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DATA MIGRATION STRATEGY & APPROACH

CARGAS “NGVC”

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DATA MIGRATION STRATEGY & APPROACH

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1. PURPOSE OF THIS DOCUMENT

The purpose of this document is to define the data migration strategy in the context of this project, Data migration is typically a 'one-off' activity prior to go-live. Any ongoing data loads required on a frequent or ad-hoc basis after go live are not part of the data migration scope. This document outlines how this project intend to manage the data migration from the various council legacy systems into SAP

2. DEFINITIONS OF DIFFERENT TYPES OF DATA

2.1. Master Data

Identified as fixed data, it describes the information about people, places and objects that are involved in running the business processes. These data types tend to be created once maintained over a long time frame and are used by a number of business activities. Examples include; materials, services, vendors, customers, assets, & etc.

2.2. Configuration Data

This is data that is set up on SAP during the build and configuration process as it is configured. This type of data is not part of the migration process, as it will be transported to the production system through the transport procedure along with all other configuration.

2.3. Transaction Data

Transaction data describes business activities conducted by the users in carrying out their duties.

Transactional Data falls into two categories;

- **Open Transaction Data** - is transactional data that has not completed its business cycle, for example a purchase order that remains open with additional e.g. delivery required prior to being closed.
- **Closed Transactional Data** – is transactional data that has completed its business cycle for example a purchase order that completely delivered all it's related services and materials and hence this will **NOT** be part of this project scope for the upload.

3. STRATEGY & APPROACH

- Data Extraction from Legacy systems. (**CARGAS Responsibility**)
- Data Cleansing (**CARGAS Responsibility**)
- Data Loading will be done by CIC consultants into SAP system

4. DATA MIGRATION ACTIVITIES

The complexity of data migration demands a process that ensures the accurate and complete transfer of data into the new system SAP from legacy systems. The activities involved in the data migration process are detailed below.

4.1. Define the SAP Data Requirements (CIC Functional Responsibility)

In SAP a Data Object is a business data unit such as customers; the functional SAP data requirements define the SAP transactions, the screen headings and the screen field descriptions used to enter the data.

4.2. Define the SAP Data Requirements (CIC Technical Responsibility)

These define in detail the SAP Data structures, tables and fields. Including the field name, field attributes (e.g. data type and length) and field properties (mandatory, optional, conditional or suppressed). This process requires a detailed knowledge of the associated SAP business processes and careful analysis of the configured SAP system.

4.3. Identify the Legacy Data (CARGAS Functional Responsibility)

This activity identifies where the legacy data currently resides, in which applications/databases, and how it is currently entered and maintained. In addition this activity defines the legacy screen headings and the screen field descriptions used to enter the data.

4.4. Identify the Legacy Data (CARGAS Technical Responsibility)

This activity identifies in detail the legacy data tables and fields, the field attributes and properties including the data type and length. This process requires a detailed knowledge of the associated legacy applications.

4.5. Define Data Standards (CIC Functional Responsibility)

The data standards define the required appearance, consistency and content of the data. For example, the name and address formats, uppercase & lowercase requirements, providing a consistent look for the data that will be visible both internally and externally to the business.

4.6. Legacy Data Cleansing (CARGAS Responsibility)

Legacy data required for migration into SAP must be completely cleansed prior to the final data load in SAP with the aim to ensure the consistency and accuracy of the data.

As a general approach the data will be cleansed on the legacy database before extraction, however there may be circumstances where this is not the best method and the data will be cleansed after it has been extracted.

Cleansing is an iterative process that can start as soon as the data has been identified as being required for migration into SAP. The data cleansing cycle includes the following steps:

- The elimination obsolete records.
- The removal of duplicate records.
- Correcting inaccurate records.
- Correcting incomplete records.

4.7. Determine the Data Transfer Method

For each business object the following choices are available for data transfer:

- To use the standard SAP data transfer programs.
- To manually enter data with online transactions.
- To develop bespoke batch input programs.

Data volumes, data complexity and availability of standard SAP data load programs are all to be considered before deciding between automated or manual load.

4.8. Data Mapping and Transformation (CARGAS Responsibility)

This is a manual process where the data fields in the legacy data source are assigned corresponding fields in the SAP system. Field text in the legacy system rarely agrees with the corresponding terminology in the SAP system, therefore a variety of mapping methods are required. At the end of this step every SAP field that requires data must have been:

- Assigned a corresponding field from the legacy system.
- Assigned a transformation – i.e. converted from the original state to the required state using variety of methods including lookup tables, combining fields or logical rules for data transformation.
- Filtering data and selecting only certain records / columns to load.
- Joining data together from multiple sources, translating coded values.
- Aggregating data or deriving a new calculated value.
- Assigned a constant value.

4.9. Identify Missing Data (CIC Functional Responsibility)

Missing data is identified during the data mapping process, where a table or field in the SAP systems does not have an identifiable source from the legacy applications.

4.10. Resolve Missing Data

SAP modules will require data that does not exist in the legacy systems, the approaches to resolve this issue are:

- Populate the missing data within the data load programs, either by calculation or mapping tables.
- Using third party software, such as Microsoft Excel, for data staging and manipulating the data manually to fit the required format.
- Developing guidelines for use during manual migrations, which show how to determine missing values while entering the data.

4.11. Extract Legacy Data (CARGAS Responsibility)

Legacy data is extracted from the legacy systems using software specifically developed for the task using the legacy toolset available, the extracted data is loaded into staging tables and transferred to the data staging area. Extracted legacy data will be held on the data migration staging area for further analysis, manipulation and cleansing using the appropriate tool, for example MS Excel, MS Access. Integrity checks are required to ensure the correct data has been extracted, for example, all records are included in the extract, duplicates have not been created etc.

4.12. Data Loading Instructions

Instructions for the data load to be written and agreed for all data objects in scope. This includes the order in which data is to be migrated and any dependencies

4.13. Trial Data Upload - Running

The process of running trial data loads into the SAP system will help ensure data accuracy, the correct load sequence, determine load duration and correct any loading errors. The trial data loads will continue until the load process completes successfully.

4.14. Trial Data Upload - Checking

After the trial data load run has completed, the data loaded will be checked for accuracy to ensure it meets defined requirements.

4.15. Execution Plan for Final Uploads

This plan gives an indication of the feasibility of the final conversion into the production system in the available time frame, and specifies the data sequencing as well as the appropriate time to freeze the legacy system(s), for extracting information for the final uploads.

4.16. Dual Data Maintenance

Where master data is migrated before actual go-live any data changes on the legacy system must also be reflected on the new SAP system. Dual maintenance is best avoided if there is a large volume of master data changes as the additional workload may be excessive.

4.17. Data Cutover

This is the final Data Migration into the SAP production System. The cutover period is the time between the shutting down of the old system (and ceasing of all logistic related business activities) and commencement of use of the SAP. During cutover the all processing on the legacy system is frozen and the data extracted.

4.18. Reconcile the Migrated Data

This process checks that the data migrated into SAP meets the specified data requirements. This includes, but is not limited to manual data checks, record counts, checking balances, running reconciliation reports, approval of acceptable differences (rounding errors) etc.

4.19. Data Sign-off (CARGAS Responsibility)

After the migrated data has been reconciled and checked the data loads will be signed-off, the sign-off will act as approval for the go-live of the SAP application.

5. DATA MIGRATION SCOPE

The scope of data migration will be limited to specification and conversion of master data, opening balances and open items.

The above will not include actual data collection and development of interfaces to legacy systems for download of data.

A detailed plan for data migration will be delivered from CIC during the initial stages of the project, which will include data to be migrated, templates for upload of data and data collection/digitization/migration timelines

Manual input of data that cannot be uploaded into SAP.

List of Data Objects in Scope will be defined during the project Prepare phase and during Explore and Realize phases object list will be finalized as per the design requirement.

SAP Module	Data Object	Type of Data
FICO	G/L Master Data	Master Date
FICO	Cost Centers	Master Date
FICO	Profit Centers	Master Date
FICO	Bank Master Data	Master Date
FICO	House Bank Master Data	Master Date
FICO	Bank Account Master Data	Master Date
FICO	Customer Master Data	Master Date
FICO	Supplier Master Data	Master Date
FICO	Fixed Asset Master Data	Master Date
FICO	Internal Orders	Master Date
FICO	Check Lots	Master Date
FICO	Cash & Bank Account Balance	Transactional Data
FICO	Accounts Payable Open Items	Transactional Data
FICO	G/L Account Balance and Open Items	Transactional Data
FICO	Accounts Receivable Open Items	Transactional Data
FICO	Outgoing Checks	Transactional Data
FICO	Noted items (collected checks, collected installments, old COGS, old sales Revenue)	Transactional Data
FICO	Fixed Asset Balances	Transactional Data
FICO	WIP balance (analysis)	Transactional Data
MM	Material Master	Master Date
MM	Service Master	Master Date

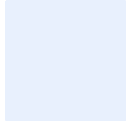
MM	Open Purchase Orders	Transactional Data
MM	Inventory Opening Balances	Transactional Data
HCM	HCM-Org. Chart (O,S,P,K) With Relationships	Master Date
HCM	Employee Master Data (Personnel Infotypes)	Master Date
HCM	Employees' Loans Data (Remaining balance)	Transactional Data
HCM	Employees' Absence Quotas (Remaining balance)	Transactional Data
HCM	Employees' Payroll Data (PY Infotypes)	Master Date
HCM	Migrating Legacy Payroll Results (Mid-Term Go-live)	Transactional Data
HCM	Time Recording Information (infotype)	Master Date
CS	Customer Master Data "Business Partner"	Master Data
CS	Material Master Data	Master Data
CS	Condition Master Data in Pricing	Master Data
CS	Equipment Master Data	Master Data
CS	Warranty Master Data	Master Data
CS	Installed Base	Master Data
CS	Functional Location	Master Data
CS	Service quotation	Transactional Data
CS	Service Order	Transactional Data
CS	Service Confirmation	Transactional Data
CS	Service Contracts	Transactional Data
CS	Billing	Transactional Data
SD	Customer Master Data "Business Partner"	Master Data
SD	Material Master Data	Master Data
SD	Customer Material Info Records	Master Data

SD	Condition Master Data in Pricing	Master Data
SD	Inquiry	Transactional Data
SD	Quotation	Transactional Data
SD	Sales Orders	Transactional Data
SD	Outbound Deliveries	Transactional Data
SD	Shipment & Shipment Cost	Transactional Data
SD	Billing	Transactional Data

6. CUTOVER STRATEGY

The Cutover involves the actual migration from current systems and the go-live of the S4HANA SAP system. The objective of cut-over preparation is to ensure the readiness of all impacted departments for the new system go-live. The cutover team will develop detailed cutover steps and procedures for each data migration item, especially for transaction data that is maintained in daily basis such as open purchase order, inventory balance, etc. As a general principle, the cutover will be in a timeframe as short as possible, to minimize impacts to the business. The activities in cutover preparation comprise exclusively of:

- Plan and develop the cutover steps and activities in sequence on a daily basis in order to define the cutover period that requires all related master data and transaction data to be freeze. This is to control the total records of data to be migrated and reconciled.
- Define the operation procedures in executing the relevant processes that have an impact on the data usually maintained in the current systems that will be freeze during the cutover period. This can be identified based on any existing contingency or fallback plan already developed for the existing current systems (if any). Or the cutover team will develop the manual form or checklist to support this procedure.
- Define cutover checklist based on the steps and activities identified.
- Identify the procedures required in the new SAP system in order to support the follow-on processes required for the open transaction data migrated. For example, the goods receipt or invoice receipt for any purchase order migrated.
- Clearly communicate the cutover approach and detail steps & activities to be executed to the functional support team, including CARGAS project management, data owner & data key contacts.
- Business and overall project team need to define over all cutover strategy.



Acceptance of the DATA MIGRATION STRATEGY & APPROACH

Customer Project Manager

Name	Mr. Abdelmoneim El-Farra
Date	
Signature	

CIC Project Manager

Name	Mr. Ahmed Hamdy
Date	
Signature	