

THE DEVELOPMENT OF DASHBOARD AS A TOOL FOR ORGANIZATIONAL PERFORMANCE MONITORING (A CASE STUDY AT TELKOM POLYTECHNIC)

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Abstrak

Kepala Program Studi perlu melakukan monitoring dan pengukuran kinerja organisasi secara terus-menerus untuk dapat mengendalikan proses bisnis yang dijalankannya dapat mencapai tujuan serta visi misi organisasi. Proses monitoring melibatkan pengolahan data untuk menjadi informasi dari berbagai unit di dalam organisasi. Informasi harus akurat dan disampaikan kepada pihak yang tepat, pada waktu yang tepat, sehingga Kepala Program Studi dapat segera mengambil tindakan pengendalian atau keputusan strategis yang tepat untuk mencapai tujuan organisasi.

Permasalahan adalah bagaimana menyajikan informasi yang memenuhi kriteria-kriteria di atas secara efektif? Bagaimana menyajikan informasi mengenai Key Performance Indicator (KPI) yang benar-benar sesuai dengan kebutuhan penggunanya? Efektif berarti informasi dapat dipersepsi dengan benar oleh penerimanya, sesuai tujuan dari penyampaian informasi untuk membantu keputusan dan pengendalian.

Permasalahan-permasalahan dapat diatasi dengan alat bantu penyedia informasi software dashboard. Software dashboard yang akan dibangun adalah operational dashboard untuk unit kerja Program Studi yang bersifat dinamis dengan frekuensi update yang lebih real time. Dashboard dipadukan dengan informasi yang dinamis dan relevan memberikan keluaran dengan beragam bentuk presentasi yang akan memberikan pilihan bagi manajemen untuk melihat kinerja organisasi dari berbagai perspektif, seperti bentuk tabel, rasio, diagram, laporan, grafik, indikator visual. Kelebihan dari dashboard adalah mekanisme alert yang memberikan perhatian pada KPI dengan kondisi kritis. Perancangan software dashboard sehingga dipilih menggunakan metodologi Eva [5] dimana aspek utama dashboard-nya yaitu pada : data/informasi, personalisasi dan kolaborasi antar pengguna.

Kesuksesan penerapan dashboard adalah hal yang sangat penting dalam penerapan sistem teknologi informasi di Politeknik Telkom. Hal ini menunjukkan bahwa dashboard dapat diterapkan dengan efektif. Penelitian ini akan menggunakan model kesuksesan yang diusulkan oleh DeLone & McLean [1].

Kata Kunci :



Telkom
University

Abstract

A head of a Study Program needs to monitor and measure the performance of the institution continuously to control of business processes to achieve the goals of the organization's mission and vision. The monitoring process involves the processing of data to become information from various units within the organization. The information collected needs to be distributed and submitted to related parties at the right time, so that the heads of study programs may measure or take right strategic actions or decisions to achieve their goals and institutional goals.

The problem are how to present information that meets the above criteria effectively? Effective means that information can be perceived accurately by the recipient, according to the purpose of delivering the information to assist decision and restraint. How to provide information about the Key Performance Indicator (KPI) that really fit with the needs of its users?

The problems can be solved with information provider tools of dashboard software. Dashboard software to be built is operational dashboard to the work unit study programs that are dynamic with a frequency updates that is more real time.

Dashboard combined with dynamic and relevant information to provide output with various forms of presentation that will provide options for management to view organizational performance from various perspectives, such as tables, ratios, charts, reports, graphs, visual indicators. The benefit of having a dashboard is the alert mechanism that gives close attention to KPI with a critical condition. The design of the dashboard so that the selected software using the methodology Eva [5] where the main aspects of his dashboard is based on: the data/information, personalization and collaboration among users.

Successfulness in the implementation of the dashboard is the most important in the implementation of information technology systems at the Polytechnic Telkom. It is means the dashboard implemented effectively. This study will use a model of information systems success that proposed by DeLone & McLean [1].

Keywords : monitoring, measurement, restraint, performance, dashboard, KPI

CHAPTER 1 THE PROBLEM

1.1 Rationale

An organization in running its business certainly needs to maintain its existence and to improve internal performance. The management needs to monitor and measure the performance of the organization continuously to restrain that business processes aims at the organization's mission and vision. The process of monitoring involves data processing to transfer these data into information collected from various units within the organization. Information should be accurate and submitted to the appropriate party, at the right time, so that the management may take some actions to control, restrain, or take strategic decision to achieve the goals. To meet the criteria for such information, there are three things to do [9]:

1. Delivering the right information so this information is relevant. Information became the main indicator of the process or activity organization, called Key Performance Indicator (KPI).
2. Protecting information from the parties who are not concerned. Information is only given to people who are entitled to use.
3. Conveying information as quickly as possible, so that available when needed.

At this moment, when monitoring the organization, the management collects information from various units from oral and written information. When the study was conducted the same information can come from various organizational units. This condition complicates the management due to the accuracy of the information are low, for example information on the number of active students comes from the financial unit could differ with the information that comes from the academic services. This situation can effect the process to decision-making becomes inhibited and it is not on target. The presentation of information are a centralized and an accurate in the form of an effective, that are meet with organization requirement to monitoring organizations, it will assist management in process of strategic decision-making quickly and precisely targeted. Effective means that information can be perceived accurately by the recipient, according to the purpose of delivering the information to assist decision and restraint.

1.2 Theoretical Framework

This study assist management to monitor the organization performance continuously to restrain that business processes aims at the organization's goals. Providing the information about the achievement on KPIs that really fit the needs of its users, conveying the information are accurately and timely in the comfortable presentation format that effective. The information comes from various units within organization, so the management can take action or strategic decision-making quickly and precisely targeted for the improvement of the organization.

The problems can be solved with information provider tools of a dashboard software. Dashboard software to be built is operational dashboard for the study program. Operational dashboard provides information on the ongoing activities, along with changes in real time to provide awareness to the things that need to be responded quickly, the information presented is very specific to the sufficient depth detail level, it is dynamic because it uses the data with higher frequency real time updates.

The dashboard combined with dynamic and relevant information. The dashboard is provide outputs in various forms of presentation, that will provide options for management to view organizational performance from various perspectives, such as tables, ratios, charts, reports, graphs, visual indicators. The excellence of the dashboard is the alert mechanism that gives close attention to KPI with a critical condition. The dashboard gathers relevant information from various parts of the organization, consolidates, and delivers it with safely, quickly, with personalized according to user roles within the organization.

The design of the dashboard so that the selected software using the methodology Eva [5] where the main aspects of his dashboard is on: the data/information, personalization and collaboration among users. This is due to some shortcomings in the methodology that has been made by other vendors. Here are some methodological differences from other vendors show in table 1.1.

The methodologies developed by the three vendors below are not explained in detail the steps when developing the dashboard. The methodology also does not give the explanations about the things that must be done to ensure that KPI dashboard presented in accordance with user needs.

Table 1.1 Comparison Methodologies of PureShare, Neotix and BrightPoint

Field	PureShare	Neotix	BrightPoint
- User	- Emphasizing the needs of users.	- Balancing the needs of users with the ability of developers	- Users easy to maintenance.
- Developing process	- Planning with top-down approach. - Implementing bottom-up approach.	- Considering the life cycle of software development projects.	- Focusing on the documentation so that users made easier in performing maintenance.

1.3 Conceptual Framework/Paradigm

The operational dashboard gathers relevant information from various parts of the organization, consolidates, and delivers it with safely, quickly, with personalized according to user roles within the organization.

Successfulness in the implementation of the dashboard is the most important in the implementation of information technology systems at the Polytechnic Telkom. It is means the dashboard implemented effectively. To measure that successfulness was required a conceptual model. A good model is the model of a complete but simple. Model like this is called the parsimony model. This study will use a model of information systems success that proposed by DeLone & McLean [1]. The model is called D&M IS Success Model, it is illustrated in the following figure:

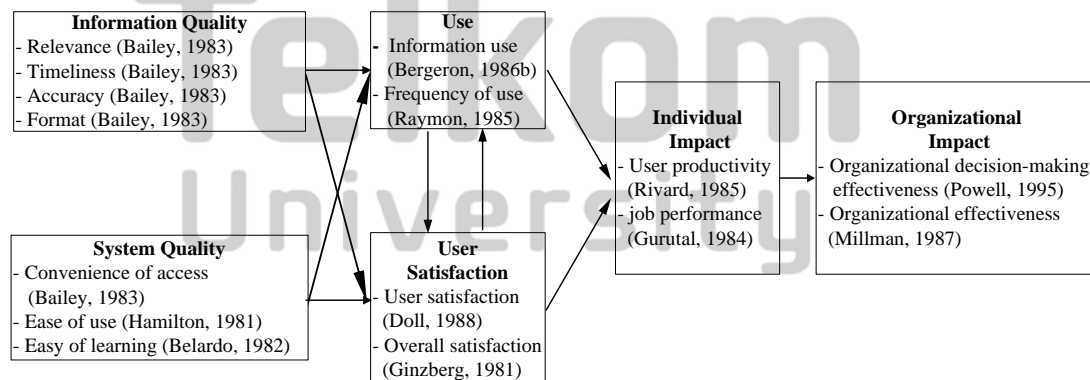


Figure 1.1 D&M Information System Success Model for the Dashboard Effectiveness

The model consists of six dimensions of measurement of information systems including information quality, system quality, use, user satisfaction, individual impact and

organizational impact. It does not measure the six dimensions of success measurement of information systems independently, but the measure as a whole one affects the other.

This conceptual model has the following relationships: the information quality and system quality will affect both the consumption or use and user satisfaction of the dashboard. According to the theory of attitudes, user satisfaction will affect the use of dashboards. Both, the use of dashboards and user satisfaction is a direct cause of the individual impact variables. Organizational impact variables influenced by the individual impact variables.

1.3.1 Model and Definition of Variables

1. The information quality measured on quality of output from the dashboard. This construct related with variables such as: relevance (Bailey, 1983), timeliness (Bailey, 1983), accuracy (Bailey, 1983) and format (Bailey, 1983).
2. The system quality used to measure quality of the dashboard. This construct related with variables such as: convenience of access (Bailey, 1983), easy of use (Hamilton, 1981) and easy of learning (Belardo, 1982).
3. The use of the dashboard defined as recipient consumption from output of the dashboard. Use mean implementation of the dashboard. This construct related with variables such as: information use (Bergeron, 1986b) and frequency of use (Raymon, 1985).
4. The user satisfaction related with response of recipient from using output of the dashboard. This construct related with variables such as: user satisfaction (Doll & Torkzadeh, 1988), overall satisfaction (Ginzberg, 1981b) and (Rushinek, 1986).
5. The individual impact dimension defined as effect from information toward recipient behavior. This construct related with variables such as: personal productivity (Rivard, 1985) and job performance (Gurutal, 1984).
6. The organizational impact defined as effect from information toward organizational performance. This construct related with variables such as: organizational decision-making effectiveness (Powell, 1995) and organizational effectiveness (Milman, 1992).

The methods of evaluation is the analytical evaluations. It conduct analysis on how the monitoring activity without a dashboard, and how the monitoring activity using a dashboard. What the impact happened to individual and organizational? The measurement based on times and using questionnaires to the management.

The experiment design of this study will done in the way compares the state of before and after using the new system [13].

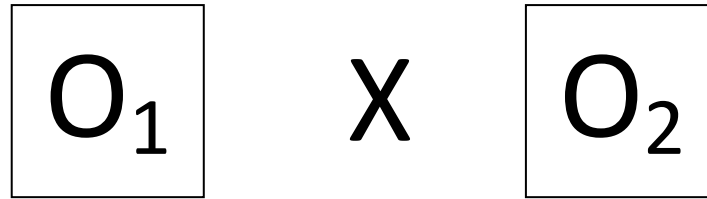


Figure 1.2 Before-After Model [13]

The experiments carried out by comparing the results of observations on O_1 and O_2 . The O_1 is the value of accuracy, usability and productivity of work before using the new system. The O_2 is the value of accuracy, usability and productivity after using the new system. The new system will work effectively if the O_2 value is greater than O_1 [13].

1.4 Statement of the Problems

1. The problem is how to present information that effectively to manager and lecturer at Telkom Polytechnic.
2. In what ways are the information about the Key Performance Indicator (KPI) that really fit with the needs of its users provided?

1.5 Assumption

1. User: information literacy.
2. Technology: high speed access to network with a minimal processor speed at 1.8 GHz.
3. Environment to implementation: the computers have been well distributed.

1.6 Scope and Delimitation

The data sources are provided by various units within the organization. The scope of the development dashboard is the field of academic and it will be applied to one study program as a pilot. The dashboard will be built until the prototype stage. Monitoring measurement of organizational performance will be conducted periodically based on quarterly reports. This facility is intended to the head of study program and lecturers. Units of related work are Study Program, lecturers, Research and Community Service (*Penelitian dan Pengabdian Masyarakat/PPM*), Academic Services and Human Resource (HR).

1.7 Importance of the Study

The three benefits of this study are expected to be gained, namely:

1. The various work units can store data accurately and timely.

2. The management can be assisted in the process of organization monitoring to support strategic decision-making process quickly and on target.
3. The study may help the various parties that interested in obtaining information accurately and timely.



CHAPTER 5 CONCLUSION AND RECOMENDATION

5.1 Conclusion

This study modified methodology that develop by eva to adjust the methodology with which the desired characteristics. The modified at identification requirement phase with additional identifying strategic plan of organizational and identifying primary quality indicator at organizational. The methodology was modified because suitable with condition at Polytechnic Telkom in operational level at academic field. After implementation process, the operational dashboard must be tested to known performance of it. This study was added stage of experiment plan and design, because it was important to testing performance of the dashboard by expert users.

Operational Dashboard cannot be used as a tool to determine the policy, but only as providers of data and information that can be used for strategic level. The dashboard was useful when monitoring the organization performance.

The performance of using new systems is higher than the performance using the old system. The average performance of 49% using the old system, while the new system 84%. This means the new system work effectively with improvement by providing relevant data and information in accordance with role and user level, accurate, timely and format presentation of information can be useful for them.

The measure of system quality showed that the new system convenience of access at anytime, anywhere via intranet, internet or mobile devices. The new system was ease to use and easy to learning, because the user fast to learning the new system.

The measure of use of the new system showed the information from new system very useful and user using the system often enough. This was improvement of user satisfaction and individual impact. The using new system can be increased user's productivity and user's job performance. Finally, the system can help organizational decision-making effectiveness with provided information from the system, and the new system improvement organizational effectiveness.

5.2 Recommendation

For future work, it is need to implementation the methodology of dashboard development to develop operational dashboard at various units at Telkom Polytechnic or other organization.

The data source may better if getting via data warehouse. The DBMS proposed using Oracle or Ms SQL Server, because they provide more facilities to cover scheduling to provide data for the operational dashboard.

To improved value of variable frequency of use the dashboard. It needed future work to observe the dashboard for this variable, example the observation to one year of using the dashboard.



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