Effective Business Process Management applying SAP Cloud Solutions

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Abstract—**This article is a comprehensive overview about the requirements of enterprises for ERP functionality and features and solutions of SAP who is the market leader in enterprise business software and unleashed revolutionary developments in the area of data platforms, enterprise cloud services, real-time analytics and user interfaces for mobile devices. Furthermore, it search after the answers, how to use these solutions in the competitive business world to find the ERP solution required by an enterprise in a fast developing IT opportunities.**

I. INTRODUCTION

Nowadays, the demand for ERP systems is bigger than even before. Not only the large companies, but smaller enterprises are also recognized, that the up-to-date enterprise database and the proper flow and storage of the informations and the tracking of the related processes are mandatory in the market competition.

But although the IT technologies provide comprehensive solutions, it should be kept in mind the size and requirements of the certain enterprise. Therefore the Software Companies are developing different size of products for small, mid and large size enterprises, which are usually modular to enable configuring the right functionality. Choosing a software solution depends majorly on the size and on the financial opportunities of the company.

But these systems are purchased not only for the actual requirements, but for long term goals, as well, therefore the companies have got a very complex and difficult task to find the best solution for the requirements and the financial opportunities. And in this approach the primary option is to provide the actual required functionality.

II. SAP SOLUTIONS

SAP is one of the World's largest software company, who created the comprehensive SAP Business Suite, and put it onto the brand new SAP HANA inMemory Data Platform. On this new ERP Big Data Solution area, the SAP is an absolute market leader, now there is no other competitor yet, providing also special learning systems. [1]

The Business Suite provides covers the operations processes completely for all of the industrial, commercial, service and public service sectors. The most important feature is the integration, which provides common and unified system for Logistics, Financials and Human Capital Management. In Hungary, the SAP is present from 1997 on the Field Services, Global Support Center and Labs area with now more than 500 employees. Over the Business Suite and other solutions for smaller enterprises like SAP Business One, SAP Business-by-Design and SAP All-in-One, the SAP provides a lot of other solutions, like Business Warehouse and Business Intelligence solutions, Collaborating, and Big Data Processing. [2]
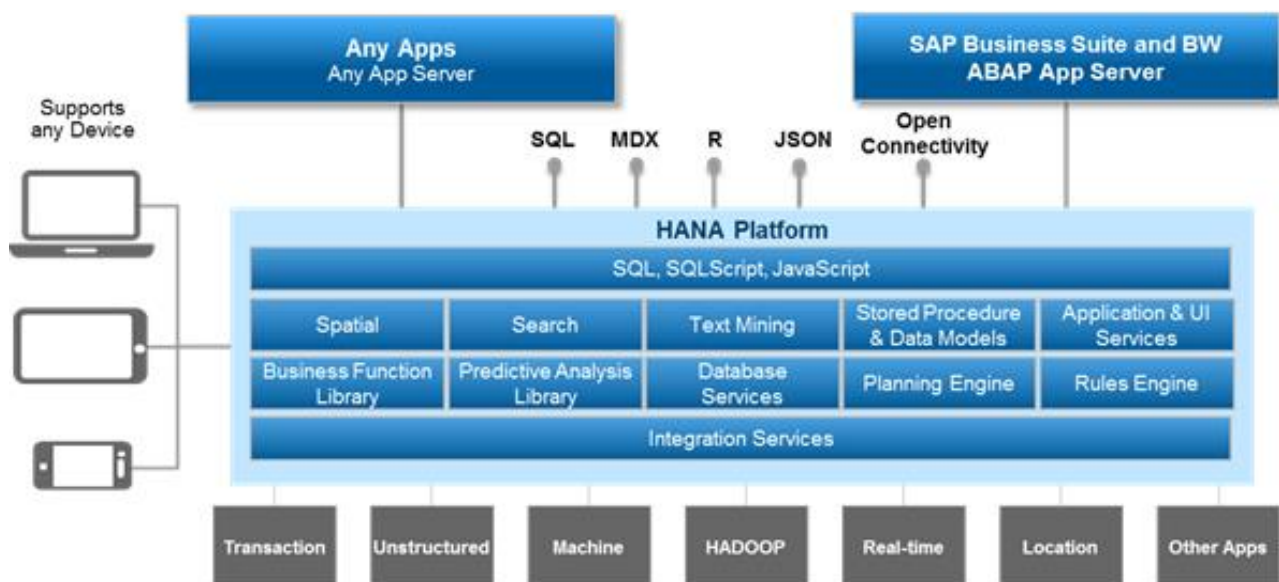
Source: http://www.saphana.com/community [3]

Figure 1. The Capabilities of SAP HANA Platform
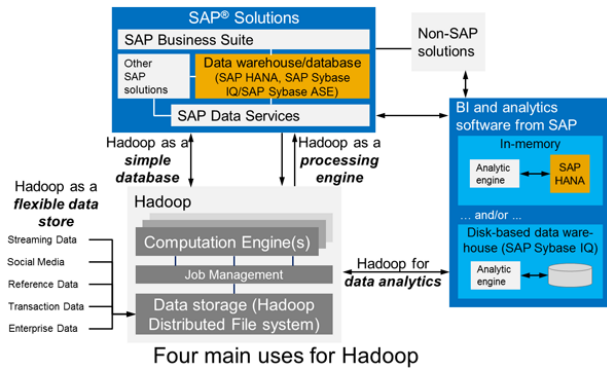
Figure 2.   OLTP and OLAP functions in SAP HANA Platform

These are available on Cloud and Mobile platforms, as well. The core ERP system is platform-independent, low operation cost system. In Hungary, more than half of the large companies these systems.

III.   SAP HANA INMEMORY DATA PLATFORM

The brand new, cutting-edge database technology of SAP is the HANA or on other words High Performance ANalystic Appliance. This is the biggest development of the SAP and the SAP technology change of the decade. The major point of the technology is the hardware change, especially the replacement of the hard disk drives, but not with solid state disks, but huge amount of system memory. In data access, this is a weak point, but this replacement enables approximately 100.000 times faster seek of hot type data.

This results not only faster transaction processing, but enables faster analytical processing based on the transactional data. This means that the districted Data Warehouse and OLAP systems can be placed in the same database, because the lower system speed is no longer limiting the online analytical processing. (Figure 1) The same infrastructure can be applied both for OLTP and OLAP and the replication of transactional data in the data warehouse, which means additional processing and transporting time, does not required any more. [4]

So a SAP HANA Platform results a simple IT infrastructure with less purchasing and maintenance costs and the enablement of the analytics in real-time. External data sources can be connected through Hadoop. (Figure 2)
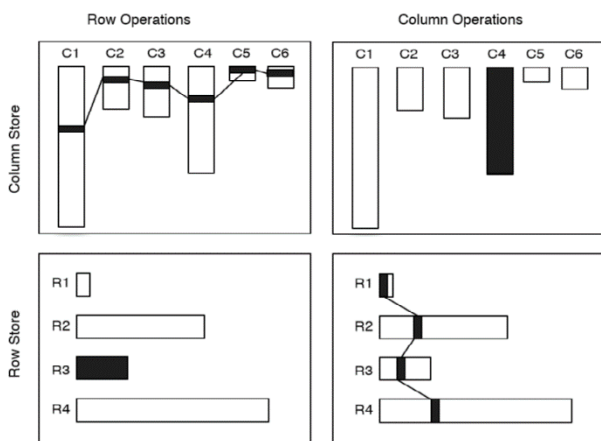
Further benefits of the in-Memory database is the columnar data storage and the supporting of code-to-data paradigm, which results rethinking of logical database concept. [5] The column-oriented tables make the aggregative queries much faster, than row-based tables, because they enable to query data from a single column and the reading of the records is not required. (Figure 3) The originally vertically compressed columnar tables extended with value dictionary can additionally compress the data, therefore in case of big data, it requires much less storage.

IV.   HOW TO CHOOSE AN ERP SYSTEM?

At choosing a system, first it has to be analysed, that what type of tasks are implemented in it. These tasks are organised into general modules, like on the Figure 4, and the analysis can provide informations about the conformity of the modules and the processes of the enterprise. The other question is the flexibility of an ERP system. And the third point is the industrial sector dependency of a system, because there are ERP systems, which are developed for a specific industrial sector.

The other important area is the extensibility of the system and the supporting. And the price/value rate and hidden costs. In this case the price/value rate, a new approach could be the Value Analysis methods. But the complexity of the system specification makes the application opportunity of this method. The active users of a system type and the popularity among the enterprises can show the life-span and the duration of its support, before it ends and the enterprises have to replace it for another system for additional expenses. The average life-span of an average ERP system is 5 year, and at the end at least a technology change has to be performed – typically approximately in 5 year cycles –, or the whole system need to be replaced. Running to the end of the life-span, the enterprise need to look after the next generation ERP systems on the market.

V.   LEAD-IN PROJECTS AND DEPLOYMENT TIME

The deployment of an ERP system takes usually tremendous time and money from business process modelling and blue-printing through the configuration and customizing to the unleashing the production system. The period of these projects in the life of an enterprise is often a neuralgic and overloaded period.

Figure 3.   Data Access in compressed Column and Row Storage [4]
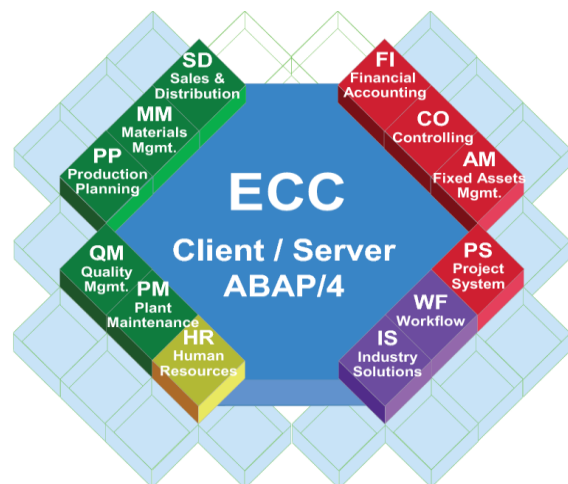
Figure 4.   General ERP modules in SAP ERP Core Components

Figure 5.   Beneficial process of Rapid Deployment Solution

To manage this problem, SAP is developing pre-packed Rapid Deployment Solutions, and combined with Cloud Deployment, these RDS solutions can fast up the system introduction process. In these RDS-based deployment projects, the blueprinting is usually not required and a deployment project can be finished within one week! (Figure 5)

VI.   SAP CLOUD

The above mentioned factors can influence the costs and applicability of an ERP system. But in these expenses and furthermore the decision about an ERP system can be supported by the application of the Cloud Technology.

The Cloud technology is not a new opportunity todays to get a scalable and reasonable IT resource from Infrastructure Service through Platform Services to the SaaS Application Service. (Figure 6) The SAP HANA is also available in Cloud as a Data Platform, and can provide efficient storage, fast computing ability and Application Services, e.g. SAP Business Suite, real-time Ad-hoc Analytics and Monitoring and public People-to-People and Business-to-Business collaboration platform for SAP JAM and ARIBA network. The solutions can be deployed in HANA Enterprise Cloud hosting service and SAP HANA One hosted in public cloud using high performance server virtualisation. [8]

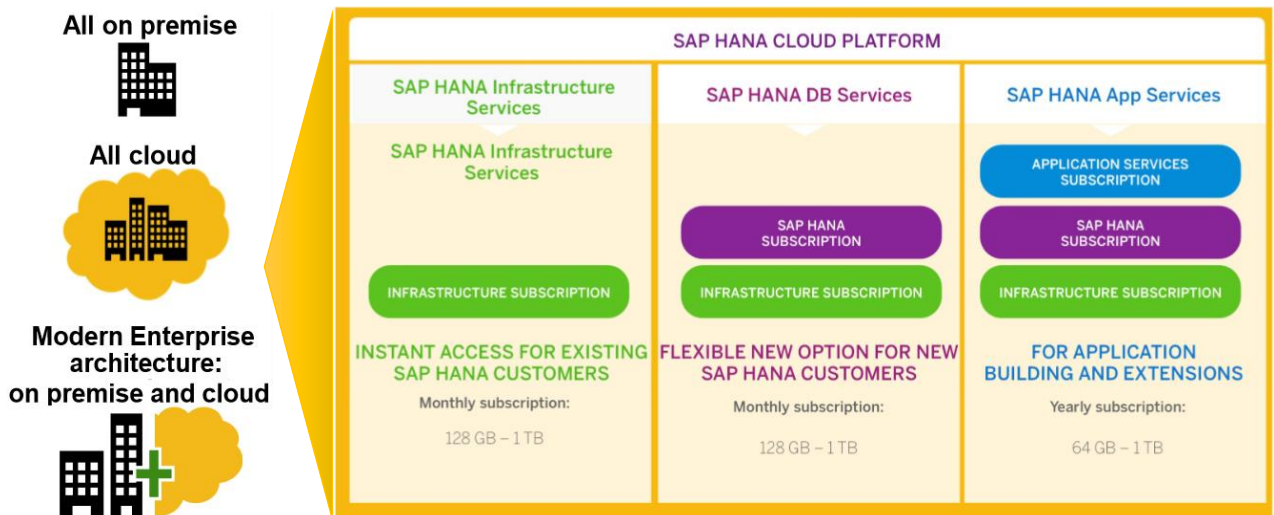Figure 6.   SAP HANA Cloud Services

If we think in Software-as-a-Service, it comes up the evidence, that and ERP system should be deployed as a Cloud service. And in the SaaS and Data Platform Services of course the biggest disadvantages are the fear of losing control over sensitive enterprise data or system failover. The solution for these top cloud risks is the hybrid deployment of ERP systems, which can be configured to divide sensitive and non-sensitive data between the on-premise and cloud resources, and can provide high-reliability system. (Figure 7)

The other benefit of the hybrid deployment is the flexibility, scalability, and the availability to system trial or jump start, but for low customising costs, pre-configured packages are required, therefore the role of the Rapid Deployment Solutions is much greater.
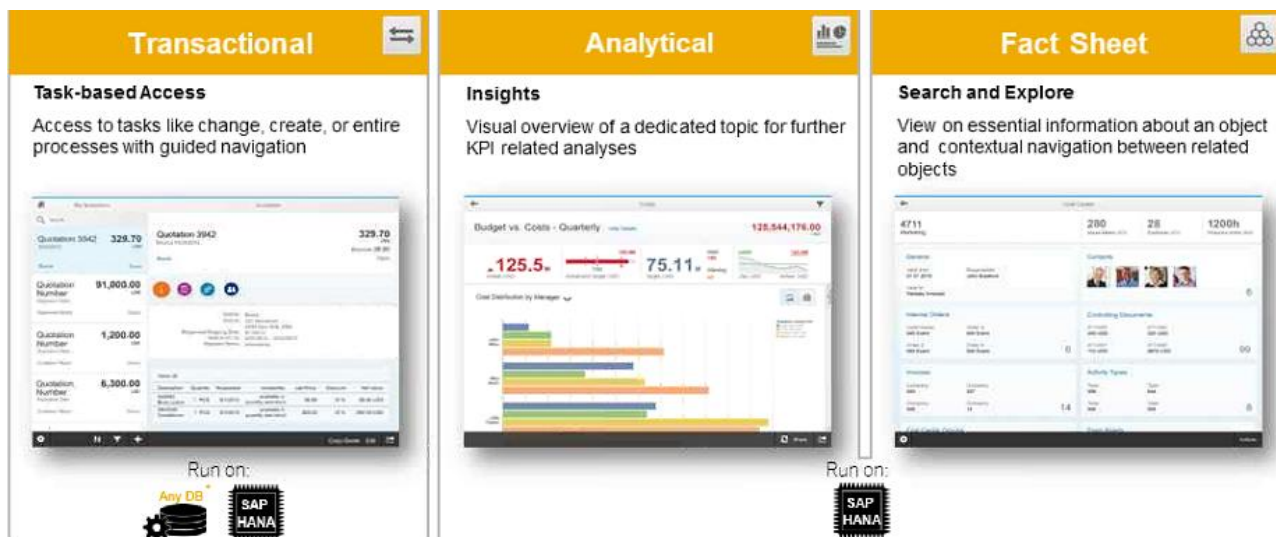
VII.   SAP FIORI UX

Parallel with SAP HANA inMemory Data Platform and Cloud and Rapid Deployment Solutions SAP released, a brand new, role-tailored SAP Fiori UX user interface commonly both for desktop and mobile devices, providing unified and high-grade user experience. In the development of SAP Fiori UX, the flexibility and rapid deployment enablement are major requirements. [10]

The role tailoring concept results in the SAP Fiori UX more than 300 decomposed intuitive, easy-to-use applications, which are exposing only the information related to the specific role.

Figure 7.   SAP HANA Cloud Services as a Platform

Source: ASUG Webcast Recap SAP Fiori DeepDive, http://experience.sap.com/news/asug-webcast-recap-sap-fiori-deep-dive/, October 14, 2014 [11]

Figure 8.   SAP Fiori UX application types

In comparison with the previous SAP graphical user interface, the GUI provides a lot of information regardless to the role of the current user. In this UI only 3 screen partition are available, which are preconfigured by the applied Rapid Deployment package, but is flexible to change to the current user requirements. SAP Fiori UX provides three types of apps (Figure 8), and its Launchpad provides a single entry point for the SAP Business Suite applications.

A demanded extension is the SAP Mobile Documents, which is a Dropbox life file sharing system for critical enterprise content, and its major role is to make available the documents on all devices of an employee, moreover to support the teamwork by file sharing and a limited type of knowledge management. SAP uses this system for a longer time [12], but today it is available for customers, as well.

VIII.   SUMMARY

The article has presented the today's questions and solutions of ERP systems and real-time analytics. An ERP system has to provide a wide variety of tasks and the high volume, fast velocity and wide variety data make these tasks more complex and hard to provide up-to-date, accurate informations for decisions, which improves the efficiency of the enterprise and decrease the organisational expenses. But these software are getting older from time to time because the fast change and development in the globalised world. It has to be renewed, the developer know that, and try to follow the business changes, but if the software reaches its end of life-span, it has to be replaced, which means extra expenses for the company. But even it means costs, it has to able to change. And the new technologies and solutions help this, because they provide new user experience, therefore the change could be much less painful for employees, and the investment can not only return, but can provide additional advantage for the enterprise. So at using an existing ERP system, it has to be evaluated like other processes and their KPI's, make decisions about the enterprise information system, like about other processes and resources. And for the decisions, the current and future technologies and solutions need to be known, because the palette of the system variety is huge and it is easy to make wrong decisions for the next 5 years.

In this decision, a rapid cloud deployment of the new ERP system could safely prepare a scalable, monthly financed system, which can be up-scaled, extended or changed according to the operating experiences and future requirement changes.

REFERENCES

[1] Selmeci Attila, Orosz, Tamás, Efficient education environment at university level, ACTA TECHNICA JAURINENSIS 7:(3) pp. 224-234. (2014)

[2] Orosz, Tamás, Orosz, István, Company level Big Data Management, In: 9th IEEE International Symposium on Applied Computational Intelligence and Informatics; SACI 2014. Timisoara, Romania, 2014.05.15-17. (IEEE), Timisoara: IEEE Hungary Section, 2014. pp. 209-303., (ISBN:978-1-4799-4694-5)

[3] SAP HANA Website, http://www.saphana.com/, 2014

[4] Plattner, Hasso, A common database approach for OLTP and OLAP using an in-memory column database, Proceedings of the 2009 ACM SIGMOD International Conference on Management of data, ISBN: 978-1-60558-551-2, ACM New York, 2009.

[5] Orosz, Tamás, Selmeci, Attila, SAP Logical Databases applications providing Business-requirements-driven solutions, In: Proceedings of the 16th IEEE Conference International Conference on Intelligent Engineering System 2012. Lisszabon, Portugália, 2012.06.11-2012.06.13. Lisszabon:IEEE, Lisboa, 2012. pp. 505-510., (ISBN:978-1-4673-2695-7)

[6] SAP Community Network, http://scn.sap.com, 2014

[7] OpenSAP Massive Open Online Courses, http://www.opensap.com, 2014

[8] Selmeci, Attila, Orosz, Tamaás, Györök, György, Innovative ERP virtualization, In: SISY 2013: IEEE 11th International Symposium on Intelligent Systems and Informatics: proceedings. Subotica, Szerbia, 2013.09.26-2013.09.28. Budapest: IEEE Hungary Section, 2013. pp. 69-75., (ISBN:978-1-4799-0303-0)

[9] SAP HANA Cloud Platform Website, http://hcp.sap.com/platform.html, October 14, 2014

[10] Selmeci, Attila, Orosz, Tamás, Effective end-user interfaces for various business needs, ACTA TECHNICA JAURINENSIS 7:(2) pp. 207-223. (2014)

[11] ASUG Webcast, http://experience.sap.com/news/asug-webcast-recap-sap-fiori-deep-dive/ , October 14, 2014

[12] Orosz, Tamas, The Role of SAP Knowledge Management Applications in Higher Education, In: International Symposium on Applied Informatics and Related Areas: AIS 2013., Óbudai Egyetem, Székesfehérvár, Magyarország, 2013.11.07-09. 2013. pp. 84-88., (ISBN:978-615-5018-88-6)