INTEGRATION OF KPI APPLICATIONS IN THE MANAGEMENT ACCOUNTING SUITES USING SAP FIORI, PORTAL AND CLOUD. A STUDY CASE

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Abstract

For many companies, the ERP solutions, using SAP Portal, Cloud and Fiori have been adopted in order to help manage their work, to have integrated solutions with clear targets, and to have a comprehensive visibility of existing processes. This article highlights the need to implement an ERP system, in our case SAP, with a clear purpose: all our processes should be managed together, all results obtained from this system, should be accessible to all interested persons. Our research, for this paper, was oriented to Key Performance Indicators (KPI) established for an economic entity, for daily, weekly, monthly, quarterly, yearly-performed work within an accounting department using SAP Portal. My wish is to provide a perspective, for people belonging to the academic community, showing how they can manage their activities, making use of applying formulas established in our research. This developed solution – the ZKPI application, was adapted in SAP, using ABAP as a programming language, more than that, WebDynpro was the technology used. With a clear scope, this application, ZKPI, was integrated with the main core system in the company - SAP.

Keywords: KPI - Key Performance Indicators, ERP - Enterprise Resource Planning, Portal, SAP, Cloud, SaaS, ABAP, oData, WebDynpro technologies.

Classification JEL: C61, C81, C88, M41, Y10

1. INTRODUCTION

One of the goals we made when we developed an application to measure economic activity in a complex organization was to highlight for each member of staff what he / she does. What we wanted to bring new, helping us with this article, was the development and adaptation of an integrated IT application in an ERP-SAP system [1], [2]. SAP (System, Applications and Products) is one of the largest ERP (Enterprise Resource Planning) integrated IT systems in the world, adapting it to large companies is a great success. The year 1990 brings the ERP term for the first time through the prestigious consultancy firm Gartner Group, which is then used in all the integrated system developments after that year. The software development that has been created with the help of which large computer systems have been created has taken into account the possibility of integrating several modules, including their adaptation to the various business areas of each company, with the specificities of the large implementations of world [3], [4].

Figure 1 brings to the forefront the evolution of integrated ERP systems as well as their membership in each stage of their evolution over the years. The SAP company started its business in 1972, initially composed of 5 former IBM employees who wanted to build a software product to help companies in everything that the accounting part meant. The first product, after one year of activity, was the SAP R / 1 product, designed to manage the accounting within a company [5]. After that, success came faster than expected, the number of employees has grown a lot, so today, around the world, SAP counts no fewer than 83,000 employees. In addition, the company has also developed a great project, namely the SAP University Alliances, an alliance that aims to adapt the university methodologies to high standards, the IT application being the one that makes the transition from educational explanations to the practical part of them [6].
2. SOFTWARE REQUIREMENTS SPECIFICATION – MODELS USED FOR CALCULATION OF KPI'S

With the help of this article, we wanted to combine the functionalities developed in SAP, using SAP Fiori and SAP Cloud, with the methodologies provided by the procedures used in the key performance indicator - KPI techniques. My wish, developing this application, was to create a Z application / module, integrated into an SAP ERP system, and to monitor the activity of an economic department. This department has clear rules established by the department manager, rules that have been implemented with the help of the application [7]. This application helps the department manager to properly distribute its employees in such a way that the tasks are performed under normal working conditions. In the present case, we will discuss a treasury and tax department that has the purpose of treasury and fee paid, paid and cashed. This department is part of a Business Unit Finance, a large oil and gas company [8], [9]:

- Treasury
  - No of total payment processing transactions;
  - No payment processing transactions / FTE;
  - % Automatic degree
- Tax
  - Number of Tax reports prepared
  - The number of tax returns
  - Total amount of taxes recovered by the Tax Department (in mn EUR)

When we started the discussions with our business colleagues (department managers), for this KPI type of activities [13], for colleagues in the economic departments, the perception of what we have to do was very poor. This motivated us a lot, so the time spent on this development was a long-lasting and very interactive one [14]. In this article, we want to analyze the Treasury and Tax department; more precise are payments and taxes reports, tax returns transactions. Everything (analysis, technical solution, development and implementation) was done inside SAP Competence Center and the proposed integrated in-house SAP solution it was called Z-KPI tool [10], [11], [12]. The arguments that have been used to develop such an application, to the detriment of buying a similar product software market, were as follows:

- The product will be integrated into core used system SAP;
- Internally developed (maintenance can be maintained without additional costs);
- Knowledge both KPI and programming are internally maintained;
- All developments tailored to the requirements of colleagues in accounting in line with business analysis.

In the oil and gas company, where I have performed this study, the following KPIs (some of) [20] are used and are presented in this paper. So, we have GL – General Ledger topics; Inv. – Invoices topics; AR - Accounts Receivable; PP - payments proposal; FA - Fixed Assets; CMDM - Central Master Data Management), we are focusing for the Treasury and Tax department (1FTE = 125h) (table 1):

<table>
<thead>
<tr>
<th>KPI NAME</th>
<th>FORMULA</th>
<th>QUATERLY FORMULA</th>
</tr>
</thead>
<tbody>
<tr>
<td>KPI <strong>Total activities</strong></td>
<td>‘=Current Activities + Internal controls + Closing + Group/Authorities Reporting + Projects &amp; training + Business support + Mgmt &amp; Admin</td>
<td>‘=sum monthly total activities</td>
</tr>
<tr>
<td>KPI <strong>FTE/Current Activities</strong></td>
<td>‘=Current Activities/125</td>
<td>‘=average monthly FTE</td>
</tr>
<tr>
<td>KPI <strong>%Utilization rate</strong></td>
<td>‘=(Total activities-Mgmt &amp; Admin) / (active FTE*125)</td>
<td>‘=average monthly FTE</td>
</tr>
<tr>
<td>KPI <strong>%Activity index</strong></td>
<td>‘=Total activities/(active FTE*125)</td>
<td>‘=average monthly FTE</td>
</tr>
<tr>
<td>KPI <strong>%Automatic bank transactions</strong></td>
<td>=1-(Number of manual bank transactions/Total no. of bank transactions)</td>
<td>‘=average monthly transactions</td>
</tr>
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</tr>
</tbody>
</table>

Table 1 KPI name / formula used

We collect some data (table 2) and we have some conclusion regarding this.

<table>
<thead>
<tr>
<th></th>
<th>2016 Q Av</th>
<th>2017 Q Av</th>
<th>Q4/16</th>
<th>Q1/17</th>
<th>Q2/17</th>
<th>Q3/17</th>
<th>Q4/17</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of total payment processing transactions</td>
<td>161,169</td>
<td>163,189</td>
<td>222,943</td>
<td>158,906</td>
<td>168,525</td>
<td>168,106</td>
<td></td>
</tr>
<tr>
<td>No payment processing transactions / FTE</td>
<td>37,394</td>
<td>39,111</td>
<td>56,736</td>
<td>40,229</td>
<td>38,403</td>
<td>39,720</td>
<td>39,300</td>
</tr>
<tr>
<td>% Automatic degree</td>
<td>89%</td>
<td>90%</td>
<td>90%</td>
<td>89%</td>
<td>89%</td>
<td>90%</td>
<td>90%</td>
</tr>
<tr>
<td>% Automatic degree</td>
<td>4.31</td>
<td>4.2</td>
<td>4</td>
<td>3.95</td>
<td>3.99</td>
<td>4.54</td>
<td>4.21</td>
</tr>
</tbody>
</table>

Table 2 – Data colected treasury

Figure 2 Graph of colected data payment report

For taxes, we collect the following data:
Table 3 – Data collected tax

Explanations: in Q4 2017, the reconciliation letters sent to local authorities influenced the number of reports. In addition, the number of tax returns in Q2 and Q3 was greater than Q4, due to the tax returns prepared for advertising campaign performed in Q2 and Q3, in case of OPM (table 2).

Figure 3 Graph of collected data Tax report

3. SOFTWARE DESIGN – MODELS USED FOR KPI’S

Any implementation of ERP solution, in the case of SAP, comes with a number of software applications designed to help the business with regard to the analysis, modeling and implementation of existing processes in a company. Thus, existing processes can be easily modeled, their implementation leading to a better monitoring and efficiency of business activity. The business environment needs to adapt as much as possible to the SAP standard to make it more efficient in terms of day-to-day work. Moreover, this adaptation to the standard comes with lower costs in maintaining the ERP software, the software being maintained by the manufacturing firm (be aware that any changes made to the interior, by internal developers, must be re-compiled in case of an upgrade). WD technology was used for creating ZKPI tool, (for this research, we used ABAP programming language for ZKPI tool and WebDynpro (WD) facilities are used). So, was easy to applied the ZKPI tool functionalities in the business environment (the main points were to help the management of the business to reach the targets (KPI objectives)) [14], [15], [16] and [17].

SAP is used in many companies as an integrated system. SAP wished, over time, to meet its customers’ needs by supplying innovative technologies. Thus, when SAP launched WebDynpro, the data wanted to be displayed in the Web form. The business environment has received this innovation very well and has put it into practice in most of the applications (they can create UI’s – Web User Interface) [18], [19] and [20], that have been developed over time.

A series of meetings were initiated when we decided that we needed such an application, each party involved (analysts, developers, economists, team bosses, department heads) came up with the input from each area. These discussions were constructive, with the final application being able to respond to 98% of the initial requirements. Implementation was considered a real success, moreover, the implementation / maintenance costs remaining in the amounts discussed initially:
4. SAP zKPI’s MODULE APPLICATION IMPLEMENTATION

This application was meant to integrate into a core system within a company, in the case of SAP. The technology used was WebDynpro, the purpose of which was to make use of this application to the WEB. I thought how I could turn this tool, easy, into mobility. We also wanted to integrate this application with SAP Poral and SAP Fiori applications [21], [22], [23] and [24].

ABAP (Advanced Business Application Programming) was used for this KPI z-module software, as a programming language, WD and SAP Portal [25]. This programming environment was made by SAP, a German company, as we can find in the technical specification information.

This programming language has been developed since 1980 and it is a 4GL programming language [26] and was used starting with SAP R/3 concept situation. We have included the concept of LDBs (Logical Databases), and this concept is included in one of the first programming language - ABAP, this means that, the concept regarding abstraction perspective is included in the database. Everything mentioned above is included in the latest version of ABAP programming language.

More than that, starting with 1992’s, this language have been used for creating programs in R/3 product. SAP NetWaver platform/concept support ABAP and Java in terms of development, all three components, business applications, the operating system and the databases, have an abstraction component, this means and helps SAP not to be dependent directly on machines, servers, databases, so we can conclude that we can change (install) from one platform to another [27], [28].

CONCLUSIONS

I consider that the development of this application has been a real success, monitoring the daily, monthly, quarterly and annual activity, being a means of deciding to allocate the existing human resources to a department or team. The business environment can make timely and informed decisions in order to solve the problem that has arisen in the work it carries out.

This article highlights the fact that the existence of an application, within an ERP integrate system – SAP with SAP Portal and SAP Fiori, can only help the business environment in daily activities. We have done this study to show to those who are interested how to model an application.
in an integrated system, and how this application-module can be done with as low a cost as possible.

Undertaking such a study will allow those studying KPIs in different companies to compare the resulting data and formulas accepted by the business environment so that they can accept a common proposal of what counts and highlighting the activities performed. The ability to measure KPIs from multiple company codes is seen as a plus by those who run the company. One of the main objectives, was to analyze qualitatively the data, and to develop a common guideline for KPI analysis and measures performed, agreed by both, managers, teamleads and employees.

Contextually, the adaptation of a software application in the KPI management area in an ERP-SAP system is commonly used by large companies, that use internal development as an instrument, help to save unjustified expenses. These costs are low, because there are not involved external resources in the implementation of the application. The architecture chosen fully meets the needs of the business environment, the need to work remote is one of the points that was taken into account when the development began. Security rules have been taken into account, so the application can be used on and off intranet.

We wanted the data to be added interactively, so the ability to add bulk data from different applications is easy now. We have implemented a large number of case studies from other companies, adapting them to the specifics of the oil and gas company being made together with the business environment. Everything that exists as a methodology for managing KPIs has been implemented and taken into account in this application. Undertaking such a study will allow those studying KPIs in different companies to compare the resulting data and formulas accepted by the business environment so that they can accept a common proposal of what counts and highlighting the activities performed.

As a final conclusion, the development of such an application, using internal developers, brings about low production costs. The majority of post-production changes are made by the developers team from SAP Competence Center, so there will be no external costs for the company, which I consider to be a great success.

BIBLIOGRAPHY


