

Vendor Assessment Metrics for Software Development: An Analysis of Success Factors

Khairi Azhar Aziz

Research Centre for Software Technology & Management (SOFTAM)
Faculty of Information Science & Technology
National University of Malaysia, 43600, Bangi, Selangor
Malaysia

Zulkefli Mansor

Research Centre for Software Technology & Management (SOFTAM)
Faculty of Information Science & Technology
National University of Malaysia, 43600, Bangi, Selangor

Abstract— The paper presents an analysis of success factors for vendor assessment metrics in software development. The purpose of this paper is to identify the criteria success factors in vendor evaluation metrics for software development specifically in the banking sector. Essentially, the most important measure of vendor services is a successful record of previous performance in older software development. The effectiveness of this model would reduce time processing and ensure more accurate results.

Keyword: Vendor Evaluation Metrics, Vendor Assessment and Success Factor Software Development.

1. INTRODUCTION

The evaluation of vendors involves a system to rank the vendors based on the selected criteria. The criteria will determine the tender bidder's success in obtaining projects. Examples of the criteria include company strength, functional requirements, technical requirements and presentation. Besides, tender planning is essential for procurement in order to determine the best vendor based on a variety of factors.

The factors can be product, quality, quantity, timing and pricing. Essentially, tender evaluation will involve a Tender Process Committee that evaluates the tendered documents. Tender documents are important documents that define and explain the details of the company. Thus, the company shall provide complete tender documents to ensure that the tender process runs smoothly and orderly.

The tender evaluation process is a complicated process, particularly as it involves the process of implementing a ranking for each vendor. Also, it involves a large number of unstructured tender documents in many different formats such as texts, diagrams, forms and tables. Tender evaluation documents that are

unstructured are often difficult to interpret by decision makers and may cause conflict in information sharing and the loss of information.

There are various types of tenders such as tender information technology. For example, website development, software development and systems, the supply of computer hardware and so on. Therefore, decision makers are more likely to produce results based on subjective judgment involving their experience. Accordingly, the use of a specific model to make the right decisions about vendor evaluation is needed to ensure the successful implementation of software development.

Therefore, this study will suggest the vendor assessment metrics in the context of the selected banking sector in Malaysia.

2. VENDOR EVALUATION CRITERIA

In 1960, the researcher Dickson identified 23 criteria to be used in vendor evaluation and these criteria were identified via a survey sent to 273 vendors¹. In the industrial market, price, quality and delivery serve as the best criteria². Criteria's such as equipment, sales support, order process, technology, delivery, price, quality and vendor's financial position as the main key criteria².

Besides, other researchers proposed economy, plenitude, performance, social norms and agreements as the main key criteria². Additionally, some researchers found that the most important criteria are quality, delivery and followed by cost².

Besides, price, quality and delivery as the main criteria in the evaluation of vendors in the industrial market. Other criteria such as performance, economy, agreements and social norms also consider as the best criteria². The assessment of vendors involves the three criteria of quality, price and delivery time². Other such as quality, design, production, previous activities, item category and price as important criteria as well². Similarly, An organization should consider the product quality of the evaluation process, delivering time and offering price as the good criteria for tender evaluation².

Criteria like price, quality, delivery, sales support, equipment, technology, process orders and the vendor's financial position as important criteria². Essentially, criteria like vendor performance, technical capabilities and financial condition of vendors and vendor quality system as the main criteria need to determine in the evaluation of vendors². Some of criteria such as cost, quality and service as having significant impacts on the valuation of parameter².

Compatibility in the management and orientation strategy as the main criteria. Other criteria of benefits, including profit providers, relationship closeness, technological capabilities, quality compliance and conflict resolution as the analysis of vendor assessment¹. Sometimes, some of researchers has debated about communication, reputation and industry position, the closeness of the relationship, customer feedback and conflict-solving ability as important criteria for assessing vendors².

Other than that, vendor assessment should have delivery, service, price and quality as the main choice for vendor assessment process³. The process of evaluating vendors seeks the final phase of the vendor evaluation process and some of researchers was highlighted the steps in making decisions prior to the main selection phase, such as formulations and pre-qualification criteria for potential vendors⁴.

Researchers evaluated existing decision-making models to evaluate vendors and the selection of vendors based on certain criteria, such as environmental purchasing and decision-making techniques⁴.

Previously, the several of criteria used to solve the problem of vendor evaluation and suggest that the performance criteria of the organization is very important in the evaluation of vendors⁵.

This research, based on comprehensive review of articles, journal and books, suggests that company strength, functional requirements, technical requirements and presentation are the key factors for evaluating vendors. These selected criteria will help the decision-making process.

3. PROPOSED VENDOR EVALUATION CRITERIA

3.1 Company Strength

The strength of the organization in the vendor evaluation criteria is crucial, as it will determine whether a project to be completed within the expected time. Organizational aspects include its financial position that should be consider in the early stages of vendor assessment. The vendor must pass the pre-inspection before the more detailed evaluation process. According to the Chartered Institute of Purchasing and Supplies (2012) financial status and stability is measure by factors such as profitability, cash flow and assets⁶.

This aspect is important because the assessment provider with a strong and stable financial position could provide an opportunity for the selection of the best vendor. Vendors that do not have strong financial positions and stability would pose risks to the organization. This is because vendors are not able to invest for the long term to improve performance and there is a need to rely on the financial resources of the organization chosen as vendor.

In addition, another aspect is the management of the organization. The management of provider organizations play an important role that can affect the selection process. For example, shareholders of the company are individuals who are influential and known amongst the public and their presence can reflect the credibility of the management of the organization to ensure that they was chosen as the vendor. The management in the organization can ensure that to the vendor was rate as the best vendor.

3.2 Functional Requirements

Functional requirements in software development include the ability to develop projects according to the agreed specifications (System Requirement Specification) between the IT and users. Organizations need to assess and ensure that vendors that have strong systems and procedures to be selected. Specifically, procedures and workflow processes should be implement according to the specifications agreed. The absence of IT development project specifications will affect the quality of the project and such specifications will determine organizational satisfaction in the quality of vendors selected. The important aspect in the evaluation of vendor is its product development process⁷. To observes an organization that evaluates the quality of vendors assessment in the extent of IT project development as seen from its procedures for inspection and testing, accreditation of national and international quality standards and international standards organization (ISO)⁷.

The success of the organization in evaluating vendors is crucial for picking credible providers. This will determine a project that implements quality. The organizations and vendors who have the same opinions would satisfy both parties. In addition, another aspect to be implemented is the strategy as the strategy is necessary to determine the extent to which the project can be implemented from start to finish. A project can be considered successful if the planned strategies are successfully implemented.

3.3 Technical Requirements

Organizations need to assess vendors according to technical requirements such as the availability of hardware and software consistent with current technology. If the technical requirements are inconsistent with current technology, this will affect the project schedule and incur a longer time to manage and obtain new technical requirements. These technical requirements should also comply with the standards set.

In addition, the ability to support or provide technical assistance after the project is implemented is also another consideration. This is vital to ensure that technical functions work well and get assistance 24 hours 7 days a week. For example, if there are problems such as systems going down or a network outage, the selected vendors can be contacted immediately for technical assistance. If no help is given, this will give risks to the organization, especially the banking sector which operates 24 hours a day and 7 days a week. Thus, this factor is necessary to overcome any risks.

3.4 Presentation

Performance or presentation by vendors to the organization is a reflection of the background of the provider. Organizations need to focus on the presentation and the communication process to determine the provider to be selected. The effectiveness of the presentation and effective communication between providers and organizations can demonstrate compatibility and the reliability of the provider. During the presentation and assessment process, the organization will look at the provider from various angles, for example, the ability to answer questions posed and knowledge about new products in line with current technology.

Quality management offerings will achieve quality products and services to a certain level. These criteria are important because if there are some errors in the presentation, the chances of being selected as a provider will be reduced. This is because the organization remains unconvinced by the presentation and delivery of information provided. The presentation by vendors should be effective and have a positive impact in the vendor selection process.

4. PROPOSED MODEL FOR VENDOR EVALUATION CRITERIA

Overall we can see a variety of methods, models and criteria, together with its own advantages and disadvantages. Generally, this study focuses on new criteria that should be included in the vendor evaluation metrics without using any method. Figure 1 shows the proposed new criteria for the metrics model provider assessment for software development in the banking sector.

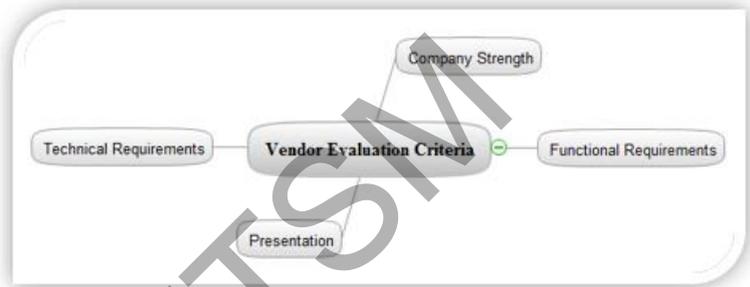


Fig. 1. Model of Vendor Evaluation Criteria

5. RELATED INFORMATION

Tender evaluation requires information and data related to the financial position, work experience, technical staff, plant/basic equipment and work performance. Complete information and data should be obtained from the tenderer upon submission. These forms to be completed are⁸:

- Form A - the recognition of the validity of the information and documents submitted
- Form B - General Information: Background of tenderer
- Form C - Financial Data
- Form D - Records Work Experience
- Form E - Technical staff
- Form F - Construction plant and equipment freehold elementary after being charged, with a list of plant and equipment foundation
- Form G - List of current employment contract
- Form CA - Report of Bank/Financial institutions regarding tenderer's financial position
- Form GA - Project Supervision Report on Performance during the tender
- Form GA1 - Report on Project Engineer Job Performance during the tender

Besides, vendor evaluation requires a respondent profile to indicate the company's status as follows⁸:

- i. Bumiputera
- ii. Non-Bumiputera
- iii. Joint Venture
- iv. Other

The factors that influence vendor selection such as:

- i. Top Management
- ii. Sales & Marketing
- iii. Project Management
- iv. Field Support
- v. Helpdesk

Assessments should be done thoroughly to ensure that the judgments made are based on the specifications of the tender. The evaluation should be made physically and meetings. Assessment shall take into account the following⁸:

- i. Compliance with established specifications
- ii. The ability/capacity of maximum and minimum
- iii. Compliance with mandatory requirements
- iv. Test procedures (methods of tests/test protocol)
- v. Ownership of plant and equipment as the main foundations of proven operations
- vi. Speed (speed)
- vii. Compliance with mandatory safety features
- viii. Compliance with the technical priorities, eg equipment rating
- ix. Certified testing/verification standards
- x. The test results for test quality (quality control)
- xi. Lifespan and capacity factors
- xii. Meet the needs of users and quality
- xiii. Test results and analysis

After a review, the vendors who pass the first evaluation stage are considered worthy of the second stage evaluation process. The Technical Evaluation Committee shall provide complete information compliance specifications/ requirements must include detailed information on goods/services and are not just labeled with descriptors such as comply or does not comply⁸. This information is particularly important to ensure that the information level or failure to comply with the specifications of the tenderer/prerequisites are specified as in the table below⁸:

Vendor code	Compulsory specifications	Remarks
1/5	C	
2/5	NC	
3/5	C	
4/5	C	
5/5	NC	

Note: C - Comply
NC - Not Comply

6. RECOMMENDATION AND COMMENTS

Essentially, the proposes new criteria to be used in banking sector for vendor evaluation. These new criteria come from brainstorming among the IT staff that person who are involves in vendor evaluation.

In term of IT environment, the technical aspect should be priorities to get better output and the same time to prevent any intermittent issues. The new criteria should be recommended to improve the vendor evaluation.

7. CONCLUSION

In this research, various issues with regard to vendor evaluation criteria was discussed. Comparisons are made with previous research on the assessment of vendors and are highlighted in this chapter. In addition, concluded that the researchers have focused on identifying the vendor evaluation criteria for all projects.

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