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Automating Business Process

Goutham Raj Katagowni
St. Cloud state university

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Automating Business Process

by

Goutham Raj Katagowni

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Submitted to the Graduate Faculty of

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Starred Paper Committee:
Ben Baliga, Chairperson
Hiral Shah
Balasubranamian Kasi

Abstract

Consistent presentation of the information is necessary to align stakeholders around the scope of the Program and formally gain their commitment. Reports play a major role in decision making and future planning for a financial teams and program directors. Generally, data is available when a transaction occurs and volume of data grows along with the organization. Maintaining historical and current data for reporting to stakeholders is a tough task and at times companies fail to report data accurately. Maintaining automated reporting for different modules of an organization in an ERP (Enterprise Resource Planning) system is one way of providing accurate data reporting to business. There are many tools in current day market to report data but SAP reporting tools provide a better solution according to business requirements. SAP Business Objects (SAP BO) is one of the leading SAP reporting tools that provide a complete pack of solution to the client. Since this organization already had a huge implementation of SAP Business Warehousing (SAP BW), implementing of SAP BO on top of SAP BW is a easy solution and cost effective too. As a part of this project, elimination of highly complex reporting and replacement of obsolete technologies was also considered.

Acknowledgement

I am really thankful to my advisor Dr. Ben Baliga for the guidance he provided me throughout the course of this project. He is always been a source who guided me in the right path of success, and shared his knowledge. He took his valuable time to read this paper and was most patient and understanding till the end of the project. Dr. Baliga's insightful suggestions and recommendations were very helpful to present this project effectively.

I would also like to thank Dr. Hiral Shah and Dr. Balsy Kasi for their guidance and support throughout the entire study. I'm grateful to the Engineering Management program and St. Cloud State University for providing the resources. I'm thankful to my friends and family for their support and encouragement throughout my Master's program.

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Chapter I: Introduction

Introduction

ABC Corporation is one of the leading manifold organization in the world electronics, entertainment, game and financial services in current market, head quartered in Tokyo, Japan. The major operating segments include ABC Electronics (US), ABC Pictures Entertainment, ABC Computer Entertainment, ABC Music Entertainment, ABC Mobile Communications (ABC Erixon) and ABC Financial.

This project was aimed to focalize on the automation of business process by implementing SAP to improve the reliability and performance of business process. ABC operates its end to end business process from three different locations namely USA, Europe and Japan (Asia-Pac). Each of the location has its own servers but share data mutually. This project aims for the unification of all three servers from different locations into a single global server which can maintain data globally and process requests to each region individually. Moving data from different sources like Oracle, Postgre SQL, DB2, Sybase, etc. on to a single server (SAP powered by HANA) and making it available for business users across the globe would be a challenging task and is iterative until go-live. To overcome this scenario, this project has been allowed to follow agile methodology where Planning, Analysis, Design, Implementation and Maintenance can be modified or altered according to the projects need during the project life cycle.

Problem Statement

The current application environment at ABC is highly complex, technologically obsolete, presents operational risk, makes change difficult and creates inefficiencies. Addressing this complexity through replacement of our core transaction processing systems is our initial focus and priority because:

- A core Global Administration System (GAS) is the single biggest step in harmonizing definitions and processes in the company.

- Most other systems provide data to or use data from the core GAS.

- The platform will set the standards with which other technology investments must conform.

- A vendor supplied platform, with regular upgrades, means that ABC will become current and remain current.

Nature and Significance of the Problem

This organization has been a very big implementer of SAP since years but reporting to business was done using other tools. Existing tools were replica of Excel sheets and not dynamic. For an organization like ABC, which is spread globally, operated throughout the world and has assets and locations in every major city, it is difficult for stake holders and directors to view business and sales data on a whole at single glance.

ABC has total operating costs of 0.1 billion, only from consumer products and services in the year 2011. Whereas as in 2012 it rose to 2.29 billion which is a considerable amount spent on machinery and human resources which is not in

proportion with the sales which lowered by 20% from the year 2011 to 2012. This replicates the amount spent on maintaining data and computing results for an organization and making decisions. With the existing systems in place and the market value of the company, it has become much difficult to maintain multiple systems in different parts of the world and then assign resources to each part of the organization. This new proposal makes the overall data of the organization be placed on a single system and accessible by different parts of the organization.

A three phase implementation of the new proposal helps in moving data from multiple sources to a single source (which would be unique server all over the globe called Global Primo West) and making data accessible and consistent throughout the organization.

In this business data is largely retrieved which is OLAP process and very less data is written to the database (OLTP process). For this environment pulling data based on column feeding is much faster than row feeding. Which is done only in SAP HANA and is a in memory tool, which stores data in RAM instead of ROM and helps fetching data 100 times faster than the regular OLTP process and cost effective. This makes our project implementation based on SAP HANA.

Project Objectives

The GAS 1.0 program is part of a broader modernization initiative at ABC called 'New House'. New House has included the implementation of an enterprise wide Database Management System, Document, and CRM system salesforce.com.

ABC's Executive Team's objective for New House is to leverage technology to support the production and management of profitable business more efficiently.

This includes efficient and straight through processing, scalable businesses, improved data organization, access and analytics and support of control activities and meeting future regulatory needs.

GAS 1.0 is foundational to New House from both a business and technology perspective. It ensures that future technology investment builds on a solid platform and provides some technical standards with systems and enhancements must conform going forward.

Project Questions

Before beginning this project, businesses had serious issues with the existing system and were worried about the same in new implementation. Here are few questions raised by business before beginning the project.

1. What were the main goals achieved by reporting on SAP on HANA?

2. What are the issues that users facing today with the existing reporting system and how do we overcome with the new implementation?

3. What are the steps taken to increase the accuracy and reliability of data reported in the new reporting system?

4. What would be after affects if this implementation doesn't provide a desired solution and what is our back up plans?

Limitations of the Project

All users across the globe should be provided with a central server access for viewing reports.

Very few reports on the existing tools cannot be converted to new reports, as there is some business dependency.

All non-SAP reports has to be maintained up to considerable amount of time, until the new reporting process is stabilized and all the issues with new tool are fixed.

Technical Definitions

SAP ERP: SAP ERP is software that maintains data related to all modules in an organization. Centralized server's stores data and supplies to different reporting systems upon request.

SAP BW: SAP Business Warehousing is the data warehouse management system which controls data for reporting on it. BW on HANA is the latest technology that helps pushing data for reporting in a much faster manner.

ETL: ETL (Extract Transform and Load) is the process of processing data from one system to another. Generally ERP systems are transaction systems and BW are analytical systems which help in reporting.

Data source Objects: Data source objects, as name suggests, these objects are at BW level which maintain data in them and supply for reporting according to the business needs. Data can be massaged at this stage to optimize the performance.

SAP BO: SAP Business Objects is a self-contained server that store data and reports on it. SAP BO is tightly integrated with SAP BW. This helps in reducing efforts

for reporting. This also acts as an ad hoc tool for users in which, end users can build their own reports as per the business requirement.

Summary

In the above chapter we discussed about the existing system, its architecture and the functionality. We also spoke about the defects we had using this system and the advantages of switching to new technology implementation. An outline of technical details and their terms were discussed in detail in the above chapter.

Chapter II: Background and Literature Review

Introduction

This chapter explains about the problem statement in detail and also gives us some Insight into overall literature related the existing problem. This can also be used for further analysis in future to gain some extra knowledge over the problem. This chapter explains much about the literature related to the methodology of the problem.

Background Related to Problem

Every Organization has a set of key users and business stake holders who wish to know overall performance of the company on regular basis. When a company could not produce a high level summary report with the day to day stock levels market cap, people at the top lose confidence on how it is performing and also switch their investments. Considering all the above scenarios, building a reliable, accurate and up to date reporting for an organization is important for a company.

For enhancing a better reporting, companies rely on existing data, also called as historical data that lies on servers for a limited period of time. This historical data has a vital role in not only analyzing the past performance of an organization, but also helps in taking decisions for the future. For bigger organizations like ABC, we cannot use manual resources to analyze high volume of data at the end of the year to make crucial decisions. This entire process of reporting to higher levels has to be automated and this organization chooses SAP on HANA as a tool to automate the business process. Since ABC being a manufacturing company, it consists of different modules like Finance Accounting, Project Systems, Human Resources, Plant

Maintenance, Materials Management, Quality Management, Production Planning, Sales and Distribution, Enterprise Controlling and Supply Relationship Management. To ensure precise, accurate and quality data for reporting, we use SAP as a main implementation tool with HANA as a database, SAP Business Warehousing as a middleware application for enhancing data and few other tools like Business Objects for reporting on top of SAP BW.

  SAP initially came up with an ERP tool initially and then included reporting on top of ERP as a main tool to achieve industry standard reporting in one package. ERP and BI are two key areas of SAP which fulfills industries best practices of maintaining book of records and reporting on a single machine. Lot of organizations like mechanical, manufacturing, pharmaceutical look for manufacturing, financial and sales and distribution to be tied together on a single machine to avoid mismatch in numbers while performing annual reporting and meet auditing standards. SAP is the best-selling package in industry today with customized multi-dimensional modeling and reporting on top of it, which makes quality reporting possible. Using SAP Business Warehouse for data warehousing and Business Objects on top it for reporting is called SAP BI (Business Intelligence) implementation.

Problem Literature

  For an organization to have proper and definite data for analysis to support in decision making, budgeting, forecasting, revenue recognition and interpretation is highly important. As a basic functionality of SA, being an ERP tool and also reporting, SAP Business Warehousing and Business Objects provide a reporting functionality

and suite of business reporting tools that help in making correct decisions at the right time. Accurate business information from multiple source systems which include SAP and non-SAP will be fed into warehousing systems for integration, transformation and consolidation in SAP BW systems with the tool set provided by SAP (McCormick, 2009). SAP Business Warehousing tool also provides a basic reporting feature that could deliver reports in the form of a excel sheet and this is the basic reporting tool that is available in house and business extensively uses this for financial and Human resource reporting.

To convert data from OLTP (Online Transaction Processing) to OLAP (Online Analytical Processing) for analytics and data processing, there has to be process which converts transactional data into analytical, we need systems to change it from ERP systems to Analytical systems. This entire process of converting data from transaction systems to analytical systems and reporting on it has different steps and are as follows.

Integration

Transformation

Consolidation

Maintenance

Storage

Retrieval

SAP Business Warehouse application provides a complete in house solution for combing SAP and non-SAP related data into a single system and build reporting on top of it. Figure 1 illustrates the SAP framework of SAP system from bottom to top.
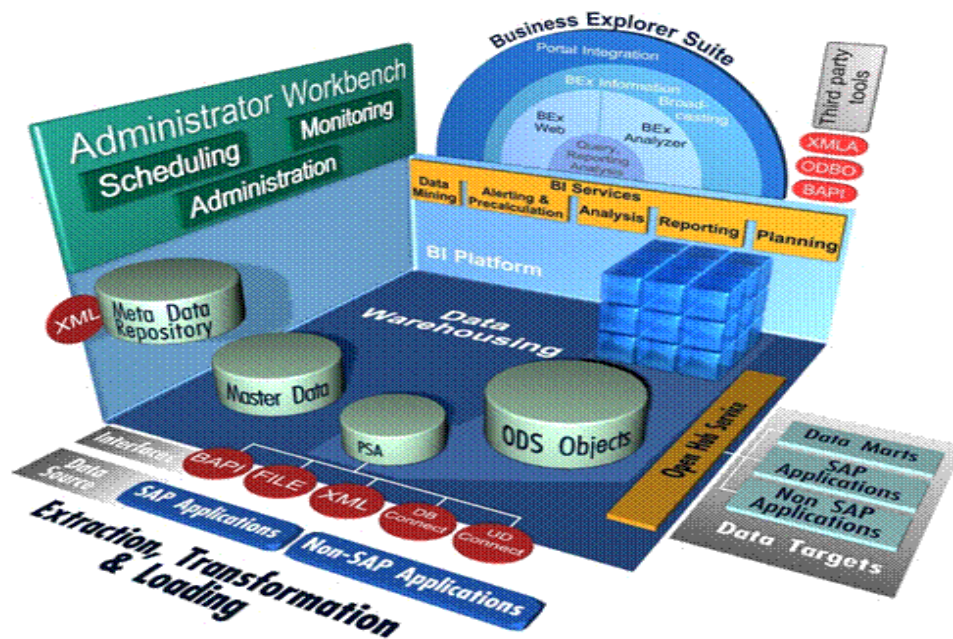
Figure 1: SAP BW Framework (Cubeserv, 2008)

SAP HANA (High-Performance Analytic Appliance) is the new database that stores data in column pattern unlike traditional databases like Oracle and MSSQ. This runs on memory instead of disks, which helps fetching data for analysis very fast. Both ERP and Analytic machines can be turned on HANA, but using it is little cost inclusive and should have a real business need to implement on HANA. Implementing SAP BW (Analytic systems) on HANA in current situations is useful, as analysis is mainly only on BW systems. This In-Memory tool helps fetch data for analysis directly from HANA tables which decrease response time by 70%. In this current organizations structure, few reports range from millions of records to billions.

Running reports on regular database would take hours to run. Instead running them on HANA would reduce this time from hours to minutes. Implementation of SAP on HANA would cut down response time by a huge margin and this helps organization taking quick decisions. Figure 2 illustrates the framework of SAP BW on top of HANA and dataflow to Business Objects.
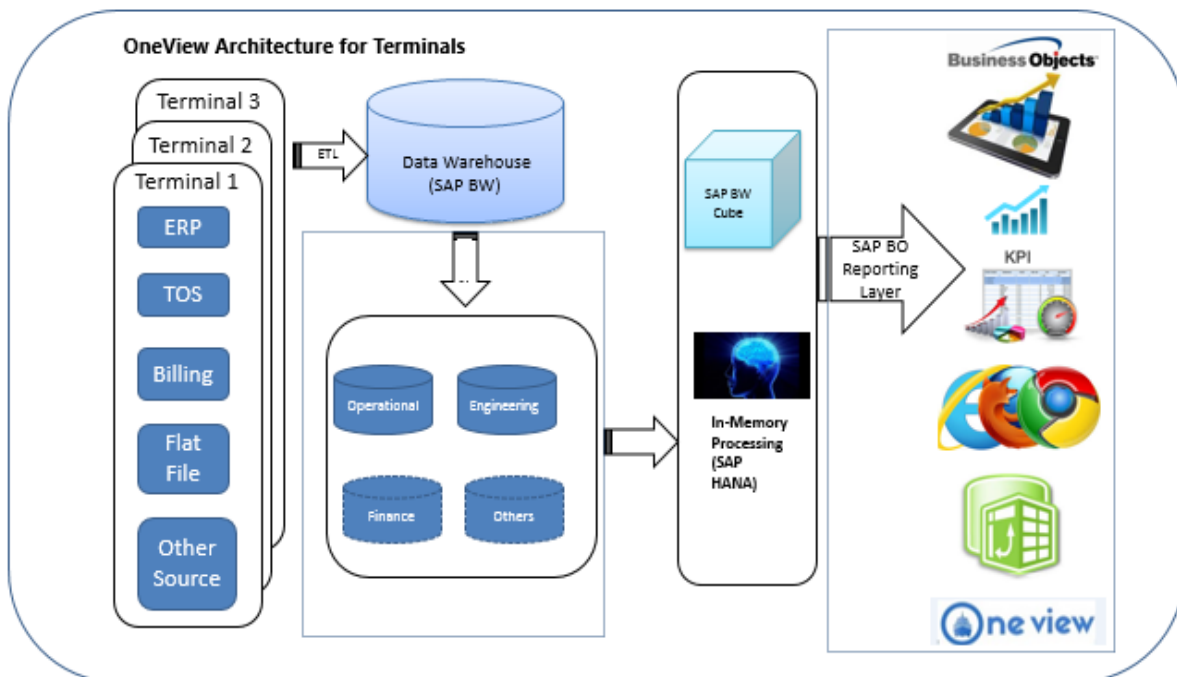
Figure 2. Business Objects with SAP BW Data Warehousing

This does not only restrict using reporting solutions to Business Objects. Any reporting solution can still be used on top of SAP Business Warehousing. In a recent survey conducted by Management Journal, it was evident that, companies which adopted decision making based on reporting are much efficient than the companies which go by historical data prediction. Historical data can help making predictions of only 90 to 95% of actual reporting.

Literature Related to the Methodology

We chose ASAP (Accelerated SAP) for implementing this project. Since, we already have detailed documentation on advantages of using this technology over existing.

ASAP Methodology

This program will follow the general Accelerated SAP (ASAP) methodology enriched by ABC's particular experience in sales and distribution implementation projects collected in the eSAP methodology. ASAP provides content, tools, and best practices that enable consultants to deliver consistent and successful results across industries and customer environments. Built on experience in more than 30 SAP Reinstate Solution projects, eSAP adds content, and best practices that enable consultants to deliver consistent and successful results specific to the reinstate industry.

The six phases of ASAP / eSAP provide support throughout the life cycle of SAP solutions. The diagram below illustrates the phases of ASAP.

The ASAP Project Methodology: Full solution life cycle support–from design through daily operations.

SAP's ASAP Project Methodology

1 Project Preparation
Conduct initial planning and preparation; define project goals, scope, and objectives; identify and train team members.

2 Blueprint
Map value drivers to implementation scope; refine business require-ments; document the *to-be* processes; define functional solution design; identify added functional, technical requirements; get business sign-off on requirements/design.

3 Realization
Build and test a complete test and business environ-ment; develop training material and user manuals; obtain business approval.

4 Final Preparation
Prepare system for production release; migrate/ cut over data; execute training; and prepare the organization (internal/external) for Go-Live.

5 Go Live Support
Execute new systems and processes; monitor business process results, and monitor the production environment; build Center of Excellence for support and enhancements.

6 Run
Run the new system; apply additional SAP operations standards to optimize system operation.

Ensure the delivery of value throughout the solution life cycle ("value delivery")
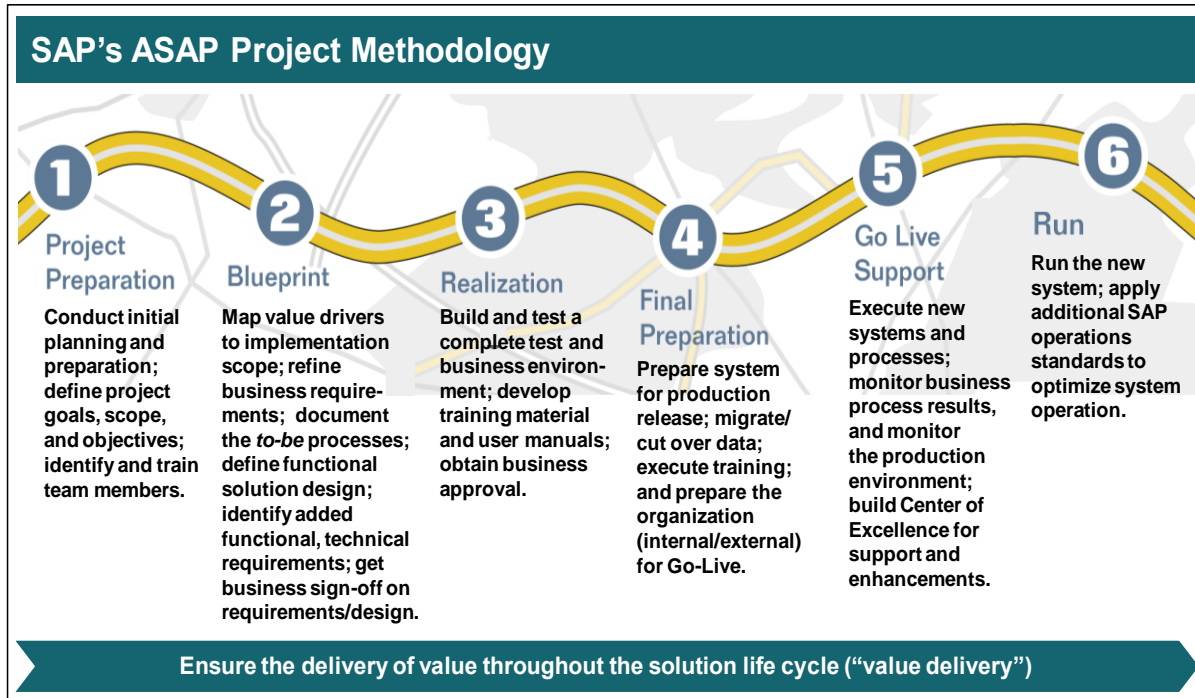
Figure 3: ASAP Project Methodology

SAP implementations and upgrades require a disciplined approach to project management. The ASAP methodology aligns with the best practices recommended by the Project Management Institute (PMI)[*], making it possible to minimize risk, streamline and accelerate the implementation project, and reduce the total cost of implementation or upgrade. ASAP incorporates a standardized work breakdown structure that enables project managers to define and manage project work in a deliverable-oriented, hierarchical manner. It is structured around these key project work streams:

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[*] This includes the Project Management Institute's *A Guide to the Project Management Body of Knowledge*.

- Project management

- Organizational change management

- Training

- Data management

- Business process management

- Technical solution management

- Integrated solution management

During each ASAP phase, the project team produces a set of deliverables that serve as inputs to subsequent phases. ASAP provides sample deliverables, which include the outputs and methods used to produce project deliverables. ASAP also provides accelerators for each phase and work stream. These include templates, questionnaires, checklists, guidebooks, and other tools that enable efficient, consistent, and repeatable delivery of SAP implementations and upgrades.

Summary

This chapter provided an insight into details of advantages and disadvantages of implementing this technology using ASAP methodology. In the further chapters we would discuss about the different phases of project implementation in detail.

Chapter III: Methodology

Introduction

In this chapter, we will discuss more about the methodology that we used in implementing this project. We will also discuss about the data collection methods and timelines involved in taking this project forward.

Design of the Project

Sequencing. ABC has decided to sequence or phase the implementation of the SAP for its products as follows:

Unit 1A: Implementation of FS-SD module for North America PC Treaty business. This will include implementation of the Business Partner (BP), Collections/ Disbursements (FS-CD) and Business Warehouse (BW) modules. For all areas, the design will be Global in nature, therefore incorporating the needs of International PC Treaty, and Manufacturing into each module. It will contemplate the future integration of ASIAPAC (Asia Pacafic) for Facultative and ABC Entertainment LTD.

Unit 1B: Implementation of FS-SD module for International PC Treaty business, to include BP, FS-CD and BW where they are not already in use for International PC Treaty following Unit 1A. For each module other than FS-SD, the decision whether to implement for International PC Treaty in Unit 1A or defer to Unit 1B will be decided as part of the blueprinting phase of Unit 1A.

Unit 2: Risk Manager for Finance Team (RMFT) module for PC Facultative.

Unit 3: Product Reinstate Module (PRM) for PC/TV single risk handling.

This phasing relates to design and implementation only, there is highly likely to be staging of the rollout by geography, business line or type or some other dimension.

Methodology

As discussed in the previous chapter, we used ASAP/eSAP methodology in implementing this project. This hybrid approach of implementing SAP powered by HANA at ABC is highly affective and advantages of using this approach will be discussed further.

The primary drivers for this phasing are:

- Product Architecture: FS-SD is the foundational module of the SAP for Reinstate product offering. It has the major relationships with FS-CD and contains many of the master data classification codes and core configuration options that define the way the business will operate on the system.

- Product Readiness: FS-SD is a more mature and widely used module than either RMNL for Facultative or LRM for Life/Health single risks. Both RMNL and LRM require greater remediation than FS-SD to achieve 'fit-for-purpose' for ABC.

- Implementation Complexity: It is possible to implement only FS-SD of the SAP/A2 reinstate modules, while implementing either RMNL or LRM means implementing that module and FS-SD. This gives the program team

the ability to focus attention and resources on a single, albeit still complex,

goal.

- Flexibility in Objectives: The immaturity of and extent of remediation

  required to RMNL and LRM make both modules less beneficial for ABC

  and a higher risk to implement. Pushing them back leaves time for SAP/A2

  to further develop the products and ABC to gauge the commitment of

  SAP/A2 to the products. If that commitment is not forthcoming, ABC may

  find more attractive solutions for these areas while still integrating to FS-SD

  for PC claims, client and cash accounting.

The RAS 1.0 program will follow the general Accelerated SAP (ASAP)

methodology enriched by A2's particular experience in reinstate implementation

projects collected in the eSAP methodology. ASAP provides content, tools, and best

practices that enable consultants to deliver consistent and successful results across

industries and customer environments. Built on experience in more than 30 SAP

Reinstate Solution projects, eSAP adds content, and best practices that enable

consultants to deliver consistent and successful results specific to the reinstate

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The six phases of ASAP / eSAP provide support throughout the life cycle of

SAP solutions. The diagram below illustrates the phases of ASAP.

The ASAP Project Methodology: Full solution life cycle support–from design

through daily operations.

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- Project management

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- Training

- Data management

- Business process management

- Technical solution management

- Integrated solution management

During each ASAP phase, the project team produces a set of deliverables that serve as inputs to subsequent phases. ASAP provides sample deliverables, which include the outputs and methods used to produce project deliverables. ASAP also provides accelerators for each phase and work stream. These include templates,

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* This includes the Project Management Institute's *A Guide to the Project Management Body of Knowledge*.

questionnaires, checklists, guidebooks, and other tools that enable efficient,

consistent, and repeatable delivery of SAP implementations and upgrades.

All activities and deliverables for each phase of the ASAP methodology are

defined in the following subsections. These activities and deliverables have been

memorialized in the Program's overall RASCI document and is part of the

implementation contracts with each vendor.

Preparation Phase

The inputs for the Preparation Phase have been defined and identified and

include all of the Model Office functional material and the Interface and Reporting

inventories.

PROJECT PREPARATION - Activity/Deliverable	ABC	A2	BackOffice	A3	Comments
Business Design					
Schedule of requirement sessions for FS-SD v. 7.0	RA	S	I	I	
ABC requirements for FS-SD v. 7.0	S	RA	I	I	
Schedule Business Blueprint Phase Sessions	RA	S	S	S	
Initial master requirements list ("MRL")	S	RA	I	I	Based upon ABC's model office scenarios
Initial WRICEF list / master development list ("MDL")	I	RA	I	I	MDL by WRICEF
Initial MDL – A3	I	I	I	RA	
WRICEF – Conversions					
Initial MDL – BackOffice	I	S	RA	S	
Core project team training on DATA ETL	S	S	RA	S	"S" indicates people being trained
Data Conversion Strategy (including detailed Conversion project plan for Business Blueprint Phase – data load only)	A	C	R	C	
Systems Operations					
Setup RAS System Environment for Blueprint (Sandbox) - BP, FSRI, FSCD, PI, SOLMAN, etc.	S	RA	I	I	
Setup BOA environment – data	S	S	RA	S	
Setup environment - legacy systems	S	C	I	RA	

PROJECT PREPARATION - Activity/Deliverable	ABC	A2	BackOffice	A3	Comments
Testing strategy for overall RAS Program	RA	S	S	S	
Deployment strategy for overall RAS Program	RA	S	S	S	
Development standards for legacy remediations	C	I	I	RA	
Training					
OCM	RA	C	C	C	
High-level end user training strategy	RA	S	S	S	

Blueprinting Phase

BUSINESS BLUEPRINT - Activity/Deliverable	ABC	A2	BackOffice	A3	Comments
Business Design					
FS-SD v. 7.0 specifications	C	RA			
Initial master process list ("MPL")	A	R	I	I	Start with existing process models
Business Process Documents	A	R	C	C	
Business process models	A	R	I	I	
Final WRICEF list / MDL	S	RA	S	S	
Final MPL	A	R	I	I	
Workflow/BPM/UI Functional Specifications and test cases	A	R	S	S	
Reports Functional Specifications and test cases	A	R	S	S	
Interfaces Functional Specifications and test cases	A	R	S	S	
Conversions Functional Specifications and test cases	A	R	S	S	
Enhancements Functional Specifications and test cases	A	R	S	S	
Forms Functional Specifications and test cases	A	R	S	S	
Security and authorization specifications and test cases	A	R	S	S	
SAP business roles	A	R	S	S	
Systems Operations:					
Instance strategy	A	R	I	I	
Development Environment - sizing, specifications and Base SAP Software installation, configuration and initial test	S	RA	I	I	
High level architecture abstract	S	RA	I	I	
Security enterprise guidelines	A	R	I	I	

BUSINESS BLUEPRINT - Activity/Deliverable	ABC	A2	BackOffice	A3	Comments
Systems Operations strategy	S	RA	S	C	
Transport management concept	A	R	I	I	
Development standards for RAS System implementations	A	R	I	I	
Security & Authorization strategy	A	R	C	C	
Infrastructure support processes documented and established	A	R	C	C	
SAP upgrade strategy	A	R	C	C	
System landscape strategy (infrastructure and environment design and setup, including fail-over)	A	R	C	C	
WRICEF - Reports:					
BW and Reports strategy	A	R	C	C	
Development manual and guidelines for Reports	A	R	C	C	
Detailed architecture design and fuidelines for Reports	S	RA			
Data model gap analysis document for A2.Reporting	A	R	C	I	
WRICEF - Interfaces:					
System Interfaces / SOA strategy	A	R	C	S	
Detailed architecture design and guidelines for integration (including, SOA, PI, BRM, BPM)	A	R	I	I	
Interface test concept	A	R	I	I	
WRICEF - Conversions:					
Data Conversion strategy – data load only	I	RA	C	C	
Data extraction from legacy systems to BOA platform	S	I	RA	S	
Early data cleansing and mapping	A	S	R	S	
Functional specification for data domain conversions	A	S	R	S	Design mapping lead by functional teams. Document to be created from BackOffice's tools
Data reconciliation strategy	RA	S	S	S	
Data archiving strategy	RA	S	S	S	
WRICEF - Enhancements:					
Development manual and guidelines for Enhancements	S	RA	I	I	
Training					
Revise end user training strategy	RA	S	S	S	

Value Realization Phase

REALIZATION - Activity/Deliverable	ABC	A2	BackOffice	A3	Comments
Business Design					
Master test list ("MTL")	A	R	C	C	
SAP baseline configuration	C	RA	S	I	
FS-SD/FS-CD system configuration documents	C	RA	S	I	
Business Process Documents	C	RA	S	I	
Batch job requirement specifications documents	C	RA	S	I	
Test data documentation	C	RA	S	I	
Business process unit test completed	C	RA	S	I	
Business process scenario test completed	C	RA	S	I	
Key business scenarios documented	C	RA	S	I	
FS-SD/FS-CD system configured – final	C	RA	S	I	
Technical Design Documents for legacy systems remediation	C	C	I	RA	
Legacy - remediation, unit testing, and scenario/regression test	C	C	C	RA	
WRICEF – Workflow					
Workflow/BPM/UI Technical Design Documents	S	RA	I	I	
Workflow/BPM/UIs coded and tested	S	RA	I	I	
WRICEF – Reports					
Reports Technical Design Documents	S	RA	C	I	
BW data model finalized	S	RA	C	I	
Reports coded and tested	S	RA	C	I	Include extractors
WRICEF – Interfaces					
Interfaces Technical Design Documents	S	RA	C	S	
Interfaces coded and tested	S	RA	C	S	
Interfaces documentation for handling legacy system interactions	S	RA	C	S	
Technical Design Documents for legacy interfaces	S	S	C	RA	
Interfaces deployment/initialization documentation	S	RA	C	S	
Complete implementation, unit and scenario testing of legacy Interfaces	S	S	C	RA	
WRICEF – Conversions					
Data extraction from legacy systems to BOA platform	S	I	RA	S	
Business-readiness analysis	S	S	RA	I	Early discovery - sets up data gap analysis

REALIZATION - Activity/Deliverable	ABC	A2	BackOffice	A3	Comments
Data gap analysis	S	S	RA	I	Output of data mapping
New data construction	A	S	R	I	
Business rule Documentation	A	S	R	I	
Data validation	A	S	R	I	
Conversions Technical Design Documents - data load only	S	RA	S	I	
Conversions coded and tested – data load only	S	RA	S	I	
Data loading to SAP target – QA & Testing	S	RA	S	I	
WRICEF – Enhancements					
Enhancements Technical Design Documents	S	RA	C	C	
Enhancements coded and tested	S	RA	C	C	
WRICEF – Forms& Output					
Forms Technical Design Documents	S	RA	I	I	
Forms coded and tested	S	RA	I	I	
Systems Operations					
QA Environment - sizing, specifications and Base SAP Software installation, configuration and initial test	S	RA	I	I	
Production Environment - sizing, specifications and Base SAP Software installation, configuration and initial test	S	RA	I	I	
Develop and test user IDs created	S	RA	I	I	
Disaster recovery procedures	A	R	I	S	
Perform technical integration check	S	RA			
Full integration testing	RA	S	S	S	
User acceptance testing	RA	S	S	S	
Performance/load testing	RA	S	S	S	
Implementation audit and acceptance testing	RA	S	S	S	audit type testing
Documentation of configurations	C	RA	I	I	
Maintain inventory of configurations	C	RA	I	I	
Perform Software logistics and transports	A	R	I	I	
Security & Authorization master and detail design documentation complete	A	R	I	I	
Security & Authorization configuration complete	S	RA	I	I	
Security & Authorization unit tested	S	RA	I	I	
Security & Authorization procedures documented	A	R	I	I	
Technical test concept for non-functional testing	A	R	I	I	
Development and test user IDs created	RA	S	I	I	

REALIZATION - Activity/Deliverable	ABC	A2	BackOffice	A3	Comments
SAP service concept documents	S	RA	I	I	
Planning, design and management of batch jobs for the RAS System	S	RA	I	I	
Initial deployment plan	A	R	S	S	
Training					
Role mapping	A	S	I	I	
End user training schedule and logistics	RA	S	S	S	
End user training curriculum	A	R	I	I	
Training course outlines	A	R	I	I	
End user training materials and end user documentation	A	R	I	I	
Conduct end-user training - train the trainer only	A	R	I	I	
Jcnmxncz,xcBusiness Design					
Master test list ("MTL")	A	R	C	C	
SAP baseline configuration	C	RA	S	I	
FS-SD/FS-CD system configuration documents	C	RA	S	I	
Business Process Documents	C	RA	S	I	
Batch job requirement specifications documents	C	RA	S	I	
Test data documentation	C	RA	S	I	
Business process unit test completed	C	RA	S	I	
Business process scenario test completed	C	RA	S	I	
Key business scenarios documented	C	RA	S	I	
FS-SD/FS-CD system configured – final	C	RA	S	I	
Technical Design Documents for legacy systems remediation	C	C	I	RA	
Legacy - remediation, unit testing, and scenario/regression test	C	C	C	RA	
WRICEF – Workflow					
Workflow/BPM/UI Technical Design Documents	S	RA	I	I	
Workflow/BPM/UIs coded and tested	S	RA	I	I	
WRICEF – Reports					
Reports Technical Design Documents	S	RA	C	I	
BW data model finalized	S	RA	C	I	
Reports coded and tested	S	RA	C	I	Include extractors
WRICEF – Interfaces					
Interfaces Technical Design Documents	S	RA	C	S	
Interfaces coded and tested	S	RA	C	S	

REALIZATION - Activity/Deliverable	ABC	A2	BackOffice	A3	Comments
Interfaces documentation for handling legacy system interactions	S	RA	C	S	
Technical Design Documents for legacy interfaces	S	S	C	RA	
Interfaces deployment/initialization documentation	S	RA	C	S	
Complete implementation, unit and scenario testing of legacy Interfaces	S	S	C	RA	
WRICEF – Conversions					
Data extraction from legacy systems to BOA platform	S	I	RA	S	
Business-readiness analysis	S	S	RA	I	Early discovery - sets up data gap analysis
Data gap analysis	S	S	RA	I	Output of data mapping
New data construction	A	S	R	I	
Business rule Documentation	A	S	R	I	
Data validation	A	S	R	I	
Conversions Technical Design Documents - data load only	S	RA	S	I	
Conversions coded and tested – data load only	S	RA	S	I	
Data loading to SAP target – QA & Testing	S	RA	S	I	
WRICEF – Enhancements					
Enhancements Technical Design Documents	S	RA	C	C	
Enhancements coded and tested	S	RA	C	C	
WRICEF – Forms& Output					
Forms Technical Design Documents	S	RA	I	I	
Forms coded and tested	S	RA	I	I	
Systems Operations					
QA Environment - sizing, specifications and Base SAP Software installation, configuration and initial test	S	RA	I	I	
Production Environment - sizing, specifications and Base SAP Software installation, configuration and initial test	S	RA	I	I	
Develop and test user IDs created	S	RA	I	I	
Disaster recovery procedures	A	R	I	S	
Perform technical integration check	S	RA			
Full integration testing	RA	S	S	S	
User acceptance testing	RA	S	S	S	
Performance/load testing	RA	S	S	S	
Implementation audit and acceptance testing	RA	S	S	S	audit type testing
Documentation of configurations	C	RA	I	I	
Maintain inventory of configurations	C	RA	I	I	

REALIZATION - Activity/Deliverable	ABC	A2	BackOffice	A3	Comments
Perform Software logistics and transports	A	R	I	I	
Security & Authorization master and detail design documentation complete	A	R	I	I	
Security & Authorization configuration complete	S	RA	I	I	
Security & Authorization unit tested	S	RA	I	I	
Security & Authorization procedures documented	A	R	I	I	
Technical test concept for non-functional testing	A	R	I	I	
Development and test user IDs created	RA	S	I	I	
SAP service concept documents	S	RA	I	I	
Planning, design and management of batch jobs for the RAS System	S	RA	I	I	
Initial deployment plan	A	R	S	S	
Training					
Role mapping	A	S	I	I	
End user training schedule and logistics	RA	S	S	S	
End user training curriculum	A	R	I	I	
Training course outlines	A	R	I	I	
End user training materials and end user documentation	A	R	I	I	
Conduct end-user training - train the trainer only	A	R	I	I	

Final Preparation Phase

FINAL PREPARATION AND GO-LIVE – Activity/Deliverable	ABC	A2	BackOffice	A3	Comments
Define support process and create run book	A	R		S	
Recovery procedures for RAS System	A	R		S	
Technical operations and handover strategy for RAS System	A	R		S	
Production user IDs	S	RA		S	
Deployment rehearsal	A	R	I	I	A2 Accountable for the components of RAS System for which A2 is Responsible
Final deployment plan, including detailed deployment checklist	A	R	S	S	
Final production load	RA	S	S	S	
Sign-off before Deployment / Roll-Out	RA	C	C	C	

FINAL PREPARATION AND GO-LIVE – Activity/Deliverable	ABC	A2	BackOffice	A3	Comments
Production system secured	S	RA	I	I	
Deployment completed as per the deployment checklist	S	RA	I	I	
Sign-off after Deployment / Roll-Out	RA	C	C	C	

ALL PHASES – Activity/Deliverable	ABC	A2	BackOffice	A3	Comments
RAS System Landscape Management					
Ongoing management of systems	S	RA	I	I	
Management of updates SAP standard and RAS System	S	RA	I	I	
Updates systems with releases	S	RA	I	I	

Go-Live Support Phase

GO-LIVE SUPPORT – Activity/Deliverable	ABC	A2	BackOffice	A3	Comments
ALL PHASES – Activity/Deliverable	ABC	A2	BackOffice	A3	Comments
RAS System Landscape Management					
Ongoing management of systems	S	RA	I	I	
Management of updates SAP standard and RAS System	S	RA	I	I	
Updates systems with releases	S	RA	I	I	

Timeline

Planning for this Program has been ongoing throughout the Evaluation Phase

and has continued following signing the software agreement on December 30, 2011.

All vendor proposals are based on a single set of consistent assumptions and dates that have been agreed with client, including the Application and Interface lists provided in Appendices 1 and 2.   The following graphic provides the high-level phased timeline of the program:
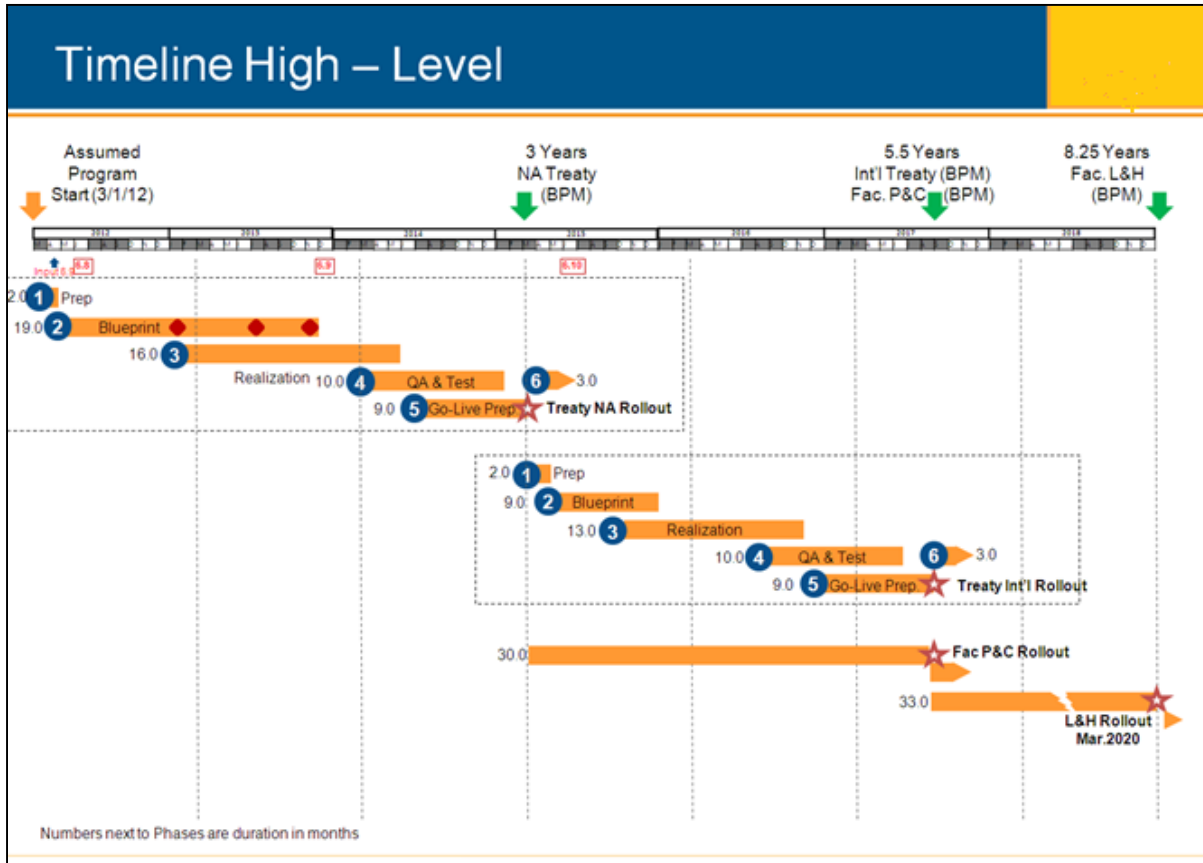

Figure 4: High-level Timeline

ABC selected vendor partners based on specialist expertise, preferring to manage the challenge of a multi-vendor program environment rather than rely on one partner for all services. The following table provides a description of the selected vendor partner and their respective roles:

	SAP AG	Client	Vendor	Back Office Associates
Founded	1972	1980	1968	1994
Headquarters	Walldorf, Germany	Munich, Germany	Mumbai, India	South Harwich, Massachusetts
Executive Management	co-CEO co-CEO	CEO		CEO
2010 Revenue	€12.46 B	€ 315 M	US $8.36 B	US $128.7 M
# Employees	53,513	> 3,000	214,770	477
RAS Exec Contact(s)				
RAS Program Contact(s)				

Figure 5: Resource Planning According to Timeline

Each vendor has provided effort estimates as part of the proposal process. A key part of the planning process was to establish explicit boundaries of responsibilities between the vendors. This activity was undertaken in November 2011 and resulted in the RASCI Matrix provided in Section above.

Summary

A Program Schedule for Unit 1A has been created and is owned by the Client Program Manager. This schedule is continuously updated and is stored in the Program Repository referred to in Section below. It contains sufficient detail for the Program Preparation Phase to launch this phase and conduct the detailed planning necessary to start the Blueprinting Phase.

Chapter IV: Data Presentation and Analysis

Introduction

Data presentation in the reports is our final goal and presenting this data in a meaningful manner and easily understandable format to end users will solve our problem within the organization. The key aspects of implementing this project are refreshing data in timely manner and business receives without any data loss. This chapter provides answers provides answers for questions like, how we are analyzing data and how it is useful for business to make decisions.

Data Presentation

In different phases of this project implementation, databases and existing reports were analyzed and then converted into new reporting format. Final reporting is dependent on Business Objects and we discuss more about development and evaluation of reports in this chapter.
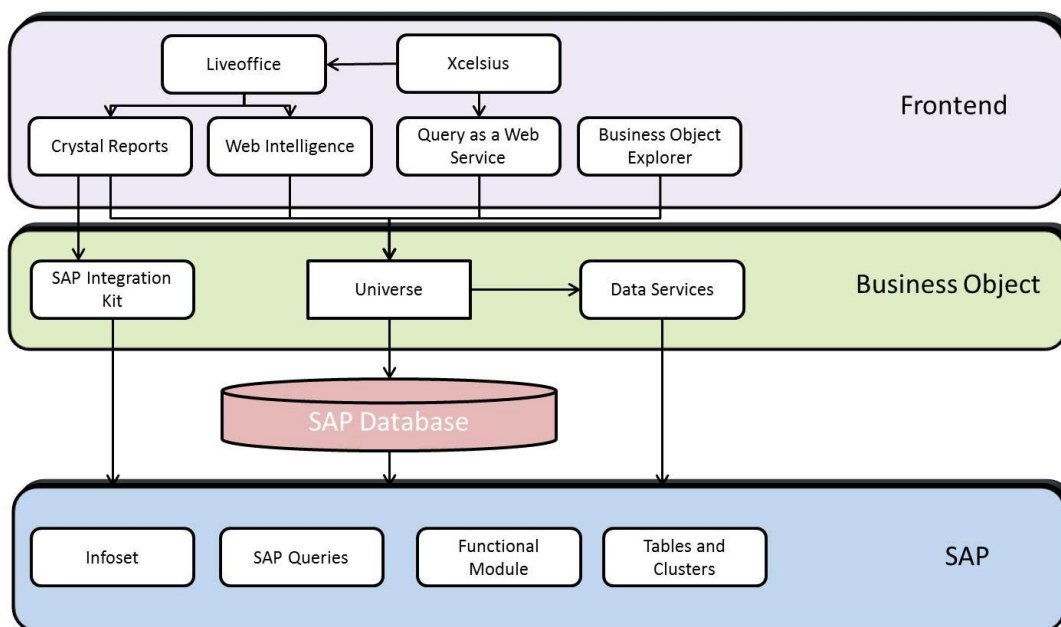

Figure 6: SAP Reporting Architecture

The above figure shows the SAP reporting architecture on top of SAP HANA database. Currently reporting is performed on ECC, which is ERP system for this organization and as discussed in the earlier chapters, reporting on ECC systems is always a risky process and failure in proper utilization of these reports would directly affect the underlying database. Failure in database would make business shutdown for limited time. In our implementation, we had base databases on Oracle and in this implementation, databases are planned to move to HANA database and improve database performance. SAP BW 7.4 on HANA and BO 4.1 are the latest ones in the market and we are implementing these tools.

Conversion of Existing Reports

Primary tasks involved in implementing in this project are conversion of existing reports on SAP ECC to SAP BW and then to BO. Before converting existing reports, it is important for business to decide which tool to use within Business Objects. Business Objects being an independent company till mid 2000's, after integrating with SAP came up with multiple new tools to develop reports on top of ERP machines. Some of the tools of Business Objects include WebI (Wed Intelligence), DeskI (Desktop Intelligence), Excelcius Dashboards, Lumira. Business Objects and SAP Business Warehouse communicates via a transmission line called BICS (Business Intelligence Connectivity Service) which integrates tightly. Once the proper tool has been selected by business, technology team starts building up on the requirements.

BICS Connection: BICS connection acts as a bridge between Business Objects and Business Warehouse. This integration helps in utilizing BW queries and build reports on top of it in BO. Creating reports in business objects on top of non-SAP data sources tedious work. BICS is a onetime creation activity on the BW side. Once it is created and released to business objects, this connection can be used on target end for creating any of the business objects reports.

BICS connections are generally created on a graphical user interface of business objects. Once we create this connection, we specify the name, source and destination of the service. This also includes the BW query name as source and the connection name as communication structure between the source and target systems.
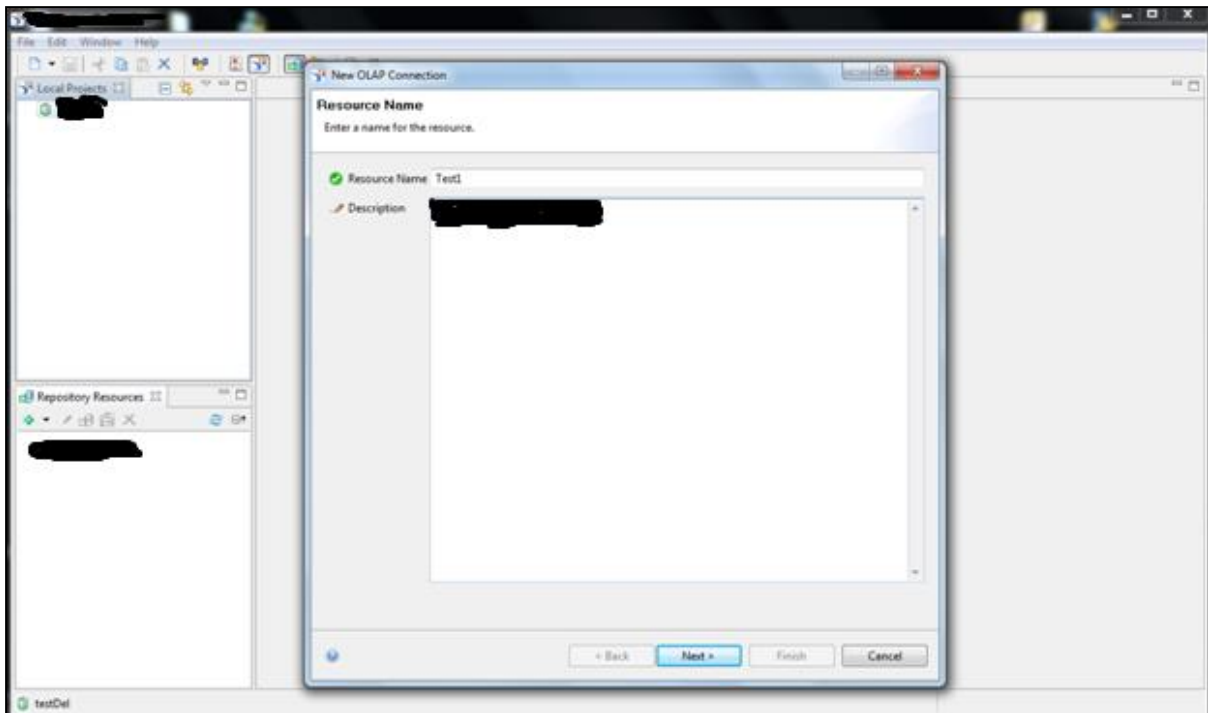

Figure 7: Information Design Tool for Creating BICS Connection

Once user provides the connection name and other details, IDT prompts for

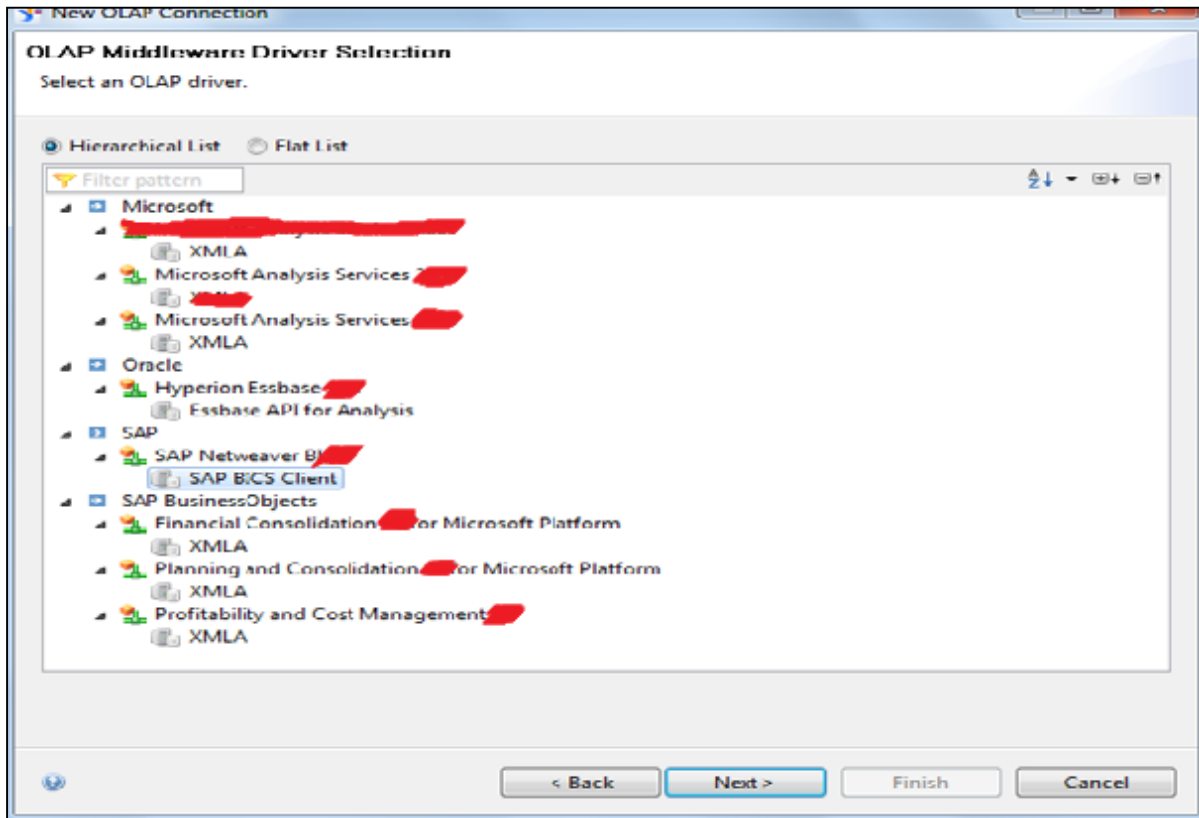further details and once all the details are provided connection is established.

Figure 8: Selection Screen for Data Sources

WebI reports: These are the basic reports that can be built by end users as an

ad hoc reporting. WebI reports can be built directly on BEx queries from BW using

BICS connection. Complex reports can also be built on top of BW queries, but these

can be developed by professional developers and are ready to use reports.

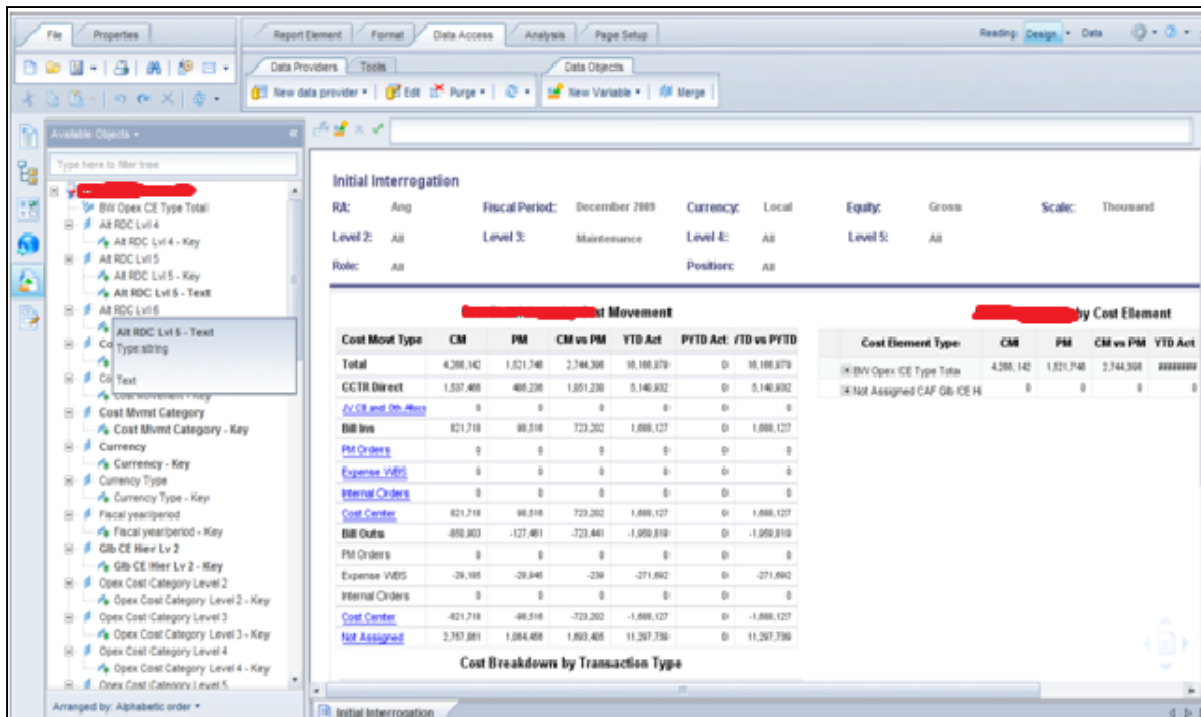Figure 9: WebI Report Development on Top of BEx Query

Figure 10: WebI Output Screen

WebI reports provide with all the fields for selection on left panel and the output fields selected will be shown on the right hand side panel. Users have the flexibility to select fields for output. These reports can range from couple of fields to couple of hundreds of fields. Once this report is refreshed, it fetches data from the base tables of ERP database. These can be refreshed at any time of the business.

DeskI: DeskI reports of legacy reports of business objects and are obsolete now. These reports were used to be the major reports when business objects was on its own. Latest version of SAP once again came up with DeskI reports. These are similar to the WebI reports that we discussed before. The only major difference between Webi and Deski is that these reports can be worked offline after taking the fields from database.
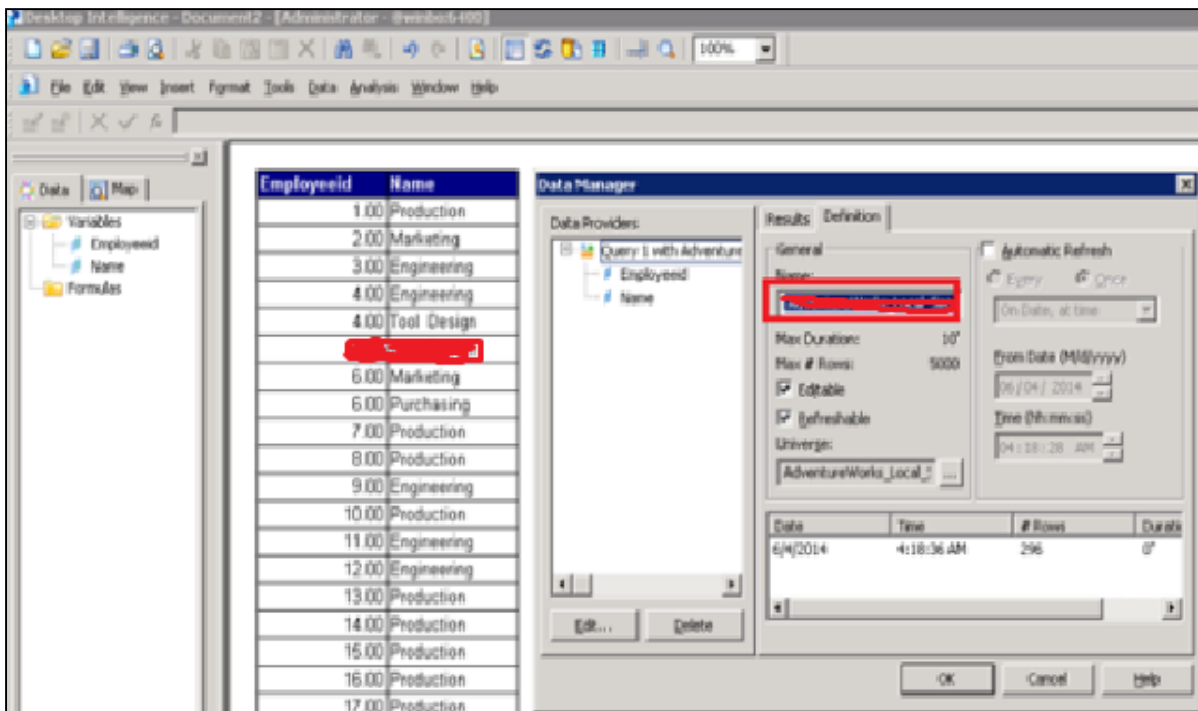

Figure 11: DekI Reports on Business Objects

Dashboards: Dashboards are the complex reports on business objects. These reports are built by experienced developers and are utilized mostly by top level management. These reports include waterfall reports which have lot of information in the form of charts and flow diagrams. Clock meters, pie charts, dynamic charts are part of dashboards.

Figure 12: SAP Business Objects Xcelsius Dashboards

Office for Analysis: SAP provides replacement of excel on top of SAP database in the form of office for analysis reporting. This is mainly focused for people who are familiar with Microsoft office and doesn't want to move onto new tool. Since excel was widely used tool in business since ages, asking business to switch to a new tool would create problems in getting habituated to it. Analysis for office solves

this issue by simply loading data from database tables to it and do further reporting on it.
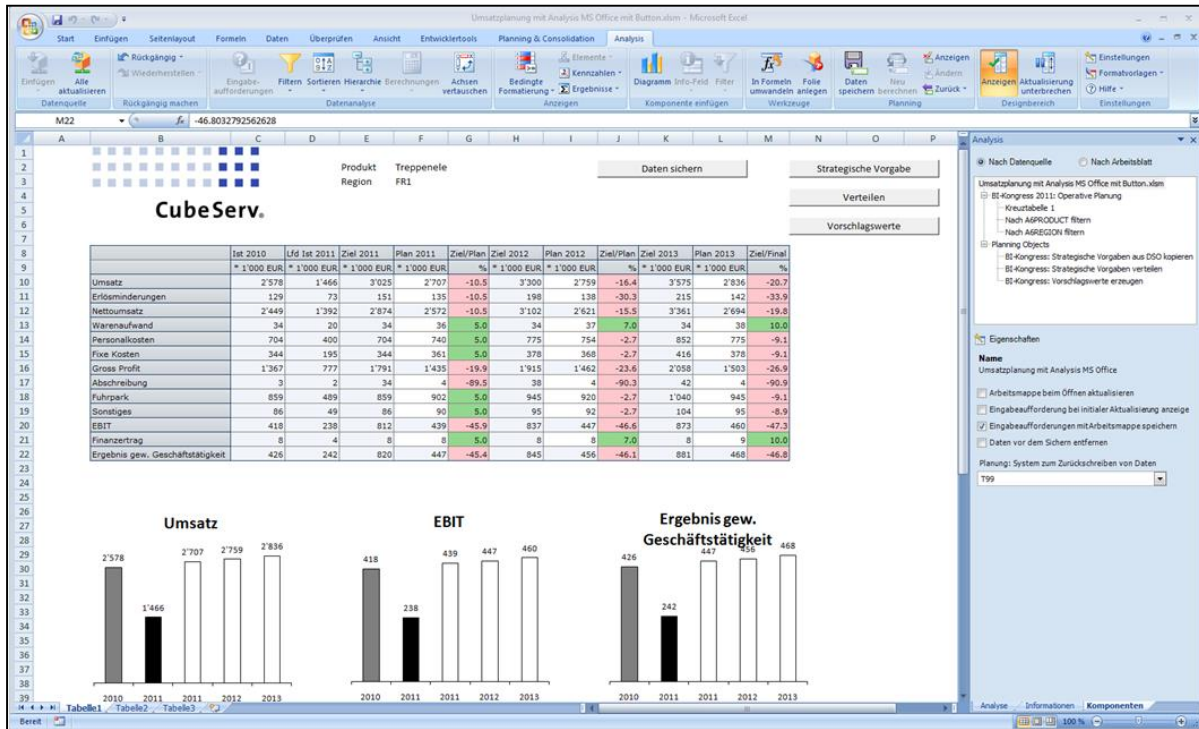

Figure 13: SAP Analysis for Office

Summary

This chapter explained about the data presentation and analysis of data from ERP databases by using different tools that are available in SAP Business Warehouse and Business Objects. Above mentioned tools help in automating the reporting and help optimizing the database and data analysis performance.

In the next chapter, we will discuss much about this implementation and results obtained by implementing this project.

Chapter V: Results, Conclusions, Inferences, and Recommendations

Introduction

In this chapter, we will discuss about the results that were achieved by implementing this project at the client ABC. We will also discuss about the conclusions that were drawn along with the inferences and recommendations that were made to the client for proper functioning and reporting of the organization.

Results

Client ABC now has automated reporting as a part of business requirement. Stakeholders and top management can refresh these reports on a single click using either personnel computers or mobile phones and tablets. Key decisions on the fly are now part of solution. These dashboards which refresh on a single click help business in deciding the sales and same time helps stakeholders in selecting which stock to opt for and drop off. Specially, automated reports on HANA help fetching data in seconds, which saves lot of time at high level. There are some reports which take longer time to run and automating these reports during non-business hours helps in speeding up the server performance and also avoids users waiting for this report to run during business hours. Scheduling reports is one great advantage we get using these reports. Even though we have scheduled reporting on non-SAP tools too, but the time taken to run complex reports at this client is now made easy.

Project Questions

1. What were the main goals achieved by reporting on SAP on HANA?

    SAP HANA which is High Performance Analytic Engine helped in solving the major issue that client had in reporting on huge database which has to fetch close to one billion records in single run. This was next to impossible task before and users had multiple issues like memory dump, system running out of space, timeouts etc. By using HANA, this problem was solved and now users were able to successfully run reports during business hours.

2. What are the issues that users facing today with the existing reporting system and how do we overcome with the new implementation?

    In the current environment, even though client had business objects in place that was running on oracle and few other databases. Fetching data from these databases for reporting was a major problem. Since these databases are online transaction bases (which means, transaction data will be written to database tables) fetching data for analytics on top of these databases was one major issue and scheduling reports during off business hours was another issue. Implementing HANA and automating business process helped in overcoming all the problems that business had before.

3. What are the steps taken to increase the accuracy and reliability of data reported in the new reporting system?

Reporting on SAP HANA is highly precise and data accuracy is being evaluated by performing reconciliation activity. Reconciliation was performed by quality assurance teams to check the accuracy and once this team confirms, then our implementation was ready to move to production. SAP HANA was implemented on clusterware (same software installed on multiple boxes. Even if one machine goes down, we will have a backup machine up and running) which helps in maintaining high availability of servers and reporting on top of it.

4. What would be after affects if this implementation doesn't provide a desired solution and what are back up plans?

SAP HANA implementation and automation of business was already proven at SAP laboratories and we had full time support from SAP team in implementing this project. Even though we had support from SAP, we also have back up plan in place. If this implementation doesn't succeed, we planned to go with an alternate solution of using business objects on top of ERP machines. This process would definitely slow down the reporting speed, but still this would stand as an alternative.

Conclusion

Our client now has very high precise, accurate and automated system in place. This helps in reporting to the business users and to stakeholders with any manual intervention. Manual processing of reporting based on monthly, quarterly and yearly was out of scope and this saved lot of human efforts and also processing

overhead at ground level. Highly sophisticated automated business process now helping in avoiding recruiting and maintaining resources yearly. Company is not only saving time on reporting, but also delays and missing accuracy that was present before implementing this project.

Recommendations

Our implementation was mainly based on automating business process using SAP on HANA with ERP as a central database, ETL as a process of extracting, transforming and loading data from one machine to another. Based on our walk through the entire project, we have made some recommendations that help in implementing similar projects in future for different cost centers.

- ERP machines should be always installed on cluster service mode. Either installing it on cloud or maintaining multiple servers based out of different physical locations will always help in avoiding natural disasters.

- Sizing of servers and processes should be done before purchasing server space from vendor in order to avoid additional resourcing in future.

- Since this implementation is based on HANA, which is highly rich in processing. All the possible calculations should be pushed onto ERP machine first and then on BW machine. Least processing should be loaded on business objects.

- Building queries with manual variables (filters) is preferred way and making business users aware of variables and their use should be done before going live.

- Educate users to use lighter(web) versions of the tools while running on tablets and mobile phones and use preinstalled tools on personnel computers to improve the performance of the automated reports.

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