Implementation Model of Vendor performance assessment for information technology service provider in PT.Kraftaus Yogyakarta

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Abstract. Vendor performance assessments are important to improve the performance of vendors and to manage long time relationship between SMEs and their vendor. The case study used in this study was on SMES in Yogyakarta. Vendor performance assessment model in this study is using models that have been developed in previous studies. Criteria in the model are Honest, Responsibility, vendor reputation, communication, quality of vendor, timely delivery, price, document and administration, vendor location and flexibility. The implementation of the vendor performance assessment model at PT Kraftaus Yogyakarta aims to make PT Kraftaus easily assess the performance of the vendor and easy to manage the performance.

Keywords— Vendor Performance, Vendor performance assessment model, SMEs

1. Introduction
The key of the procurement process is to select a vendor, purchase goods and services as well as support provided by the vendor to the company. This is important because purchasing activity is one of the main parts of business management. In the current environment, it is highly unlikely to succeed with the cost of selling production and produce a quality product without a good supplier. [1]. Therefore, maintaining good relations with the vendors is one of the most important decisions in the procurement process [2].

There are many vendors in the procurement process. One of them is a vendor engaged in information technology. Examples of IT vendor types include: System integration and inspection, System and Internet management, software and hardware development, software and hardware maintenance, and internet services. To get benefit and competitive advantage, information technology is important to be applied to a company. IT has become a 'commodity' because IT must be owned by every company [3]. Information technology and vendors are important to the company, then manage the performance of vendors and perform the assessment should be done by the company. Vendor selection should be done carefully because the wrong vendor's sorting can cause harm to the company [4]. Performance vendors impact and affect the company’s performance [5]. In some industries such as chemical and automotive, the cost of procurement process is 30%-70% [6]. For companies in managing vendors. Company prioritizes relationships with suppliers with long periods of time [7]. However, company expectations are not comparable to the vendor's performance scoring system.
Because until now, many companies have not done evaluation and monitoring of the performance of vendors [8]

Prior research [9] resulted in an IT vendor's performance assessment model. Criteria in the model according to the needs of SMES in Indonesia obtained through the dissemination of the questionnaire. The criteria in the model are Honest and maintenance of confidentiality of business, Responsibility, vendor reputation, communication, quality of vendor, timely delivery, price, document and administration, flexibility, and vendor location. Based on the research, this study was conducted to implement the vendor's performance assessment model. Model applied to assess the performance of vendors in one of the SMEs in Yogyakarta, PT Krafthaus Indonesia. Assessment is done on Internet service provider vendors. The assessment aims to make the PT Krafthaus able to easily manage the performance of Internet service provider vendors.

Based on the background, the authors made advanced research by applying the model that has been produced to see how the model can facilitate the assessment process and help obtain the best performance vendors.

2. Methods
Research starts from Literature Review, Vendor performance assessment model, Data Collection, Implementation of the model, and implementation results. Figure 1 which shows the steps of this study.

![Figure 1. Research Methodology](image-url)
2.1. Vendor of technology information

Previous research in IT vendors was conducted to help decision maker in evaluating and assessing possible IT outsourcing suppliers. Outsourcing According to researchers is the process of transferring managed activities to be done by other people (vendors) and also human resources relating to organization’s information technology is also managed by the vendors. Like the general evaluation and selection of vendors, IT also aims to find out the best service providers for products and services for the company [10]

In the paper presented, researchers argue that outsourcing is switching the function of production of goods or services to an external provider (vendor) where SI/IT is one of the most accomplished outsourcing practices [11]

2.2. Vendor Performance Assessment Model

After literature review was conducted to know the models used in assessing the vendor performances. And the next step is to determine the model to be used. And in this study, to assess the performance of Internet service provider vendors at PT Krafthaus Indonesia then the model used is the performance assessment model of information technology vendors that have been designed by involving SMEs in Indonesia [9]. Table 1 which shows the criteria, weights, assessment scales and descriptions in the model, Table 1 which shows the vendor performance assessment model.

| No | Criteria               | Weights | Assessment Scale | Description                                                                 |
|----|------------------------|---------|------------------|-----------------------------------------------------------------------------|
| 1  | Quality of vendor      | 0.126   | 5                | Very user friendly and there is no complaint and defect free and no complaints at all |
|    |                        |         | 4                | User friendly and there is a defect in the hardware but no Non conformity report |
|    |                        |         | 3                | Not user friendly but still perform and there is a defect in the hardware and non conformity report is released |
|    |                        |         | 2                | Very not user friendly but vendor willing to improve and more than 1 no conformity report are released but vendor is responsible |
|    |                        |         | 1                | Not user friendly and more than 1 non conformity report are released and vendor is not responsible |
| 2  | Timely delivery        | 0.078   | 5                | All of software and hardware is delivered on time |
|    |                        |         | 4                | Some can be delivered on time and others are delayed less than 3 days |
|    |                        |         | 3                | Delay for 3-5 days |
|    |                        |         | 2                | Delay more than 6-8 days |
|    |                        |         | 1                | Delay more than 8 days |
| 3  | Price                  | 0.055   | 5                | 31-40% price is lower than owner estimates |
| No | Criteria                                | Weights | Assessment Scale | Description                                      |
|----|-----------------------------------------|---------|------------------|--------------------------------------------------|
|    |                                         |         | 4                | 21-30% price is lower than owner estimates       |
|    |                                         |         | 3                | 11-20% price is lower than owner estimates       |
|    |                                         |         | 2                | Delay 5-10% price is lower than owner estimates  |
|    |                                         |         | 1                | 1-4% price is lower than owner estimates         |
| 4  | Communication                           | 0.136   | 5                | Proactive in communication                       |
|    |                                         |         | 4                | Its easy to be contacted via phone, email, fax, and good respond |
|    |                                         |         | 3                | Easy to contact but takes a long time to respond |
|    |                                         |         | 2                | Difficult to contact by phone, email, fax, and etc |
|    |                                         |         | 1                | Cannot be contacted                              |
| 5  | Documents and administration            | 0.036   | 5                | All documents have been completed before delivery date and document contents are clear and detailed |
|    |                                         |         | 4                | All documents have been completed before delivery but document contents are not clear and detailed |
|    |                                         |         | 3                | Documents have been completed after delivery date dan document contents is clear and detail |
|    |                                         |         | 2                | Documents have been completed after delivery date but document contents is not clear and detail |
|    |                                         |         | 1                | A waring letter is released to vendor because document incomplete |
| 6  | Flexibility of payment and delivery time| 0.034   | 5                | All changes requests are full filled in accordance with company policy |
|    |                                         |         | 4                | All changes requests are full filled in accordance with both party policy |
|    |                                         |         | 3                | All changes requests are full filled in accordance with vendor policy |
|    |                                         |         | 2                | Accept change requests for payment system but don’t accept for delivery time |
|    |                                         |         | 1                | Don’t accept change requests of payment system and delivery time |
| 7  | Responsibility                          | 0.158   | 5                | Responsible to resolve the complaint on the same day and complaints can be resolved |
|    |                                         |         | 4                | Responsible to resolve the complaint within 1-3 days and complaint can be |
| No | Criteria                     | Weights | Assessment Scale | Description                                                                 |
|----|------------------------------|---------|------------------|-----------------------------------------------------------------------------|
|    |                              |         | **resolved**     |                                                                             |
|    |                              |         | **3**            | Responsible resolve the complaint within more than 3 days and complaints can be resolved |
|    |                              |         | **2**            | Responsible resolve the complaint within more than 3 days but difficult to resolve complaints |
|    |                              |         | **1**            | Not responsible for resolving complaints                                     |
| 8  | Vendor Location              | 0.024   | **5**            | Located in an area and less or equal to 20km                                |
|    |                              |         | **4**            | Located in an area more than 20km                                          |
|    |                              |         | **3**            | Vendor are in different area/city                                           |
|    |                              |         | **2**            | Vendor are in different country but easy to communicate                    |
|    |                              |         | **1**            | Vendor are in different country and difficult to communicate                |
| 9  | Vendor Reputation            | 0.140   | **5**            | History of performance and service is excellent                            |
|    |                              |         | **4**            | History of performance and service is good                                 |
|    |                              |         | **3**            | Bad performance history but good service                                   |
|    |                              |         | **2**            | Good, performance history but bad service                                   |
|    |                              |         | **1**            | History of performance and service is not good                             |
| 10 | Honest and maintenance of confidentiality of business | 0.213 | **5**            | Very honest and transparent in giving information and always have good commitment |
|    |                              |         | **4**            | Honest and transparent in giving information and have good commitment      |
|    |                              |         | **3**            | Sometimes honest and transparent and sometimes have commitment             |
|    |                              |         | **2**            | Not transparent in giving information and do not have commitment           |
|    |                              |         | **1**            | Very not transparent in giving information and do not have commitment      |

The IT vendor performance assessment Model used consists to the criteria, the weights of each criteria and rating scale to be used in the assessment process. Creation of models starting from the review of the literature to determine the frequent criteria Used, and then determining important criteria according to experts through assessment questionnaires,
Then weighted each criteria using the AHP method and the last scale determination of the assessment for each criteria. Models can facilitate SMES in assessing the performance of information technology vendors.

### 2.3. Likert Scale

The Likert scale uses a number of questions to measure behavior by responding to 5 points of choice on any item of inquiry, totally agree, agree, don’t decide, disagree, and totally disagree [12].

### 2.4. Vendor

Indrajit and Yuliandono stated that vendor is the source that provides the first material, where the chain of distribution of goods will begin. This first material can be in the form of raw materials, raw materials, auxiliary materials, merchandise, subassemblies, spare parts, etc. Every company needs vendors to supply material needed to produce the final product. Vendors play an upstream role and are very important in their position in the industry [13]. When an organization decides to use a vendor, it can be interpreted that the organization's performance will depend on the vendor, so that if the organization is wrong in selecting the vendor it will arise a difficult problem to overcome [14]. Vendors are assessed from several criteria that are often used in assessing or selecting vendors. These criteria are quality, price, supply chain support, quality and risk cost. [15]

### 2.5 Data Collection

Process of collecting data done through interviews with director to know the background and involvement of vendors as Internet service providers. While to know the performance of vendors then data collection is done through the Vendor performance assessment form. Table 2. which shows data vendor technology information.

**Table 2 Data vendor in PT Krafthaus Indonesia**

| SMEs Name         | Address         | Vendor’s Name | Vendor’s Address | Type                  | Value          | Procurement date |
|-------------------|-----------------|---------------|------------------|-----------------------|----------------|------------------|
| PT Krafthaus Indonesia | Jl. Kaliurang KM 10 | Gmedia        | Jl. Daradasi I No 11.A | Internet Provider    | 5,000,000 – 7,000,000/ bulan | Januari 2015 |

After getting the values of each criteria then the next step is score calculation. The formulas used are:

\[ S = A \times W \]

Where:
- \( S \) = Score of criteria
- \( A \) = Assessment by SMES for each criteria with a value range between 1 and 5
- \( W \) = Weights are values for each criteria in the model

The final score shows vendor performance for each criteria. Scores from each criteria are then accumulated to get the final value of the vendor's performance. Vendor performance values are the overall value of the accumulated score of each criteria. Performance values show how the vendors assessed performance. Vendor performance values are within the value range of 1-5.
3. Result and Discussion

From the research conducted, data collection to assess the performance of Internet service provider vendors at PT Krafthaus made through the form. In the form, the PT Krafthaus asked to mark (O) on each scale corresponding to the performance of the vendor. Figure 2 which show the example of a vendor's performance assessment form that has been marked (O).

![Figure 2. Example of a Vendor performance assessment form](image)

After obtaining the assessment through the form. Then the next step is to do the calculation process. Calculation starts by calculating the score of each criteria by using formula

\[ S = A \times W \]

From Figure 2 PT Krafthaus assesses Gmedia as the Internet service provider with the assessment scale for quality criteria is 5. To get the score of each criteria then the value given by the Pt Krafthaus is weighted by the weight of the criteria. Weights of quality criteria is 0.126 and assessment scale is 5 then:

\[ S = 4 \times 0.126 \]
\[ S = 0.63 \]

The calculation process is also done for nine other criteria using the same formula. Then, Table 3 which shows the Vendor Performance Assessment Results.

| No | Criteria       | Weights | Assessment Scale | Description                                                                 |
|----|----------------|---------|------------------|-----------------------------------------------------------------------------|
| 1  | Quality        | 0.126   | 3                | Very user friendly and there is no complaint at all and Defect free and no complaints at all |
| 4  | User friendly and There is a defect in the hardware but no Non Conformity Report (NCR) |         |                  |                                                                             |
| 3  | Not user friendly but still perform and There is a defect in the hardware and Non Conformity Report (NCR) is released |         |                  |                                                                             |
| 2  | Very not user friendly but vendor willing to improve and More than 1 Non Conformity Report (NCR) are released but supplier is responsible |         |                  |                                                                             |
| 1  | Not user friendly and More than 1 Non Conformity Report (NCR) are released and supplier is not responsible |         |                  |                                                                             |

| SMEs Name               | Vendors Name | Type               | Criteria        | Weight | Assessment Scale | Score |
|-------------------------|--------------|--------------------|-----------------|--------|------------------|-------|
| PT. Krafthaus Indonesia | Gmedia       | Internet Provider  | Quality         | 0.126  | 5                | 0.63  |
|                         |              |                    | On time delivery | 0.078  | 5                | 0.39  |
|                         |              |                    | Low price       | 0.55   | 4                | 0.22  |
On the results of the implementation, for Gmedia vendors as Internet service provider got the final value 4.77. Pt Krafthaus gives an average value of 5 for the value of each criterion. Based on the results, it can be concluded that according to PT Krafthaus, Gmedia is a provider of Internet service with good performance.

Of the research conducted on PT Krafthaus, it can be concluded that they prioritize Honest and maintenance of confidentiality of business in choosing a vendor. It indicates the conformity between the needs of PT Krafthaus with the model. Also in accordance with previous research, where the research also argues that Honest and maintenance of confidentiality of business is an important thing in outsourcing software so that vendors are expected to be honest in doing the work [16]. Other research has also made Honest and maintenance of confidentiality of business in choosing a vendor as one of the most important subcriteria [17]. Others also assumed that vendors should be able to keep the confidentiality of business[18]. In addition, PT Krafthaus also prioritizes the quality in choosing information technology vendors. Other studies have also shown that quality is an important in assessing and choosing vendor performances. They explained that quality is the most criteria and should be used [19] [20].

4. Conclusions and Recommendations
After doing the implementation of vendor performance assessment model, the following conclusions are obtained:

1. In the performance assessment of vendors using the vendor performance assessment model performed by using a valuation form that can facilitate SMEs. Where the assessment is done simply by giving a checklist on the assessment scale of each criterion that corresponds to the performance of IT vendors.
2. Models can be used and assist in assessing the performance of vendors at PT Krafthaus Indonesia
3. Performance from the Gmedia vendor is very good
4. Implementation is only done on one vendor so for further research, model applied to SMEs that have more than one vendor
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