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King Faisal Specialist Hospital & Research Centre
Gen. Org.

Evosys' Activity Based Costing Implementation

at

King Faisal Specialty Hospital & Research Center, KSA

Case Study

ORACLE Platinum Partner

Client Profile

King Faisal Specialty Hospital & Research Center (KFSH&RC) is ranked amongst top 50 hospitals in the world placed at 28th position and 1st in Kingdom of Saudi Arabia. The hospital is the national referral center for oncology, organ transplantations, cardiac surgery, genetic diseases, and more. KFSH & RC has its presence in Riyadh and Jeddah, Saudi Arabia. It operates approximately 1100+ beds. Oncology Centre of the KFSH&RC provides comprehensive cancer treatment, education and training and clinical research.

No. of Employees: 12,000 (Approx.)
No. of Users: 10

Project Outline

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Evosys Resources

Project Manager: 1
Functional Consultant: 2
Technical Consultant: 2
Solution Architect: 1
Domain Specialists: 2
DBA: 1

KFSH& RC Resources

Project Manager: 1
Costing Advisor: 1
Costing Supervisor: 1
CDM Department
Data warehouse department
Venus billing system department
Revenue Department

Application

Hyperion Profitability & Cost Management

Operating System:

Windows Server

Hardware Platform:

Virtual Servers

Duration

3 months Pre implementation study.

5 months Implementation.

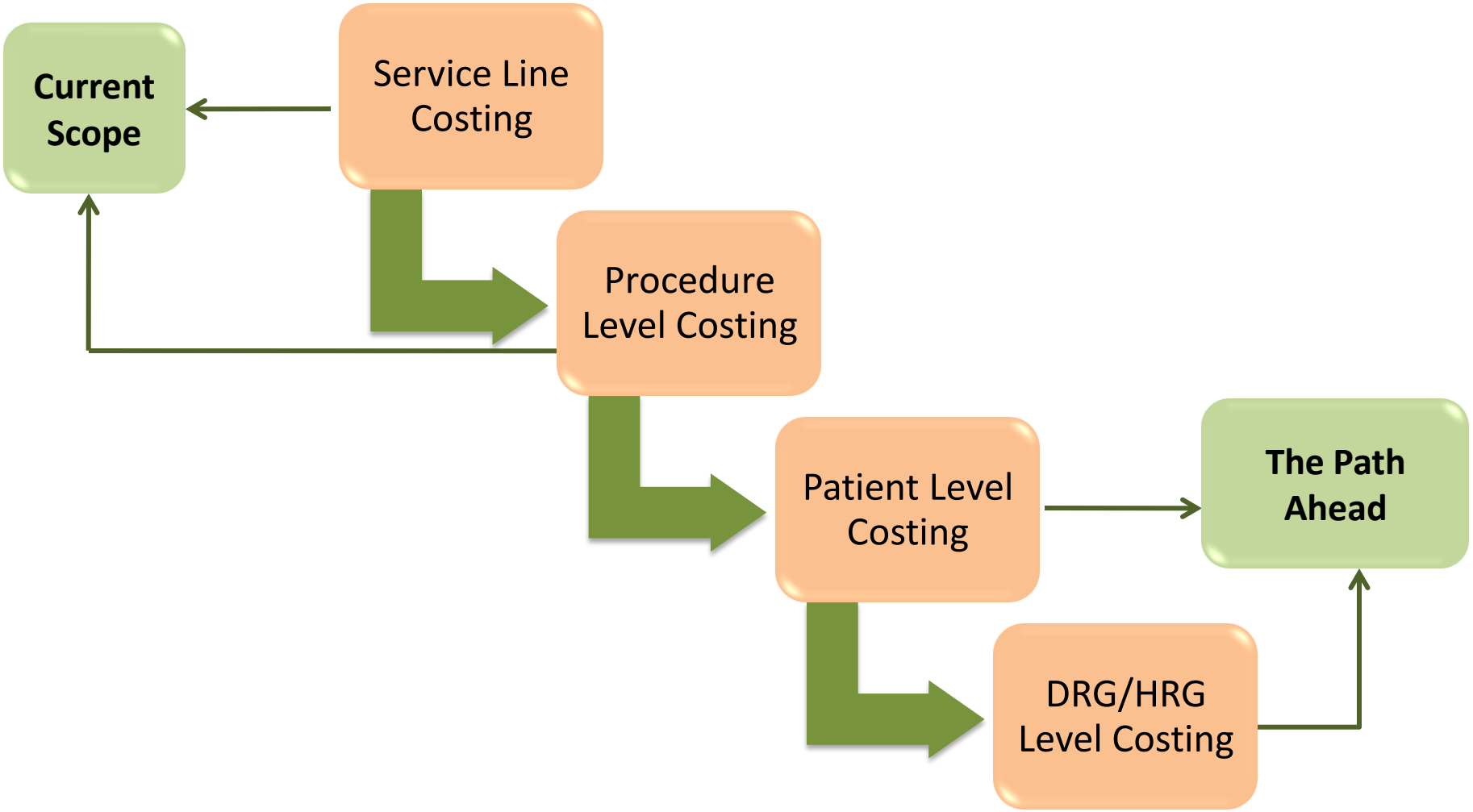
Business Problem

- Data required for costing was maintained on an excel based system with data from many supporting systems- Oracle GL, Venus and Data Warehouse. It was time consuming and the risk of errors was high.
- KFSH recognized that with over 220 million chargeable services each year, a system was required that could provide robust data for decision making purposes whilst being easily maintained and provide integration with existing data source systems.
- Automating the model was important because it had to be used as the basis for pricing their services and also to accurately understand the profit generated by each service center.
- A solution was required which could be expanded upon in the future for new build upon the inherent limitations an excel system has.

Business Problem (Contd.)

- To continue to extend the c.5000 CDM service item coding to all procedures, drugs and chargeable items.
- Unallocated overhead costs.
- Limited cost driver solutions.
- Unable to benchmark costs of CDM service items in absence of appropriate cost model.
- No online system was available that gives adhoc analysis of costs as and when required by the management.
- Restricted updates to the cost model.

Levels of Costing Information Required

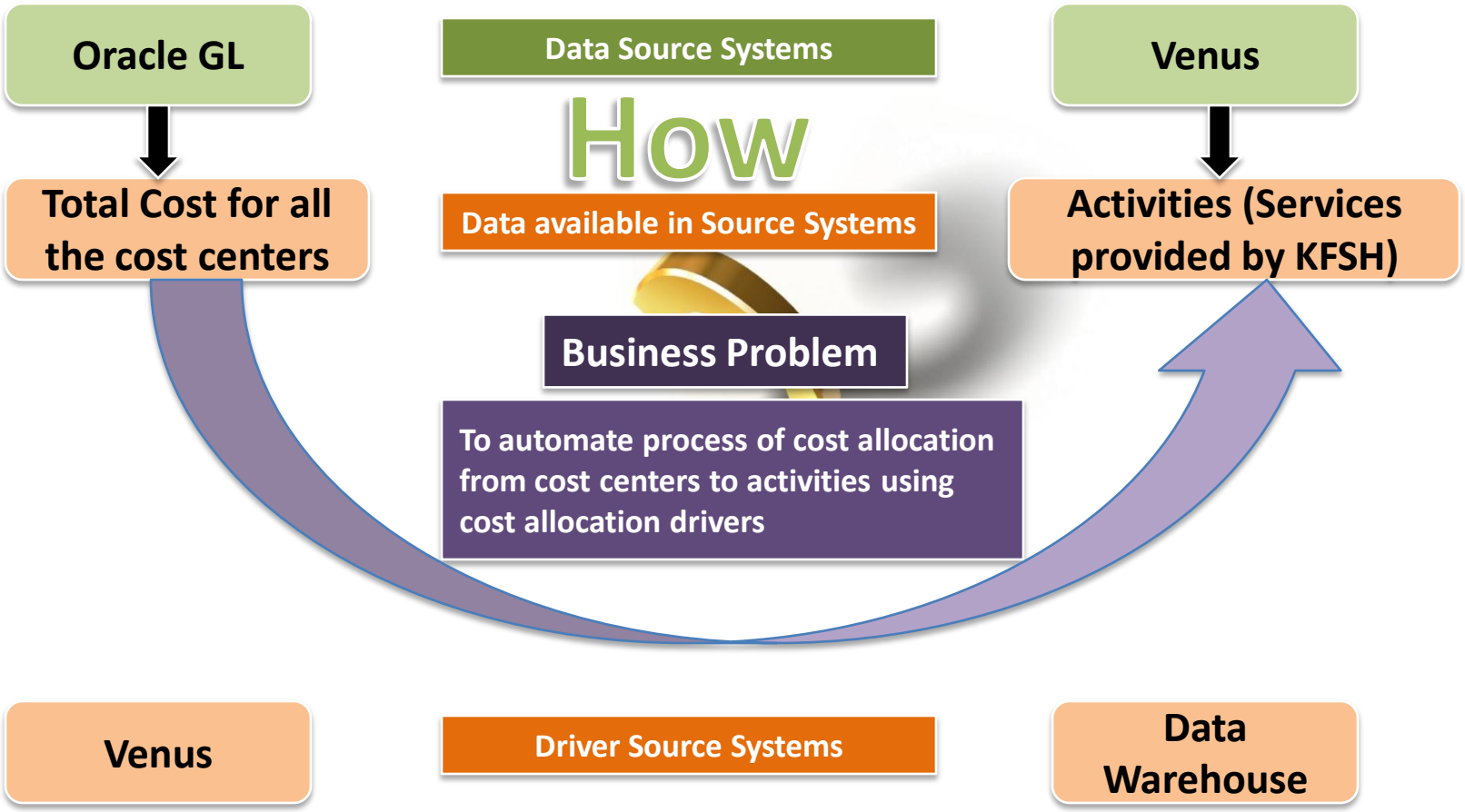


Source Systems in KFSH

KFSH uses various systems to keep record of different types of data. To make cost model online, it is necessary to bring information from all these systems at one place. Once all the required information comes in Hyperion, HPCM performs calculation based on the design and gives cost per CDM service item.

- **Oracle GL** is the source system of the cost data for each cost center. These cost centers are loaded in Hyperion with cost figures.
- **Billing System** Venus is the billing system for KFSH&RC. Data related to CDM service items, RVUs, volume of each CDM service items is available in Venus.
- **Data Warehouse** All information from the HIS and various other clinical applications are accumulated in the Data Warehouse and hence the DW becomes the third and an important source of information for all operational drivers

Source System in KFSH



The Solution Model

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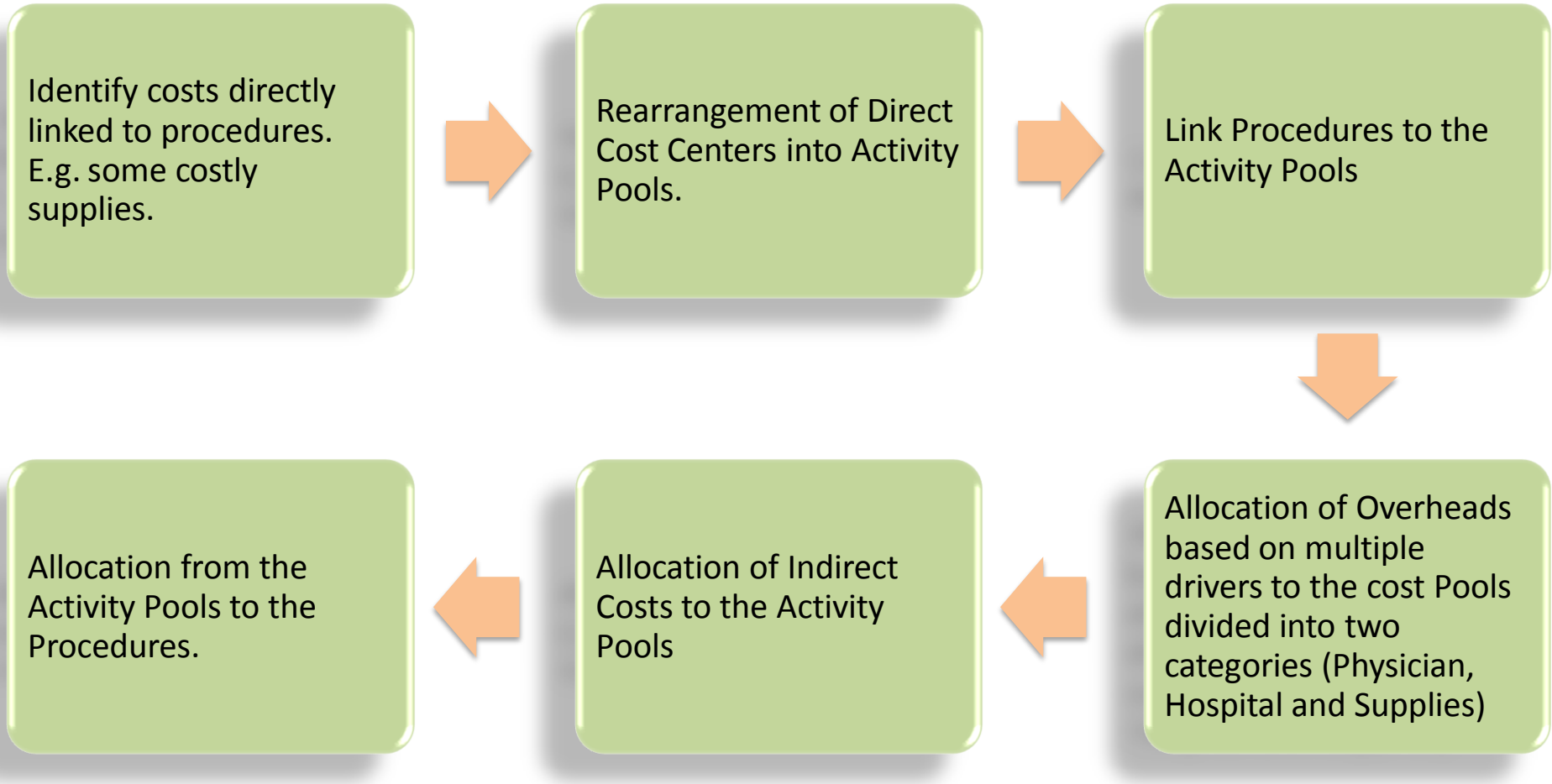


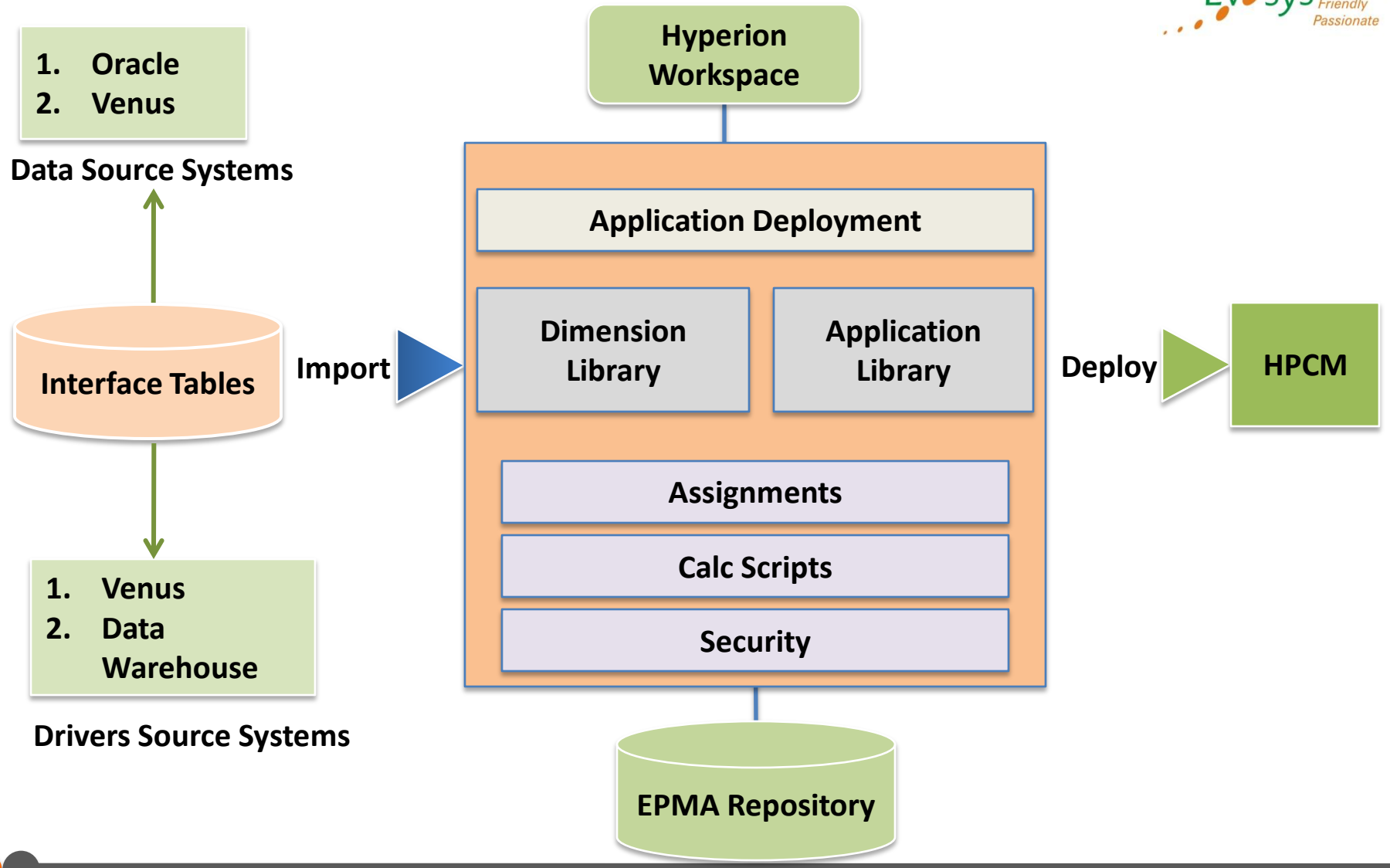
The Solution

- Worked closely with the KFSH project team to translate their requirements into a functional specification using our Hyperion knowledge to advise best approach to meet the requirements whilst ensure system performance wasn't affected.
- Integration of source data systems to Hyperion through interface tables.
- Defined the mapping between CDM service items with Cost Center in Hyperion.
- Defined assignment of drivers to appropriate dimensions in Hyperion.
- Eliminated illogical cost allocation and brought them in the normal flow of cost allocation.
- Allocated support costs amongst the direct cost centers on the basis of their direct costs.

The Solution (Contd.)

- Logical Grouping and Categorization of the cost centers into source system itself so as to make the end to end process automated.
- Grouped cost centers into Main Cost Centers which were linked with the CDM service items so that entire costs can be allocated to CDM service items on the basis of their RVUs (Relative Value Units) and volume.
- Evosys managed to provide an automated solution to manage their costing needs.
- We studied their existing model and made certain changes in it to make it robust and understandable.
- We also provided them with reporting tools to perform analysis of the cost flow from source to destination.

Integration with HPCM



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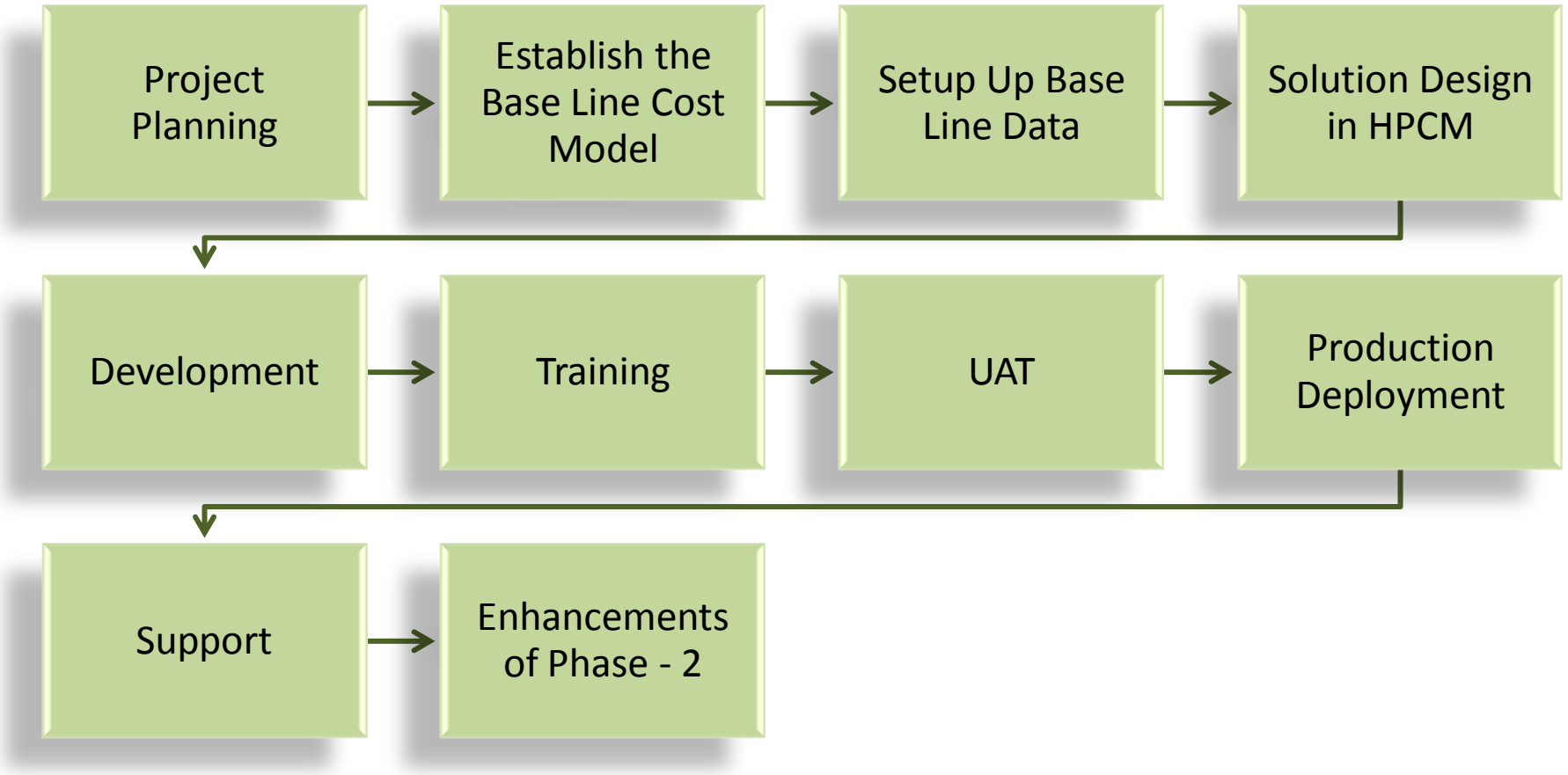
Project Approach



Approach to Project

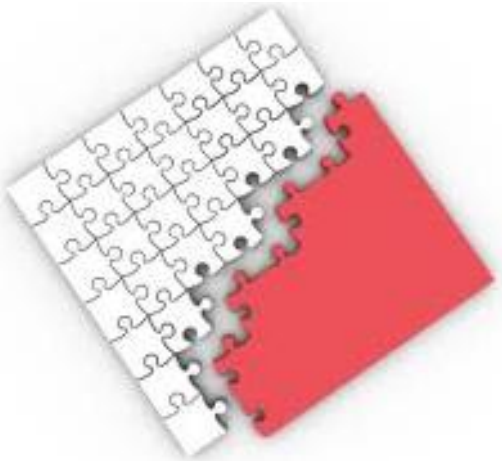
- Establish the Base Line Cost Model
  - Analysis of KFSH's spreadsheet based cost model and identifying the best suitable system so as to make cost model online.
  - Refinement of cost model developed to standardize all allocations and remove exceptions to bring them in the normal flow of cost allocation.
  - Allocation drivers for overhead costs were determined.
  - Logical Grouping and Categorization of the cost centers into source system itself so as to make the end to end process automated.
  - Provided options on treatment of Research Centre costs to chargeable services.
- Setup Up Base Line Data
  - Create a baseline result in excel.

Approach to Project

- Solution Design in HPCM
  - Metadata
  - Stages and Assignments
  - Integration
  - Reporting
- Development
  - Development of model on HPCM using manual data load (from excel)
  - Validating the accuracy of the results (unit testing)
  - Development of the integration and refinement of the model.
  - Integration Testing
- Training
  - Key User Training on HPCM and Reporting Tools
  - Training on Admin.

Challenges

- Understanding the existing Excel based model of KFSH&RC. There were certain exceptions in the model that had to be accommodated in the normal flow.
- Accommodating the complex model in HPCM and delivering the desired outputs of service level costing.
- We had to develop close working relationships with other KFSH software providers to ensure data was provided in the correct format to feed the Hyperion solution.
- Gathering data from disparate source systems and validating the same from respective authorities for loading in HPCM.



Business Benefits

- After implementation of costing solution, the KFSH & RC is able to upload the financial data as per the **quarters** for cost allocation and analysis.
- **Automatic calculation** of cost per CDM service item on periodic interval.
- KFSH & RC will be able to take its **pricing decision** based on the cost of services.
- **Comparative analysis** of CDM service items costs with the other organization in Healthcare Space.

Business Benefits (Contd.)

- **Profitability analysis** by comparing cost and revenue for CDM service items and based on that appropriate action can be taken for the non profitable or high cost CDM service items.

- **Trace analysis**. Identify sources of the costs (Cost Centers) of each CDM service item.
- Effective **Adhoc cost analysis** as and when required.

Critical Success Factors

- In depth understanding of healthcare costing model and improving it by making significant changes.
- Diligently estimated project plan.
- Integration with source applications
- Availability of Data
- Active participation of KFSH & RC's costing team.
- Great team efforts resulted into successful implementation.

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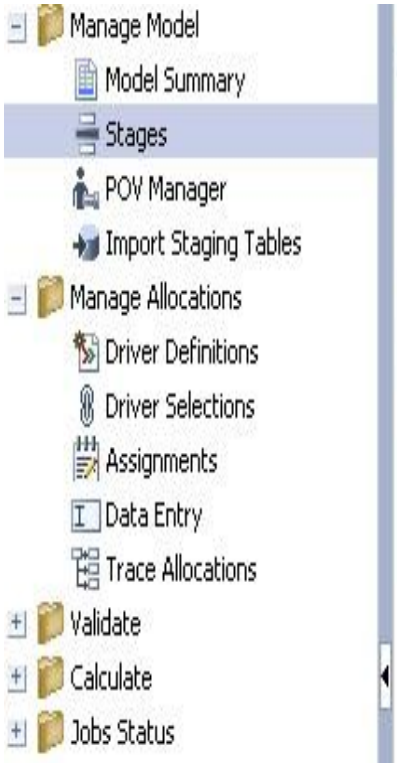
HPCM Design Overview

Stages



To add a stage, click Add, then enter a Name, Description and Prefix for the new stage. Select the dimensions to be added to the s into the correct sequence. Select the driver dimension, and then click OK.

Order	Name	Dimension 1	Dimension 2	Dimension 3	
1	Load	CostCentre	GLAccnt		
2	FA Rollup	FA	GLAccnt		
3	ToPhysician	Services			
4	FG Alloc	FG	GLAccnt		
5	CPT Alloc	CPT	GLAccnt		

Stages

Stage 1: Load

- This stage is for loading the GL data from the excel sheets into Hyperion costing model
- Following data is loaded in this stage:-
  - Cost centers and total cost at each cost centers.
  - CDM lines
  - CDM Drivers (i.e. RVU, Volume, etc.)

Stage 2: FA Rollup

- In this stage, the grouping of cost centers is done
- Cost centers are grouped into Functional areas
- Hospital cost from this stage is allocated to Stage 4 – FG Alloc
- Physician cost from this stage is allocated to stage 3 - ToPhysician

Stages

Stage 3: To Physician Stage

- This stage has costs related only to Physician cost centers
- Physician Cost from this stage is allocated to stage 4 – FG Alloc using “RVU” x “Volume of Activity” as driver.

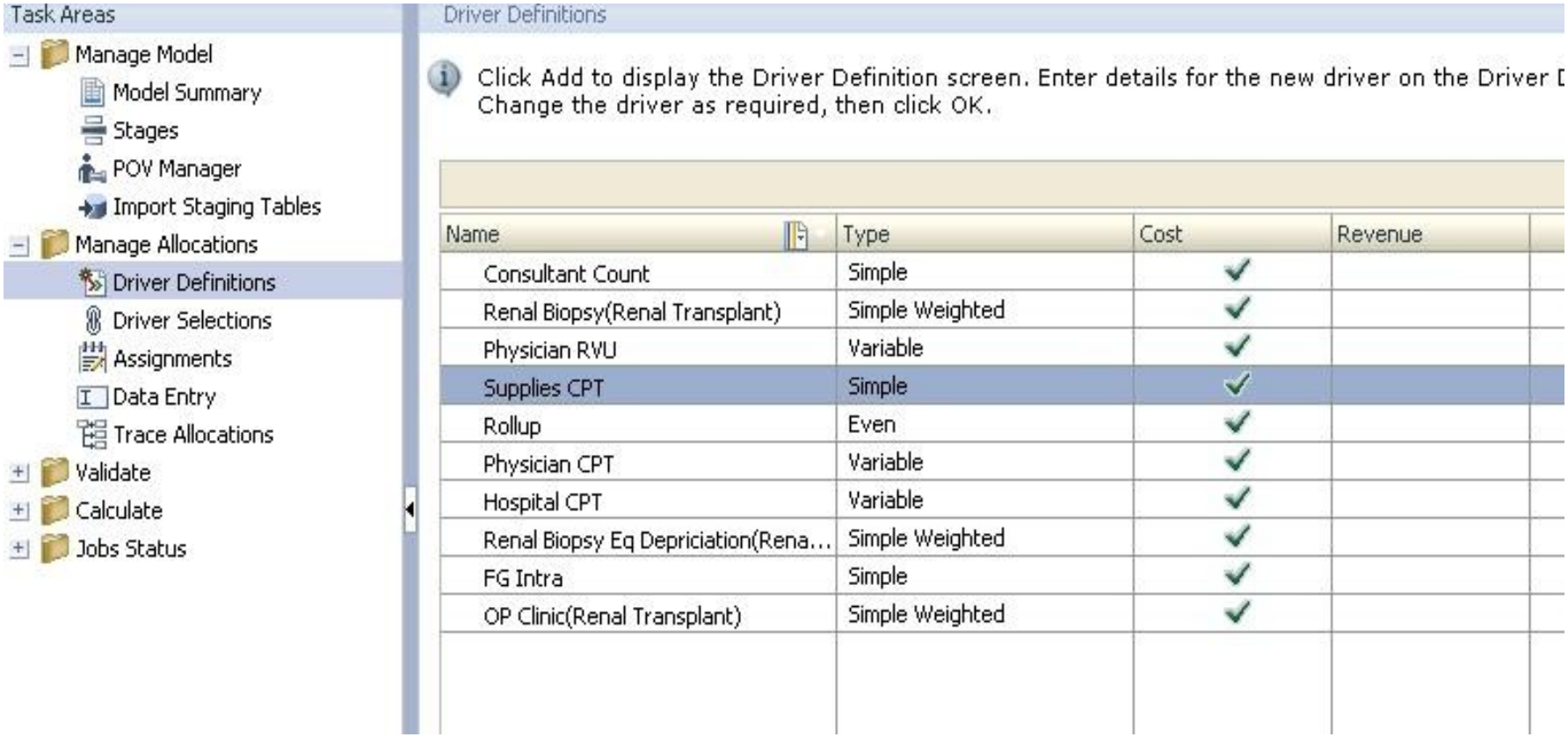
Stage 4: FG Alloc Stage

- This stage contains costs from both categories – Physician and Hospital
- Cost from this stage is allocated to the stage 5 – CPT Alloc
- Intra stage allocation for direct supplies from Hospital Costs.

Stage 5: CDM Alloc stage

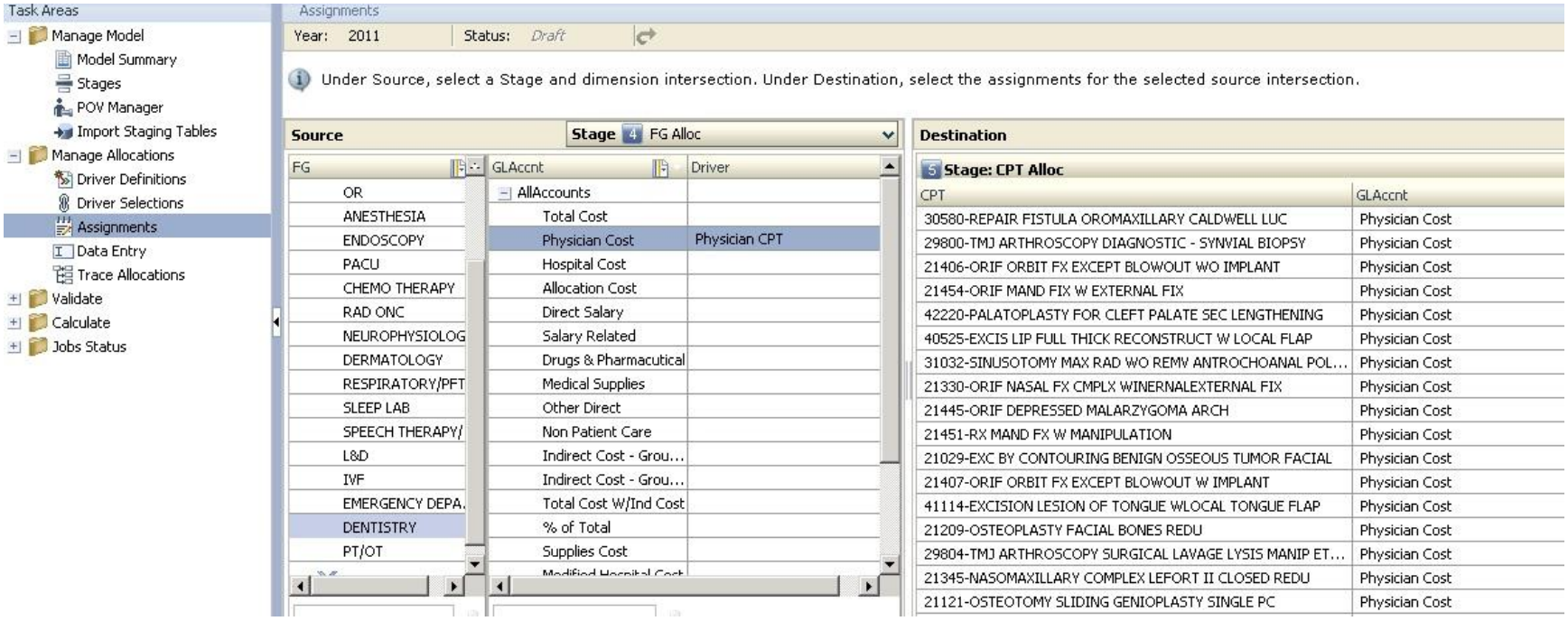
- This stage holds a list of CDM’s for all the cost centers
- This is the last stage where the costs are allocated to the CDM’s
- Final cost of each CDM can be derived

Driver definition in HPCM



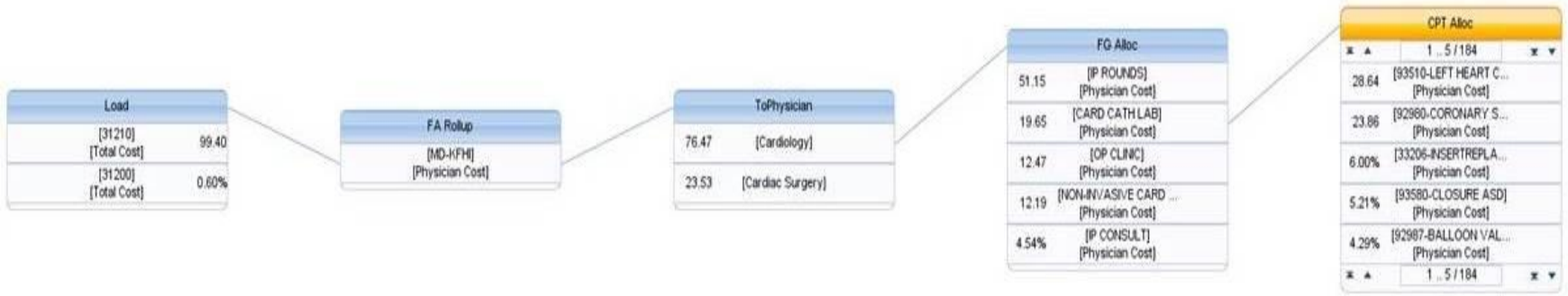
Assignments

In this stage, assignments are created between source and destination values. Based on this assignments, cost of the source value gets allocated to the destination values based on the cost allocation driver.



Trace Allocation

- Traceability maps—graphical depictions of allocations—provide a new level of transparency into cost and revenue allocations through multiple steps.
- Using traceability maps, users can verify that business rules have correctly applied the allocations.
- Traceability maps can serve as documentation so that independent reviewers are able to comprehend and, if desired, duplicate the allocation algorithm to validate the profitability model.



Terminology Used in Healthcare Space

- **Indirect Cost** is the total support cost of the nursing and medical departments. These are the cost centers which provide support services to the nursing and medical cost centers.
- **Overhead Cost** is the support cost of entire hospital. These costs are apportioned to the direct cost centers based in the appropriate cost allocation driver.
- **Cost Drivers** are the factors on the basis of which allocation of cost is done from the source to the destination. In activity based costing (ABC), an activity cost driver is something that drives the cost of a particular activity. For Example, No. of Doctors, RVUs, etc.

Terminology Used in Healthcare Space (Contd.)

- **RVUs (Relative Value Unit)** is an approach to weigh the intensity of each healthcare service (CDM) . The approach uses the weights defined in RVU for Physicians and RVU for the Hospital. These values are updated regularly by CMS under Medicare and Medicaid services.
- **CDM Service Items** are the activities billed to the patient. Hospital generates its revenue against these activities. So in order to have effective profitability analysis, it is necessary to derive cost for each CDM service item.
- **Current Procedural Terminology (CPT)** is a code set that is used to report medical procedures and services to entities such as physicians, health insurance companies and accreditation organizations.

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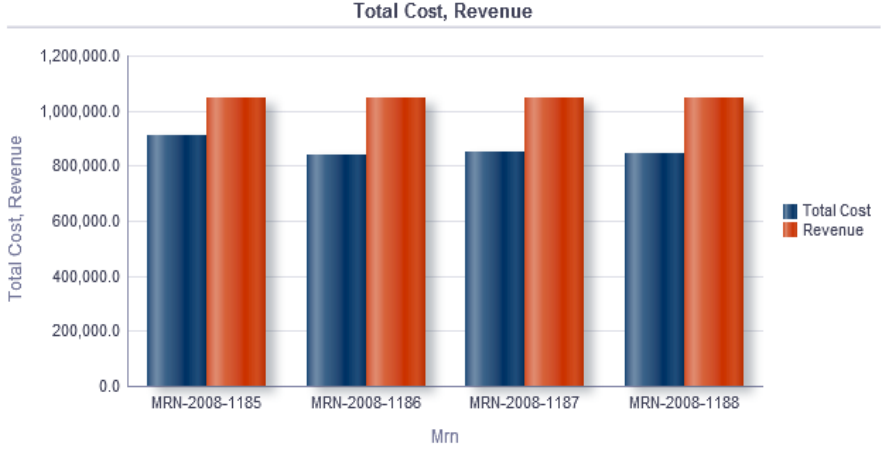
ROAD AHEAD

Apply Reset

Patient Level Cost Summary

Drg code A05C



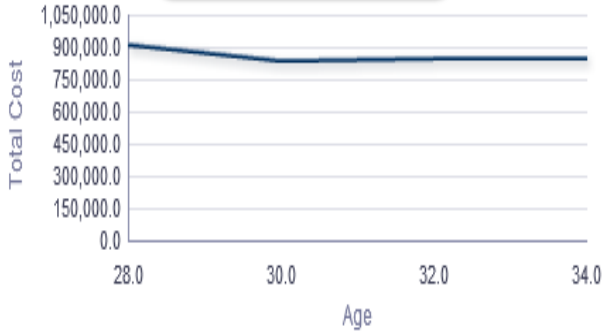
Mdc description	Drg description	Drg code	Patient name	Mrn	Physician Cost	Hopital Cost	Total Cost	Revenue
MDC 00 Special procedures	Heart Transplanation without major complications	A05C	Caleb	MRN-2008-1185	618,024.9	290,857.0	908,881.9	1,042,299.2
			Faisal	MRN-2008-1187	576,686.0	271,306.3	847,992.3	1,042,299.2
MDC 00 Special procedures	Heart Transplanation without major complications	A05C	Caleb	MRN-2008-1185	618,024.9	290,857.0	908,881.9	1,042,299.2
			Faisal	MRN-2008-1187	576,686.0	271,306.3	847,992.3	1,042,299.2
			Ghiyasud Din	MRN-2008-1188	570,897.1	273,187.8	844,085.0	1,042,299.2
			Majeed	MRN-2008-1186	567,566.2	269,071.2	836,637.4	1,042,299.2
MDC 03 Ear nose and throat diseases	Dental & oral diseases with major complication and comorbidities	D07A	Abdullah	MRN-2008-1190	60,213.4	9,780.6	69,994.1	107,447.9
			Farah	MRN-2008-1192	60,487.0	9,819.5	70,306.5	107,447.9
			Guzeena	MRN-2008-1191	57,709.0	9,717.0	67,426.0	107,447.9
			Mustajaab	MRN-2008-1189	62,482.9	9,859.5	72,342.4	107,447.9
MDC 17 Hematological and solid neoplasms	Myeloprolif disord or poorly diff neopl w maj O.R. proc w/o CC/MCC	R21A	Amira	MRN-2008-1183	31,516.4	6,425.0	37,941.4	41,400.4
			Hassan	MRN-2008-1184	28,131.1	3,888.0	32,019.2	41,400.4
			Mujahid	MRN-2008-1182	32,065.2	6,648.2	38,713.4	41,400.4
			Murad	MRN-2008-1181	31,516.4	6,133.8	37,650.2	41,400.4
Grand Total					**2,697,295.5**	**1,166,693.9**	**3,863,989.7**	**4,764,590.0**

Analyze - Refresh - Export

Patient Level Cost Summary Graph

A05C D07A R21A

Age wise Actual Cost



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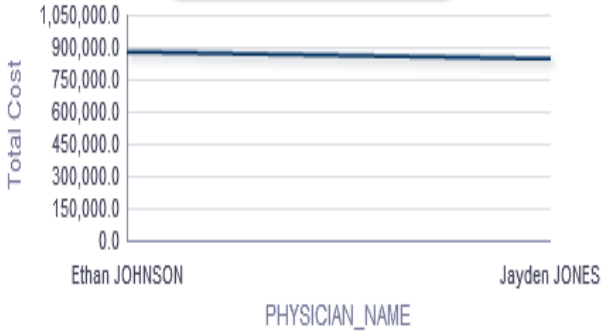
Physician Wise Actual Cost



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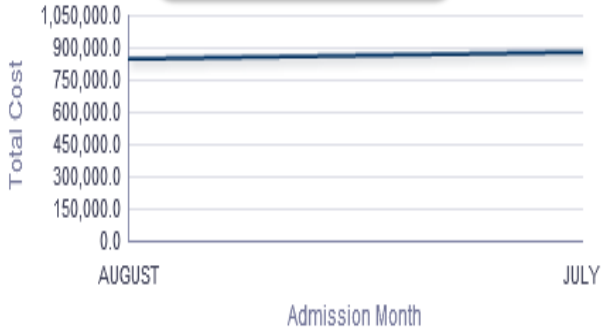
Admit Month Wise Actual Cost

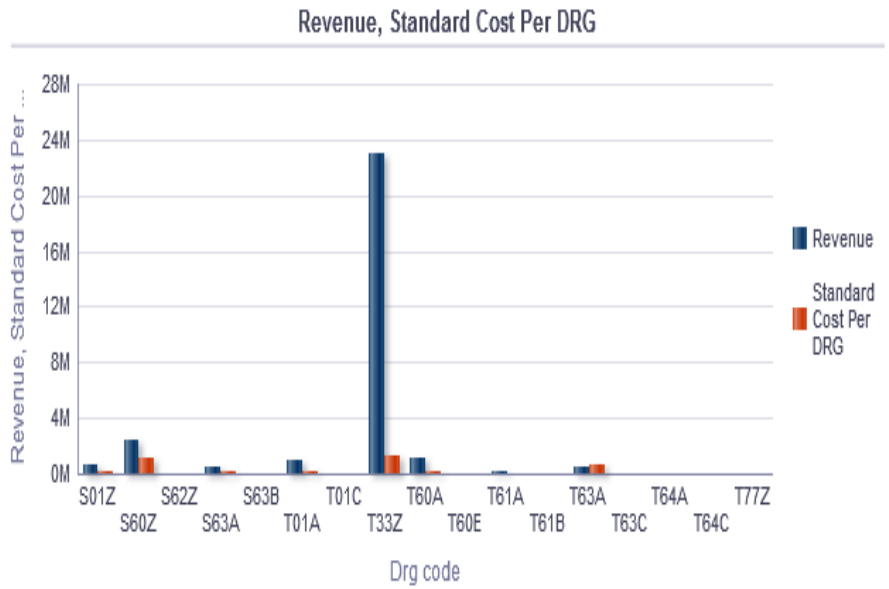


A05C D07A R21A

Facility Wise Actual Cost

Analyze - Edit - Refresh - Export

V / MDC 18B Infectious and parasitic diseases

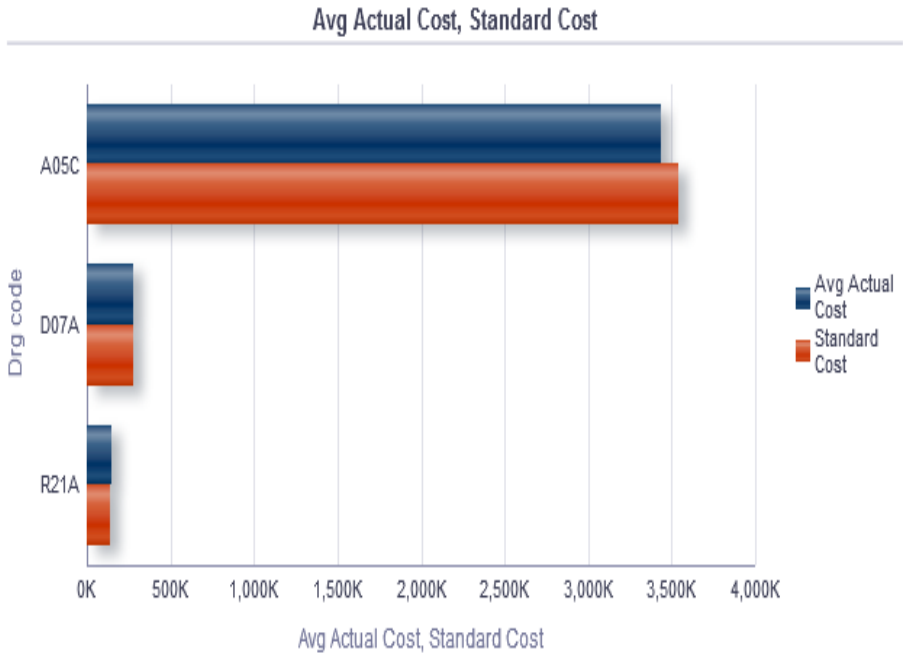


Mdc description	Drg code	Drg description	Standard Cost Per DRG	Revenue
MDC 18A HIV / MDC 18B Infectious and parasitic diseases	S01Z	HIV-Disease with OR-procedure	207,553.7	690,805.92
	S60Z	HIV-Disease, one in-patient day	1,120,805.2	2,389,083.39
	S62Z	Malignant neoplasm with HIV-Disease	34,789.6	49,942.86
	S63A	Infection and HIV-disease with complex diagnosis and extremely severe CC	235,750.9	571,063.00
	S63B	Infection and HIV-disease without complex diagnosis and without extremely severe CC	41,534.4	50,146.25
	T01A	ORProcedure for infectious and parasitic diseases with complex procedure or complicating procedures or after organ transplantation	241,488.0	973,311.36
	T01C	ORProcedure for infectious and parasitic diseases without complex procedure or complicating procedures and except after organ transplantation	28,701.7	34,881.84

Patient Cost | Patient Cost Graph | DRG Cost | **Actual vs Standard Cost** | rial Balance | Functional Area Costs | CDM

Apply Reset

DRG From Patient Level Cost



Mdc description	Drg description	Drg code	Avg Actual Cost	Standard Cost
MDC 00 Special procedures	Heart Transplanation without major complications	A05C	3,437,596.60	3,539,095.64
MDC 03 Ear nose and throat diseases	Dental & oral diseases with major complication and comorbidities	D07A	280,068.91	276,968.72
MDC 17 Hematological and solid neoplasms	Myeloprolif disord or poorly diff neopl w maj O.R. proc w/o CC/MCC	R21A	146,324.18	135,436.04

Analyze - Edit - Refresh

Thank You

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