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Information technology performance measurement and improvement recommendation in Indonesian retail company

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ABSTRACT

Information technology should work according to the needs and provide added value to the business. If the application of information technology does not provide added value to the business, information technology will only become a burden for the company. Therefore, it is necessary to measure performance to see to what extent the application of IT can support business processes and provide added value. This paper provides measurements and recommendations on IT governance in one of leading retail company in Indonesia. This research used descriptive quantitative research methods and IT Balanced Scorecard method that can provide an overview of IT performance in an organization based on four perspectives, such as Corporate Contribution, Customer Orientation, Operational Improvement, and Future Orientation. Based on the results of the analysis and measurement, the overall IT performance score was 62.64% where the score is in the "Moderate" category. The company contribution perspective got a score of 68.50%, the user orientation perspective was 63.00%, the operational improvement perspective was 62.06%, and the future orientation perspective was 57.44%. Several recommendations were constructed based on the consideration of the KPI value that must be improved. This can be a guide for other retail companies in formulating policies related to IT governance and enriching research in the field of IT performance measurement.

KEYWORDS

Balanced Scorecard
Business Process

1. Introduction

The progress and development of Information and Communication Technology at this time cannot be separated in everyday human life [1]. During its development, the use of Information Technology (IT) has been widely used on an enterprise-scale to support business processes and performance. The rapid advancement of Information Technology requires companies always to improve the quality of IT so that they can compete in the business world and can support business processes to be more effective and efficient [2]. Information Technology is considered increasingly important to support competitive business advantage. Besides, information technology also contributes to meeting consumer demand for innovative products and services [3]. Also, the application of Information Technology is used to support business processes, drive performance, and win the competition in the market. The relationship between business and Information Technology is close so that an organization or company cannot potentially be competitive if the business strategy and Information Technology are not in line [4].

One of the applications of Information Technology on an enterprise-scale is in a retail company and is usually used for marketing, supply chain, HR management, operations, and many more. Managing Information Technology for operations management is one of the main strategic issues in increasing organizational effectiveness and achieving optimal goals [5]. The company used in this research is one of the largest retail company in the Special Region of Yogyakarta, Indonesia. In the application of IT, this company has several problems, such as the system that is still down frequently,

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the data that do not match the system with the one in the field, and the reports generated by the information system are not entirely suitable for the needs. During the implementation of IT, this company has never measured the existing IT performance. In fact, for existing IT to be fully utilized, it is necessary to evaluate IT performance [6] periodically.

Sandy has conducted research on the maturity of retail business information technology governance which focuses on the Acquire and Implement domains. The research objective was to determine the gap value between the existing maturity level and the level the expected maturity in technology governance information for retail company businesses from the domain side AI [6]. In this study, it only focuses on the maturity of information technology governance and focuses on the Acquire domain and the implement contained in the COBIT framework. Septiarini and Papilaya also conducted research to see the benefits of implementing IT in retail companies using the Ranti's Generic IS / IT Business Value. In this study, it was explained that the results of the study would be more accurate if there was a deeper analysis for intangible benefits [7].

Due to the importance of quality IT for the sustainability of companies, including retail companies, it is necessary to measure and evaluate the performance or value of IT [5]. One method that is widely used to measure IT performance is the IT Balanced Scorecard. IT Balanced Scorecard is a method developed by Van Der Zee and Van Grembergen in 1997. This method is a development of the Balanced Scorecard, which was first introduced in 1996 by Kaplan and Norton [8]. The method or approach to the Balanced Scorecard is used with a broad scope of business, industry, government, and organizations to adapt business activities to the organization's vision and strategy. The difference between the Balanced Scorecard and the IT Balanced Scorecard is from the perspective of each method. From the perspective of the Balanced Scorecard, the aspect measured or evaluated is the overall performance of the company, while the perspective on the IT Balanced Scorecard is more to see a picture of the relationship between IT and business [9]. Since the company has an IT department, the IT Balanced Scorecard is suitable to formulate IT strategy goals whether or not it is aligned with the company's business goals [10]. Also, the measurement of IT performance that has never been carried out by the company is one reason for using the IT Balanced Scorecard as a method of measuring IT performance. IT Balanced Scorecard also measure the IT performance with four different perspective that make the result more complex. Then the purpose of this study is to measure the IT performance of Indonesian Retail Companies using the IT Balanced Scorecard and make recommendations on IT performance in accordance with the results of performance measurement with the IT Balanced Scorecard at Indonesian Retail Companies. It is hoped that this research can also be used to determine the IT performance that has been implemented by the company so that it can maximize the IT performance and the company can also measure IT performance regularly with the same method.

2. Literarute Review

Matsuki [11] conducted a study that aimed to see the factors needed to measure IT performance and how to create an optimal IT performance measurement model and how the model affects IT performance. The findings of this study are the formation of a model and being able to determine the IT division as a reference for calculating optimal performance. The IT division should focus on problems that are indicators of IT Competence, IT Service Capability, Business Continuity, and IT Improvement. From the results of the analysis, finding indicators are not included in the analysis process. However, they need to be applied because they are following the needs [12].

Kosasi [13] conducted a study that discussed measuring the performance of an application, where the researchers want to see the benefits provided by the application. After analyzing the results of the data obtained and using the four perspectives IT Balanced Scorecard method, the final result was 94.55%, where the application's performance was at level A or Very Good. However, from employee productivity, it had not been, and the perspective of the organization obtained the lowest score, so it still requires changes and evaluation in the future [13].

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Primasari & Setyohadi [14] conducted a study that discussed the IT Infrastructure Governance Analysis in Higher Education using the IT Balanced Scorecard. In this study, the researchers analyzed to see the IT infrastructure that was one of the private universities in Yogyakarta. In their findings, the scores for each perspective from the IT Balanced Scorecard were as follows; The Company Contribution Perspective in total has a score of 70.00%, User Perspective Orientation in a total of 66.04%, Operational Improvement Perspective of 67.29%, and Future Orientation Perspective of 59.58. In total, the performance based on the IT Balanced Scorecard at the Universitas Atma Jaya Yogyakarta was 66%, which was considered good [13].

Alit & Aditiyawan [1] conducted a study that discussed the measurement of the performance of the IT division at a university in East Java using the IT Balanced Scorecard. In their study, the researchers wanted to see or measure the performance of the IT division. The findings were the score for each IT Balanced Scorecard perspective. The perspective of the Company's contribution was 34.18%, User Orientation 31.68%, Operational Improvement 38.33%, Future Orientation 32.72%, and total performance of 34.22%, which were considered poor [1].

3. Methodology

This research used descriptive quantitative research methods. The descriptive quantitative method is a method in researching a group of people, objects, conditions, systems of thought, and events in the present [12]. The stages in this study are shown in Figure 1.

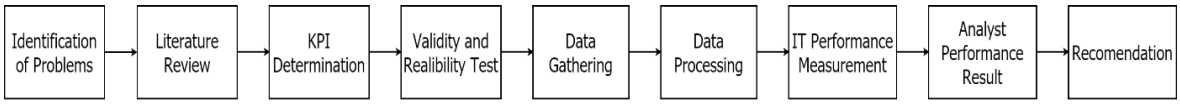

Figure 1. Research Methodology

3.1. Identification of Problems

In this stage, the researcher identifies the IT problems in the company using the observation method. Observation, in general, is a method or method of collecting information or data by systematically observing and recording phenomena that are being subjected to experience [15]. Kind of observation done in this research was participatory observation. According to Mania [15], participatory observation is that researchers involve themselves directly in the middle of the activity of the object being studied.

3.2. Literature Review/Studies

At this stage, the researcher studies the literature or similar research on IT performance measurement in an organization. The literature study was conducted to obtain the primary objectives of the performance measurement research using the IT Balanced Scorecard. A literature study is to see the results of performance appraisal from previous research so that it can be used as a benchmark in conducting this research.

3.3. KPI Determination

Key Performance Indicator was generated based on four IT Balanced Scorecard perspectives to measure of IT performance at the company [16]. Company Contribution Perspective to measure of IT cost control, IT and Business Goals, and Employee Productivity with IT. Customer orientation perspective to measure IT Product Quality, User Contribution, User Satisfaction, Ease of Use of IT, and Information generated by IT. Operational Excellent Perspective to measure the Effectiveness of IT Development, IT Maintenance, IT Service Unit Services, and the Accuracy of IT Problem Repair. Future orientation perspective to measure the size of the IT Training Budget, the Number of IT Staff, IT Development, and IT Product Innovation.

3.4. Validity and Reliability Test

Validity and reliability tests were carried out to see whether the research instrument was appropriate to measure what was to be measured and to see the consistency of the research instrument [17]. In this study, the questionnaire consisted of four main perspectives, but overall questionnaire items were 18 items. Testing the research instrument used the Pearson correlation technique with a significance level of 5%. The number of samples in this study was 45 samples, so the r table was 0.294. Then the question item analysis is to calculate the correlation coefficient between the item score and the total score (r count) with the critical value (r table) with the criteria if r count is greater than r table, then the item is valid, but if r count is smaller than r table, then the item is invalid. For reliability testing using Alpha with Cronbach's Alpha value> 0.60 [18].

After testing the validity and reliability of the research instrument, there were two invalid items. These items were KPIs from company contribution perspective. The first statement was "IT investment provided benefits for the company" and the second statement was "the IT Division was a burden for the Company". Since the item did not meet the requirements, then the two invalid items were eliminated and not used.

3.5. Data Gathering

This data collection used a questionnaire and interviews as triangulation. The population of this research was the 79 back-office employees of the company. The determination of the respondents to the questionnaire was carried out using the purposive sampling technique, which is a technique of selecting respondents based on certain objectives or research objectives [19]. Then, the value of each questionnaire's answer used a Likert Scale. The questionnaire questions were prepared based on the key performance indicators (KPI) that were previously determined at the research stage of determining the KPI above. The questionnaire questions are grouped into four sections, which are based on the IT Balanced Scorecard perspective. With details of each answer as follows; Strongly Disagree (STS) = 1, Disagree (TS) = 2, Simply Agree (CS) = 3, Agree (S) = 4, and Strongly Agree (SS) = 5 [20]. Sampling in this study used the Slovin equation formula with a margin of error of 10%, which can be seen in Formula (1) [21]. From this equation, the total sample size is at least 44 people. n is a minimal number of samples, N is the total population, and e is the margin of error.

$$n = \frac{N}{1 + Ne^2} \tag{1}$$

Then, the interview was conducted involving the System Manager, Mechanical Engineering Staff, the Accounting / Finance Supervisor, the Finance Manager, and the Head of Personnel. The selection of interview sources was based on the fact that the interviewees were the ones most often involved in information technology planning. Interview data is used to justify the questionnaire data to obtain information about the cause of the score or value generated by the IT Balanced Scorecard.

3.6. Data Processing

After testing the validation and reliability of the research instrument, the next step is a data processing to obtain the average answer to each question. The calculation of the average respondent's answer was carried out to see the average answer to each question using the Weight Mean Score (WMS) equation. According to Sugiyono in [22], the following is the WMS Formula (2). $\underline{x}$ is Average Respondents' Answers, X is Total Respondents Answer Score, and n is Number of Respondents.

$$\underline{x} = \frac{x}{n} \tag{2}$$

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The steps taken in calculating the average value of respondents' answers using the WMS formula are as follows:

1. Determining the weight of each alternative answer to the *question with a Likert scale*
2. Adding up the total score based on each questionnaire question
3. Calculating the average score of the answers to each question

3.7. IT Performance Measurement

The results of the questionnaire data processing to the average respondents' answers to each question are then used to measure IT performance. Measurement using an application called BSC Designer Light and BSC Designer PRO. The IT Balanced Scorecard performance score is divided into 0% to 100% intervals, with the following details [19]:

- 0.00% - 44.99% : “Very Poor”,
- 45.00% - 54.99% : "Poor",
- 55.00% - 69.99% : “Moderate”,
- 70.00% - 84.99% : "Good",
- 85.00% - 100% : “Very Good”

The respondents’ answers were measured using 1 – 5 Likert scale. The target for each perspective and KPI is 5 (five) which refers to the expectations that company wants to achieve.

3.8. Analyst Performance Result

After getting a performance score, then the results are analysed. The analysis is carried out to see which KPIs get the lowest and highest scores as well as analysing the causes based on information obtained through interviews.

3.9. Recommendation

At this stage, the researcher makes recommendations on the IT performance problems that have been obtained based on the previous analysis.

4. Result and Discussion

Based on the data obtained through the questionnaire answers, the calculation of the results of IT performance is in Table 1. The higher the value for each perspective and KPI is, the better the performance will be [14]. Based on Table 1, the results of the IT performance calculation obtain a score of 62.64%. The score is in the "Moderate" category. After knowing the performance of each perspective and KPI, an analysis will be carried out to see the causes based on information obtained through interviews.

Table 1. Total Score of IT Balanced Scorecard

No.	Perspective	Performance
1.	Company Contribution Perspective	68.50%
2.	User Orientation Perspective	63.00%
3.	Operational Improvement Perspective	61.44%
4.	Future Orientation Perspective	57.63%
	Total Performance	*62.64%*

4.1 Company Contribution Perspective

Based on Table 2, the overall performance measurement results from the perspective of the company's contribution obtained a score of 68.50%, which is included in the “Moderate” category.

There are 3 KPIs from the perspective of the company's contribution, which can be seen in Table 2 below.

Table 2. The score of Company Contribution Perspective

KPI	Performance
IT Cost Control	61.00 %
IT and Business Goals	62.25 %
Employee Productivity with IT	82.25 %
Company Contribution Perspective	68.50%

The IT cost control KPI obtained a score of 61.00%, which can be seen in Table 2, where this category is included in the "Moderate" category. The IT investment budget is based on existing needs in the field. IT costs control is still done manually and depends on the company's needs. Then, control is also carried out by utilizing assets that are still in use, comparing several IT equipment suppliers, comparing software providers to obtain prices and quality as needed. Besides, IT cost control is also carried out by looking at the needs of users in the field and the company's budget. As well as the cost of IT each year has increased by approximately 25%.

The IT and business objectives KPI obtained a score of 62.00%, which can be seen in Table 2, where the score is in the "Moderate" category. Existing IT is in line with business goals, but development is still needed to match future needs and increase IT optimization. There is also an information system that needs improvement, in which the information system has not fully met the needs of users and companies. The strategic objectives of implementing IT in the company are (1) presenting accurate and fast data and information, (2) assisting in quick, precise, and optimal decision making, and (3) making the work of all parts easier. When viewed based on the company's goals in implementing IT, these goals have not been fully achieved. Based on the information obtained from interviews, the making of company reports is still done manually, even though all activities from purchasing products to selling products to end consumers are all carried out in the same information system. It is, of course, different from the goal of implementing IT, namely in presenting accurate and fast data and information. Then, in helping to realize the company's mission, IT also has not fully supported this. There are still IT problems in improving the company's internal and external services, which is one of the company's missions. It is because there are still servers that are often down, which results in slow loading and has an impact on service.

KPI of employee productivity with IT obtained a score of 82.25%, which can be seen in Table 2, where the score is in a "good" category. This KPI got the highest or most significant value from the perspective of the company's contribution. It is because IT has a vital role in the company, and almost every part of the company uses IT. With the application of IT in the company, it makes work more accessible and the flow of goods or products more easily adjusted to company needs, and the accuracy of data and information is higher. The speed in obtaining data if it is done manually can take approximately one month, whereas, with IT, the distribution and data collection can be done in approximately three days. The profit calculation after the use of IT has also been done by looking at the comparison between sales minus purchases and costs numbers. The result is that with the existence of IT, there has been significant efficiency with the costs before and after the use of IT, and the result is that IT provides significant benefits, starting from costs and use of human resources. Even though IT has a good impact on employee productivity, there are still IT problems that become complaints about employees as IT users. Based on the information obtained from interviews, the IT problems found was servers that were down and network problems resulting in less optimal service to suppliers, sales, and collectors. Besides, it also causes extended and not optimal data distribution.

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4.2 User Orientation Perspective

Based on Table 3, it can be seen that the overall user orientation perspective obtained a score of 63.00%, which is in "Moderate" category. There are 5 KPIs from a user orientation perspective, which can be seen in Table 3 below.

Table 3. *The score of User Orientation Perspective*

KPI	Performance
IT Product Quality	59.50 %
User Satisfaction	60.00 %
Information that IT Generates	64.00 %
Ease of Use of IT	65.50 %
User Contribution	66.00 %
User Orientation Perspective	63.00 %

The IT product quality KPI obtained a score of 59.50%, which can be seen in Table 3, where the score is in the "Moderate" category. Information systems and information technology are beneficial in business activities within the company. However, based on information obtained from interviews, several IT problems still require improvement, such as the report menu that does not work well in the information system used by respondents. Also, the data contained in the system sometimes does not match the data in the field, causing miss reporting. This result shows that the information generated by IT is irrelevant.

User satisfaction KPI obtained a score of 60.00%, which can be seen in Table 3, where the score is in the "Moderate" category. There are still problems at certain times, such as slow loading, which results in service to parties that are considered less than optimal, then problematic networks that have an impact on data retrieval and distribution between parts, and some user needs in the field but not found in the information system, one of which is that the report generated by the system does not yet exist. And some users are already comfortable with the old information system or the traditional way.

KPI Information generated by TI obtained a score of 64.00%, which can be seen in table 3, where the score is in the "Moderate" category. There are still some information needs in the field but cannot be obtained through the system. For example, for reports per period of debit notes that are not in the system, even though the debit note menu is already available in the existing information system, but the menu does not work well. Then, another problem is the recording of payment notes to suppliers, which is still done using Microsoft Excel, even though it comes from the company's information system. And data in the field with those in the information system is irrelevant so that sometimes it results in miss reporting and re-matching by the user.

The IT ease of use KPI obtained a score of 65.50%, which can be seen in Table 3, where the score is in the "Moderate" category. Some users are reluctant to switch from the old system to the new system. It is because they are comfortable with the old way (manual). The lack of training for users is also the reason why some users feel that the information system is challenging to use and understand.

User contribution KPI obtained a score of 66.00%, which can be seen in Table 3, where the score is in the "Moderate" category. Users are involved from the beginning of the creation of the information system. However, some parts only involve the head of the department. The head of each division performs gathering requirements for members in his section, then submits it to the system section, and the system section continues to the developer section. Then this causes some users to feel that they are not directly involved in the development of information systems or IT. Each information system purchased is custom, which will be adjusted to the needs of the company, and the system is tested by the user directly.

4.3 Operational Improvement Perspective

Based on Table 4, it can be seen that the overall operational improvement perspective obtained a score of 61.44%, which is in a "Moderate" category. There are 4 KPIs from the perspective of operational improvement, which can be seen in Table 4 below.

Table 4. The Score of Operational Improvement Perspective

KPI	Performance
IT Problem Repair Time	59.00%
IT Service Unit	59.50%
Effectiveness of Information System Development	61.75%
IT maintenance	65.50%
Operational Improvement Perspective	61.44%

KPI for IT problem repair time obtained a score of 59.00%, which can be seen in Table 4, where the score is in the "Moderate" category. Several problems occur within the IT division. Lack of skilled IT personnel, especially those who handle company information systems, causes the resolution of IT problems, especially in the information system, to be less timely. It is also caused by only one IT personnel who is fully responsible for information system problems in the company. Then, the number of IT used in each part of the company is also not proportional to the number of existing IT personnel.

The IT unit service KPI obtained a score of 59.50%, which can be seen in Table 4, where the score is in the "Moderate" category. There are still several obstacles in the IT division in maximizing service to user complaints. Among other things is a quick response to problems if demand is not high. These problems will be resolved quickly and on time if the problems are not very vital. However, if the problems are vital, the time needed is relatively long. For example, to repair the network and servers, the IT division only takes 0-1 hours, but if an information system problem arises, it will take a long time because there is only one Person In Charge (PIC) that can solve the problem. Also, the number of IT personnel who are active in the field is not proportional to the number of existing IT personnel in the company.

KPI for the effectiveness of information system development obtained a score of 61.75%, which can be seen in Table 4. The score is in the "Moderate" category because the development of information systems has not been carried out in stages but based on the needs in the field, not the information system development cycle in general. For example, if the information system currently used no longer meets the company's needs and is damaged, the information system will be developed as needed. Even though the development carried out on a scheduled basis is useful for fixing previous information system problems. Then the information systems used are mostly purchased from third parties, causing the development of information systems to be less orderly and dependent on these third parties.

The IT maintenance KPI obtained the most significant score, namely 65.50%, which can be seen in table 4, where the score is in the "Moderate" category. In IT in the company, only some parts of the maintenance are carried out on a scheduled basis, for example, such as routine data backups, then the maintenance of hardware such as computers is carried out once a month, and information system checks are checked every morning, this is to ensure the information system does not have problems when used. However, the limitations of IT staff are also an obstacle for maximum IT maintenance.

4.4. Future Orientation Perspective

Future orientation perspective is to measure how well IT is in meeting business needs in the future. Table 5 shows that overall, the future orientation perspective obtained a score of 57.63%, where the score is "Moderate". The future orientation scores are the lowest, among other perspectives.

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Table 5. The Score of Future Orientation Perspective

KPI	Performance
IT Problem Repair Time	59.00%
IT Service Unit	59.50%
Effectiveness of Information System Development	61.75%
IT maintenance	65.50%
Future Orientation Perspective	61.44%

KPIs for the number of IT expert staff obtained the lowest score among all KPIs. Based on table 5 KPI, the number of IT expert staff obtained a score of 55.00%, which is in the low category. This result certainly must be considered by the company considering the increasing need for c*ompanies for IT in the future*. The need for IT at Indonesian Retail Company increases along with the increasing number of branches. With the current number of IT personnel at four people and one programmer, of course, this number is not comparable if you look at the IT needs of the company, then the distance between branches is also a matter that must be considered if you look at the number of IT staff which is only four people. Therefore, it is necessary to evaluate the number of expert staff of IT, especially in the programmer section.

The KPI of the Latest TI Research obtained a score of 55.50%, which can be seen in Table 5, where the score is in the "Moderate" category. IT research budget at Indonesian Retail Company is not in the company's plan. The IT Division sometimes only participates in workshops on IT trends carried out by third parties, then from the workshop, if it is deemed appropriate to the company's needs, the knowledge of IT trends obtained through the workshop will be reviewed further. However, a unique budget for IT unit research, the company does not provide. The factor that causes this is the company will renew its existing IT if the old IT no longer meets the company's needs. So, IT in the company will be renewed if only the old IT is not as needed. This results in IT in the company are not able to follow the development of business needs, seen from the need for users who are not supported by IT, for example, for reports, debit notes, and transactions with related stakeholders.

The IT Staff Training KPI obtained a score of 58.25%, which can be seen in Table 5, where the score is in the "Moderate" category. IT training is rarely carried out because the system purchased is a custom system so that training is carried out simultaneously with system development. The budget for IT training from companies is also still confused about whether or not there is training for IT personnel. Only management knows about this. Then, the company has also conducted training for IT staff, but it was only limited to training on the network, not all IT used. However, training is usually only done if the company buys a new information system, and it is usually implemented within the company.

The IT product innovation KPI obtained a score of 61.75%, which can be seen in Table 5, where the score is in the "Moderate" category. The IT product innovation received the most significant score among other KPIs found from a future orientation perspective. Existing IT still supports the needs of the company even though it is quite old, but there are still company needs that have not been fulfilled despite the existence of IT. For example, the company information system with the inability to provide business reports for companies, online shopping services for companies that still have bugs and need improvement, and one information system with other information systems are still not fully integrated. The IT problems caused losses to the company, starting from miss reporting, system data that did not match the data in the field, and frequent server downtime problems. It is necessary to pay attention to the company that the need for IT development is swift.

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5. Recommendation/Managerial Implication

Recommendations are formulated based on KPIs that have received a "Moderate" score category, so it is hoped that the recommendations given can provide improvements to existing IT problems. These recommendations are as follows:

1) IT Cost Control

a. Implementing effective cost control
b. Developing the cost control menu contained in the company's information system

2) IT and Business Goals

a. Reviewing the company's needs so that existing IT can be tailored to the goals and needs of the company
b. Implementing reasonable and correct IT Governance
c. Completing and improving company information systems, especially the addition of a feature to report all activities carried out in the information system, controlling IT costs and company operations

3) Quality of IT Products

a. Developing information systems that are guided by the life cycle of an information system, namely planning, developing, and evaluating continuously to determine whether the information system is still suitable for use
b. Monitoring and evaluating at every stage of information system development to avoid delaying the development time of the information system

4) User Satisfaction

a. Taking measurements of user satisfaction
b. Convincing users that the information system in use today can support their work
c. Providing the maximum possible service for complaints from IT users in the corporate environment
d. Continuing to innovate on IT products, conduct user training, and routinely perform maintenance on existing IT
e. The IT Division provides regular information about the progress of the ongoing development of information systems.

5) The information generated by IT

a. Reviewing the needs of users and companies for information systems, especially the addition of the report menu and debit notes needed by users and companies
b. Making improvements to the company's information system improves the quality of information produced because the quality of information also concerns user satisfaction.

6) Ease of Use of IT

a. There is assertiveness and constant appeals from the leadership of each unit so that all staff is willing to learn something new, especially when there is a new system change.
b. Conducting training on the use of IT for users, to provide a comprehensive understanding of the IT used in the company

7) User Contribution

Always involve all users in the development of information systems, from requirement gathering until the information system is implemented.

8) IT Problem Repair Time and IT Service Unit

a. The addition of IT expert staff, especially programmers who can assist in developing information systems in the company and overcoming problems with the information systems used
b. Building a helpdesk that accommodates every complaint and problem faced by IT users in the company

c. Improving the internal communication of the IT division and every IT division staff has the same vision and mission so that service to users is better.
d. Conducting periodic evaluations of the effectiveness of the IT division's performance then after the evaluation is continued with follow-up on the results of the performance evaluation.

9) Effectiveness of Information System Development

Performing information system development on a scheduled basis is carried out to see the problems and deficiencies contained in the information system, then steps are taken to develop or handle these problems.

10) IT maintenance

It performs routine and scheduled system maintenance. System maintenance needs to be done because system problems during development may not have been detected, so these problems need to be fixed, then the system no longer meets the needs of its users because changes in users continue to change, increase efficiency, and business changes that also have an impact on system changes [23].

11) Total IT Expert Staf

It includes adding an expert staff of IT because expertise has a positive effect on employee performance [24]. The higher the level of employee expertise is, the higher the resulting performance will be. Each part used to measure expertise is a factor that can determine employee performance.

12) Latest IT Research and IT Staff Training

a. Conducting training and development of IT personnel, especially training on the latest IT
b. Integrating all information systems contained in the company. With an integrated information system, the flow of information within the company will also be better

13) IT Product Innovation

According to the information obtained, the IT used in the company is still relatively new because it still supports the company's needs, although not completely. Therefore, IT products only need improvement and development to correct deficiencies and to meet the needs of the company.

6. Conclusion

Based on the results of measuring IT performance using the IT Balanced Scorecard, IT and business goals are not yet fully aligned. It is because there are still problems and business needs that have not been met by IT. Then, the results of the analysis and measurement of the IT performance of Indonesian Retail Company obtained a score of 62.64% based on 4 IT Balanced Scorecard perspectives, where the score was in the “Moderate” category. The company contribution perspective obtained a score of 68.50%, the user orientation perspective was 63.00%, the operational improvement perspective was 62.06%, and the future orientation perspective was 57.44%, where the performance achievement of each perspective was categorized as “Moderate”. However, the future orientation perspective received the lowest score, and the company contribution perspective obtained the most significant score. Then, the KPI for the number of IT division staff got the lowest score of 55.00%, and the KPI for employee productivity with IT got the most significant score.

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