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# COMPARISON OF PORTFOLIO APPLICATION USING BALANCED SCORECARD (BSC) AND CRITICAL SUCCESS FACTORS (CSF) TECHNIQUES

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## *Abstract*

*Needs good planning complete and thorough in utilizing and developing information technology in an organization. A strategic planning of IS/IT describes the various tools, techniques, and frameworks for management to align IS / IT with business strategy. Strategic planning of information systems relates to the identification of a information systems/applications portfolio and technologies needed to support organizational success. Conducted a comparative analysis of application portfolio using the tools BSC (Balanced Scorecard) and CSF (Critical Success Factor) case study in University XYZ to find out the best analytical techniques between BSC and CSF. The analysis is performed starting from the vision, mission, business direction, business objectives COBIT, analysis of information needs and analysis of application requirements and then make comparisons with the goal of COBIT IT standards. From the results of comparative analysis can be known best analytical techniques used in University XYZ is Balanced Scorecard (BSC), because it has the bigger percentage with COBIT standards of IT goal than the other analytical techniques.*

**Keywords:** *Strategic Planning IS/IT, Comparative Analysis, Application Portfolio*

## **Introduction**

Strategy of application portfolio development in a university should be consistent with its business strategy. In the process of application portfolio development, strategic management and communication between elements in the university (e.g. faculties, departments) are required, so, in the following years, the implementation of the application portfolio is still relevant.

Surendro (2009) stated that information system application in general is developed because of functional requirements and supports day-to-day operations of an organization. If some units in the organization needs different information system application or need some adjustments in the developed applications, then, a further integration is needed. For few cases, information that is retrieved from unintegrated information system will be likely difficult to obtain.

Kaplan (2001) opined that a balance scorecard (BSC) is not only about measuring the financial and non-financial systems. But, it also a mechanism to convert organization strategy into operational tasks. Implementing BSC demands the organization management to extend the strategic management with aim to achieve further vision.

Kerzner (2001) stated that Critical Success Factors (CSF) for strategic management in a project management is crucial to achieve long-term aims. Most business only have few CSF, but, if those CSF are unable to be implemented, the continuity of the business is compromised.

Ward (2003) proposed a framework for managing information system planning through portfolio analysis. By having this framework, the portfolio application can correlate between planning and implementation of organization architecture, either in short-term, middle-term, and long-term strategies.

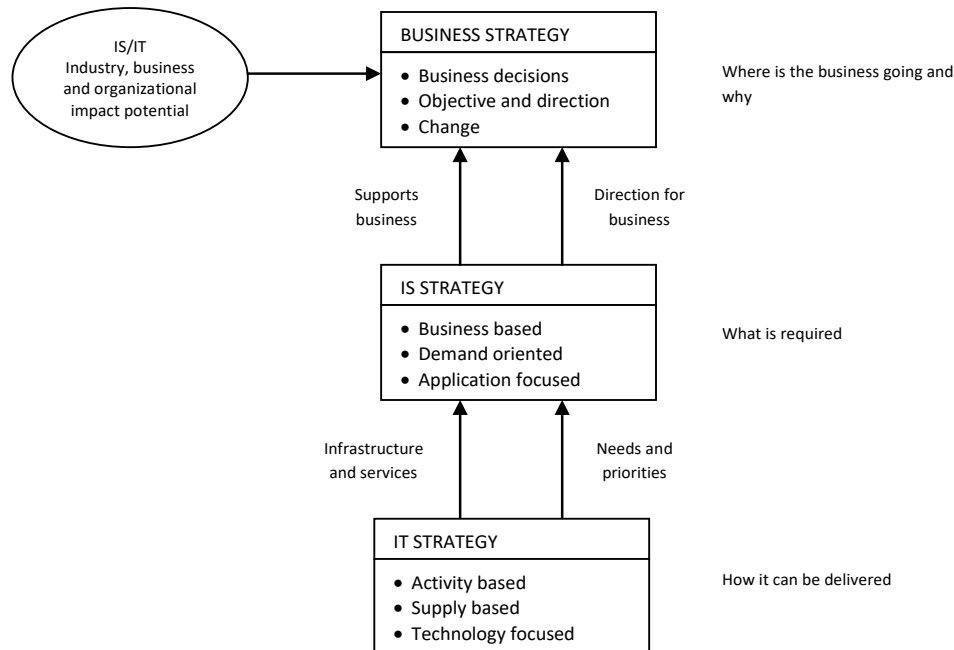
This research focuses on doing comparative analysis between portfolio application using BSC and CSF in a university. By comparing both techniques, the best technique will help the university to support its business requirements. Also, to find the drawbacks and benefits for each technique to develop portfolio application for University XYZ.

## Research methods

### 1. Alignment of Business Strategies and Information Technology

From literature review, alignment in the context of information technology is defined as implementation at the right time and match with strategies, aims, and business needs. Khandelwal (2001) improved the definition in the context of an enterprise, as supports of information system in business process to manage clear information. Therefore, the implementation of information system in an enterprise should be aligned with organizational purpose.

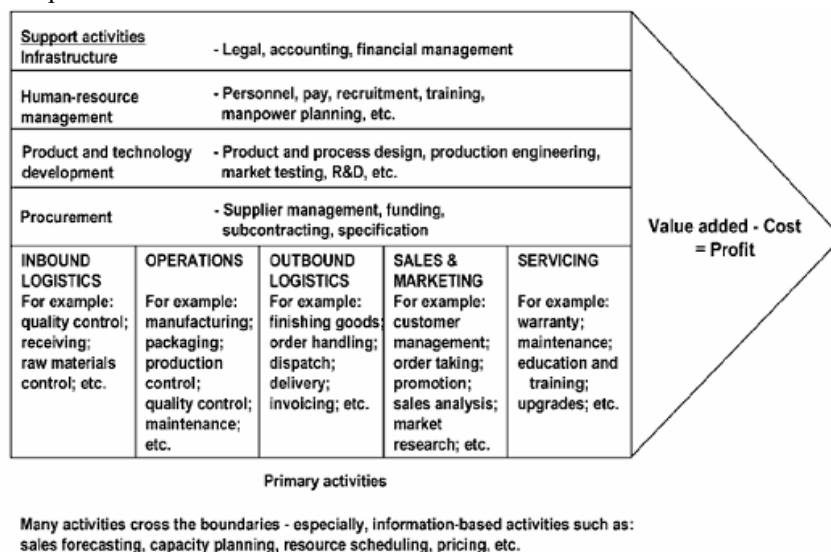
Ward (2003) explained about correlation between business, information systems, and information technology strategies. Contribution and performance of information systems/information technology in business become more significant if the intervention of the executive level is improved.



Picture 1. Relation between business, IS and IT Strategic (Ward, 2003)

### 2. Value Chain Analysis

Value chain analysis aims to map the whole work processes in an organization into two categories: main activity, and supporting activity (Ward, 2003). The definition of activity is refer to organizational documentation which explains work processes and functions for each unit based on observations.

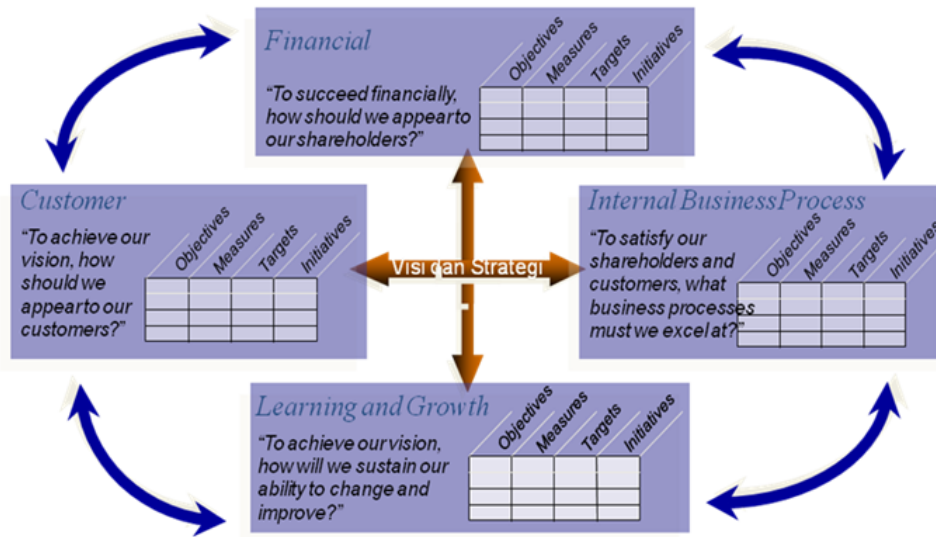


Picture 1. Value chain diagram (Ward, 2003)

3. **Balanced Scorecard (BSC)**

Balanced scorecard which is developed by Norton and Kaplan gives a solution for extending perspective for each step in strategic management system. The solution focuses on balance management and targets, and measure the works quantitatively.

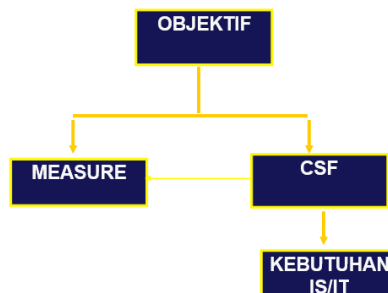
Kaplan (2001) defines BSC briefly as a management system to manage implementation of business strategies, measure the works as a whole, communicate the vision, strategies to stakeholders. The *balance* refers to a concept in several perspectives, short- and long-term vision, internal and external scopes. The *scorecard* refers to planning of organization works, including the measurement of detailed parts.



Picture 2. Four perspective of balance scorecard

4. **Critical Success Factor (CSF)**

CSF analysis is a method aims to connect the key information that is needed by an organization. An example of a business unit in a university represented by a manager (a head of department) is depicted below.



Picture 3. Critical success factor (CSF) analysis

5. **Qualitative Research**

Qualitative research is a concept that discover knowledge by collecting data as it is, measured and validated scientifically. However, the validation cannot be performed using formulas or symbols, cannot be interpreted as quantitative research in statistics or mathematics.

The whole series of work methods or qualitative research processes take place simultaneously in the form of collecting, processing and interpreting a number of qualitative data. While the data / information is in the form of ongoing symptoms, reproduction of memories, opinions that are theoretical or practical.

In qualitative research there are techniques of analysing data. However, all data analysis of qualitative research usually based on the study. In other words, the activities are carried out together with the process of implementing data collection. Unlike quantitative research, the data analysis is performed after the data is collected, in the qualitative analysis the data analysis is carried out starting from the data collection procedure until the completion of the research. Therefore, in this study the data were analysed inductively. Thus, data

collection and analysis are carried out simultaneously, not separately as in quantitative research where data is collected first, then analysed.

Checking the validity of data is very important in qualitative research. Where the data that has been successfully collected and recorded in research activities, the data quality must be preserved. According to Muhajir (1992), research reliability relies on four elements, namely *credibility*, *transferability*, *dependability*, and *confirmability*. By using these four elements we can test the validity of the research on the quality of the instrument including the obtained data.

## Research Results and Discussion

### 1. Business needs analysis

**Table 1.** Alignment of business needs with organizational vision and mission

No.	Business Needs COBIT (TB)		Check
1	TB-01	Provision of a return on good investment from resurrected businesses	X
2	TB-02	Management of business risks related to information technology	√
3	TB-03	Increased transparency and corporate governance	√
4	TB-04	Service improvement and customer orientation	√
5	TB-05	Offering competitive products and services	√
6	TB-06	Determination of availability and smooth service	√
7	TB-07	Creation of agility to answer changing business requests	√
8	TB-08	Achieving cost optimization from service delivery	X
9	TB-09	Obtaining useful and reliable information for strategic decision making	X
10	TB-10	Improvement and maintenance of business process functionality	√
11	TB-11	Decrease in processing costs	X
12	TB-12	Provision of compliance with external law, regulation and contracts	√
13	TB-13	Provision of compliance with internal law	√
14	TB-14	Managing business change	√
15	TB-15	Improving and managing operational productivity and staff	√
16	TB-16	Managing product and business innovation	√
17	TB-17	Acquisition and maintenance of capable and motivated employees	√

### 2. Information Technology Business Analysis

**Table 2.** Alignment of business with information technology (IT) purpose based on COBIT

No	IT Purpose	Check
1	Response to business needs that are in line with business strategies	√
2	Response to governance needs in accordance with managerial directions	√
3	Certainty of end user satisfaction with offers and service levels	√
4	<i>Optimization of the use of information (not yet needed)</i>	X
5	Agile IT creation ( <i>IT agility</i> )	√
6	Definition of how functional business needs and controls are translated into automatic solutions that are effective and efficient	√
7	Acquisition and maintenance of standard and integrated application systems	√
8	Acquisition and maintenance of standard and integrated IT infrastructure	√
9	Acquisition and maintenance of IT capabilities in response to IT strategies	√
10	Guarantee of mutual satisfaction with third parties	√
11	Guarantee of consistency in application integration into business processes	√
12	<i>Guarantee transparency and understanding of IT costs, benefits, strategies, policies and service levels (not yet needed)</i>	X

No	IT Purpose	Check
13	Guarantee the use and performance of applications and appropriate technology solutions	√
14	Ability to provide explanations and protection of IT assets	√
15	<i>Optimizing IT infrastructure, resources and capabilities (not yet needed)</i>	X
16	Reduction of incompleteness and reprocessing of solutions and service delivery	√
17	Protection of the achievement of IT goals	√
18	Determination of clarity regarding the risks of business impacts on IT objectives and resources	√
19	Guarantee that critical and confidential information is hidden from unauthorized parties	√
20	Certainty that business transactions automatically and information exchange can be trusted	√
21	Assurance that IT services and infrastructure can properly overcome and restore errors due to errors, intentional attacks or natural disasters	√
22	Certainty of the lack of business impact in the event of service interruptions or IT changes	√
23	Guarantee that available IT services are in accordance with what is needed	√
24	Increased efficiency of IT costs and its contribution to business profits	√
25	Delivery of the design on time and in accordance with standard quality and budget	√
26	Maintenance of information integrity and infrastructure processing	√
27	Certainty that TO is in line with applicable regulations and laws	√
28	Guarantee that IT shows efficient service quality in terms of cost, continuous improvement and readiness for future changes	√

### 3. Analysis of Application Requirements and BSC

**Table 3.** Application Requirements based on BSC

No.	Application Requirements	No.	Application Requirements	No.	Application Requirements
1	SI Finance	11	SI Student Applicants	21	SI Archiving
2	SI Personnel	12	SI Activities	22	SI SOP
3	SI Academic	13	SI Internal Auditing	23	SI Course Timetables
4	SI Infrastructure	14	SI Competence	24	SI Curricula
5	SI Library	15	SI Research	25	SI Alumnae
6	SI Student Achievement and Expertise	16	SI Patents	26	SI Meeting
7	SI Community Service	17	SI Scholarships		
8	SI Training and Seminar	18	SI Laboratories		
9	SI Non-Academic	19	SI Services		
10	SI Partnership	20	SI Book Catalogue		

### 4. Analysis of Application Requirements and CSF

**Table 4.** Application Requirements based on CSF

No.	Application Requirements	No.	Application Requirements	No.	Application Requirements
1	SI Finance	11	SI Partnership	21	SI Laboratories
2	SI Personnel	12	SI Student Applicants	22	SI Book Catalogue
3	SI Academic	13	SI Alumnae	23	SI Archiving
4	SI Infrastructure	14	SI Internal Auditing	24	SI SOP
5	SI Student Achievement and Expertise	15	SI Competence	25	SI Meeting
6	SI PKM	16	SI Research	26	SI Course Timetables
7	SI Community Service	17	SI Patents	27	SI Curricula
8	SI UKM	18	SI Scholarships	28	SI Scholarships
9	SI Training and Seminar	19	SI Libraries	29	SI Programs
10	SI Non-Academic	20	SI Services		

### 5. Comparative Analysis

**Table 5.** Alignment of Application Portfolio and Business and IT purposes

IT Purposes		BSC	CSF
1	Response to business needs that are in line with business strategies	v	v
2	Response to governance needs in accordance with managerial directions	v	v
3	Certainty of end user satisfaction with offers and service levels	v	v
4	<i>Optimization of the use of information (not yet needed)</i>		
5	Agile IT creation ( <i>IT agility</i> )	v	-
6	Definition of how functional business needs and controls are translated into automatic solutions that are effective and efficient	v	v
7	Acquisition and maintenance of standard and integrated application systems	-	-
8	Acquisition and maintenance of standard and integrated IT infrastructure	-	-
9	Acquisition and maintenance of IT capabilities in response to IT strategies	v	v
10	Guarantee of mutual satisfaction with third parties	v	v
11	Guarantee of consistency in application integration into business processes	v	v
12	<i>Guarantee transparency and understanding of IT costs, benefits, strategies, policies and service levels (not yet needed)</i>		
13	Guarantee the use and performance of applications and appropriate technology solutions	v	v
14	Ability to provide explanations and protection of IT assets	v	v
15	<i>Optimizing IT infrastructure, resources and capabilities (not yet needed)</i>		
16	Reduction of incompleteness and reprocessing of solutions and service delivery	-	-
17	Protection of the achievement of IT goals	-	-
18	Determination of clarity regarding the risks of business impacts on IT objectives and resources	-	-
19	Guarantee that critical and confidential information is hidden from unauthorized parties	v	v
20	Certainty that business transactions automatically and information exchange can be trusted	v	v
21	Assurance that IT services and infrastructure can properly overcome and restore errors due to errors, intentional attacks or natural disasters	-	-
22	Certainty of the lack of business impact in the event of service interruptions or IT changes	v	v
23	Guarantee that available IT services are in accordance with what is needed	v	v
24	Increased efficiency of IT costs and its contribution to business profits	v	v
25	Delivery of the design on time and in accordance with standard quality and budget	v	v
26	Maintenance of information integrity and infrastructure processing	v	v
27	Certainty that TO is in line with applicable regulations and laws	v	v
28	Guarantee that IT shows efficient service quality in terms of cost, continuous improvement and readiness for future changes	v	v
Total = 25, IT Purposes = 100%		19/25*100=76%	18/25*100=72%

From Table 5 it can be seen that the BSC column (76%) has higher percentage rate than CSF (72%), meaning that the analysis technique to determine the best application portfolio is BSC analysis technique because it has more applications that function in accordance with the objectives of University XYZ.

### Conclusions and recommendations

The conclusions obtained from the results of the analysis of this study are as follows:

1. From the results of the analysis it can be concluded that portfolio analysis using BSC (Balanced Scorecard) and CSF (Critical Success Factors) is the best technique to use.
2. The advantages of BSC and CSF analysis techniques are because it is easier to determine business objectives, so, it can facilitate the process of determining business objectives at University XYZ.
3. From the results of the analysis, it can be concluded that the analysis of information needs and application needs is very dependent on the direction of the business obtained from the results of interviews and observations.
4. The large number of application requirements obtained from the results of the analysis is not necessarily the best analysis technique, because it depends on its compliance with the objectives of the COBIT standard IT.

Some suggestions that can be made to improve the comparison of the analysis of application portfolios in this study include:

1. Need to do further research on comparisons with other analytical techniques, for example compared to the Zachman Framework.
2. In carrying out an analysis of the direction of the university business / organization should be in accordance with existing conditions, this aims to produce output that is truly in accordance with the vision and mission of the university / organization.

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