DIM**		
Outcome_Year_key	Reference to the **QAF_Outcome_Year_DIM**	Number	15
Inst_Review_Cycle_key	Reference to **QAF_Inst_Review_Cycle_DIM**		
Reporting_Level_key	Reference to **QAF_Reporting_Level_DIM**		
IQA_Status_Key	Reference to **QAF_Overall_IQA_Status_DIM**		
Functionality_Level_Key	Reference to the **QAF_Functional_Level_DIM**	Number	15
Standard_Key	Reference to the **QAF_Standard_DIM**	Number	15
User_Key	Reference to the **QAF_User_DIM**	Number	15
Standard_Rating	Rating Value	Number	1

Last_Update_Date	Date record changed	Date	

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