

## Outsourcing Software Testing Activities: A Case study for Eastern Ocean Solutions (EOS) – CHINA

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**Abstract.** Software testing is a process or a series of processes, designed to make sure computer code does what it was designed to do and that it doesn't do anything unintended. Software should be predictable and consistent, offering no surprise to users. The purpose of testing is to show that a program performs its intended functions correctly [1]. Outsourcing is the act of the transferring of an internal business function or functions, plus any associated assets, to an external supplier or service provider who offers a defined service for a specified period of time, at an agreed but probably qualified price. According to [2], the focus here is to tap into specialized expertise, knowledge, processes and capabilities found outside the organization and to use these as inputs to help improve the effectiveness and efficiency of operations. More important, if done properly, strategically driven outsourcing efforts can not only help operations, but can also contribute to the strategic and competitive advantages of the organization. Hence the impact of outsourcing on software particularly software testing with the concept of smartsourcing for China outsourcing companies is new and remains uncovered at the moment. The aim of this paper is to investigate this new concept.

In this study a very young with long history smart-shore vendor, Eastern Ocean Solutions (EOS) located in Donghai, Jiangsu Province, CHINA; applying Information Technology Outsourcing (ITO) is studied. This application belongs to the category of software development where testing and quality are of specific concern. The study gives a through description of the implementation of outsourcing in this work and investigates the implications of outsourcing software testing.

This paper evaluates the outsourcing approach in relation to its impact on software testing. The results from this paper are expected to take the form of analysis displaying the possibilities offered by the outsourcing as well as some suggestions to enhance this approach in the domain of software testing.

**Keywords-** Software testing, outsourcing, ITO, smartsourcing, EOS

### 1. Introduction

Today's business environmental, organizational, and technological factors require businesses to operate effectively and efficiently in order to be competitive. Toward those goals, managers employ many strategies to improve productivity, including standardization, automation, and business process reengineering.

Additionally, these restructure the business organizations to be lean and flat so that they can become flexible in responding quickly to changes in environment and customers' needs. Outsourcing is another valuable strategy managers use to achieve the above goals, whenever a business procures resources purely from an external source to accomplish business objectives, it engages in outsourcing [3].

Outsourcing is the act of transferring the work to an external party. Whether or not to outsource is the decision of whether to make or buy. Organizations are continuously faced with the decision of whether to expand resources to create an asset, resource, product or service internally or to buy it from an external party. If an organization chooses to buy, it is engaging in outsourcing. An outsourcing initiative calls for the transfer of factors of production, the resources used to perform the work and the decision rights or responsibilities for making decisions.

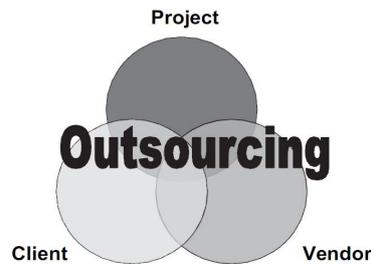


Figure 1: Components of outsourcing

Increased importance and workload of software tests has let some companies to outsource the testing activities to other companies. In particular the number of test required for recent systems has become enormous, so companies tend to rely further on outsourcing. Testing companies and organizations have increased because the software usage has increased and the companies who try to use the software are not able to afford personnel to test the software. In the current circumstances where new technologies are introduced every month while software gets more complicated, it is more effective to employ specialized companies or organization to do the testing job in terms of cost, work period and quality.

This study is going to bring additional concluding idea and may be used to carry on theoretical research methods to implement software testing in outsourcing companies. Thus this study sheds a new light on this area and, this way, contributes to work on the promising way which is smart outsourcing.

The application of the outsourcing approach to software testing being explored are limited, the method in this paper is an exploratory single case study. Firstly, the strategy adopted in this paper takes the form of an exploratory work, insofar as the goal of the paper is to learn what effect applying outsourcing to the development of software testing. It is a justifiable rationale for conducting an exploratory study, the goal being to develop pertinent hypothesis and propositions for further inquiry [4]. Secondly, the case study is a research strategy among others but which may be applied only to specific contexts of research and for specific goals. Thirdly, the validity of the case study relies on the rigor which leads it: Construct validity, External validity and Reliability [5]. The validity of this paper will thus depend on these tests.

Finally, this form of empirical enquiry implies an inductive methodology in order to draw some general conclusions about this study. However, the validity of such generalization should not rely on the pretended representative character of a single case study. The conclusions drawn from this case study would in some way constitute a theory which should be required to be verified before being applicable to other cases.

## 2. Theory

At the beginning of 2009, and with the challenging global economy in mind, the International Association of Outsourcing Professionals (IAOP) announced five major trend predictions. 1) Outsourcing will stay closer to home. 2) Global uncertainties will create outsourcing volatility. 3) Social responsibility and ‘green’ will be outsourcing themes. 4) Strategic companies will prosper. 5) Professional expertise will be valued. EOS has seen these predictions as follows: - EOS incorporates a caretaker approach to onshore customer support. Companies also opting for blended approaches – combination of onshore (US), near shore (Latin America), and offshore locations.

- EOS is a well-prepared for designing cost-effective, flexible solutions that evolve with client needs.
- EOS believes that service efficiency and environmentally responsible behavior go hand-in-hand. Strive to create and operate facilities that minimize waste, maximize energy efficiency, and interface effectively with customers environmental initiatives.
- EOS find that the most valuable partnerships are those that are effective at multiple touch points.

### 2.1. Understanding the Difference – and Opportunities

Outsourcing is a term we all recognize. However, depending on our experience or familiarity with the concept, we can have different understandings of what “outsourcing” really means.

Today there are two recognized forms of outsourcing — one involving business processes and the other knowledge processes.

Business Process Outsourcing (BPO) generally refers to the contracting of operations and responsibilities for specific business processes to another company with experience and expertise in the given area. As the industry has matured, BPO has come to include back office work such as finance and accounting, and front office work, such as basic inbound customer support and order processing.

Outsourcing has always had cost savings as a core objective. But in some instances, companies will decide to outsource because they need a high degree of expertise and specialization. In this case, a Knowledge Process Outsourcing (KPO) partner is recommended which is our focus on this paper since Software Testing is a KPO activity.

Knowledge Process Outsourcing evolves the concept of outsourcing to a level beyond BPO. KPO is a major industry shift away from execution of standardized work to delivery of analytical and technical skills. KPO providers offer these skills along with seasoned, experienced and decisive judgment.

In most KPO outsourcing relationships, the provider has skills in specific industries or in quantitative areas such as software development and data management. In general, KPO providers can produce actionable results and information much faster and more economically than the client would be able to by using its own internal resources. That's because personnel inside client organizations are typically required to devote most of their time and energy to the functional, day-to-day activities of running their business. Knowledge-oriented pursuits that can create new opportunity are frequently lower on the priority list, even though they have the potential to deliver substantial benefits to the organization.

Knowledge Process Outsourcing can help companies to focus more strongly on core competencies, increase efficiency, and use capital resources more effectively. But the real key to success lies in finding the right partner. It is important to view the opportunity as a long-term commitment rather than a chance to save on "one off" or ad hoc projects.

In addition, companies need to identify potential partners with established reputations in KPO. Look for a proven track record of customizing or adapting KPO competencies to various situations, including those that are analogous to the company's challenges.

## **2.2. Overview of Software Testing activity in EOS**

Software testing outsourcing provides for software testing carried out by the forces of an additionally engaged company or a group of people not directly involved in the process of software development. Contemporary testing outsourcing is an independent IT field, the so called Software Testing & Quality Assurance.

Software testing is an essential phase of software development, but is definitely not the core activity of most companies [6]. Outsourcing enables the company to concentrate on its core activities while external software testing experts handle the independent validation work. This offer many tangible business benefits. These include independent assessment leading to enhanced delivery confidence, reduced time to market, lower infrastructure investment, predictable software quality, de-risking of deadlines and increased time to focus on designing better solutions. Today stress, performance and security testing are the most demanded types in software testing outsourcing. EOS go beyond the traditional manual testing services offered by other ITO companies, some of the services EOS QA experts provide are:

- Discovery and Documentation of Test Cases: even if you have never formally documented test cases for your systems, EOS can fully document a testing strategy and identify the most important test cases for your needs.

- Test Automation: EOS QA Engineers have the skills and the experience to determine the What, When and How to automate so that you obtain all the benefits of test automation.

- Manual Testing: EOS QA Engineers will manually execute the test cases and document any bugs or issues that are found, they will also provide comprehensive reporting with significant metrics based on your needs so that you can use this information in your decision making process.

- Load and Stress Testing: depending on the type of system, EOS may recommend the creation of a comprehensive load and stress testing solutions in order to guarantee that your software solution will perform as needed under heavy loads or spikes.

EOS Quality Assurance Teams have experience with a broad spectrum of testing technologies and tools, including: Selenium, Mercury Suite (QTP, LoadRunner), Ranorex, Watir, Apodora, OpenSta, Browsershots.

### 3. Discussion and Conclusion

Often, businesses think of outsourcing software testing activities purely in terms of cost savings – as a way to trim payrolls. That is the myth. The reality is that outsourcing with the right partner can help business improve customer service levels, ROI and many other important business metrics. So, why does outsourcing the software testing activities make sense for so many companies? Outsourcing providers are generally experts in performing their specific services. EOS has a specialty or set of “core competencies”, potential software testing outsourcing partner is likely to be a specialist in an area which – though valuable to EOS – is far removed from EOS core competencies.

When we conclude the positive realities of EOS, an outsourcing vendor one of which is software testing activities; Enhancing capabilities, Managing resources and Controlling costs are the basic ones. Also by setting up trainings EOS is making all the differences. The training is helpful to have highly qualified testing personnel. Another characteristic of EOS sought in its testing employees is professional presentation and communication skills, especially the ability to listen carefully and empathize while coming across in a confident, knowledgeable manner. As the build out progressed, and engineers were hired and trained, they were encouraged to suggest facility improvements, many of which were implemented. The HR of the company explains “In addition to the above realities, we also designed a continuing education plan. The program includes refresher and new product courses, and quizzes are given immediately following each session to measure success.”

Further studies can be done on an intelligent, full-circle software testing approach to describe the term smart outsourcing and also can make a study for other ITO companies.

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