



Inspiring Excellence

Internship report on
Opportunities and Challenges of Software Development Business in
Bangladesh

Supervised By

Dr. Salehuddin Ahmed

Professor, BRAC Business School

BRAC University, 66 Mohakhali, Dhaka-1212

Prepared By

Bishal Peter Does

ID: 16164007

MBA Program, BRAC Business School, BRAC University

Declaration

I am Bishal Peter Does, declare that the presented internship report on “Opportunities and Challenges of Software Development Business in Bangladesh” submitted as a requirement for degree awarding of Master of Business Administration program (MBA) of BRAC University is prepared by me. I gave my best effort to gather effective information that made the report specific and original. This report is not submitted for any other course, degree, and fellowship. Whole report is uniquely prepared by me.

Bishal Peter Does

ID: 16164007

MBA program, BRAC Business School

BRAC University

Letter of Transmittal

Date: 5/4/2018

To,

Dr. Salehuddin Ahmed

Professor

BRAC Business School

BRAC University, 66 Mohakhali, Dhaka 1212

Subject: Submission of internship report on ‘Opportunities and Challenges of software development business in Bangladesh’

Dear Sir,

It is my pleasure and great honor for me to submit my internship report titled “Opportunities and Challenges of software development business in Bangladesh” authorized under your supervision, as a requirement for the completion of BUS 699 course. I have followed all the instructions given to me by my supervisor and I am really thankful to you sir for your all kinds of support and helpful instructions during the process of writing this report.

It will be a matter of great pleasure for me if the report can attain its objective and it will be great pleasure to me with any sort of suggestion from you regarding this report.

Sincerely Yours,

Bishal Peter Does

ID: 16164007

MBA program, BRAC business School

BRAC University

Acknowledgement

Firstly I am thankful to God, who has provided me the brilliant opportunity, strength and patience to build and complete this report successfully with good health and sound mind. I would like to express my gratitude and great affections along with my hearties appreciation to the course supervisor Dr. Salehuddin Ahmed for his kind co-operation. I would also like to give my hearties thanks to different organization authorities and individuals, who are involved with software development business, who helped me in their busy working schedule to gather lots of useful information about companies' activities to prepare this report. At last I would like to thank the readers who expended their valuable time in this report.

Executive Summary

Importance of software in our daily life is unexplainable. People of our country have realized the value of software in almost every little work. Though the word software sounds very usual, but the amount of time and effort given to develop a simple software is huge. Universities and other educational institutional institutions have created good number of software engineers to change country's scenario. My vision towards writing this report was to find out the opportunities and challenges of software development business in Bangladesh. I was able to gather necessary information to complete this report and also have talked to few companies of our country to acquire the deep knowledge. It is surprising that we have come a long way in this sector. We used to record official data manually and now we are able to use computer data to store all files, we use heavy software applications to generate daily reports and salary sheet and in this way our life has become a lot of easier. I have divided the whole report into two chapters where there will be brief description about the company I work for in chapter 1 and in chapter 2 I have describe my project part. Project part includes introduction of the study, review of the related literature, methodologies of my study where I have shown sources of my data and research questions, analysis and interpretation of the data include market analysis, financial developments and investment scenario, opportunities and challenges have been included in the findings of the study and finally I tried to give some recommendations based on the challenges. To summarize I have tried to make this report informative so that readers can acknowledge the overall condition of software development business in Bangladesh.

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Chapter 1: Organization Overview

1. Company Overview:

Owlsyard.com is built on the idea of information technology and providing IT solutions to individual clients and also companies. IT solutions include website designing and development, graphic designing and visualization, search engine optimization and digital marketing on social media platform. The company started its journey in 2015 with a vision of passion for creation. The name Owlsyard.com is named after owls where most of our works are done during night hours and also delivering quality services that help our clients to grow more. Our skill consists of HTML, CSS, PHP & MYSQL, Photoshop & Illustrator, and SEO & SMM.

Some firms love to build complicated sites but we choose the simplest tool that will effectively accomplish a task. Simple sites load faster, are easy to use and are less prone to problems. Most of our clients enjoy working with us. We make all process easy and pleasant. We believe that there are 7 reasons to choose Owlsyard. Those are:

- We build powerful websites
- We emphasize on simplicity
- We are affordable
- We are friendly
- We only charge you when we work for you
- We are honest
- You are the boss

Owlsyard's clientele includes eNotus, BoligDB, Bakemorris, GoodacreUK, Bengol Super Market, Somtel, CompleteIMS, Surplus Select, BizBee Solutions and other reputed companies around the world. We understand that delivering a fabulous experience to audience makes an individual feel great. This company believes in creative strategies which are backed by data; content which is not only brilliant but also effective; most importantly measuring impact of work to maximize return on investment.

Chapter 2: Project Part

2.1. Introduction:

Bill Gates said, “Information technology and business are becoming inextricably interwoven. I don’t think anybody can talk meaningfully about one without the talking about the other.” It was my deep interest to know more about the software development business in Bangladesh and other issues related with software technology. Like Mr. Gates talked about integration between information technology and business, I also wanted to research on opportunities and challenges of software development business in Bangladesh. Our country is a land of opportunities and this sector is new to our nation. Development in this industry has started and we want to reach our vision of Digital Bangladesh by 2021. Software business has helped our country to grow financially and economically, created employment opportunities, changed our way of thinking conventionally and constantly working to create innovating applications. It affected our manufacturing industry, RMG industry, banking sector and other consumer products industry positively. Gradually software industry is expanding by grabbing some well opportunities. To work, properly on this topic I have talked few software companies of our country, generated some research questions, gathered data from primary and secondary sources and provided few recommendations. This paper will also reflect about market condition of software development business in Bangladesh and financial improvements through this. Our government is really encouraging entrepreneurs in this sectors and supporting freelancers by providing training and funds to them. Many foreign companies are interested to invest in our local companies. Lastly challenges of this business which holds a major part to create obstacle in our developments will be also described in this paper. This paper will help reader to get an overall idea on software development business in Bangladesh.

2.1.1. Rationale of the Study:

In recent years Bangladesh has improved a lot in information technology and communication sector. Bangladesh becoming an upper middle income country by 2021 will be possible if IT sector is strong. The ICT division of Bangladesh is continuously supporting the innovation and modernization in different aspects of people's life. Government is trying to turn Bangladesh into innovation-driven nation. Moreover students are highly interested in studying computer science, communication, networking and technology related subject. So the reason behind my study is to explore more on the scope of software development businesses in Bangladesh, its strengths, opportunities and challenges, usage of software in different businesses, implementation of this business for the betterment of people and society, how it can advance our financial and economic system and upgrade my knowledge in this field. Bkash one of the best mobile financing service companies in Bangladesh is totally built on smart technology which is a good example of software development and advancement in our country. Also banks of our country are using such software which is making our life easy and comfortable. We can easily pay our bills and taxes through mobile phone. Moreover there are many software applications which are helping to smooth business operations in education sector. Education management system is one of those software application systems. As a result there are many upcoming chances for business people or entrepreneurs who want to continue their business activities related with software, digital technology and information system. So this study on the topic will provide ideas to utilize the maximum opportunities and overcome the challenges to make the software development business a successful one.

2.1.2. Problem statement:

There is a proverb that says, "Necessity is the mother of invention". Our country felt the need to develop software and invest more in information technology field few years back. The necessity drove our government to transform our country into 'Digital Bangladesh'. To reach the vision, our country has already developed some strategies along with so many challenges and obstacles. We have also some great opportunities to work with and we would really prosper as a whole economy if we can utilize the opportunities. So in this paper I tried to reflect some opportunities and challenges of software development business in Bangladesh. I mainly focused on software development which is a significant part of IT/ITES and both are interconnected. Our country has

exported well amount of software to several countries and many foreign countries are interested to invest in our local companies. This business offers a lot if it is run properly following particular strategies.

2.1.3. Scope of the Study:

The study focuses on businesses which are built on software development in Bangladesh. This report will also highlight the factors like opportunities and challenges facing by the companies in our country. This study is completed based on research including online search, analyzing reports and potential interview with the software firm owners, employees and clients.

- Current opportunities and future opportunities for software firms
- Challenges or difficulties faced or may arise in future for the software development business
- Some possible solutions and recommendations to improve the strategies of the business

2.1.4. Objectives of the report:

Main objective of this report is to identify the current opportunities and challenges of software firms in Bangladesh. Moreover it provides a source of information on the latest market development which can be useful to realize the competitive position of Bangladesh in this sector.

The specific aims are given below:

- To know the current condition of the IT industry
- To identify the software firms in Bangladesh
- To acknowledge opportunities and challenges of software development business in Bangladesh
- To know the capital required to start the software development business
- To present the market of this business in our country
- To identify competitive advantage of this business
- To highlight financial development in our country through this business
- To realize the profit and investment in software development business
- To see the future prospect of prosperity in this sector in Bangladesh
- Scope of entrepreneurs while entering this business

- To recommend some suggestions to overcome the challenges of software development business in Bangladesh

2.1.5. Limitations of the study:

There were some limitations of this research-

- Due to barrier of information disclosure policy companies, respective personnel could not provide all information.
- Time constrains was one of the major limitations for data collection.
- Lack of information and data to analyze and recommendations given based on academic learnings and work experiences. There might be other solutions to the challenges.

2.2. Literature Review:

Software is an integral part of information technology. Software development business in Bangladesh is not something too old. Studies had been done before on information and communication technology and there are also several reports in the perspective of Bangladesh but not particularly in software development business. There are several components of IT including software, hardware, networking and telecommunications. In Bangladesh three major telecommunication companies like Grammenphone, Robi and Banglalink have already started 4G service in selected areas immediately after receiving the license for the fourth generation mobile internet. The companies said that they went live with 4G service with about 400 base transceiver stations (BTS) in major cities of the country (Star, 2018). There are currently 650 software companies who are general members of BASIS and 416 software companies who are associate members of BASIS (BASIS Annual Report, 2016). A noticeable major transformation in software business is taking place in our country. There lie lots of opportunities in Bangladesh for this business and our government is also highly supportive and encouraging in this sector. Bangladesh government had funded few small startups and Zero Gravity Ventures, one of the venture capital firms in Bangladesh funded Sindabad.com and Kiksha.com which are e-commerce platforms in Bangladesh (Startup, 2018). Software itself was not very popular several years ago comparing to recent years. Bangladeshi people did not think that software could have a great impact their life. Gradually the scenario has started to change and now we are competent in this technological world. Bangladesh has now matured software and IT industry which has crossed a long road over the last

few decades. This industry is also contributing in country's economic and financial sector and also creating high quality employment opportunity for young people. One of the distinctive features of software business is the presence of high amount of young entrepreneurs. In last several years many IT graduates have returned to our country after finishing their education and started their IT ventures (BASIS). Moreover availability of resources related to information technology is also one of the reasons for expanding software business in our country. Universities in our country are also offering better academic education to build career in computer related technologies. These days, students like to dream about working for google, facebook, amazon and other big tech companies in foreign countries. Our neighboring countries are creating competition and pushing us to develop ourselves heavily in software business. Application of software is remarkable. Every institution including banks, school, colleges, universities and offices are using software like enterprise resource planning and database management system. As a result opportunities are increasing in this field and the growth rate is also very moderate. For a country like Bangladesh there are strong challenges which need to be faced by business people in software sector. There are unavailability of basic information and data for providing and attracting the investors (Sikder, 2017). There are other challenges like lack of skilled people in the marketplace. So challenges need to be solved and need to find better ways to work out those opportunities.

2.3. Methodology of the study:

As data is the vital part of the study and to make it more meaningful, it was collected from both primary and secondary sources.

- The primary data is collected or observed directly from first-hand experience through interviewing individuals and surveying different companies.
- The secondary data are those which have already collected by someone else and wish to pass through the statistical process.

2.3.1. Sources of Data:

Sources of data are given on next page.

a. Primary Sources

When data are collected directly from the field those are called primary sources of data. I collected primary data by using following methods:

Interview Method

The interview was a face to face situation where I asked particular questions to individuals who were employee of an organization, owner of an organization and regular clients of software business. The questions were designed in such a way where answers would be relevant to the research.

- ❖ Face to face conversation with respective officers and stuffs of the firms
- ❖ Internal data of the organization
- ❖ Direct conversation with the client

Survey Method

Though survey and interview methods are closely related but it was performed particularly to gain an understanding of an individual's attitude towards the software business in the market. Survey was a combination of some close-ended questions which were helpful for this study. The target group for this survey was mostly young people who aged between 24-30 years to particularly understand their thoughts and beliefs toward the software development business in the context of Bangladesh. The survey was completely done through contacting people on online and it was easier than other methods.

b. Secondary Sources:

- ❖ Annual report
- ❖ Audited financial statements
- ❖ Different journals regarding software and IT industry in Bangladesh
- ❖ Internet was also used as theoretical source of information
- ❖ Websites and newsletters

2.3.2. Research questions

I have generated some research questions which helped me to think more deeply about my research topic. These questions guided me toward the analysis and interpretation of the data, findings as well as recommendation. The questions are based on the perspective of Bangladesh's companies and the people related with it. The questions are given below:

- ❖ Is the capital feasible to start a software development business in Bangladesh?
- ❖ Is it too hard to enter for a new startup in this industry?
- ❖ Is the target market good enough for the software development business?
- ❖ Does the competition exist in the market?
- ❖ Does always profit come from investment in software development business?
- ❖ Is there enough IT graduates to meet the industry demand?
- ❖ Do we have any problem related with infrastructure in our country?
- ❖ Can it really help to make our nation a digital one in the world?

2.4. Analysis and Interpretation of the data:

In this part of report I tried to describe briefly how software is developed maintaining client's requirements and utilization of software in Bangladesh, market size and components and financial developments in our country over the years.

2.4.1. Illustration of software development

Software development is the process of developing software through successive phases in an orderly way. This process does not only contain actual codes but also the preparation of requirements and objectives of the design of what is to be coded and confirmation that has developed has met the objectives. So to develop software it is mandatory to have good skill and technical knowledge on computer programming. In business world it is impossible to take small step without software. Some popular business software applications are Odoo to manage CRM, QlikSense for data visualization, SAP to manage overall business operations etc. Bangladesh is also using software programs in every aspect of business operations. Some popular software applications which are used in Bangladesh are described in next sections.

2.4.2. General phases of software development

- Identification of required software
- Analysis of software requirements
- Detailed specifications of software requirements
- Software design
- Programming
- Testing
- Maintenance

Usually development of commercial software is the result of demand in the marketplace, but enterprise software development generally arises from a need or a problem within enterprise environment. There are also systems development life cycle (SDLC) models which were developed as a structured approach to information system development that guides all the processes involved from an initial feasibility study through to maintenance of the finished application. The models include (Rouse, n.d.):

- The waterfall model
- Rapid application development (RAD)
- Joint application development (JAD)
- The prototyping model
- Synchronize and stabilize
- The spiral model

2.4.3. Software firms in Bangladesh

Bangladesh is now a lot advanced in IT business as well as software development business. Though we entered a bit late in this sector we have already proved that we are also competitive in this fast growing world. More and more firms are coming into this field. Entry barrier is comparatively low for new entrants here in Bangladesh. The basic clientele for most of the software houses has always been the corporate houses but now scenario has changed. Not only corporate houses but also small business organizations are the clients of software firms. Software engineers in our country used to work in visual basic which is an old software development tool few years back, but now they use most updated tools to work fast and provide better service to customers. Companies have realized

the importance of software and information technologies and trying to become more literate in this area. Software companies in Bangladesh operate into different business models and they often produce products based on customers' demands and market situation. Some top software companies which are in good position in Bangladesh market is given below (Dream71, n.d.):

1. **Dream71 Bangladesh Ltd:** Their main goal is to develop mobile applications, games development and software development. Company has already been able to draw attention of local market as well as international market and they did innovative work with A2I and contributed in education sector of Bangladesh.
2. **TigerIT Bangladesh:** This company is one of the most experienced in developing numerous apps and games along with few government projects. TigerIt is one of the companies in Bangladesh to deploy Biometrics system and Automated Fingerprint Identification System (AFIS).
3. **Magnito Digital:** Magnito Digital is leading digital agency in our country. They have worked with largest clients in country and they have won gold to become “Campaign Asia-Pacific: Digital Agency of the year 2015” in the “Rest of South Asia” category.
4. **NewsCred:** It is working to make marketing better for everyone. NewsCred has teamed up with top brands in the world like Pepsi, Visa, Dell, ConAgra, Hewlett Packard and many more to provide best solutions in content creation, marketing management, cross channel publishing etc.
5. **Southtech Limited:** It is one of the largest ISO 9001:2008 certified (by URS, UK) and SEI-CMMI L-3 appraised software companies in Bangladesh. They are gold certified partner of Microsoft and Oracle and have been recognized as one of the “25 Most Promising Banking Technology Solution Providers 2016” by prestigious APAC CIOoutlook magazine.
6. **DataSoft:** DataSoft has successful track record of delivering innovative and cost-effective technical services to customers in both corporate and public sectors undertakings. It is offering services like e-Payment, Customs House Automation, Port IT operation (CTMS), automation of commercial banks etc.
7. **Lead Soft:** They offer custom software development, software development, professional outsourcing and software consultancy. Lead Soft is also serving ISVs and SMEs covering banking sector, Non-Banking Financial, Life Insurance and Pharmaceuticals.

8. **ReveSoft:** They have started their journey in 2003 to serve IP based communication industry. Reve Systems has a strong position in Mobile VoIP, SIP softswitch, VoIP Billing etc.
9. **Brain Station 23 Limited:** This company is working since 2006, providing enterprise and customized based web applications and mobile software development services in both local market and international market.
10. **Kaz Software Limited:** Kaz Software is also award winning custom software development company providing software like location based conversion applications, organizational chart visualizer tool, auction site, trade research tool and various mobile applications etc.

2.4.4. Market size, components and specialized areas of software development business

IT industry is a combination of software development business and IT enabled services. Different surveys have been performed by different organizations in Bangladesh comparing software development services along with IT enabled services (ITES). According to BASIS survey there are over 4500 registered software and ITES companies in Bangladesh (BASIS, 2017). There are also other unregistered small companies and home based IT ventures which are working in both local and international market.

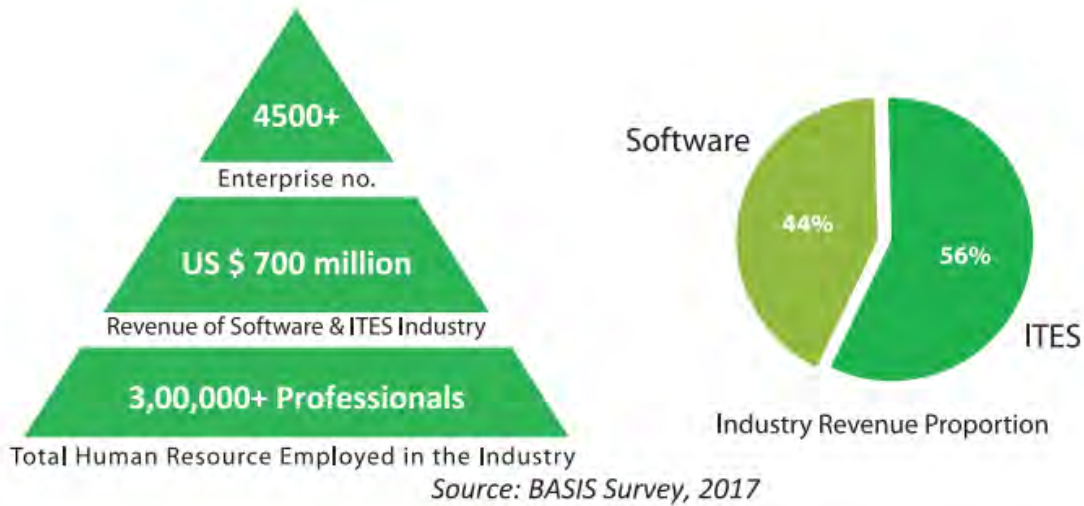
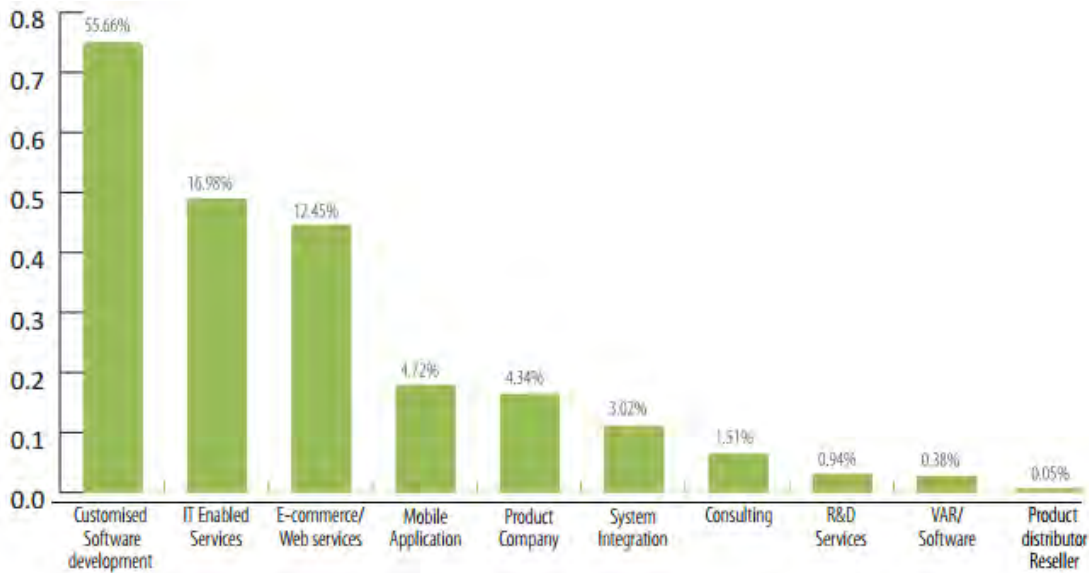


Fig: Bangladesh Software and ITES Industry

The total revenue from software and ITES industry is almost US \$ 700 million. More than 300000 professionals, majority IT graduates and other graduates are employed in this industry. The contribution for overall employment creation is at moderate level and also by creating high quality employment opportunity this sector is attractive for graduates.

Another survey had been carried out by BASIS on several software and IT enabled service companies and it has been found that 55.66% businesses are involved in customized software development specialization which reflects that industry needs more skilled people to develop customized software according to the market demand. Other specialized businesses are holding relatively lower position compared to customized software development business. Several companies are involved in IT enabled services are like web development, content management and data entry. Mobile application and product companies are at a similar place whereas industry needs to focus more on research and development to be more futuristic and .94% businesses are involved in R&D services. A chart has been given to the next page for better understanding the percentages of business involved in their specialized area (BASIS, 2017).



Source: BASIS Survey

Fig: Business Specialization of Software and IT companies

Below table represents some of the companies in Bangladesh, who are involved in developing software in different areas like accounting & financial, banking application, human resource, enterprise resource planning, financial instruments, education sector and data and telecommunication (BASIS, 2017).

| Software Applications | Company Name |
|-----------------------------|-------------------------------|
| @rbiter Accounting | Square Informatix Ltd |
| Accounts@NeuroBOSS | Neurosoft Technologies Ltd |
| Agent Banking Solution | ERA-InfoTech Ltd |
| BMS: Bond Management System | MicroMac Techno Valley Ltd |
| Custom Business Solutions | CodeCrafters Internations Ltd |
| Shampan VAT | Symphony SoftTech Ltd |
| Custom Software Development | Brotecs Technologies Limited |
| SAP Replication Server | Neurosoft Technologies Ltd |
| HR & Payroll | Square Informatix Ltd. |
| Easy.com.bd | Software Shop Limited |
| e-Bangladesh | ERA-Infotech Limited |

The 10 companies I surveyed use different technologies to develop their products. I came to know about their tools they use. I am giving a chart below for better understanding.

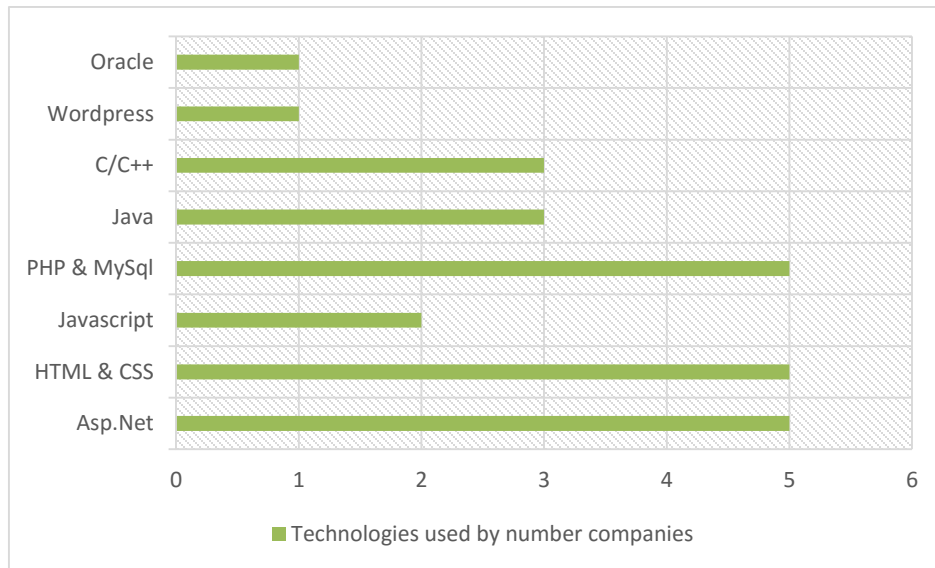


Fig: Technologies used by companies

I have found that most popular languages in our country are Asp.net, html & css, php & mysql. Java and C/C++ are also well accepted programming languages to develop customized software applications. These languages are used because of the availability, user friendliness and also for fast working.

Bangladesh software industry follows broad differentiation strategy which means that products are differentiated and developed for mass people. Companies are developing software applications for both local and foreign market. Most of the companies in our country are interested in software to use it as an important tool to develop other products, for promoting and to be differentiated and innovative in the market. Target market of software development business in our country is well enough in recent days and is growing at a steady speed. Software companies in our country are mainly built to provide services on ERP, HR software, Accounting software, Sales Automation or Inventory Management System. There is a lot of demand of software applications in banking and non-banking financial institutions like insurance, leasing or MFIs. These types of companies were more or less dependent on foreign companies, but our local software companies are trying hard to draw their attention to be more successful. Other manufacturing sectors like textile, pharmaceuticals or production industries have started to introduce themselves with ERP software,

HR information system or financial management solution. Thus a certain need of software specialists has been created in these sectors. At present they are depending on vendor companies for their IT requirements. But the ratio is gradually changing. On the other hand telecom companies or real estate companies are dealing with the best software companies in Bangladesh. They are heavily dependent on their services which have created a sizable market space for software solution companies. Companies are also targeting government or public sectors for their IT services.

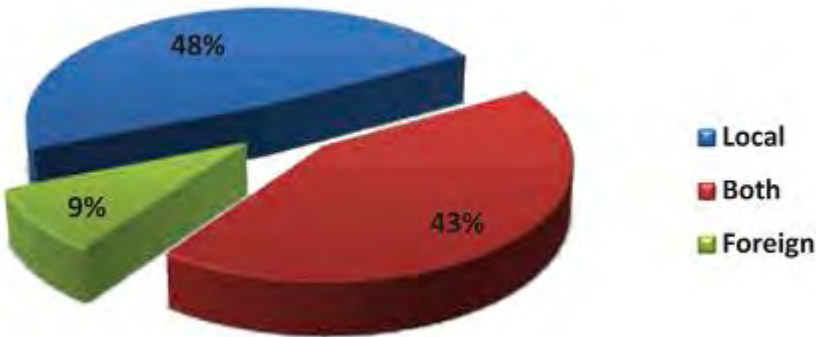


Fig: Market that software/IT firms are present in (BASIS Survey)

43% software/ITES firms are present in both local and foreign market where 48% are exclusively concentrated in local market and 9% is exclusively present in local market (BASIS).

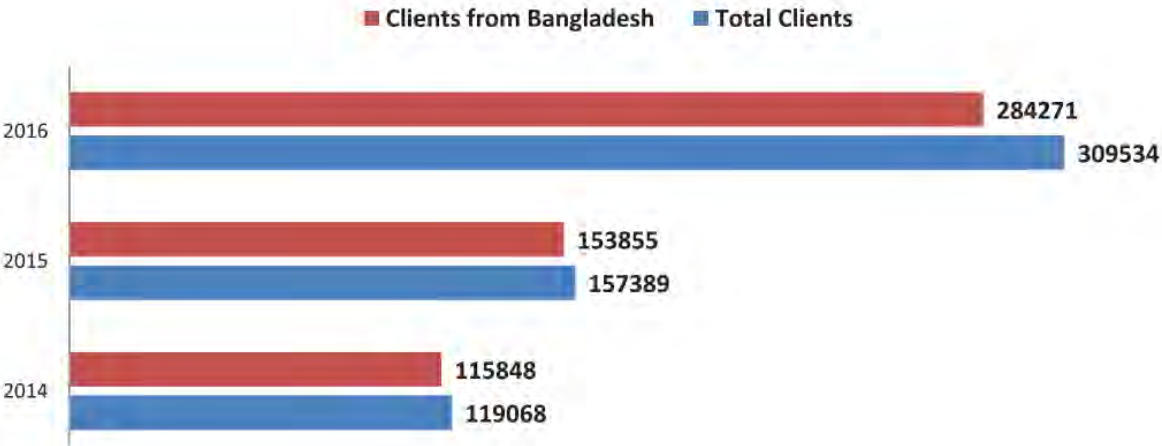


Fig: Number of clients of Software/ITEs companies in Bangladesh

It has been found from BASIS survey that number of clients from Bangladesh is 284271 in 2016 where it was 115848 units in 2014 (BASIS, 2017). So there has been a continuous growth in the business of software development and IT enabled services.

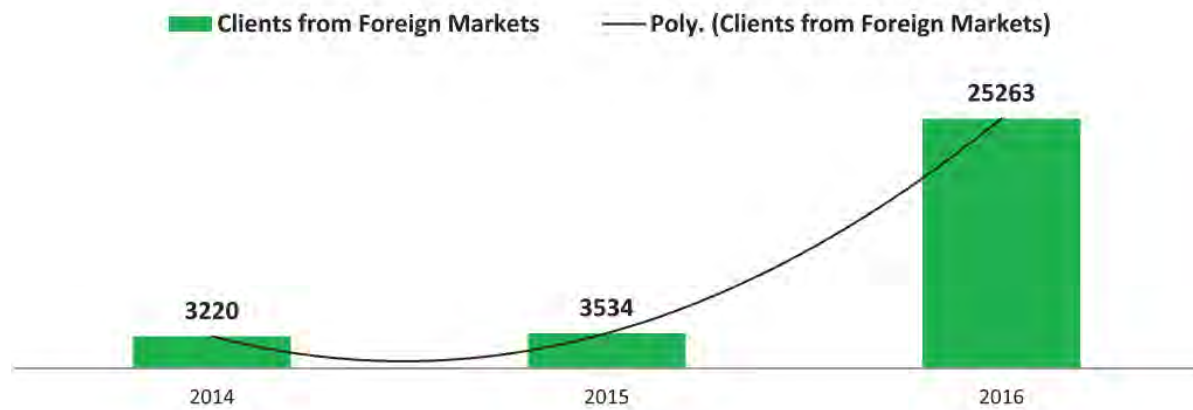


Fig: Total number of clients from foreign markets

Significant increase in the total number of clients in both local and foreign market defines that demand is increasing gradually for software programs. Business people and software engineers in our country are trying constantly to deliver the best products in the market. Bangladesh is not staying behind anymore and is ready to compete with developed countries. From the support of government, interested people and for available resources the market condition is good and is going improve a lot in few years.

2.4.5. Financial revolution through software business

Mustafa Jabbar a Bangladeshi businessman and technology entrepreneur said to The Independent that they used to export software approximately of \$26 million in 2008, but the amount reached \$191 million in 2017 (Ahmed, 2017). So lot of foreign money is coming through this business in our country. Tax benefits, government policy, and infrastructure are making the software industry of Bangladesh a promising export sector. Bangladesh exported software to 30 countries, earning around \$191 million in the 2016-17. The Bangladesh Export Promotion Bureau (EPB) and the Japan International Cooperation Agency (JAICA) found that software is a promising sector for our

country consisting of \$500 million of the local software market. Possible key drivers for growth in this sector are (TISHA, 2017):

- Low operation cost and tax advantages
- Supportive policies from the government
- Moderate availability of technically skilled manpower
- Rapid introduction of software technologies in major sectors like telecom
- Potential growth in export demand
- New technology usage like cloud computing
- Government established Special Economic Zones (SEZ)

Because of these reasons growth has increased a lot over the years. Fahim Mashroor chairman of Bdjobs.com and owner of Ajkerdeal.com expressed his opinion about the export growth is that the export growth is 20-30 percent every year but country needs 100-150 percent growth to achieve the target of Vision 2021 set by the government (Ahmed, 2017). Below chart shows that growth in export sector of software programs is upward trending. It was \$26.08 million in 2006-07 and then it was transformed into \$190.94 million in 2016-17.



Fig: Software export trend

Bangladesh Association of Software and Information Services also performed survey on its member companies on estimated earnings from local and abroad market.

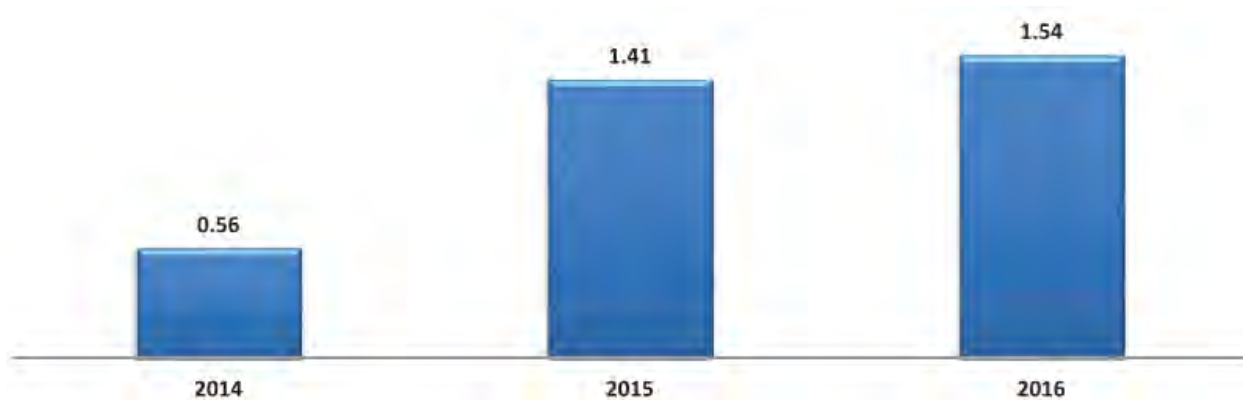


Fig: Total adjusted earnings (US\$) in billion from local and abroad market

The total estimated earnings of BASIS member companies from local and abroad market is \$1.54 billion in 2016 and it was \$.56 billion in 2014 (BASIS, 2017). So earning is increasing every year which is a positive side for our country. This sector is an addition to our financial and economic development. Software industry is creating opportunities for desiring people and they are offering attractive remuneration packages. So people are getting more interested to work in this industry. One special thing about this business is that employees get flexibility in their working. This is how they are motivated and inspired to do more. Also there are lots of scopes to implement creativity here in this business.

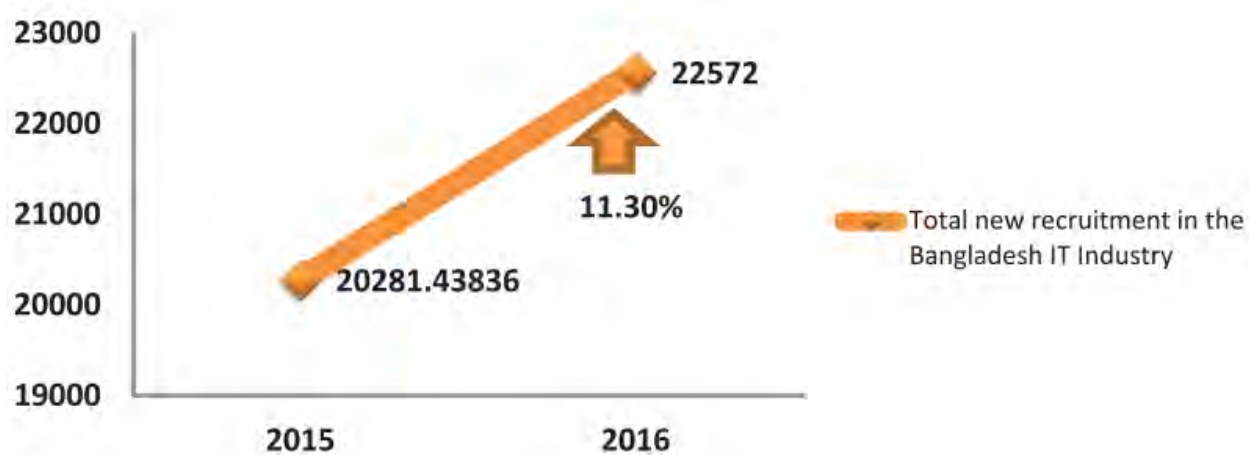


Fig: Total new recruitment in software/ITES industry

BASIS member companies have recruited 22572 individuals in 2016 which is significantly important to our country (BASIS, 2017). Many IT and non IT graduates are coming into the market and gradually this is increasing. So creating employment opportunity for them is a very uplifting fact for graduates as well as for country.

Freelancing is an important source of income for Bangladesh's large population of people under 25 who make up half of the country's population of more than 163 million. Freelancers can work from anywhere with a reliable internet, so the work is attractive to people in smaller cities and towns. Freelancers in software development business are inseparable parts and already they doing very good in the business. They handle multiple clients from different countries simultaneously and this is possible because they expert and capable of doing their work. As freelancing and outsourcing is interrelated in this business, I have demonstrated how much money is coming into our country by exporting software applications.

Sultana Parvin, mother of two living in Dhaka was awarded as Bangladesh's top female freelancer in 2014 by BASIS (Yee, 2016). Parvin was housewife then for 20 years and wanted to make extra money for her children's education. She could not get into permanent job because of her husband who used to move around the country on the purpose of job. So she enrolled herself in an IT course and with proper guidance she managed to earn \$5 for the first time from an online job portal and at some point she earned \$6000 from freelancing which was really an amazing thing. There are many people like her and surprisingly people are also earning money from remote areas from online job portals like Odesk/Upwork. Bangladesh is known for its garment industry, which employs millions. But it was the third-largest source country for freelancers for the California-based website Upwork (previously known as Elance-ODesk when two companies merged), according to a 2014 A.T. Kearney report. There are more than 650000 freelancers in Bangladesh registered in Upwork and in 2013 Bangladeshi freelancers earned \$21 million from Upwork which is growing since then.

2.4.6. Investment Scenario

Investment scenario in software development business is gradually changing in Bangladesh. We have one of the most liberal investment regimes in South Asia. Bilateral investment treaties for the promotion and protection of foreign investment give Bangladesh tariff-free access to the EU and its Generalized System of Preferences (GSP) as well as to Canada, Australia and Japan. There are

no distinctions between foreign and domestic private investors regarding investment incentives or export and import policies. The government is eager to attract foreign investment and the country has already proved it. As a result Bangladesh has witnessed the highest growth among the South Asian countries due to stable and favorable investment atmosphere prevailed in the country for the last few years. Other reasons for choosing Bangladesh for investment place are:

- Faster growth in industries
- Developing infrastructure
- Export springboard – access to all large markets in the world
- High demand for technology transfer
- Continued business environment reforms on global investors spotlight
- Strong local market and growth
- Competitive utility cost

Software contributes around 44% to the overall industry revenue, whereas ITES contributes around 56% to the overall industry revenue. Total investment in this sector is more than 50000 crore and this sector is the largest contributor to FDI in Bangladesh. Zunaid Ahmed Palak, Bangladesh's minister expressed his opinion on transforming Bangladesh into a digital one and he said that the main pillar of Digital Bangladesh is to connect all the rural areas by broadband connectivity. He also mentioned about developing human resources of our country where maximum population is young and connecting them to the industry. They had an objective of reaching \$1 billion in ICT exports by this year, 2018; a contribution of 1% to the country GDP. A. T. Kearny (the global consulting firm) selected Bangladesh as one of the top 50 IT destinations in the whole world. Samsung has its research and development sector here and also major global companies like Google, Dell and Microsoft are all outsourcing their services to Bangladeshi companies. American firm FENOX Venture Capital wished to invest \$200 million and already invested one of the successful starts-ups, Priyo.com (Mahbub, 2016). Japan is highly interested to invest in Bangladesh's information and communication technology sector. The Bangladesh pavilion is also demonstrating a mobile application, developed by local IT firm DataSoft, which is already being used for Japanese Nissan cars.

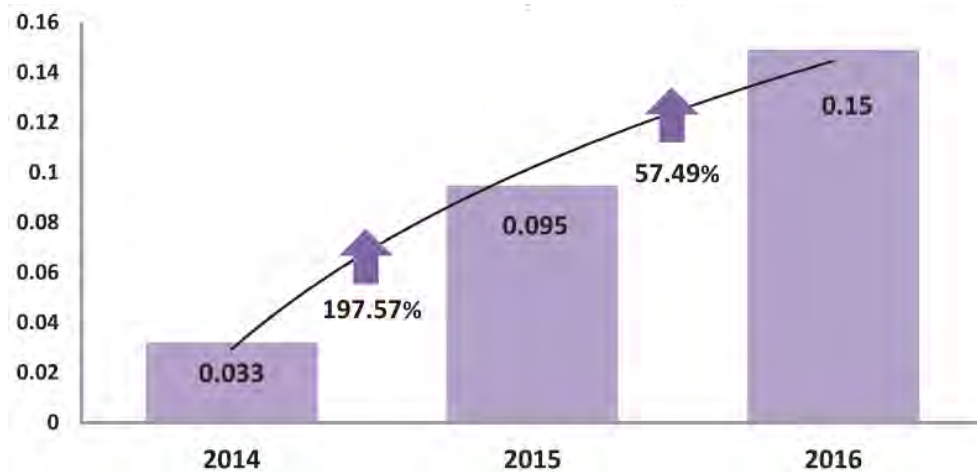


Fig: Total investment in software & ITES firm, US\$ billion

The total investment from local and foreign sources made in 2016 increased by 57.49% reaching at US\$ 0.15 billion (BASIS, 2017). The survey was completed by BASIS on its member companies. However one stimulating thing about this software business is that return on investment might not be always at expected level. The fact is true for both the investors and company owners as well. There were few startups who could not stay in the market because their idea failed in the competition. So profit does not always come, rather than it would be better to focus on the idea and strategy. Overall investment in software development business is increasing gradually. Foreign countries are more interested due to extraordinary technical skills of people, rule and regulations of the country and determination to take the country to higher level of prosperity and advancement in glowing industries.

2.5. Findings of the study:

Financial and market conditions of any business are major issues and business prosperity depends mostly on these two things. Software development business in Bangladesh holds better financial and market condition and there are many doors of opportunities to grow in this sector. It would not be wise to just point out the opportunities whereas there lies abundance of challenges which are already faced by businesses or might appear in the near future. In this part of study I will focus mainly on opportunities and challenges of this software development business in Bangladesh.

2.5.1. Opportunities of software development business in Bangladesh

- Market positivity: The development till today is visible in the picture is because of the optimistic market. The demand for software service and applications is increasing at a tremendous speed. We have already got clients from abroad and local who are reasons for earning profits. RMG one of the biggest sectors in our country has implemented software applications on their daily work. Aplectrum Solutions Limited is providing software named Spark which can be used for payroll and HR service. There are also other well established companies who are providing with management software applications which are making working life easy, comfortable and fast. I have surveyed 10 companies where they told about their customers and said that some were satisfied and some were not. As 44% revenue is coming from software business in this industry, so there is great scope to improve this condition and contribute to country's financial and economic development.
- Young Population: Majority portion of our country's population is young who age between 20 – 35 years. From BASIS survey is has been found that more than 300000 IT professionals are working in this field and companies are increasing simultaneously. So if they are properly trained they can bring more money to our country as well as there will be growth in our national income and GDP. Besides, IT- educated manpower is available in our country at a very low cost than those of our neighboring country like India. Software development business can grow faster if we can utilize this resource properly and accurately.
- Industry acceptance: Software applications are such things which can be used in every sectors/industries. Manufacturing sector which includes RMG, textile, pharmaceuticals and other consumer goods holds a very good position in our country. Other important sectors like banking, agricultural business, ceramics, cement, electronics, power industry etc. are also welcoming software services. Sectors like manufacturing and banking cannot be thought without software. For example Micromac developed a tool named “Bangladesh Bank Data Warehouse Reporting Tool (BBDWRT)” which is a web based application to automate submission of information to Enterprise Data Warehouse of Bangladesh Bank. Benefits of this product are to import, validate and process complex dataset accurately. Opportunity for growing in software development business in Bangladesh is moderately high. Proper promotion, marketing, strategies are also important to sustain business. As

Bangladesh is going to be transformed into digital platform business people should come up with excellent ideas so that other sectors can be benefitted from this.

- Support from government: Bangladesh government is giving immense level of support to the people who are doing software development business or to the entrepreneurs in this sector. Access to information (A2i), a program run from prime minister's office has performed some notable activities for example: 105 Digital Talking text books for all visually disabled students, \$28.15 mil earnings for Digital Center Entrepreneurs etc. In such places software development business come and can help to implement the idea. Government has also taken some policies to attract this sector which include:
 - 100% foreign ownership of companies allowed
 - Small-cap exchange to be implemented to allow easier raising/ listing on capital markets
 - Software park which facilitated high speed Internet connection trade facility similar to Export Processing Zones (EPZ)

These are few steps through which government of Bangladesh is really trying to motivate and inspire the business. So these opportunities needs to be grabbed by individuals to grow in this sector and take the nation to million steps ahead.

- Scope of entrepreneurs: Entrepreneurship development through this business is really attainable and many young people are coming out in the market, taking risks, trying to do different and making our country proud. Small startups have established in our country in recent years and some of them are really successful. They are also creating employment opportunities in our society. Nation is encouraging young entrepreneurs and is also proving funds to them. Some of competitive advantages of starting software developing business are employees can be hired at a low remuneration comparing to the countries like India, Malaysia etc., increasing number of IT graduates, attracting other industries by developing innovative applications because we are not still exposed to smart applications in RMG or manufacturing industries, lower office rent, open source online platforms etc. Also capital required to start a software development business in Bangladesh does not necessarily have to be very big, rather than business can be operated from staying at home. Bangladesh's banks and financial institutions have disbursed a big amount of money to create new

entrepreneurs to promote sustainable development of country. Our nation can be benefited from entrepreneurs in software development business.

- Venture capital firms: Quite a few venture capital firms are now working in our country to help grow the business. Also firms from foreign countries are interested to invest in our local companies. Some of institutional investors who have been successful over the years are still not known to the people of Bangladesh. They are Fenox Ventures, IPE capital, BD Venture Limited, Aviskar, DEFTA Partners, Innotech Corporation, Bangladesh Venture Capital, Razor Capital, 500 startups, Segnel Ventures, IMJ Ventures, Mind Initiative, Brummer and Partners, Princestreet, Osiris Group VIPB, IFC etc (Taher, 2017). A study by Light Castle Partners (LCP) found that preferred sectors by investors are MFS (83%), Health Tech (67%) and C2C Commerce (50%) (Taher, 2017). Some few startups who got funds and became pretty successful in our country are GObd, PayWell, Priyo.com, Solaric, SureCash, Styleline, Direct Fresh, AjkerDeal, Eshosikhi, Pathao, Bagdoom, Sheba, BPCL, Brian Station, Studio 71, Smart Compare, Light Castle Partners, Magnito Digital, Doctorola etc. It means that financial tension for business operations is lessened by this angel investors. This is the right time for managers of software businesses to expand their operations and attract people with their services.
- Futuristic thinking: Who would have thought of Uber or do online shopping or distant learning or mobile banking few years back in our country? We have proved that we are also technologically advanced country in this world. We have now our own Pathao service which is making our daily life easy and comfortable. Basically in this software development business there are infinite number of innovative things that can change our whole lifestyle. Conceptual skill is very important in this business as competition is higher. People need to be proactive and need to think about future rather than spending more time thinking about present. If Bangladeshi company can create something amazing it will bring revolution to the whole world. It is not impossible at all for our people. There are skilled people in our country which we need to find, we are also getting benefit of internet connectivity which is a very optimistic fact. So with proper guidance we can have our own Google or Facebook. By focusing on research and development we can create futuristic applications through the software development business.

2.5.2. Challenges of software development business in Bangladesh

- One of the major challenges of this business is not getting the payment from the clients at the right time after providing the service. This is a major concern for the whole team of development as well as affects the whole business operations. I surveyed few companies and most of them talked about this issue. Sometimes the delay continues for a longer period of time and company needs to find other solutions.
- The never ending demands from the clients even after closing the deal is a common problem that Bangladeshi company faces. Surprisingly companies' project coordinator told that clients are confused about their end product, they specifically do not know about their requirements and at the end there will be continuous changing in the process. So it becomes a concern of distress for the employee of the company.
- Another significant challenge for this software development business is lack of skilled manpower. Though there are large number of firms but not enough skilled people to carry out a particular responsibility. There is a breach between institutional education and industry level work. Students might be academically talented but do not have knowledge of practical experience. Number of IT graduates are entering into marketplace without having proper skills and thus growth becomes slow and affects in the country's economic badly.
- Private sectors also need to play their role to retain their skilled employees by providing desiring remuneration packages to their employees and by creating better working environment. Bangladeshi software developers often switch jobs because they are not satisfied with their salaries and so long term bond cannot be created with the company. There will be problem with trust issues and will hamper the work terribly. This is a great challenge for software companies in our country. Also in some offices proper working environment is not present in the scene. Employees lose their motivation and stop coming to the working. This how employee turnover rate is increasing day by day.
- Marketing and branding is very important for any business. Business expansion occurs through marketing. In our country many businesses cannot grow because they do not know how to market their products. Also some of them fail to explain the utilization of the product to clients and they lose the clients. Though there are marketing agencies working in our country to assist the business, small firms cannot ask them for help because of high

level charging. It is also important to attract foreign customers to gain more profit. The companies I have surveyed have their own marketing and business development team who help to promote the business to the particular audience.

- Access to finance is another problem. Sometimes it is also hard to get loans from banks. Small enterprises also lack proper financial reporting which further discourages bankers to provide loans. This becomes a challenging part for the entrepreneurs and they need to think of self-financing.
- Lack of capital at initial level is barrier for new entrepreneurs (Bangladesh Tariff Commission, 2015). The companies I have surveyed were mostly dependent on self-funding and they needed to look for investors. They really did not open up about this initial capital that they had used. They told that two years back up plan is necessary for starting the business. Though there are venture capital firms in our country to assist the entrepreneurs, but huge number of software firms create competition and make it harder to attract the venture capital firms. The business idea needs to be innovative and investment worthy. For example a research has been done on 18 enterprises to identify their initial source of investment fund.

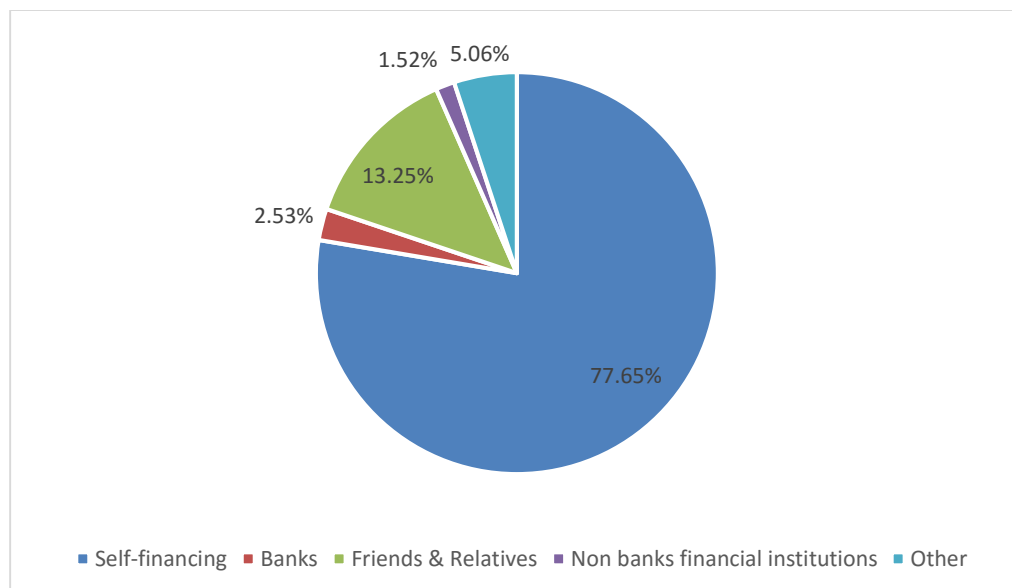


Fig: Source of initial investment funds

Above chart shows that primarily funds can be found from four sources. Among those portion of self-financing is higher in the chart which holds the position of 77.65% where bank loans are only 2.53%. This is why collecting funds for initial work is very challenging.

- Business related rules and regulations sometimes hinder the business activities to some extent and licensing and importing procedure needs to be much easier (Bangladesh Tariff Commission, 2015). While opening a business key licenses/permits required by an entrepreneur include Trade License, Certificate of incorporation, Memorandum of Association, VAT Registration Certificate, Tax Identification Number which consist of different departments of the government. Besides, export registration certificate is required for export purpose and permission from Board of investment is required from Board of Investment for forming joint venture companies. Enterprises require simplification of procedures in obtaining those certificates and procedure.
- Another challenge revolves around the infrastructure problem of our country specially our Dhaka city. The city has already become densely populated and congested along with so many building, cars, street hawkers, footpath business etc. According to my knowledge our country was not prepared for these sudden developments and this is why everything is becoming unmanageable. Moreover people outside Dhaka still faces the problems of electricity load shedding and internet bandwidth. It has been recently found that traffic congestion in Dhaka eats up around 5 million working hours every day and causes an annual loss of between Tk 20000 crore and Tk 55000 crore. Bangladesh government is making high-tech parks and other facilities, but the enterprises need to get proper incentives and support socio economic environment around such parks so that experts may lead sound and healthy livelihood around the park.

These are some challenges I found important in software development business in current scenario. In the recommendation part I will try to focus how to overcome these challenges with feasible solutions.

2.6. Recommendations:

As my vision to write on the subject “Opportunities and challenges of software development business in Bangladesh” has come to a point where I have been able to gather some information on opportunities and challenges, I would like to write some recommendations based on challenges. These recommendations will be totally based on my discernments and these are described below:

1. As much as customer satisfaction is important, contentment is equally important for employees of the company. The due payment should be paid by the clients at accurate time. The client is reluctant to pay only then when he/she is not sure about the product specially the designing part. I came to know about customer satisfaction from the companies I have talked. I made a chart for better interpretation which is given below:

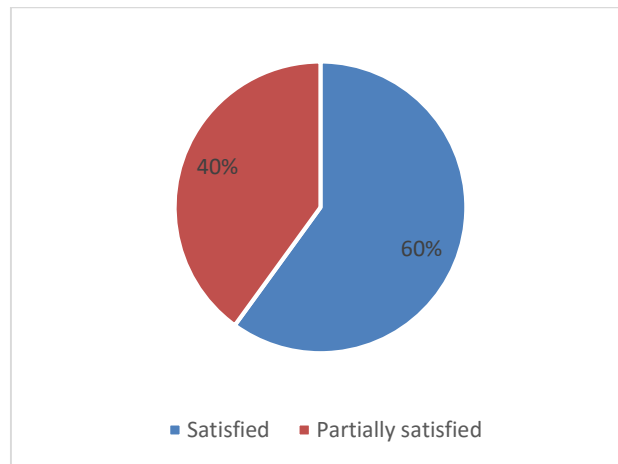


Fig: Percentages of client satisfaction

60 percent clients are satisfied with particular companies and some are partially satisfied which means they are confused about their end product. Satisfaction and payments both can be solved if the developers use prototypes to be cross checked with the design by the respective clients at a regular basis.

2. Skilled manpower is an important factor for the growth of the company. Though our country has started to see the light of development for few years, we have already come a long way. More skilled people can be created if our institutional learning has more link with industrial work. Universities and other respective educational institutions need to focus more on those courses which are really necessary in practical life and also students

need to watch out for the government projects to learn more. However motivation, inspiration, passion is undoubtedly mandatory for the students who want to develop their career in the software development business.

3. Employees in this sector are often undervalued in case of remuneration. So that is why employee turnover rate is also higher. This happens when people from higher management are dishonest and want to push employee for more work while not paying desired salary. I would recommend to change themselves ethically and think that employees are assets not liabilities. Also companies can arrange in house training session to motivate them to move forward for the betterment of the organization and as well as for the country.
4. Entrepreneurs can promote their businesses through social media and advertising in online platforms. Also they can learn from their competitors. For example if a strong company regularly publish advertisements on facebook then small businesses should do that too. Customers really want those products which are really great in quality because quality is everything that matters. So providing testimonials on website will attract more customers.
5. Before starting the business small companies can prepare their necessary documents to get a bank loan and they can seek help from an expert. This would help them to save some money from their own pocket. Entrepreneurs should look out for the funds provided by the government. Also entrepreneurs might get proper training on the basic concepts of freelancing, marketplaces, online payment gateway (payoneer, skrill etc), blogging, affiliate channels (amazon.com) by the bank officials to ensure a smooth transaction.
6. Imposition of vat on e-commerce is really an obstacle to the growth of e-commerce as well as software development business. Exemption from this would facilitate the growth of this sector.
7. PayPal is a worldwide online payments system through which online money transfers appeared as electronics alternatives to traditional paper methods like cheques and money orders. PayPal is available in 200 countries and allows sending and receiving funds in 25 currencies. It would make the payment system smoother and outsourcers from Bangladesh would get rid of the problems associated with online transaction through initiatives taken by government to attract PayPal in Bangladesh.
8. Research and development is significant part in this software development business. Investing more in this part will help to innovate more products and finding new export

destinations will increase the growth of the industry as well as the whole economy. Government can conduct more studies from time to time in collaboration with other associations and research organizations for policy reforms and new policy recommendations.

2.7. Conclusions:

People of our country have witnessed so many developments in our cities in recent years. We are now using facilities of transport sharing, can order food on online and other so many amazing things which are unimaginable. So these software applications have made our life easier and faster. Entrepreneurs and other technologically enthusiastic and dynamic people are using opportunities and overcoming challenges of software development zone in Bangladesh. As a developing country there are abundance of opportunities and challenges. In this paper I tried to reflect some of the important factors of these things. Market, an inseparable part of any business, also for software development business is practically well and attractive. The research questions I wanted to concentrate resulted in producing facts which are optimistic for our country. The software development companies in Bangladesh can really help to reach our country's current vision which is transforming our country into digital one. Though there are so many problems and challenges, we just need to refuse them and try to think only positive ones because there is a proverb goes every cloud has a silver lining. So to really prosper in software development business we need to be more visionary, graphic and the determination to change our country.

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Appendix

Below is the interview questionnaire form for IT professionals.

Dear Sir,

I am a student of BRAC University conducting a research on “Opportunities and challenges of software development business in Bangladesh”. To serve the purpose, I need some information from you. It may be noted that all information from you will be kept confidential and be used for my research.

Thank you,

Bishal Peter Does

Date: _____

Your Name: _____

1. Please define the name of your organization.

2. Please define your role in the company.

3. Which software application/s your company has developed?

4. What programming languages do your employees use mostly?

5. Who is your client/s?

6. Please mention few words on competitive advantages of your company in the perspective of Bangladesh.

7. Which tools do you use to communicate/develop software?

8. Please mention few words on future opportunities of your company in the perspective of Bangladesh.

9. Mention few words on challenges that your company is facing in Bangladeshi marketplace.

10. How government can assist our software industry to become more competitive in this fast growing world?

11. How much capital is required approximately to start a software firm? (If you know)

Sample example of a HR software:

Spark, a HR & payroll software from Aplectrum Solutions Ltd, innovative, responsive web & mobile app based HR & Payroll software solution specialized for RMG industry.

Client list

- Far East Knitting & Dyeing Industries Ltd
- Suprov Composite Knit Ltd.
- Zara Denim Ltd.
- Galaxy Sweaters & Yarn Dyeing Ltd.

Benefits of using this software

- Spark will save monthly around BDT 2 to 5 lakh BDT even more based on worker size
- Project analysis on employee turnover in next six months
- Forecast salary and benefits in the upcoming months considering recent months
- It will ensure pay only for the hours that worker worked, pay only for the items they produced
- Option of offering production bonus in many ways, like based on OT hour, salary, fixed money, fixed allotment etc.
- It helps to deliver the reports needed for different type of audits
- Spark can be used from anywhere in the world from any device including mobile phone

Unique features of Spark

- Highly-configurable-dynamic production bonus, OT, night bills, service benefits, bonus and advance payment.
- Analytics, Dashboard, and Custom Report to track productivity and performance.
- Salary processing in both fixed rate and piece rate.
- Payroll processing time reduced to 98%. Very fast and easy to generate and print pay slip & salary sheet and excellent security features.
- Multi-company features available including branches, divisions, sections, departments and employee positions, support for all type of leaves including maternity leave.