

Web development projects outsourcing

Possibilities in Regards to Finnish and Nepalese SMEs

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Abstract <p>The objective of this study was to explore if Finnish SMEs involved in Web Application Development were interested in outsourcing projects from Nepal and find out the potential challenges they would have to face in case they decided to do so and the resulting value added to the company.</p> <p>The research method was qualitative, and a case study approach is used. The literature review includes a general overview of IT Outsourcing, its history and its advantages and disadvantages. It also covers issues of outsourcing web development projects.</p> <p>The secondary data was collected from earlier studies, research papers and books. The primary data is collected through interviews with the employees and managers of both Finnish and Nepalese SMEs working in the field of web application development or associated with similar kind of work. A total of nine companies, four Finnish and five Nepalese, were interviewed</p> <p>The results of the interview suggest that Finnish companies are interested in outsourcing projects to offshore partners, and the Nepalese counterparts are ready to work too. There are issues such as the trust factor and quality. It is suggested that it would be better if a third company based in Finland did the project management for these companies interested in outsourcing rather than themselves being directly involved in the process with offshore vendors.</p>		
Keywords: Finland, Nepal, Web Development, IT Outsourcing, Information Technology, Business Process Outsourcing, Web Design, Digital Marketing		
Miscellaneous		

CONTENTS

1	INTRODUCTION.....	3
2	RESEARCH OBJECTIVES.....	5
3	METHODOLOGY AND IMPLEMENTATION.....	6
3.1	Research Methods.....	6
3.2	Research Approach.....	7
3.3	Data Collection	8
3.4	Background on the interview and participants	11
4	LITERATURE REVIEW.....	13
4.1	IT Industry Outsourcing Overview.....	13
4.2	IT Industry in Finland.....	13
4.3	IT Industry in Nepal.....	15
4.4	Advantages of IT Outsourcing.....	16
4.5	Risks in IT Outsourcing.....	17
4.6	Web development projects and outsourcing issues	19
5	RESULTS AND ANALYSIS	23
5.1	Popular Technologies in Nepal for Web Development.....	23
5.2	Human Resource availability.....	27
5.3	Nepalese managers and developers response	29
5.4	Finnish managers and developers response.....	32
6	CONCLUSIONS AND RECOMMENDATIONS.....	35
6.1	Conclusion and suggestions.....	35
6.2	Research quality and directions for further studies	37
	REFERENCES.....	39
	APPENDICES.....	43

LIST OF TABLES AND FIGURES

TABLE 1: Categories of web application based on functionality	20
FIGURE 1: Method of Data Collection.	8
FIGURE 2: A framework for IT outsourcing risk assessment.....	18
FIGURE 3: Strategic Steps for Web Development Outsourcing	21
FIGURE 4: Tactical Steps for Web Development Outsourcing	22
FIGURE 5: Languages and Platforms.....	24
FIGURE 6: JavaScript Frameworks.....	25
FIGURE 7: Frontend Development	25
FIGURE 8: Backend Development.....	26
FIGURE 9: Content Management System	26
FIGURE 10: Databases	27
FIGURE 11 Job Involvement of Computer Engineering graduates of IOE.....	29

1 INTRODUCTION

The world is a global community. One aspect of the problems left unanswered in one part of the globe certainly has a solution in another part. The mutual sharing of ideas, skills and resources mobilizes the very aspects and creates an efficient outcome. If all the sectors go for the same resources, the efficiency is always less than pursuing the alternative resources.

Finland is a growing economy in Information Technology (IT). On one hand the country has ample of jobs at stakes not able to be fulfilled by the technical manpower here. On the other hand, Nepal alone produces many professional workers skilled in mathematical and computational skills. The thesis proposes to analyze the prospects of outsourcing IT jobs from Finland-based companies to Nepal.

IT Outsourcing is commonly a phrase used to describe the practice of companies sourcing or sub-contracting certain IT function to a third party. This practice when done within the borders of a country, is plainly called outsourcing and when practiced beyond the borders of a country is called offshore outsourcing or just offshoring.

Outsourcing is commonly used then we realize these days. Every organization somehow outsource to improve their products and services they provide to the customers.

Be it for the benefits of lower cost, increased productivity and flexibility or just a way to tap specialized skills outside of the company itself, more than 90 percent of companies confirm that outsourcing has been a part of their overall business strategy (Michael F. Corbett & Associates, 2001-2004).

Elizabeth Sparrow defines IT Outsourcing as: *“the practice of handling over the planning, management and operation of certain functions to an independent third party, under the terms of a formalized service level agreement”* (Sparrow, 2003).

Outsourcing practices have been continuously increasing, and it has been necessary for the firms to understand the whole phenomenon behind outsourcing, they need to be able to access all the risks involved, find ways to conduct the process efficiently and structure the management for better facilitation.

The author got the idea of the research when he went to a web design firm to design a website for a friend. The prices charged were very high, and all the services provided were in packages. They eventually ended up doing the whole project in Vietnam, and that is when the author thought it would be a good idea if there were cheaper alternatives. Preliminary research was conducted by just surfing through websites of some design agencies in Nepal. Then the portfolio of works done by the Nepalese agencies with the works done by Finnish companies was compared. Surprisingly, most of the design agencies in Nepal were working in collaboration with companies based abroad. They were doing local projects too, but a huge amount of their revenues was generated by projects they did for their foreign partners.

Therefore, a detailed study was needed to find out if it was feasible to have such kind of strategic alliance between Finnish and Nepalese companies. Since the research is done as a bachelor's thesis, the topic was narrowed down to just web development projects and digital marketing agencies.

2 RESEARCH OBJECTIVES

The objective of this research is to study the possibilities of outsourcing web application development projects with regards to Finland and Nepal focusing on SMEs (both Finnish and Nepalese) that are working in the field of web application development and digital marketing.

- What are most used technologies in Nepal for web development projects that can be outsourced by Finnish companies?
- What are the possible challenges in outsourcing from Nepal?
- How will it add value to Finnish SME's working in developing web applications if they decide to outsource projects from Nepal?

The study is done by interviewing companies in Nepal. The data of computer engineering graduates will also be gathered to find out the annual manpower available in these fields. Nepalese companies that already have a strategic alliance with foreign partners will also be interviewed and the author will try to know the challenges they face while doing so. Since the skilled labor cost in Nepal is relatively cheap, the study will try to find out if there are Finnish companies willing to outsource web application development projects from Nepal and see why they would or would not take the idea of outsourcing into consideration.

3 METHODOLOGY AND IMPLEMENTATION

3.1 Research Methods

Mark Saunders, Philip Lewis and Adrian Thornhill define research as "*something that people undertake in order to find out things in a systematic way, thereby increasing their knowledge*" in their book *Research Methods for Business Students* (Mark Saunders, 2009, p. 5). Research is an investigation and has certain science backing the way it is conducted. C.R. Kothari says *research is finding answers to questions by studying, observing, comparing and experimenting. The method of finding the solution must be objective and systematic* (Kothari, 2004).

Research can be of many types. C.R. Kothari divides them into Descriptive vs. Analytical, Applied vs. Fundamental, Quantitative vs. Qualitative and Conceptual vs. Empirical. There can be many other types of research, but all of them seem to be different variations of the types mentioned above (Kothari, 2004).

However even though there can be many research types the approach to these research is fundamentally either qualitative or quantitative.

Qualitative research focuses more on the behavior, attitudes, and experience of the participants. Hence, the participants are few and the data is collected through open interviews or focus groups (DAWSON, 2002).

On the contrary, in quantitative research the surveys conducted are of large scale and statistics are gained using methods like questionnaires and structured interviews (DAWSON, 2002).

The author wants to find out the possibilities of Finnish companies(SMEs) willing to outsource projects to Nepal. As the result is mostly dependent on the interview with the participants, i.e., representatives of Finnish SMEs working in the field of software development, web development or digital marketing and their Nepali counterparts, a qualitative approach was chosen to conduct the research. The results of the research is based on the conclusions drawn from the interviews of the participants. In this case, the participants will be Finnish SMEs willing to outsource web application

development projects and Nepalese SMEs who already have been working as outsourcing partners with foreign companies.

3.2 Research Approach

The basic research methodology is the literature review of the available internet database and resources. But since IT industry is always evolving and new technologies are always introduced in web development the author will be conducting interviews with web development firms in Nepal to find out the most popular technologies they use to develop web applications.

However, Nepal is a developing country. Every sector of its economy is not organized. Even the data to approximate the manpower available in the IT sector is not sufficient. Thus, an additional niche survey generalizing the experiences of various graduates from the universities in the country will also be carried out for the research. The author has concentrated the study on graduates from the pioneer institute in engineering in the country, Central Campus (formerly known as Pulchowk campus), Institute of Engineering (IOE), Tribhuvan University (TU). The general survey on the job aspirations of undergraduate students and the job positions of the graduates from the same institution will be conducted.

A qualitative approach is chosen for this study and case study method will be used to draw conclusions about the data collected through interviews with participants.

Mixed methods and a cross-sectional approach will also be a part of this thesis since the number of IT engineers that graduate every year from Nepal will be found out so we could have an estimation of the available technical manpower for web development in Nepal. The interview will be conducted both in Finland and Nepal to find answers to the research questions.

3.3 Data Collection

Once the research questions are finalized, and the researcher decides on the research design, he then will have to start collecting the data. The data that is fresh and original, i.e., recently collected by the researcher is called primary data whereas secondary data is the type of data that has been collected by somebody else for quite some time and has already been used in some statistical process (Kothari, 2004, p. 95). The process of data collection is illustrated in the figure below.

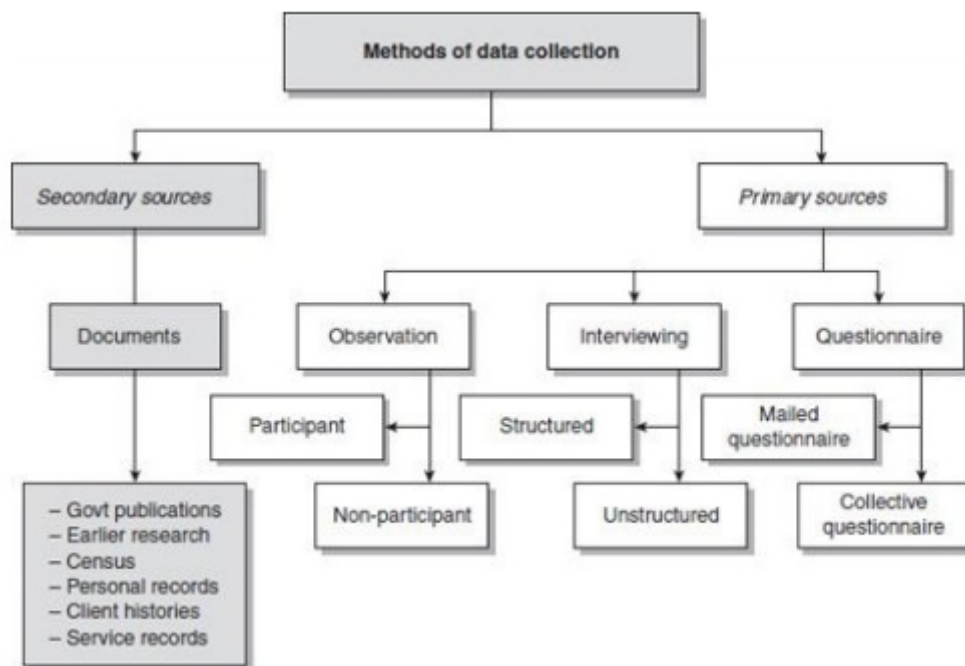


FIGURE 1: Method of Data Collection (Kumar, 2011).

Though data collection is divided to collecting data from primary and secondary sources, one cannot guarantee that the information gathered will be fully reliable. The approach to data collection mainly lies on the research questions to be answered, why the study is being conducted and how skilled the researcher himself/herself is (Kumar, 2011).

The interviews will be unstructured since the author is trying to find out different perspectives of why or why not a company would outsource projects, and the questions are based on the knowledge gained from the already available information or secondary sources.

Secondary Data

Secondary data is the data that are already collected by some other researcher. Secondary data helps to build knowledge of the subject for the author. There can be various sources from where secondary data can be retrieved. The sources might be government records, publications, journals, books, magazines, and newspaper, research papers of other scholars, etc. Since every research has its limitations, the author has to take this into consideration while using secondary data. The secondary data might not always be adequate for the study (Kothari, 2004).

The researcher first looks for relevant sources and once they are found, information that might help to answer the research problem is searched. Secondary data can help to prepare research questions and the information gained can serve as a base to compare the data gained from primary sources (Ghauri & Grønhaug 2002, 76-77.)

The author has to be very careful while using data from secondary sources. It must be made sure that the data collected is valid and reliable. Various researchers might have a personal bias regarding the same topic.

For this research project, the secondary sources of data are books, publications and research articles on IT Outsourcing, Software Engineering, and Web Development. Though IT Outsourcing is a popular phenomenon and there are many studies conducted before to study the phenomenon, the author only focuses on web application development outsourcing. So IT Outsourcing as a whole will be explored and based on the knowledge gained the study is narrowed down while collecting primary data. Since studies to show the advantages and risks of just outsourcing web development projects, have not been many there was a need to collect primary data to answer the research questions.

Primary Data

The original data collected by the researcher first hand is called primary data. This kind of data is fresh and is collected for the first time (Kothari, 2004).

To answer the research questions, the interviewer uses various data collection methods and generates new evidence through primary data. These different methods of data collection may be one to one interview via person to person or mail or telephone, observation, group discussion, etc.

Primary data is collected by the interviewer through direct contact to its respondents and hence obtaining the direct information at the first phase.

Primary data for this study is collected by interviewing respondents who are either managers or developers working in software companies and are associated with web application development.

Earlier studies give us an idea of bigger corporations and the phenomenon of IT outsourcing as a whole, but since the author only wants to focus on small scale web based application projects, the primary data is collected by interviewing those directly involved in development themselves or working as managers of small and medium scale enterprises.

Collecting data by Interviews

To reach some credible conclusion in any research, the collection of data plays an important part, and the whole study depends on it. Collecting data by interviewing participants becomes even more challenging because the researcher himself has to gather the data first hand by meeting the respondents.

It becomes important for the researcher to have all the necessary knowledge before conducting the interview because without having an understanding of the subject he cannot correctly interpret the answers.

The researcher must be able to find meaning in what is unsaid, listen carefully and interpret the message clearly. Personal bias might affect the process but not letting the bias affect the interpretation is a trait of a good researcher (Pervez Ghauri, 2002).

Since the author is trying to find out if Finnish companies are interested in forming some strategic alliance with Nepalese SMEs, the interview seems to be the appropriate way to collect the data. The firsthand views of the managers and developers involved are rather important than the conclusion reached by earlier studies and theories.

The interview can be conducted by meeting face to face with the participant or over the phone. Interviews can be either structured or unstructured. In a structured interview, the questions to be asked to the participants are predetermined. The questions asked are always in a systematic order and form, and the interviewer follows a standard procedure.

On the contrary, the interviewer does not have a set of pre-determined questions for an unstructured interview. The process of asking questions and answering them is very flexible. Depending upon circumstances the interviewer can skip questions or add other related questions freely. To conduct this kind of interview, the interviewer needs to have an in-depth understanding of the subject (Kothari, 2004). The advantages of interview are as follows

- A greater depth of knowledge can be attained since there is no limitations and the approach is very flexible in case of unstructured interviews
- It becomes easy for the researcher to gain personal information and he can control who answers his question which is not possible through emails.
- Sometimes during instinctive and spontaneous responses the researcher can get hold of some valuable information for his study
- It becomes possible for the researcher to gather extra information like the characteristics of the interviewee and other environmental factors which will later help him to analyze and interpret the data well.

An unstructured interview with managers of firm working in web development is conducted for this study because different companies had different opinions on outsourcing and predefined a set of questions would limit the responses.

3.4 Background on the interview and participants

The author interviewed four companies from Finland and four companies from Nepal. It was planned to have a sample big and versatile enough, so companies involved in web development, as well as businesses involved in IT outsourcing, were contacted. The samples could be bigger but for a qualitative research done for a bachelor thesis it

was decided eight companies should be enough since some amount of saturation was achieved.

The email was written to companies asking them to provide some time for the interview. All the companies that were contacted were working in the field of web application development or were somehow associated with this domain. The interviewees were persons working as managers or software developers.

Respondents from Finland were representatives of Qvantel, Trimedia, Mosaic Productions and Crafhouse whereas from Nepal they were representatives of Verisk Information Technology, Reelmark, Catalysts and IT Expert (P) Ltd. The identity of the interviewee will be kept anonymous and will be referred to as “he”.

Qvantel offers business support solutions, and its services range from customer support tools, CRM software, billing and after sales support. Qvantel also has dedicated professionals for web development and has eight offices worldwide with over two hundred plus employees. Trimedia gives services for visual design, user experience and interface, WordPress and network services with fifteen plus employees. Mosaic production has a history of almost two decades in web development with over twenty employees. Crafhouse delivers point of sales systems, store management, and maintenance services with nearly twenty employees.

Verisk Information Technology is a software development and research center in Kathmandu, Nepal. The Kathmandu branch provides expertise to the Verisk Analytics family of companies. In Nepal, it has over one hundred employees. Reelmark is known for developing plugins for wordpress and also partners with companies from Australia and the United states. It has more than twenty employees. Catalysts is an Austrian software development company and has its branch in Nepal too. In Nepal they basically work in web development and have more than 30 employees. IT Experts P. (Ltd) is a nepali company working on web development projects and data entry and collaborates with American partners.

The representative of Computer Association of Nepal was also interviewed over the phone and a small survey was conducted in the Institute of Engineering of Nepal (IOE) to find out job aspirations of IT graduates. Another study was done by calling

twenty more companies over the phone in Nepal to find out the technologies that they use for web application development.

4 LITERATURE REVIEW

4.1 IT Industry Outsourcing Overview

Outsourcing in information technology industry dates back to the sixties. Computer bureaus were first established in the 1960's (Sparrow, 2003). In 1963, Electronic Data Systems (EDS) were the first to outsource their entire data processing from a third party. They contracted Blue Cross of Pennsylvania for the service and thus pioneering the trend of outsourcing of information systems (Jens Dibbern T. G., 2004). After the deal with Blue Cross, Electronic Data Systems (EDS) saw a rise in the number of clients. Companies like General Motors (GM) and Frito-Lay were also included in their clientele. EDS further went on to make agreements with Continental Airlines, First City Bank and Enron in the mid-1980s. Contracts of these sorts were never signed until then. EDS was spending more on software products. With the growth in the IT Outsourcing industry, there were opportunities for other businesses to enter the market, the primary job of which was to monitor outsourcing contracts, benchmarking, auditing, management of contracts and customer relationship management. (Jens Dibbern T. G., 2004).

The revenues collected by the information technology outsourcing (ITO) surpassed US\$ 250 billion and the revenues from Business Process Outsourcing (BPO) were more than US\$ 140 billion by the end of 2009. It was reported that by the end of 2006, 200 firms from the Forbes 2000 companies and nearly 50% of the Fortune Global 250 had offshored IT and business process activities. India posted around 65% of the ITO and 43% of the BPO market in 2008 (Leslie P. Willcocks, 2009).

4.2 IT Industry in Finland

The IT Industry has a lot of importance both strategically and economically. The products and services of this industry help increase productivity and also address

many issues leading to significant social changes. The information technology sector in Finland employs more than 48,000 persons, and these enterprises have a combined turnover of euro 7 billion. The effect of globalization has had a profound impact on the Finnish industrial setup. The major part of the economy thus contributed by the IT industry has taken a significant advantage on this part (Mikko Rönkkö, 2012).

Though the survey was taken in 2012, the effect of the demise of Nokia had hardly an effect on the other IT industry even if some exceptional cases were recorded. However, the overall statistics indicated that there was a boom in the economy. Accepting the trend would lead to the similar behavior in the next years, and not much has changed in the sector since then, the ICT industry is a very potential and significant source. Finland is emerging as a knowledge-based economy and so is its policy adopted (Kimmo Halme, 2014).

The globalization perspective of world economy further creates prospects for diverse involvement in the economy of the country. The role of ICT in the transition of Finnish economy has been instrumental (Kimmo Halme, 2014). Furthermore, the contribution of ICT to the economy of OECD countries has been increasing and so seem to be a continuing trend (Dirk Pilat, 2001). This part of research is mainly based on the data in the early part of the 2000s, and the assumption is made that the same trend would be observed in the present context.

Furthermore, According to the World Economic Forum Finland has been ranked best in the Euro 2020 Global competitive index. The presence of many ICT companies like the attraction of major gaming industries has made Finland a potential target for major investments and an attractive prospect for world class talents. Finnish companies have been leading in the software related business that includes software as a service, application-oriented platforms, and cloud computing. In general, there is a potential for a large market and demand for high talents in this sector.

4.3 IT Industry in Nepal

Nepal is a small landlocked country situated in the Himalayas. The country of mountains is located on the border of two giants India and China. Though rich in natural resources and beauty, the country is underdeveloped from the economic and technological viewpoint. The country thrives on the remittance acquired due to the export of labour in the international market and grants/loans/donations (Finance, 2014). The limited resources in other technical sectors have made the IT sector an appealing business. There are no formal records on how many people are directly involved in the IT business. Many are formally enrolled gaining professional degrees and others, on the other hand, receive a basic educational certificate and are freelancing. The major part of this section of the article is based on the first-hand interviews with related persons.

There are two ways of perceiving how the jobs are distributed in the market (viz. from an employee point of view and the other from employer's perspective). The IT sector is one of the fields where academic achievement is secondary to the performing capability. The open source viability and ease to learn the skills independently have made this sector more diverse and unpredictable regarding types of jobs. There are many types of jobs related to IT, from web designing to system design where simpler skills to complicated knowledge of systems are essential. On one hand there are many freelancers outsourcing the jobs related to IT, the manpower is from simple skilled to qualified engineers who work in authorized companies. The versatile nature of the job and open accessibility has made it quite unpredictable and not organized to produce a significant report. Therefore, in this report, we have included some interviews with the stakeholders; some freelancers, and mainly concentrating on the graduates from the top universities in the nation, their job preferences, the current status of employment and future expectations.

4.4 Advantages of IT Outsourcing

Earlier studies clearly show that outsourcing is an increasing trend. Here are some of the reasons why companies decide to outsource.

Cutting Capital Costs:

When setting up an office companies have to invest highly in equipment like servers and also on software. The decision to outsourcing in this cases will help to reduce the initial cost and still have their information systems running (RICHMOND, 2011).

Continuous Operation:

Finishing projects in time is always a competitive advantage for companies. Having offshore vendors with significant time difference for IT companies mean that they can have a continuous operation. They hugely benefit from the time difference and can follow-the-sun 24/7 (Djavanshir, 2005).

A company that worked on a project till 5 pm in their country can pass on the same job to an offshore vendor where it will still be opening hours of the same day. So, when the worker returns the next day, the project will already have been further completed.

Cheap Labor Costs:

A lot of time and energy is required for any company to recruit IT personnel and provide relevant training. Given that you can already tap experienced professionals gives businesses that extra edge in saving a significant amount of time and money (RICHMOND, 2011).

It is estimated that an IT company will be able to save around 40 percent of its expenses in operation in the case of a company based in the US. Several studies show that the cost saving range is between 15-40 percent (Erran Carmel, 2005).

Reduce Project Completion time:

The demands of the IT industry is always changing. So it becomes necessary for companies to be more flexible and be very quick to adapt to these changes. If a company chooses to outsource than it will always be able to tap workers and

professionals who have the necessary know-how of the changing technology, giving companies advantages over training their personnel and eventually cutting down on the project completion time (Djavanshir, 2005).

Focus on Core Business:

Businesses can focus on their core competency by outsourcing. If some functions even within the IT department itself is outsourced, then the professionals within the enterprise can focus on other strategic developments to support the business (Sparrow, 2003).

Companies have limited employees and limited resources. The personnel can concentrate more on activities that generate revenue for the company if their IT operations are being taken care of by a third party.

4.5 Risks in IT Outsourcing

When we look at the benefits of IT Outsourcing as a whole, it might look tempting, but Outsourcing Information Technology also comes with its bundle of risks. Mohammed H.A. Tafti in his journal "Risks Factors associated with offshore IT outsourcing" for Emerald Insight has come up with categories of assessment of possible risks to an organization that is outsourcing its IT functions.



FIGURE 2: A framework for IT outsourcing risk assessment (Tafti, 2005)

Loss of Control

As companies outsource IT services from the third party, a lot of confidential data will also be handled by the vendor or service provider. In such cases, the company will lose control and privacy over such data, and extra work of always analyzing the outsourced service is added (Brandon, 2008).

Privacy and Security

Companies who decide to outsource their IT functions from foreign partners seem to be very vulnerable regarding the loss of privacy. Since a lot of information technology works deal with data and privacy, overseas companies having hold of those information creates the considerable threat of leakage of confidential data for the companies. Thus, it becomes necessary while making an agreement with vendors clearly to state all the issues related to privacy and security (Tafti, 2005).

Loss of IT Expertise

When a company decides to outsource its IT function from some third party firm or offshore partner, the IT staff it already has will be less necessary. The staffs that have an understanding of how the business operates actually will suddenly be seen as extra costs, and companies might decide to lower their operating cost by laying them off.

Hence, a significant amount of professionals who know the trade might be without jobs (Tafti, 2005).

Hidden Costs

During the agreement drafting process or early negotiations process, a vendor might emphasize more on how the customer (the company who decides to outsource) will save money. But with time when the needs some extra services behind the baseline service agreement, it may lead to some additional costs. Also during the vendor selection process and in between projects the customer might have to travel to offshore provider location which will also add to the expenses (Tafti, 2005).

4.6 Web development projects and outsourcing issues

From doing a coursework to buying household items, from watching a movie to connecting with your loved one, from automated business solutions to pure gaming, we find everything on the web these days. The World Wide Web has its presence everywhere, and it never seems to stop growing.

Our dependence on the web has been increasing day by day. Systems and applications built for the web – how they perform, their quality and their reliability considered crucial (Brandon, 2008).

Web development is still confused with making a simple web page using Html (hypertext markup language), CSS (cascading stylesheet) and some WISWIG editor. Developing for the web is more than just mere personal homepage or an online company brochure which contains basic company information and contact details. Modern day web development can be very complex. It has come a long way from just visual design and user interface design and requires planning, design, testing, quality checks and constant evaluation of performance and maintenance. The tasks get bigger with the increment in the application usage (Brandon, 2008).

Functionality/Category	Examples
Informational	Online newspapers, product catalogues, newsletters, manuals, reports, online classifieds, online books
Interactive	Registration forms, customized information presentation, online games
Transactional	Online shopping - ordering goods and services, online banking, online airline reservation, online payment of bills
Workflow oriented	Online planning and scheduling, inventory management, status monitoring, supply chain management
Collaborative work environments	Distributed authoring systems, collaborative design tools
Online communities, marketplaces	Discussion groups, recommender systems, online marketplaces, e-malls (electronic shopping malls), online auctions, intermediaries

TABLE 1: Categories of web application based on functionality (Brandon, 2008)

Web application development is more like software development these days. Similar to the software they have a user interface but that runs in a browser, they can interact and manage larger volumes of data in the servers on user request (Jazayeri, 2007).

Web development and the technology used is constantly evolving, and since a web application serves a broad audience, the data also changes with time. Unlike a software which is only maintained on a periodic basis web applications need upgrading more frequently to cope with shifts in the technology. It becomes a major challenge for the companies to keep track with these rapid changes in web technologies since it becomes much more demanding.

Although software development and web development have many similarities process, wise they also have considerable differences. The requirement for web application and systems grow continuously, and a web development project has multidisciplinary teams involved. The more complex web development is getting, the more challenges company face working for the internet.

Since the requirement of such projects is changing very rapidly, companies who outsources these functions will have to bear additional costs for communication across borders (Brandon, 2008). The companies have to think of these following issues if they decide to outsource web development projects.

Strategic Issues:

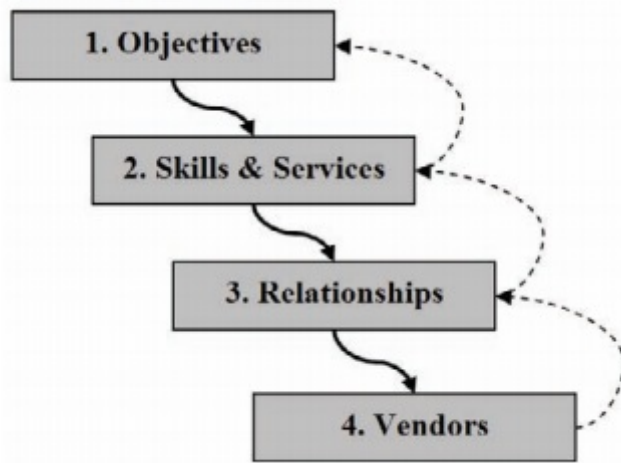


FIGURE 3: Strategic Steps for Web Development Outsourcing (Brandon D. M., 2008)

A company has to be clear on the objectives of why it wants to outsource. It is seen that the common reasons for outsourcing are either resource, the cost, tapping the expertise and the time factor. First, it has to access within the company what expertise it lacks and then see if that expertise is available elsewhere.

After determining the objectives of outsourcing, the company has to determine what specific set of skills is needed to be outsourced. They have to decide on things like core competencies and intellectual property since there will always be a risk if the vendor breaches the terms of the agreement.

Once what specific set of skills needed to outsourced is determined, the company has to establish the kind of relationship with the vendor. It becomes necessary for the company to determine how dependent they will be on the vendor. Since there will multiple persons working on the same project on multiple locations the kind of relationship between the client and vendor plays an important role. It is advised to decide the whole project cost first or even divide the project in limited time iterations. After each iteration, the conditions and cost of the next iterations can be determined so it both the client and vendor have a balanced incentive and frequent negotiations also can enrich the cooperation between both parties (Brandon, 2008).

Finally, the company has to choose the right provider according to the skills and relationship determined beforehand. The company can also interview the provider and their employees before coming to an agreement. It can inquire about the provider/vendor's turnover rate and discuss on matters like employees leaving the project before completion.

The location and size of the provider also plays an important part. It might be hard for a small sized provider to retain its employees and if the vendor is too far physically being there to inspect or evaluate will be tough (Brandon, 2008).

Tactical Issues:

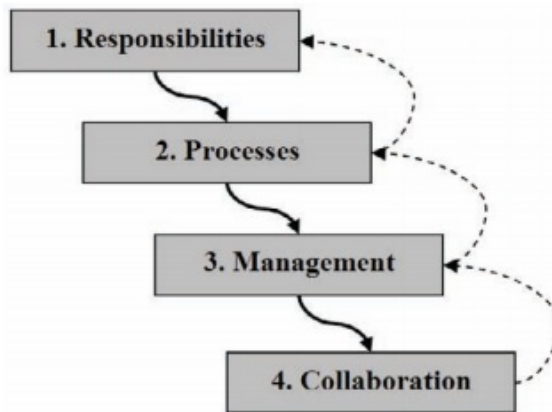


FIGURE 4: Tactical Steps for Web Development Outsourcing (Brandon D. M., 2008)

The client company and the vendor should determine responsibilities together. They should clearly define the team, their responsibilities, and the process to support the whole project. It is advised to have a separate person to act as a liaison between the parties to avoid miscommunication.

Once the responsibilities is determined, it becomes necessary for the companies to decide upon the process. When working with teams in two different places with different cultures, there might be coordination problems, but one must accept that teams at both ends might have different development practices (Brandon D. M., 2008).

Agile methodologies focus more on sharing. It gives importance to individuals that are involved and less on the process. A functioning product becomes more valuable than a nicely written documentation, and it responds to change.

Companies should focus more on the win-win decision since managing by walking is not possible when the client and vendor are far apart. Conflicts between teams at both ends should be avoided, and they must have a feeling of working for a common goal. The client should define the requirement in detail and expectations within certain time frame clearly to avoid issues.

The most important factor is always trust. Developing effective communication is always important to build confidence and both parties must realize the difference in culture. For e.g., in some culture it is considered interest in a particular subject but in other culture asking questions might be regarded as a challenge to authority.

5 RESULTS AND ANALYSIS

5.1 Popular Technologies in Nepal for Web Development

To answer the first research question, one of the interviewee helped to categorize the technology he used for web application development, and the rest of the respondent were asked the popular ones in each category. A total of twenty Nepalese companies were called over the telephone to know the technology they used. The categories are as follows: Programming Language and Platforms, JavaScript Frameworks, Frontend, Backend, Content Management System, Data Formats and Database. The data collected for these categories does not mean that the companies only use that particular technology, but it only gives an overview of the popularity.

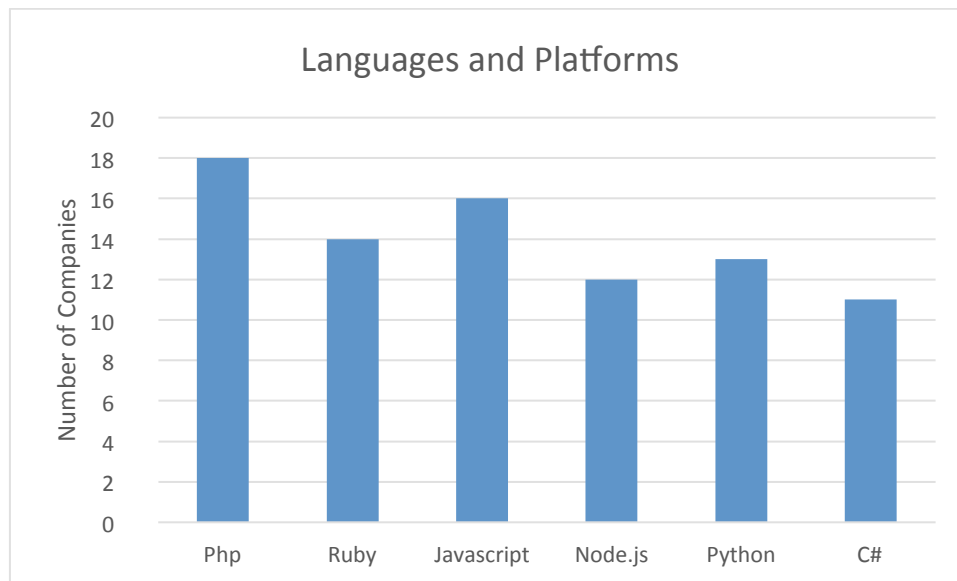


FIGURE 5: Languages and Platforms

Php, Ruby and JavaScript were the most used languages and platforms for developing web applications. Other technologies where the number of companies using them were less than five were omitted.

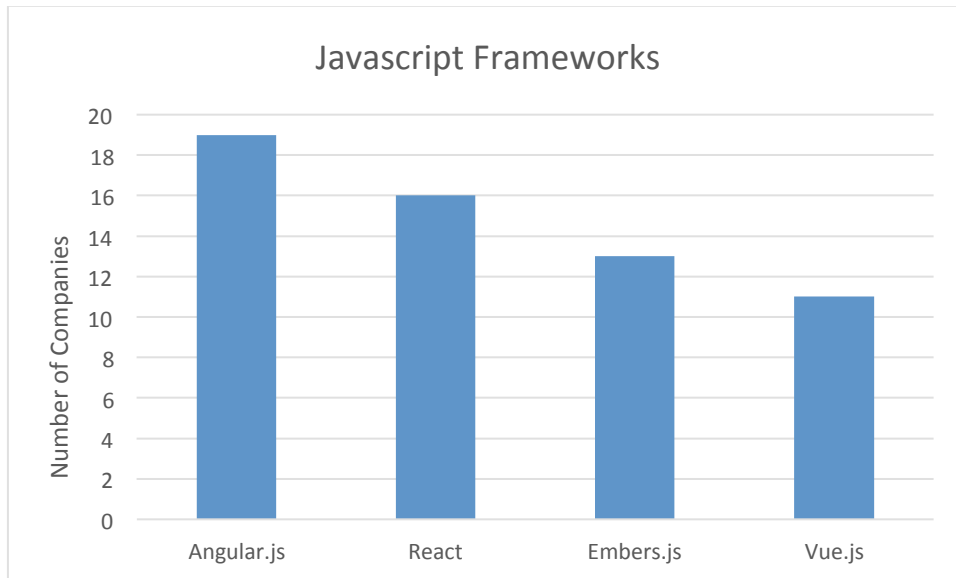


FIGURE 6: JavaScript Frameworks

JavaScript frameworks and libraries are very common to develop web applications these days. Developers are releasing new libraries quite often but Angular.js and React are the most used frameworks in Nepal currently.

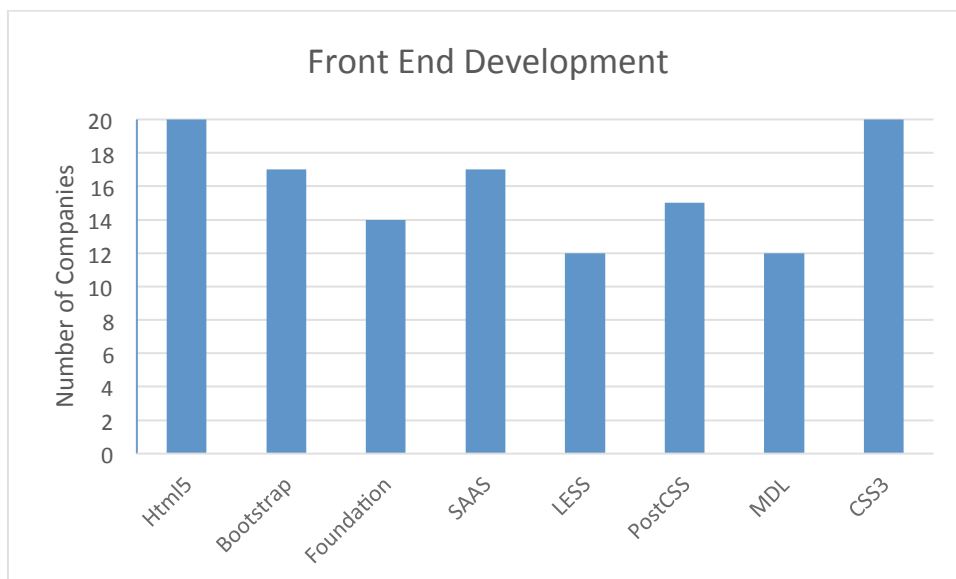


FIGURE 7: Frontend Development

Frontend development is associated with user interactivity and experience. It also means what the user sees as he/she opens a web application or website. Developers and designers seem to use the latest technology for frontend development and currently HTML5, CSS3, SaaS and Bootstrap seem to be among the most popular ones.

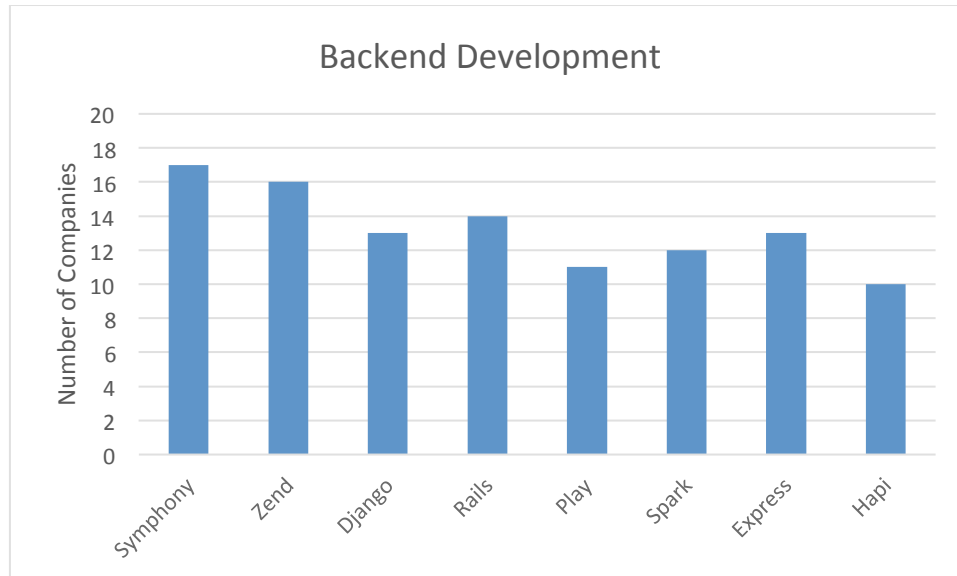


FIGURE 8: Backend Development

What a user sees in the front end is the data stored somewhere in a server. The backend developer builds the tools to access and display those data to the user.

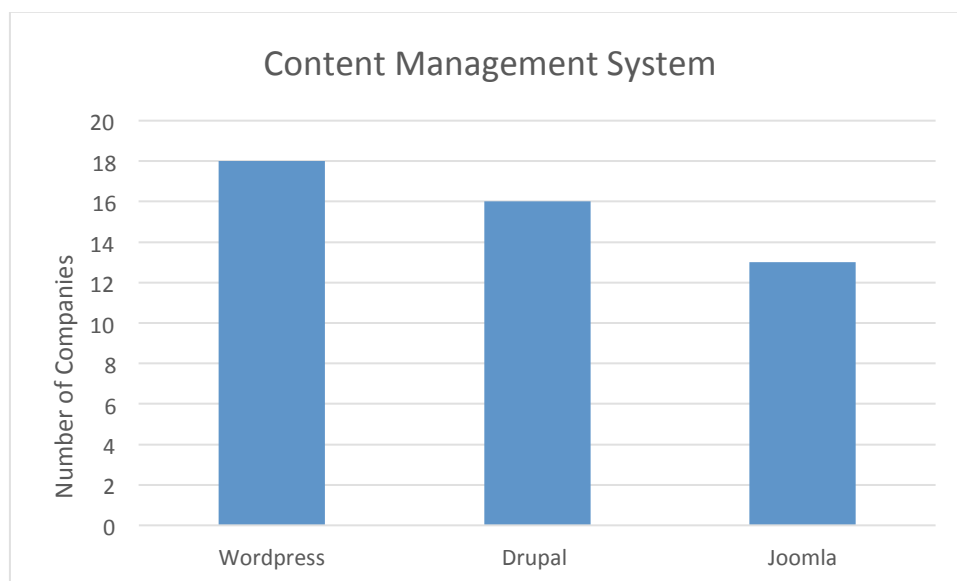


FIGURE 9: Content Management System

Systems that enable a user to add, edit, update and delete content in an application and also supports multiple user activity are content management systems. Open source content management systems are very powerful in terms of flexibility in customizing it. The most popular content management system is WordPress followed by Drupal and Joomla.

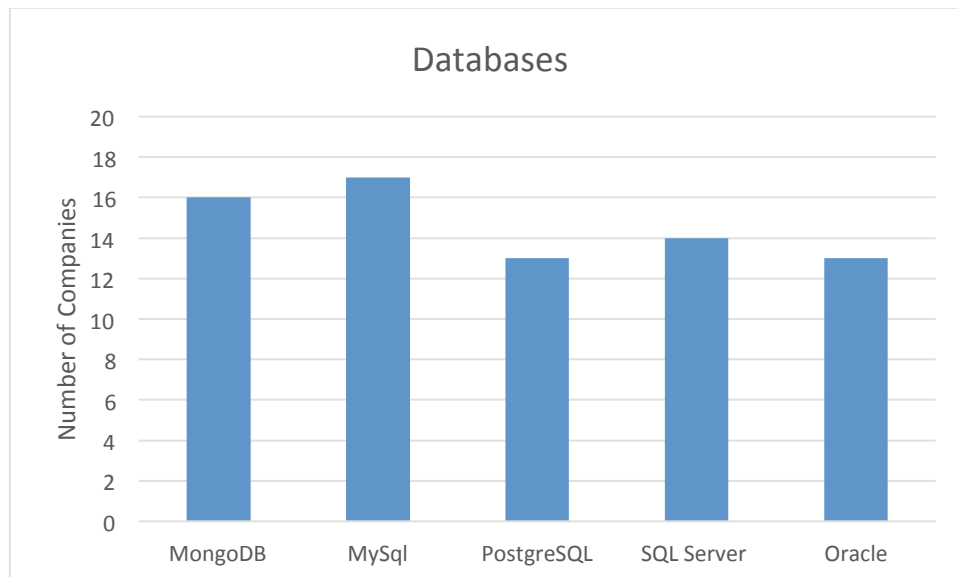


FIGURE 10: Databases

MySQL seems to be the most popular database in Nepal for web development. Other databases technology include MongoDB, PostgreSQL, SQL Server and Oracle.

5.2 Human Resource availability

Currently, Nepal has four universities providing technical education related to IT viz. Tribhuvan University, Kathmandu University, Purwanchal University, and Pokhara University. Tribhuvan University is the only public University operated through government sector. The research concentrates on the survey of the graduates of the Institute of Engineering (IOE), Pulchowk Campus. There are 13 colleges affiliated to IOE which provide undergraduate engineering degrees and among those Central Campus, Pulchowk is the one operated by the government. Including the other degrees offered like the Bachelors in Computer Science and the undergraduate degrees from other universities, there is more than 500 technical manpower related to IT are produced in the country from Tribhuvan University (even considering the failure rate). If we include the informal institutes and the trainee from these institutes as technical manpower, then the number increases to more than 1000 per year.

So how the labor is being used in the nation is a matter of interest. The government opening for the job for IT experts is limited. The basic salary for a fresh graduate is

NRs 24,000, which is much less than the one provided by the outsourcing agencies. The appealing prospects for the IT experts from the top institutions are in pursuing their higher education from the top universities in Europe and the United States as reflected by one of the interviewee, 2011 graduate from IOE, Central Campus, Pulchowk and former employee of Verisk Information Technologies.

Recently a project under ICT Nepal has employed hundreds of IT experts for database management and social empowerment project under UNDP. *“This project has been appealing for the graduates from IT sector who want to contribute meaningfully to the nation rather than spend their energy in a foreign land,”* says another interviewee, 2012 graduate of IOE Central Campus Pulchowk, and currently employed in Dhankuta district of eastern Nepal under ICT.

However, the projects under ICT Nepal is a seasonal project and cannot provide relevant opportunities to the escalating number of IT graduates. Some graduates turn to entrepreneurship but still outsourcing companies are the major attraction for the graduates in IT sector. The salary in the range of NRs 50000 to 70000 and the knowledge relevant job provides job satisfaction to the employee with creating an attractive prospect in the mean time.

Figure 11 shows a comparative graph of the employment status of the immediate undergraduates for three years at Institute of Engineering, Central Campus, TU Nepal. The less number of unemployed engineers could be because they are immediate graduates and could be applying for further studies, preparing for examination for a government job or preparing to set up their enterprise. From the graph, it is evident that majority of attraction is towards outsourcing jobs and continuing their further studies. It is felt that engineers tend to get some experience before they pursue their further studies. The outsourcing jobs is a learning platform for them which act as a background for pursuing further degrees.

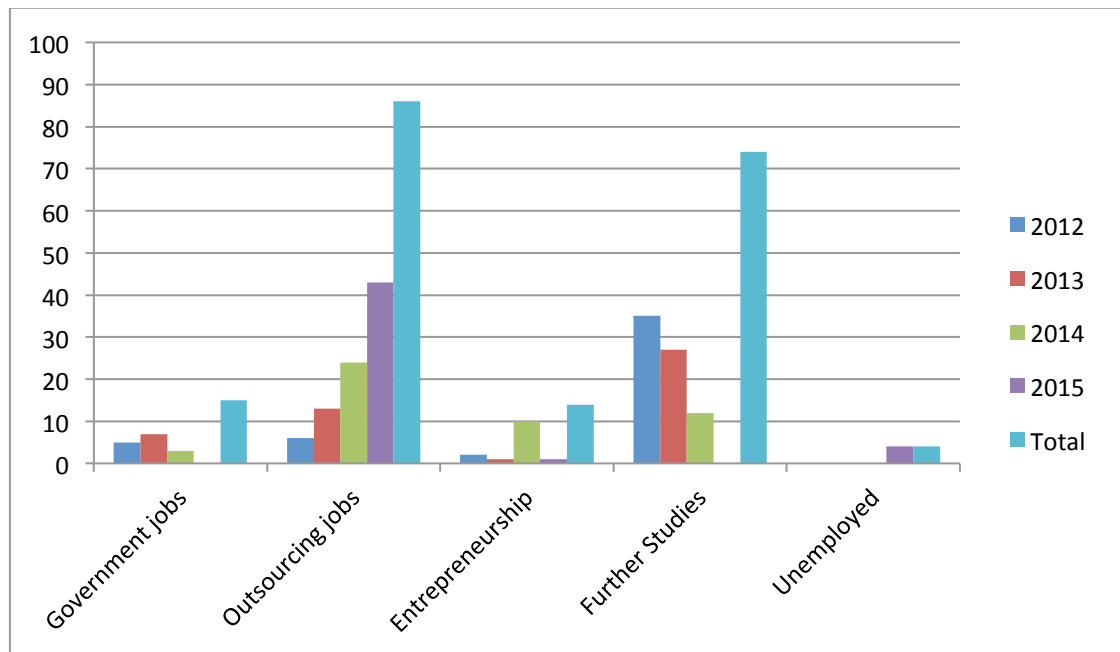


FIGURE 11 Job Involvement of Computer Engineering graduates of IOE

5.3 Nepalese managers and developers response

The Nepalese respondents gave mixed responses. While most of them are very positive about doing work for foreign partners in web development projects, they also provided insights into the possibility of mobile application development projects.

Nepal as an offshore IT hub

Nepal is located between India and China and is relatively cheaper which makes it a perfect location. During conversation with the respondents from Nepal, they apparently suggested a growing trend in companies doing work for foreign partners.

The representative of Computer Association of Nepal (CAN) stated *“During the last five years we already have around 26 foreign IT companies that have opened their branches here in Nepal and what is even more encouraging is each company has 100 plus employees working for them. We must be doing something right. Don’t you think?”*

He also said that after the ministry of commerce and supplies prepared the Nepal Trade Integration Strategy (NTIS) in 2010 and identified the IT and BPO sector with export potential; the country has experienced a boom in the IT related service industry. The Government of Nepal has also made international commitments regarding the information technology sector in the WTO, and it allows 80 percent foreign equity participation.

The cost factor

The salary for a full stack web developer with an experience of three years and above earns an average wage of Nepalese rupees 100000 which is equivalent to roughly 800 euros per month. On the other hand, the one of the respondents from Finland said a trainee junior developer or designer is paid around 2000 euros every month in Finland. This simple comparison tells us how cheap it is to operate a company in Nepal.

When inquired if doing a web development project in Nepal cheap one interviewee said that the cost was relatively very inexpensive, but it all depends on the project at hand. Although the cost is less but when it comes to quality delivery, sometimes there might be many persons involved in the project from design, planning, and actual development. Thus, the price might be a bit high compared to the standard amount in Nepal, but it is never as high as what is charged in foreign countries.

Project duration and commitment

Another interviewee from Nepal said that there has been no problem in the completion of projects. However, while working with international partners, they do not prefer working on a project to project basis.

He said, *“We hire people according to the volume and type of projects we have, hiring staffs for an individual project is not feasible unless there is any guarantee that projects will continue to come it becomes hard for us to retain the designers and developers”*.

Web development agencies in Nepal mostly work on projects from foreign partners. Although a few local projects also contribute to their revenue, most of it comes from the work that they do for international agencies.

Communication:

Almost every single person working for IT companies and Web development agencies is a university graduate. Since all the studies and courses in Nepal are conducted in English medium, speaking English is not a problem.

“We have not faced problems in communication regarding language because all of our foreign clients speak English too. We had problems for about a month during the earthquake last year since all the communication networks were down but you cannot predict earthquakes. We use services from two to three Internet Service Provider these days just in case there is a problem with one we can quickly switch to the other” says another interviewee.

Types of Projects

Most of the IT companies or development/design agencies dealing with foreign clients are working on healthcare services, data entry, web design, creative services, computer programming and customer support.

Customer support seems to be the most outsourced work by American companies. The cost of training, office space, and even the tax is very low in Nepal. Also since the education in Nepal is in English medium finding support representatives who speak good English is not a problem.

Tasks like logo design, copywriting, advertising where hiring a regular employee is not so feasible are also one of the major outsourced jobs in Nepal.

Medical billing, coding, and medical transcription are popular at the moment. Although such data is confidential and sensitive *“we are happy that our clients trust us and we have a proven track record in reliability”* says one interviewee.

The increasing popularity of smartphones and the possibilities of building complex application has shifted the focus of many software and web development agencies to application development for Android and iOS phones. One of the respondents said that he had totally stopped working on web development and is undertaking many projects for the mobile platform. He says *“for developers who have been working for years making the switch in platforms does not take much time, and right now mobile app developers are in huge demand, I have totally stopped looking for web development and design projects, mobile apps are more lucrative right now.”*

5.4 Finnish managers and developers response

The responses from Finnish managers and developers was more positive about the idea of outsourcing. Small and new progressive companies were more interested to find out if the plan works for them whereas companies who have a long history of business seemed not interested in the idea of working with a third party.

Trust factor

One of the interviewees working as the chief technical officer in a firm established almost twenty years ago said that he once proposed the idea of outsourcing jobs to a third party when they had too many projects running simultaneously. He said the management hired temporary developers on a project basis from Finland rather than trusting some offshore company having the required expertise.

He went on to say that *“I understand that even foreign companies follow industry standards, and I acknowledge their expertise, but for a company like ours who already operate on the base of a proven business model, we are not ready to trust a third company with our products.”*

Quality

A senior manager in one of the Finnish company said that offshore vendors follow the specification too much, which leads them to do only what they are told to. This does

not allow the developers to take creative freedom and has a significant effect on the quality of the product.

He also went on to say that vendors often deal with a lot of projects themselves, so the focus is more on delivery in time than quality. Adding to it, he stated that it is better to have an offshore office themselves than having an offshore partner for projects. That way staffs in their offshore branch will just be working on their projects, and the quality of products can be maintained.

Hiring extra staffs

One interviewee who is especially interested in the idea of outsourcing project to offshore vendors said that the idea is tempting, but he would not want to hire some more staffs to take care of the offshore projects.

Instead of contacting the offshore vendor himself he said it would be better if there were companies in Finland who would take care of the project management for them. That way he would have somebody near to receive updates on the progress of the project.

Privacy and Security

One of the respondent from a company that dealt with the real estate said they had a history of outsourcing design and development work but in sensitive projects as the real estate and other projects dealing with financial projections they did everything in-house.

The property prices keep on fluctuating, and we have projections before it is published for the public. This kind of data cannot be compromised so even though the company has agreements with offshore vendor clearly stating terms of privacy they still prefer doing that kind of projects in-house for extra security.

Partial Outsourcing

Partial outsourcing or out-tasking is common in some companies. It was found that rather than completely taking the development work offshore some companies only outsource functions like quality control and testing to overseas vendors. This way the development quality is not compromised and only outsourcing certain functions of the project decreases the project completion time.

Project Management

Project Management becomes very critical in companies who decide to outsource. One of the interviewees commented that the decision to outsource is to reduce the workload in-house but sometimes outsourcing increases the work even more. The need of frequent communication and evaluation, not being able to reach and fix issues quickly creates more problem than reducing them.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusion and suggestions

It is evident from the interviews with both Finnish and Nepalese managers and developers that there is certainly a possibility of Finnish companies outsourcing their work. On one hand Finnish managers think that it would add some value to their respective company yet it is clear that there is a considerable amount of trust issue when it comes to offshoring their work.

Nepalese managers have experience dealing with American and Australian clients and partners and they also seem to be interested in the idea of working with European partners, but they think partnerships based on just a few projects will not be feasible since it becomes harder for them to hire and then retain the employees.

The first research question was to find out the popular technology used for web development in Nepal. Although the popular technology used in current time was found out and is mentioned in the results section, the author also realized during the interviews that web technology was changing continuously and professionals working in this field regularly update themselves. Every true professional is always using the latest technology and during interviews it was clear that switching between technologies for them did not take a lot of time.

The second research question focused on the challenges for Finnish companies if they decide to outsource web development projects from Nepal. IT professionals mainly involved web development technologies are in constant demand. The inability of Nepalese companies to retain their skilled employees can create a problem. Unless the companies have enough projects and long-term commitments to work on, it becomes harder for them to keep them on the continuous payroll.

Nepal recently promulgated their new constitution, and most of the data protection laws have not been implemented which can be a serious issue for Finnish companies, but the situation will undoubtedly improve. It will be a good idea to form this kind of strategic alliance once all the laws are passed and implemented.

The third research question is about the values outsourcing decisions will add to Finnish companies. The decision to outsource will help businesses to tap skilled persons beyond their border. If there are individuals who specialize in a particular technology somewhere else than forming a strategic partnership with companies at that place will help them to access those experts.

The time difference in a foreign country will help the business to work around the clock or increase their productivity time depending on the difference in time. This decision will help them reach their deadlines earlier by decreasing their project completion time.

Businesses can focus on other functions of the company if the outsourcing vendors take care of certain tasks. Furthermore, if companies are looking to scale then it might be the right choice to outsource.

The author suggests that it would be wise to establish a company in Finland who could work as a middleman for Finnish and Nepalese counterparts. This way there will not be any trust issues for the companies who are thinking about outsourcing. Since companies will not have to get themselves involved in the project management, it might sound viable for them.

It is also suggested that if they decide to outsource web development projects from Nepal, they could collaborate on a few projects first and reach some long-term agreement which will help the Nepalese partners to recruit, train and retain those professionals.

Nepal has experienced much political instability in the past decade. Many companies went on to expand their branches in Nepal and many partnered with other Nepalese companies even during this period. But since the constitution has recently been

promulgated and as the new data protection laws along with other legislation related to information technology is not already implemented, businesses must be careful while making agreements.

6.2 Research quality and directions for further studies

The author planned to find out the interests of Finnish companies in collaborating or building a strategic alliance with Nepalese companies. To reach the conclusions the author had to interview companies from Nepal and Finland.

During five weeks, the author emailed and called around thirty to forty companies both in Finland and Nepal. The idea was to at least interview ten companies of both countries.

The responses of companies were very low, and the author was only able to interview four companies from Finland and five companies from Nepal. Only a couple of enterprises had real experience in outsourcing, the interest was evident but finding out the challenges once they decide to outsource was difficult.

The study concludes that companies are interested, but a detailed study of a bigger scale is needed to support the claim further. The author also realized that email was not the perfect way to correspond with companies. Most of the business did not reply to emails but calling the companies directly helped the author to get appointments for an interview. The interviews were conducted with only four companies from Finland, so it would be better if the sample size were bigger.

Factors like culture can also play an important role in this kind of alliances. This factor is not taken into consideration. For future, it will also be helpful to add that dimension to the study. While going through literature and from interviews with real developers it also becomes clear that web technologies are constantly changing and evolving. So even though particular technology might be popular during a certain time span professionals always seem to update themselves according to the changes.

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APPENDICES

The Email

Dear Sir,

I am an international business student from Nepal at JAMK University of Applied Sciences. I am currently doing my thesis and plan to graduate soon. My thesis topic is "**Web Development Projects Outsourcing**:Possibilities in Regards to Finnish and Nepalese SMEs".

It would really be helpful if you could give me about 30 minutes of your time for a short interview. Your input will certainly help me with my research, and I am looking forward to hearing from you. It would really be an immense help to me if you could give me some time.

Kind Regards

Yogesh Dhakal