i-DASHBOARD: REAL-TIME DECISION SUPPORT FOR MANUFACTURING INDUSTRY

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ABSTRACT

Purpose   - Decision support tool is becoming an important tool to assist decision maker in making good business decision. An accurate decision support is the main business measurement and benchmarking where it technically assists a corporate organization to gain competitive advantage. Most often, the business operation data are collected daily and recorded in MS Office files in silos and not integrated. Therefore, data across multiple departments were unable to be made available in a timely manner. Due to this reason, there is a need for such data management system that contains integrated data with the ability to assist fast and appropriate decision making with an aid of visual graphical information. In this study, i-Dasboard is applied to a selected manufacturing industry, aims to assist a General Manager to make a decision based on the online information provided by the relevant departments prior to approving a request from the clients.

Dashboard can be easily delivered to assist the user in decision making (Abdul Rahman, Bena Adamu & Harun, 2017). It is a tool that organizes the presentation of information in a way that is easy to be interpreted (Chowdhary et al., 2005) and allows data to be exported into other formats. In some cases, it also provides online analytical processing that enables multi-dimensional analytical queries, encompasses relational database report writing and data mining. Following Karami et al. (2013), and Siraj and Shadan (2015), different dashboard views have been designed for users based on their roles in the organization. For example, Siraj and Shadan (2015) proposed a dashboard application design that provides a single-screen display of relevant information such as the phone performance and coin collection reports, as well as generating revenue to enable faster and more effective decision making. Visualization is a technique for a dashboard to connect the user in the information processing experience. According to Few (2006), dashboard is the most important visual display that should be good in delivering information at first glance.

Methodology - The methodology in this project is adopted from Siraj & Shadan (2015) in developing the i-Dashboard. The mapping of the system with the manufacturing industry is based on several meetings and interviews with the manufacturing industry. Basically, the

manufacturing industry involved in this study offers three main sectors, namely Services, Trading and Manufacturing.

Services sector. The information regarding the company's financial status, inventories and manpower are crucial to the decision making of the General Manager. Initially, all document forms are filled in manually and recorded in Excel files. The documents are stored in a file according to their types (Invoices, Payment Vouchers and others). Three departments are responsible to provide information to the General Manager, namely Finance, Tech and Sales, and Human Resource Departments,

Trading sector. The communication between the industry and the researchers was vital in determining the flow of information for the Trading sector. The departments involved are Finance, Technical and Sales, Production and Human Resource department.

Manufacturing sector. Similar to other sectors, the input from the four departments is very important to the General Manager before the decision is made whether to approve or reject the request from the client. The developed i-Dashboard enables the communication of these data to take place in a digital through Web-based, tablet or smart phone.

Results - Dashboard should act as a unique and powerful tool for decision support system (Few, 2006). Dashboard speaks by visualizing the data represented by graph and charts. Therefore, a poor design of dashboard system may fail in delivering the user with accurate information. As mentioned in the earlier section, the i-Dashboard is meant for the manager, receiving input at most from four departments. For the three sectors provides by the selected industry, the departments involved are Financial, Technical and Sales, Production and Human Resource. Further discussion on the development of i-Dashboard is focusing on the information that flows into the General Manager i-Dashboard's window. The information required by the GM includes Financial Status, Stock Level (Production), Stock Level (Raw Material), Inventory Record (Consumable), Inventory Record (Equipment), Manpower Record and Sales Track Record before making the final decision whether to accept or reject a request from a vendor.

Keywords: Dashboard, Real-Time, Decision Support, Manufacturing Industry

CONCLUSION

The test for multiple screen of i-Dashboard has been carried out by the respective departments and the General Manager at the site. Both head of departments and the General Manager have verified that the accuracy of the results is very satisfying. The only result that is slightly inaccurate is the monthly financial status. This is due to the fact that the industry only supplied a few data about the salary of the employees in database. Hence, this problem can be overcome by including more data from the financial department. As a conclusion, the proposed i-Dashboard is ready to be used as a tool that can support the manufacturing industry in the business activities and

decision process by extracting information from various departments as well as providing analysis of the current status of business activities. In addition, the requirement analysis, decision process and dashboard design can be used for dashboard development applied to other industries. The development can be focused on the process, the key elements and the principle in designing the effective dashboard. Future work will be concentrated on the use of cloud as a data storage and embracing big data technologies in facilitating the decision making.

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