THE ROLE OF VENDOR IN SOFTWARE PROJECTS

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Abstract:
The software product development involves different stakeholders such as suppliers, vendors, customers, project development team, senior management and functional managers. The project manager is very much dependent on external stakeholders such as vendors. Vendor selection, contract preparation, different types of contracts, monitoring the progress, contract closure and the role of vendor in the entire project life cycle are discussed in this paper. The steps in vendor management process are clearly explained. The advantages and disadvantages of different types of contracts are discussed. The questions arise when a project manager chooses a vendor are specified. Overall the importance of vendor management and the role of vendors in software projects have been discussed based on the literature review of the project management standards and related literature. The lack of vendor support may lead to project failure. This is evident from the project management literature.

Key words: Vendor, Vendor management, Vendor selection, Contracts, Vendor role, Contract closure

JEL Classification: M15

INTRODUCTION

Software development can not be done alone. It should be a team effort. According to Standish Group CHAOS report 2009, only 32% of the software projects are successful. 44% of the projects are challenged by time and cost overruns and 24% of the projects are failed. What could be the reason for this much less percentage of success in this advanced technological era. There are many reasons for software projects failure.

The reasons can be lack of technical knowledge, lack of skilled man power, lack of supporting infrastructure, lack of hardware, software resources, the unskilled project manager, lack of knowledge of project management in the team, serious communication problems in the team, unrealistic deadlines, unrealistic expectations from the top, senior management and other stakeholders, customer pressure, lack of commitment from top management, lack of vision in the team, lack of team orientation, task orientation, wrong selection of vendor, lack of funds, no communications management plan, no proper risk management plan, coding was started immediately without design and architecture, etc. Like this there are many reasons for software projects failure.

The lack of project management skills of the project manager is identified as key reason for software projects failure. Vendor selection, contract preparation, negotiation are part of project management in software projects (PMI, 2008). The role of vendor or supplier is the topic of discussion in this paper.

VENDORS OR SUPPLIERS

Any organization can not develop a product or service without the help of vendors, suppliers, contractors and sub-contractors. We have seen many computer manufacturers, mobile phone manufactures, and electronic devices manufacturers developing products by integrating components supplied by different vendors. The final success of the project is dependent on the integration of these components supplied by different vendors. Even if a single vendor supplies a wrong component or an error prone component, the entire project product is going to be a failure. Hence, there is lot of importance and necessity for the selection of proper vendor in getting needed

components for the project. This paper expresses the importance of vendor selection, key areas to concentrate in vendor selection, and points to discuss when making contracts with vendors.

For example, any software product development involves usage of compilers, development tools, debugging tools, linkers, version control tools, bug tracking tools, and integrated development environments. All these tools are from different vendors and manufacturers. All these tools work on project source code and help in developing and building the product. Sometimes, the output of one tool becomes input to another tool. All these tools work on some input and work together to give us a product. If the work flow is defined like this, there should be clear defined requirements and defined role and responsibility to each tool in the environment. This is possible with the clear standards and requirements definition for the tool, the scope and functionality of the tool. The boundaries for each tool should be defined and clear. Then only one can use multiple tools together and get the required project product. Hence, the vendor product meeting the project functionality and requirements should be selected and used for the project.

Similarly for any other industry as well, the organization developing a product must be aware of the different components they are using and their clear functionality. Otherwise it will be a bottle neck at the time of integration. The product development organization should make sure that the vendor's product has been based on the specified standards and interfaces. Otherwise it is not going to work at the time of assembly. Hence, the project manager should make sure that the vendors' products and components are based on certain industry standards.

One should also look at the usability of the vendor's product in the current environment. This should be tested in pilot study and test results should be generated. The project manager should also investigate whether this component or product has been used in another product development by other companies or not. What is the reputation of the vendor in the market? What are the offered vendor prices to compare with other vendors? What is the reliability and safety of the vendor products are to be concentrated.

One important thing is the project manager should communicate the project timelines to the vendors as well. The delay in supply of the components from vendors will delay the entire project. The component requirements, specifications, delivery timelines, acceptable quality limits are to be communicated to the vendor at the time of project planning and this needs to be tracked as well. It is better to get the same component from multiple vendors before making the final order to specific vendor. This gives project manager the choice to choose whatever he wants from the different vendors. Otherwise the project manager should be vigilant from the vendor delaying the components supply and finally making the project manager to accept whatever he supplies at the last minute. This is where the project manager has to be very careful in dealing with the vendor if he is dependent on single vendor. If this specific vendor makes delay in the delivery of the specific component, the project manager is left with nothing but to accept whatever the vendor brings at the last minute. Usually because of the pressure from his customers, the project manager ends up in accepting whatever the vendor brings at the last minute and compromising to the quality of the deliverables.

That is the reason, the vendor should be given specific deadlines and there should be some buffer time for the project manager if the vendor did not meet the specified timelines. Also, it is quite common that there is possibility for making iterations in accepting the specified components from vendors because of the deviations in the deliverables and quality aspects. It is the best practice to have a list of proven and trusted vendors for an organization. The technical capabilities of the vendors are also to be assessed and documented in project documents. The general vendor management process is as shown in the Fig. 1.

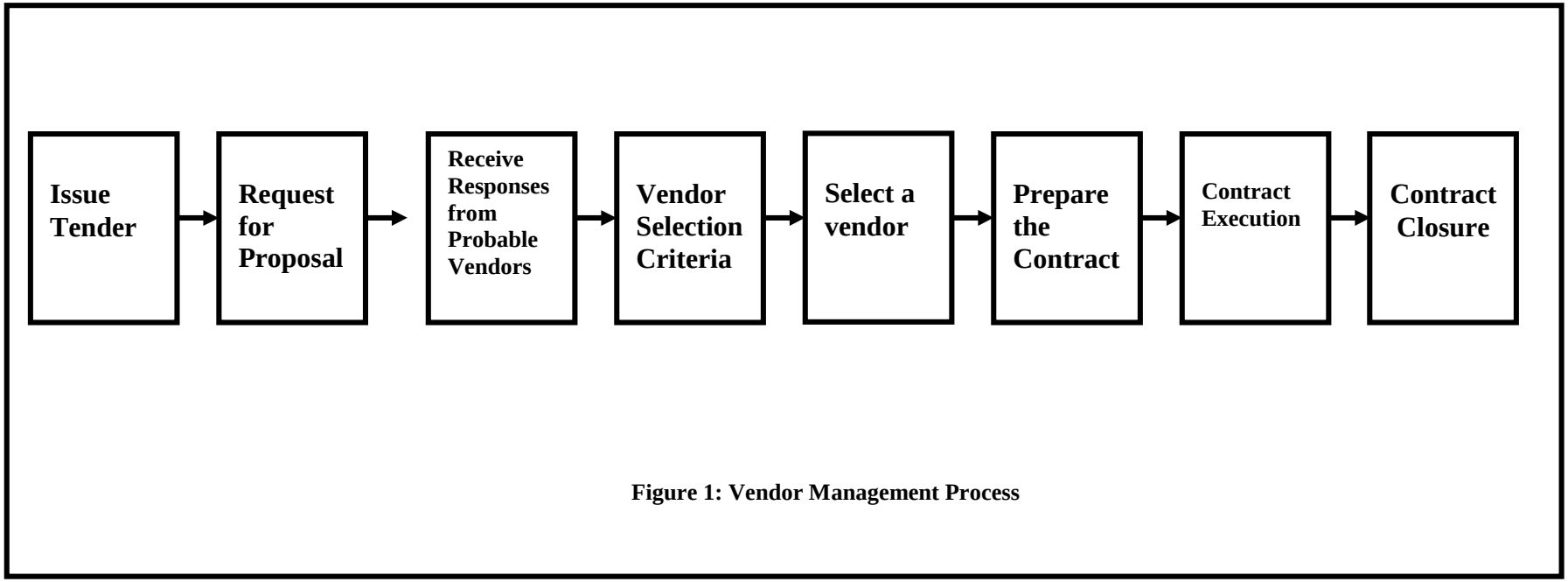

Figure 1: Vendor Management Process

VENDOR SELECTION CRITERIA

The project manager has to have clear vendor selection criteria when selecting a vendor for his or her project. Usually reputation of vendor, since how many years he is in business, who are his customers, who are his suppliers, did he supply components earlier to our organization, what is his company's financial situation, is it a loss making or profit making division, what are their human resources practices and people practices, are there any law suits against this vendor, what is their environment such as political, economic, social, technical and legal environment.

When a project manager is working on international projects or global projects, the project manager has to decide whether he is taking foreign vendors or only domestic vendors. If he is thinking about taking foreign vendors, he or she has to check whether they have presence in performing organization's country. How are the components going to be shipped? How to deal with customs duty and import expenses? How does it impact the performing organizations customers if the project manager chooses a specific vendor from specific country? Does the vendor know the culture of the performing organization and its national culture to deal with foreign partner? How does the cultural differences and barriers going to impact the contract in future? How does it going to impact our own country's economy and the g? The project manager has to think in all these angles while working on international projects.

The project manager has to short list some of the vendors from the respondents to request for proposal. From this short listed vendors, project manager has to select one vendor based on the financial, legal, return on investment, technical compatibility, interface issues, technology transfer and intellectual property issues.

CONTRACT PREPARATION

Once vendor selection is over, formal well written contract will be made between both the organizations binding to their organizational and national legal environments and frameworks. Broadly, there are 3 types of contracts possible between the performing organization and vendor organization (see Fig. 2). They are

i. Fixed Price Contracts
ii. Time and Material contracts
iii. Cost reimbursable contracts

In *fixed price contracts*, the customer organization knows how much money they need to spend on the project and the vendor also knows how much money he will be getting from the customer organization before completion of the project. This type of contracts is suitable for short term small projects.

Time and Material contracts are recommended, if the project duration is more than an year and long term and the customer has plans to give the maintenance of the product also the same vendor after product development is over. Usually vendors get an hourly or daily rate per person and the hardware and software costs.

If the customer organization is not in an position to estimate or if it is a research based project, then they go for cost reimbursable contracts. In this the actual costs of the vendor can be reimbursable by the customer organization. Unless the organization knows the vendor for long term, this type of contracts is not recommended.

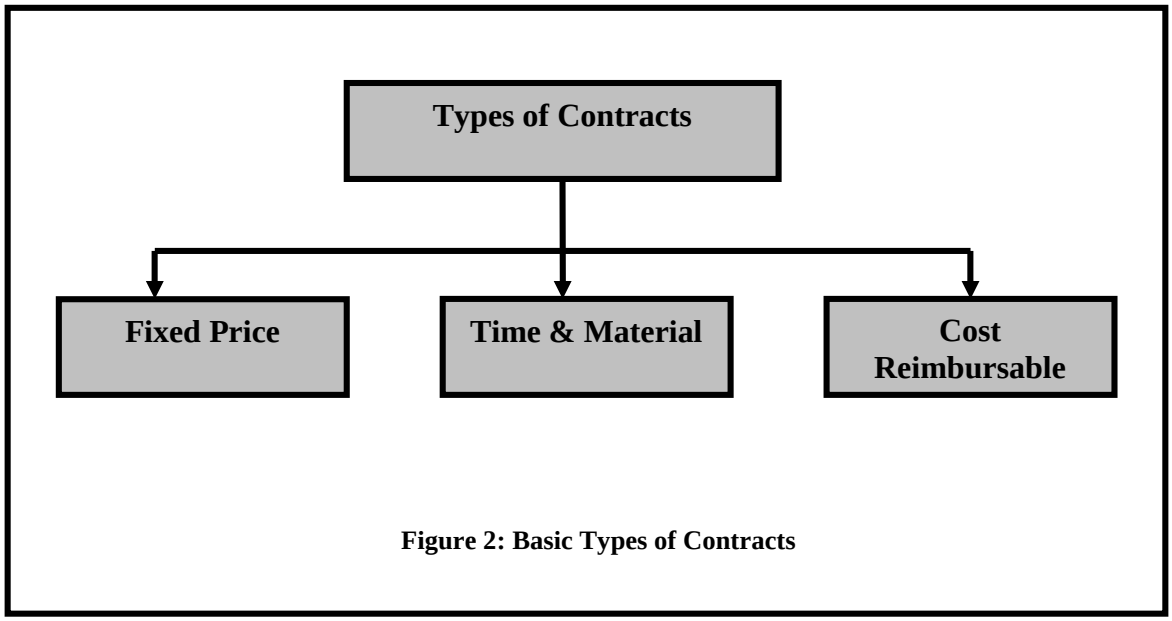

Figure 2: Basic Types of Contracts

These days there are many variants within these contract types such as cost plus incentive type contracts, fixed price plus bonus, cost plus fixed fee contract, etc. Based on the customer organization situation, the project manager can decide which type of contract he has to make.

MONITORING THE PROGRESS

Usually based on the progress of work, the project manager has to make payments to the vendor organizations. This happens in installments may not be one time payment based on the type of contract the project manager enters into with the vendor. The best tool for evaluating the project progress is to use earned value technique and find out the work completed. Based on that the project manager can make payment to the vendor organization.

The best practice is to have periodic reviews with the vendors about work products and their functionality. The project manager has to make sure that the vendor is developing the right component with the given quality parameters. If this monitoring is not there, the project manager is going to face problems during the product integration time. Based on the project progress and work products, the project manager has to take corrective actions for the project along with the vendor. Sometimes, project reviews may lead to changes in contracts as well. If this situation arises, the project manager has to make formal changes to the contracts with the acceptance of vendor or supplier organization.

CONTRACT CLOSURE

Once the project manager receives the work products from the vendor, he has to certify and accept the deliverables after testing. Usually acceptance test should be done at the customer organization. After accepting the work products, the project manager formally closes the contract by paying the rest of the amount and dues to the vendor organization.

Usually contract closure happens during the project closure time. The project manager has to document the lessons learned and he ore she has to prepare contract closure statement. Based on the project need, or organizational need, the project manager sometimes renews or extends the contract. If he renews, or extends the contract, again the billing rates may change and again the project manager has to negotiate with the vendor or supplier organization.

VENDOR ROLE

The vendor has got lot of importance in software development projects. Some of the projects even scraped because of non-availability or non supply of components, tools and environments at the right time from the vendor. The project manager has to keep the vendors or suppliers informed right from the project inception phase. They are to be included in the project communications management plan and timely needed information should flow to vendors and suppliers according to the communications management plan. They should be informed ahead about the risks in which they are involved by the project manager.

The project plans and schedules are also to be shared with the vendors and suppliers. To avoid the demarcation or too much gap between performing organization and the vendors, majority of the Fortune 500 organizations are calling the vendors as vendor partners, solution partners, channel partners and consultants. This modern terminology removes the barriers between the project team and the vendors or suppliers and the team can work effectively with the vendor partners in meeting the project objective.

CONCLUSION

The vendor plays very important role in the entire project management life cycle. He or she has to be involved right from the beginning. His/Her work has to be monitored and tracked. Regular feedback needs to be given to vendor. The current day technology products are the results of the integration of components from different vendors. The successful vendor management can lead to successful project management and successful integrated product at the end of the project life cycle.

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