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IMPLEMENTATION OF THE SAP S/4 HANA SYSTEM AT AN ENTERPRISE FOR THE PRODUCTION OF AGRICULTURAL MACHINERY

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Цель проекта – управление бизнесом по производству сельхозтехники и запасных частей в кластере и контроль за работой предприятия и его отношениями с партнерами. Безопасная и своевременная бизнес-среда для управления цепочками поставок SAP, позволяющая принимать решения по обработке процессов и управлению, а также придерживаться операционных показателей и процедур компании за счет внедрения информации SAP Best Practices.

The purpose of the project is to manage the business of production of agricultural machinery and spare parts in the cluster and control the work of the enterprise and its relations with its partners. A safe and timely business environment for SAP supply chain management to make process processing and management decisions and adhere to company operational performance and procedures by implementing SAP Best Practices information helps.

Keywords: *SAP HANA, In-Memory Computing, ACID, NewSQL, Unified Tables, Persistent Storage, SAP HANA Studio, Machine Learning, SAP Cloud Platform, SAP HANA PlanVisualizer.*

INTRODUCTION

Every tech business or industry requires a system to expedite the current of information and management of the overall process into

its hood. The view was to design an application which supports the above-mentioned functionality. Let us see what do we got to discuss ahead.

The innovative S/4HANA solution is the only high-tech advanced platform that takes into account all aspects of the company's business.

The proposed solution is based on the SAP S/4HANA solution, which combines functionality that provides strategic and operational management of the enterprise in one system. The solution implemented on the basis of SAP HANA ensures the high performance of the system, as well as the expansion of the solution when new networks and activities appear.

THE MAIN PART

The proposed solution implements the following functional blocks implemented in SAP S/4HANA:
– strategic planning and budgeting;
– production control;
– sales management;
– procurement management;
– inventory management;
– management of employees;
– cost management (control);
– financial management (treasury);
– accounting;
– tax account;
– management account;
– MDG management;
– corporate analytical report;
– integration with systems.

The SAP S/4HANA management system is the central tool for managing the company's production activities. The main element of the system is the production planning and control module based on S/4HANA BPC. The system implements the entire material flow chain, from procurement to delivery of finished products to consumers. Planning is carried out in every context of enterprise activity, in different horizons and periods.

ENTERPRISE RESOURCE PLANNING (ERP)

ERP stands for Enterprise Resource Planning, which is a software designed to ease an organization day to day functions from logistics

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to managerial. It helps in maintaining a balance with key functions of business that includes human resource, order management, accounting, and more. This software acts as a centralized system to streamline all processes and information flow within an entire organization. Following are some key features of ERP:

1. This software is used to integrate all services which are needed to run company.

2. These applications are web-based and can be accessed through every interface.

3. ERP software is responsible to monitor growth of organization.

These applications are used to manage resources into an organization.

SYSTEM APPLICATION PRODUCTS (SAP)

System Application and Product in Data Processing is the short used for SAP. They are called as the developers for software that manages the business processes and customer relations. SAP provides software solutions to the businesses to automate their process of distribution and logistic indexes. These processes are combined to form a module and they interact with different business aspects. Following are some key features of SAP:

1. These are the tech-giants which makes enterprise resource planning (ERP) software.

2. These provide organizations to support for logistics, financial, and distribution.

3. It is used to integrate core business processes which are required for various functions concerning the SAP module.

4. Makes a platform to consolidate every function to process it with full performance.

The SAP System Architecture follows a three tier architecture containing Presentation, Application and a database layer. Each of these layer has it's own software component. It's made up of three layers: Presentation layer, Application Layer & Database Layer (fig. 1).

Systems Analysis and Program Development (SAP) was founded on June 1972 and since then, many SAP ERP operations modules have emerged that are designed focusing on various different processes including SAP ERP sales and service, sales and distribution, customer relationship, financial management, business intelligence and more.

With SAP MDG, SAP presents a combined data management device for the validation, maintenance, and allocation of Master Data. The SAP MDG is highly suitable for the SAP ERP system within the Business Suite of the SAP. This combination stimulates the maintenance strategies, allows for a vast enhancement in the Master Data quality and guarantees the legal requirement observance. In addition, the automated workflow present in the SAP MDG enables the acceleration and stabilization of the business and maintenance processes.
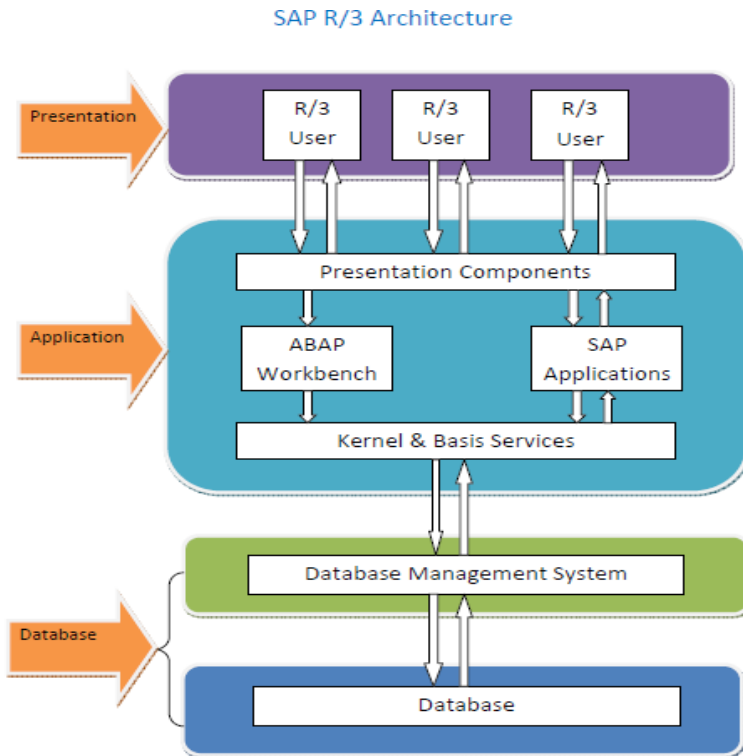
SAP R/3 Architecture

Figure 1 – The SAP System Architecture

SAP MM (Material Management) Module is a SAP ERP component that helps organizations with material management, inventory management, and warehouse management in the supply chain process. It is a part of SAP ECC's logistics functions which consists of several components

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and sub-components. The most prominent and widely used components are Master Data, Purchasing, and Inventory.

1. SAP Extended Warehouse Management (EWM) is a component of the SAP Supply Chain Management (SCM) business suite. The EWM function is not a part of the SAP ERP application, which contains standard warehouse management (SAP WM).

2. SAP has announced that although they will continue to support SAP WM, they will not be enhancing the product, and all new warehouse functionality will be included in the EWM component. The SAP EWM function gives the user a flexible, automated support for processing goods movements and for managing stocks in the warehouse.

Production Planning (PP) is the process of aligning demand with manufacturing capacity to create production and procurement schedules for finished products and component materials.

SAP PP is an important module of SAP. It tracks and makes a record of the manufacturing process flows, for example, the planned and actual costs. Also, goods movements from the conversion of raw material to semi-finished goods. It is fully integrated with the other SAP modules: SD, MM, QM, FICO & PM.

SAP SD (Sales and Distribution) is a module in SAP ERP (Enterprise Resource Planning). It deals with logistics which provides support to customers from quotations, sales order, and billing. It provides sales management solutions for several different industry sectors. The SD module is integrated with activities in other modules such as FI (Financial Accounting), PA (Profitability Analysis), and other logistics modules such as MM (Materials Management) and PP (Production Planning). It enables companies to manage their sales, orders, billing, shipping, and invoicing of their goods and services.

Since the beginning of enterprise computing, SAP have been rebuilding the business applications whenever major technology shifts have occurred. Some key moments in application development history of SAP are as follows (fig. 2).

1979 – SAP invents ERP. SAP builds standard business software based on mainframe technology. The name, SAP R/2 supports and integrates major business functions in real time and handles multi-country and multi-currency implementations. (R means real time, and although there was an R/1, this is not regarded as the first major release.)

1992 – with the rise of the personal computer, the introduction of client/server architecture means another rewrite of the applications to exploit the power of a layered, three-tier architecture approach, in which processing is split across three layers – client, application, and database. It is the end of the mono-chromatic, text-based, messy green screens and the start of a new graphical interface to improve the end user experience. This is the birth of SAP R/3.
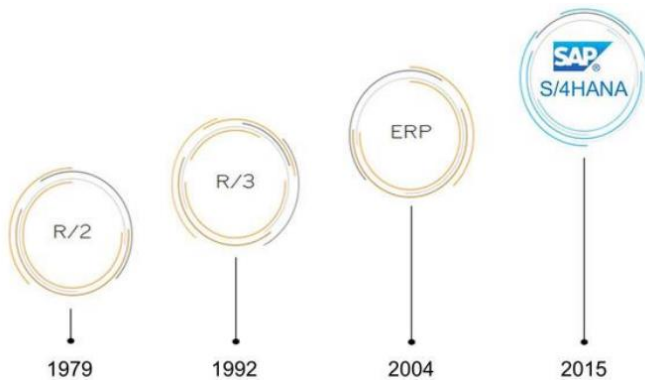

Figure 2 – Time to Rebuild the Bussines Suite for the Digital World

2004 – now the Web is firmly established as the common business network and customers demand better integration between their business applications and the Web. SAP develops a new integration application platform called SAP NetWeaver to enable this. Now all SAP applications run on a common platform, and customers and partners can build and integrate existing applications easily using widely adopted Web standards, such as Service-Oriented Architecture (SOA). Additionally, a little later, a new switch framework is introduced to allow customers to enable only the new functions developed by SAP selectively, in order to avoid disrupting their core processes. The SAP R/3 name is now replaced by SAP ERP. ERP is part of a larger family known as SAP Business Suite, which also contains many other Line of Business (LoB) applications from SAP, such as SAP CRM.

2015 – a new wave of advances in hardware architecture brings massive computing power at decreasing costs. Huge memory and multi-core processors arrive to offer massive computing power. The underlying design of existing SAP applications does not fully exploit the power

of the new hardware. A rewrite of the complete Business Suite is required. The new business suite is called SAP S/4HANA. SAP S/4HANA and its Key Features (fig. 3).
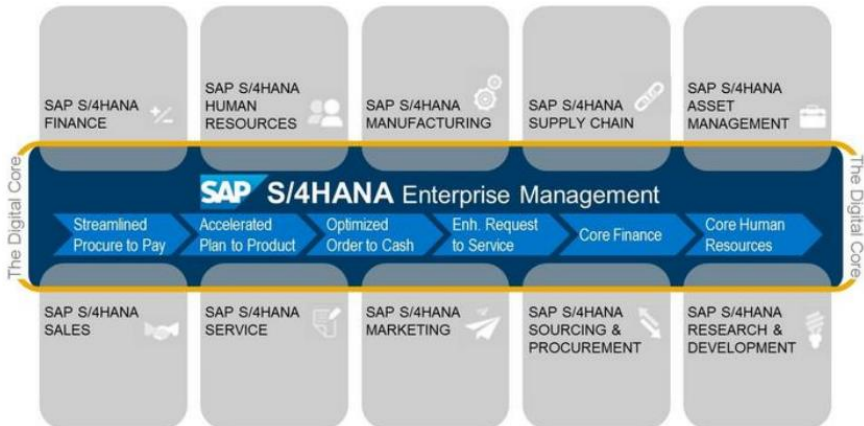

Figure 3 – SAP S/4HANA Next-Generation Core and Lines of Bussines Solution for the Digital World

SUMMARY

In this thesis, I studied the what is ERP system, how ERP systems integrates with Web services and what benefits web services add to ERP systems. As an case study, I took ERP SAP S4 Hana system. Reason for choosing this topic is that I am working as a SAP programmer and personally particapating process of implementation of this system to enterprise. This report represents my understanding of need for Web based ERP systems and due to short time it strongly limited with first the source I have shown in "Reference" section.

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АНАЛИЗ ПРОБЛЕМ ФОРМИРОВАНИЯ ЭКСПОРТА УСЛУГ МЕЖДУНАРОДНОГО АВТОМОБИЛЬНОГО ТРАНСПОРТА РЕСПУБЛИКИ БЕЛАРУСЬ

ANALYSIS OF THE PROBLEMS OF EXPORTS OF INTERNATIONAL ROAD TRANSPORT SERVICES OF THE REPUBLIC OF BELARUS

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В данной статье рассмотрены тенденции, влияющие на изменение рынка услуг международных автоперевозок. Дана оценка динамики изменения основных показателей статистики внешней торговли транспортными услугами.

This article examines the trends affecting changes in the market for international road transport services. The dynamics of changes