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Management Strategies for Using Business Intelligence Solution Imbedded in Erp System in Medium Sized Companies

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ABSTRACT

This research study more emphases on stress faced by Police Constables in North Chennai. This article analyses the data from a fifty sample size, and proposes ways to stress faced by police constable in north Chennai. The researcher covers the geographical area of Chennai and suburban, where researcher six police stations dealing with crime and law and order. The researcher used descriptive in nature. The researcher used convenient sampling method for selecting the respondents. Majority of the respondents 82 percent of the respondents were admit that they had psychosomatic complaints. 70 percent said that they easily get tempered. Most of the respondents 74 percent were agreed that expressed from of emotion is due to their occupation. Majority of the respondents 76 percent have the habit of smoking. Majority of 72 percent of the respondents had the habit of consuming alcohol. Majority of the respondents 74 percent agreed the lack of superior's interest on subordinate is a cause for stress. Most of the respondents 70 agreed that irregular office work causes stress. 60 percent of the respondents agree with the statement that work beyond load is highly stressful. 72 percent of the respondents said dealing with criminals was stressful. 78 percent of the respondents confirmed the death of their relatives as stressful. Majority 74 percent of the respondents agreed that dealing with horrible sights caused stress.

KEYWORDS: Business Intelligence (BI), Enterprise Resource Planning (ERP), Management reporting

Introduction

Business Intelligence (BI), a concept which emerged in 90's, became over years more mature, elaborated but also diversified. BI has, as all information systems, two sides. One is technology side which defines the architecture and technologies used. It deals with data warehouse as central point of BI to which data has to be collected through sophisticated processes of ETL (Extraction – Transformation- Loading) which connects business information solutions on operational level with data warehouse. Once data are in data warehouse they have to be formatted and disseminated to managers. Here companies can use different technologies from the broad group of OLAP (Online Analytical Processing) tools. All these technological diversity has to be integrated by company which wants to build such system.

BI has also another side. Because BI is about reporting, analysis and decision support it can be also observed from the user side – from the business side. At the beginning this viewpoints have been somehow neglected and technology side was more important. But when BI became mature, in-depth research on its quality of support provided for managers emerge. Question what is Business value of BI are more and more often. Howson defines seven areas of business value of BI (Howson, 2008): BI for management and control, BI for improving business performance, operational BI, BI for process improvement, BI for improve customer service, BI for discovering new business opportunities and BI for government and public services.

The term BI maturity, research area of several researchers (Popovič, Turk, & Jaklič, 2010), is in the literature explained by several models. Very often used is the Six-stage BI maturity model by TDWI (TDWI, 2005) which defines six stages and for each defines architecture characteristics, analytics ability and focus of the stage. According to that model an up-to date BI system is in Adult (fifth) stage where Enterprise DW (Data Warehouse) is used, dashboards and cascading scorecards are implemented and the focus of the BI systems is not only in insight but more in support for action. BI systems are moving toward six stage of mentioned model where architecture can be described as analytical services and as imbedded BI.

Because of that BI implementation is complex task which has to be conducted for every company in the way suitable for that company and should be in accordance with the mode of governance and management used in particular company (Duh & Štrukelj, 2011). For medium size companies it has to be conducted having in mind the characteristics of such companies and their business. In the paper we are presenting some findings about that and we are discussing three cases which analyze the topic more in-depth.

2. Business Intelligence in medium sized companies

BI in medium sized companies has its own characteristics concerning the strategy how it is developed and concerning how it is used in sense of business value for the company. Being mature and more sophisticated BI require different strategies how it should be implemented as successful support for managers in sense how it adds value to the business and to the company. Companies usual, according to our experience, choose one of following strategies:

1. Use of ERP solution on transaction level and reporting based on ERP solution reports.
2. Use of ERP solution on transaction level and reporting based BI tool which have to be adapted to the company needs by IT personnel.
3. Use of ERP solution on transaction level and reporting based on special ERP modules for business reporting.
4. Use of ERP business solution on transaction level and use of BI solution provided by BI solution vendor.

Some companies adapt hybrid strategy where they for BI use OLAP tools as well as BI modules provided by ERP vendor (see also Drelichowski, 2012). This strategy tend to be presented in big companies while in smaller and medium sized companies more and more companies simply adopt BI modules provided by ERP vendor. This is because of limited knowledge about OLAP tools and lack of IT/IS specialists and on the other hand because their business process is not sophisticated to that level that use of OLAP tools which will enable development of functionalities not implemented in the BI modules of ERP vendors.

ERP vendors started to imbed BI several years ago, in that time under the label of Executive information systems (i.e. SAP as SAP-EIS) (Kaiser, 1998). Recently nearly all of them offer one or even more BI modules within their ERP systems. Such BI systems are referred as ERP add-on's or as Bradford stated as bolt-on (Bradford, 2008).

Medium sized companies are flat organizations and therefore the border between BI reporting focused in higher level managers

and reporting on operational level (operational BI) supported by ERP solution, is vague or even very invisible. This goes in favor for using ERP BI modules in medium sized companies.

In the past several research studies have been conducted on ERP solutions in companies. Abeerden (Aberdeen Group, 2008, 2009) research shows how companies use different add-on modules of ERP solutions and how best in class companies differ from average. Research also shows that BI modules are the most often used bolt-on modules which are used in ERP solution environments. After BI modules there are CRM modules which also partly cover BI functionality.

The second reason why medium sized companies use ERP BI modules as a scenario for establishing BI concepts is also that business processes in medium sized companies are not so sophisticated as in big companies. They can be easily supported on operational level by usual ERP functionality and on management level by ERP BI modules. Managers in medium companies often do not have additional requirements which go beyond usual functionality of ERP BI module.

3. Research findings

We have conducted two research studies concerning ERP – one was focused into ERP implementation issues and another in ERP use (acceptance) in their mature stage.

The first study (Sternad et al., 2009) was conducted in 45 companies – more than half of they were medium sized companies. Research shows that majority of small and medium sized companies use modules Financial Management, Sales and Marketing, Supply Chain Management, Warehouse Management. Concerning BI respondent answered that they use reporting functionality of ERP solution modules. Reports generated by ERP solutions are according to respondents suitable for operational BI as well as for BI in higher levels. Some of companies in the sample use add-on BI solutions which allow analytical services and are imbedded in used ERP.

Our second research study was conducted in 44 companies (Sternad, Gradišar, & Bobek, 2011) and was focused in use of ERP solutions in their maturity phase. 29 companies were Microsoft Dynamics NAV users and 15 companies were SAP solution users. Survey respondents represented different groups of industries, including IT and telecommunications (44.0 %), manufacturing (35.2 %), professional, scientific and technical activities (10.2 %), wholesale and retail trade (4.1 %) and others (6.5 %). Most of persons (53.6 %) have been professional workers (experts etc.), 31.7 % have been managers on the lower management level (e.g. manager of group or organization unit), 12.6 % have been managers on middle management level and 2 % have been managers at top management level.

The average respondent had used ERP system for 4.7 years (NAV = 3.16 years and SAP = 5.56 years). Respondents estimated their intensity of ERP on the levels labeled as "high" and "moderate". We find out that in medium sized companies major source for business reporting were used ERP. We also asked respondents how they can confirm the statement: "The ERP system provides reports that seem to be exactly what I need." on 7-point Likert scale, ranging from 'not important' to 'very important'. They confirmed the statement the statement with 5.08 (average), SD 1.40.

4. Case studies

In addition we conducted several case research studies in medium sized companies which showed that even if users are satisfied with reports provided by ERP solution, either as operational BI or as BI for higher levels of management, quite often also demands beyond pre-defined reports emerge. The companies solve this problem with implementation of add-on's for BI with more complex analytical capability.

Cases show that BI is still very often a synonym for expensive and complex solutions that require skilled IT professionals. The market is ruled by front-end vendors and BI service providers that focus on the segment of large companies, not on small and medium-

Managers in medium sized companies need better insight into their businesses and most would benefit from an affordable, easy to use BI solution that does not require demanding IT resources. Despite managers define reporting as a basic need those in the medium sized companies rarely manage to differentiate between a reporting tool and a BI solution, between ad-hoc analysis and static reporting.

Cases also show that medium sized companies cannot deal with BI domain the same way as big companies (so called enterprise segment) because of the costs and lack of internal resources.

Medium size international pharmaceutical company

Pharmaceutical company in Switzerland, which was established in the year 2000 provides a full service solution for other larger pharmaceutical multinational companies in Europe and worldwide. It has 400 employees active in 14 countries. Having 14 companies running ERP systems they needed a complete BI solution for consolidated sales analysis and profit & loss analysis.

First project was a data warehouse for sales analysis and standardization of monthly reporting. Next step was financial consolidation with specific development of cost accounting keys for allocation of general ledger entries.

The solution had a big impact on business users. Now spending minutes to prepare monthly reports and days in controlling department to analyze all possible financial ledger entries, makes previous tasks of 20+ days a work of past. "We understood that we need to focus on deploying a data warehouse as a foundation for all our analysis needs. Choosing to build a data warehouse from scratch or to use predefined models with prebuilt integration procedures for our ERP system was an open issue for our company. After the 1- day pilot project of BI solution on our data all questions were answered." Chief Financial Officer explained.

Now, they have a corporate data warehouse with ETL process and OLAP cubes to quickly analyze data and focus on their business. Next step the plan is implementing integrate solution to focus on corporate performance management using existing ERP, BI solution and additional reporting tool.

Medium size international production company

The Group of companies consists of 7 factories for styropor and 2 factories for bituminous hydro insulation materials. With intense investment in production equipment they have opened new possibilities to increase sales on the markets of Southeast Europe and beyond. They have a clear vision to become a leading manufacturer of insulation material in South-east Europe.

Next step after the implementation of ERP system was to provide business users across all the organization's units, with analytical solution which will enable them a possibility to standardize periodic reporting and provide an ad-hoc analysis capability. Because the group has multiple companies focusing on production there was a question of building a data warehouse and how to address the problem of BI solution.

While the company was deciding how to start, the vendor proposed to give them 1 day to deploy standard module for one of their companies. After the basic education of sales and finance department, the business users noticed that the standard BI solution covers 90 % of their needs. IT department wanted to see the possibility to add additional transactional data sources for production quality and after deploying the new module in a week time, they had a running analytical system for sales, inventory, purchase, receivables, payables, general ledger and manufacturing.

Full operational data warehouse with OLAP cubes and a desired front-end BI tool have implemented within few weeks for a complete group. The results were described by managers of the company as: vast analytical possibilities, most of analysis in real time, easy to use analysis, very high added business value. And focus on business and not on preparing data.

The company's CIO concluded "We are very satisfied with BI solution, because we have the possibility to analyze data very quickly

and business users can make all of their analysis by them self. Very important for us was the possibility to modify existing DW and to incorporate our additional sources for analysis. Nowadays BI solution is a must have and management should look at added value it gives to existing ERP system.".

Larger medium size production Company

Founded in 1921, the company is a leading cement producer and the holding company for a group of businesses—successful subsidiaries in the Central European construction sector with more than 1000 employees.

After successful implementation of new ERP system, the next step was to implement complete BI solution. First project issue was that every company needed their own DW, because they had different types of production. Next step was consolidated financial reports across all their companies.

For every company, vendor deployed standard BI solution with added module for manufacturing analysis. Next step was education of managers on how to make reports in desired BI tool. After the single company deployments, they implemented the data warehouse models for general ledger and account schedules on data from all companies. Because holding company has companies in different countries, vendor provides their localization module for BI solution, so that managers can analyze data in their native language.

"We needed a consolidated view across all our 17 companies and also BI solution for each company, because we have different types of industries. After the first test implementation of BI solution in one of companies, we saw the potential and in a month time all companies were benefiting from real time analysis. Flexibility of building reports by business users made the IT sector relieved from routine work of preparing data." CIO of the company says. Therefore one corporate DW and 17 data marts for every single company implemented in one month's time shows the true value of BI solution. Currently there are more than 80 managers who as users daily analyze their business (sales, inventory, receivables, payables, production etc.) and prepare reports in real time. The controlling department of holding company now focuses on analyzing consolidated general ledger through multiple dimensions and has the internal consolidation report done real time.

5. Conclusion

Because BI is becoming more mature and because it has to be somehow focused in its business value it is appears in companies in different scenarios. Medium sized companies cannot deal with BI domain the same way as big companies because of the costs and lack of internal resources. More and more medium size companies decide to simply adopt BI modules provided by ERP vendor for management support and to use ERP solutions reporting functionality for operational BI. This is because that business processes in medium sized companies are not as sophisticated as in big companies and organizational structures are flat.

Our experience shows that BI in medium sized companies has its own characteristics concerning the strategy how it is developed and concerning how it is used in sense of business value for the company. In medium size companies very often BI is used in rather operational environment as operational BI. All these diversities cause that BI projects in medium sized companies are different from BI project in large companies on approach, on scope and on responsibilities of ERP vendors and company's own IT staff.

Technical innovation – BI technologies for easy use in small companies - is only one aspect that will help increase BI's prevalence in medium (and small) size companies. In discussing future plans with many of the case study medium size companies, much of their concern was not about technology, but rather, in finding new ways to use BI to address common business problems on one side and on the other side to build (and to extend) business value of existing BI systems.

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