

The Software Industry in Bangladesh and its Links to The Netherlands

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Abstract

Organizations such as KLM, Philips and Baan in The Netherlands have been collaborating with IT-suppliers in developing countries. Dutch software projects are now being executed in many nations, and especially in Asia. India is the most popular country, but some Dutch companies have chosen to outsource work to lesser-known IT-destinations, such as Bangladesh. This country has more than 200 software houses and data-entry centres and numerous computer shops. At present, there are around 20 - 30 Bangladeshi software developers with foreign clients, some of which are 100% export orientated.

Several years ago, software was identified by the government of Bangladesh as having important export potential. The total amount of software and IT-services exports is currently estimated at a maximum of \$ 30 million per year. Dijkoraad-hawar, a medium sized IT company and Metatude, a start-up company are presented as Dutch case studies in this paper. Each organization has set up a software development centre in Dhaka, and has been satisfied with the results. One of the main advantages perceived by these users is the potential for significant reduction in project costs. Also, qualified candidates can be found in Bangladesh and cultural differences had no major impact.

1. INTRODUCTION

For more than 20 years, organizations in The Netherlands have been collaborating with IT-suppliers in developing countries. There have been two major reasons for global software outsourcing: the possibility to reduce costs and the availability of IT-skills abroad. Indian software companies started offering their services to Dutch clients more than twenty years ago. This country is now the most popular offshore destination and more than 200 Dutch firms have outsourced IT-work to India. In recent years, vendors from many other countries have been targeting The Netherlands as well.

Dutch software projects are underway in many developing nations, especially in Asia. Compared with India however, these projects are much more limited in size and in number. The IT-sectors of most of these countries are not well-recognised in Holland. For example, only a few Dutch companies have chosen to outsource work to Bangladesh. The objective of this article is to give a brief overview of the Bangladeshi IT-sector and its software exports, and to identify the nature and extent of Dutch IT collaboration with Bangladesh.

2. THE BANGLADESHI IT-SECTOR

With a population of 130 million people, Bangladesh is one of the largest developing countries in the world. According to BASIS (the Bangladesh Association of Software & Information Services), some of the advantages of the Bangladeshi IT-sector are low labour costs, high programmer productivity and a widespread knowledge of English. At present, 42 public and private universities and some institutes and colleges are offering degree courses in the area of Information Technology. It is estimated that every year, around 3000 IT graduates are coming out of these institutions. In addition, there are large numbers of IT training centres, some of which are a foreign franchise. The rough enrolment in these centres is around 12 thousand per year (BASIS, 2002). In general, basic technical knowledge in Bangladesh is considered to be adequate. Students from BUET (Bangladesh University of Engineering and Technology), Dhaka University and some private universities have excelled

in national and international computer programming competitions. Specific project and business management skills however need to be upgraded (IBTCI, 2002). Most recruits are from a technical or engineering background and as they progress in their careers additional management skills will be required.

In Bangladesh, there are more than 200 software houses (although selling hardware is often an important part of their services) and data-entry centres and numerous computer shops. Most of these IT-companies are small or medium-sized; a company of 50 – 100 people can be considered large. There are no extremely large enterprises, as is often the case in neighbouring India. Although exact numbers are not available, the number of foreign IT-companies is limited.

BASIS, the Bangladesh Association of Software & Information Services, is the national association of software and IT firms, and was founded in 1998. It has a rapidly growing membership, which at the beginning of 2003 stands at 82. BASIS organises seminars, workshops, a national software programming contest and trade fairs, such as the SoftExpo Bangladesh 2002. It also participates in foreign IT exhibitions in order to promote the Bangladeshi IT sector (BASIS, 2002). Another organization is BCS (the Bangladesh Computer Samity), which is a national association of all types of IT firms, including hardware and software retailers, wholesalers, assemblers and developers. It has been established in 1987 and has around 180 members. Some companies belong to both associations. The BCC (Bangladesh Computer Council) is an autonomous body under the Ministry of Science and Information & Communication Technology and provides support for IT related activities as well. Recently, the Internet Service Providers Association of Bangladesh was formed.

Around a dozen BASIS members are certified to the ISO 9001 quality assurance standard. Measured against the Software Engineering Institute's Process Maturity Levels (there are five levels) almost all Bangladeshi software development companies fall in the lowest level (the Initial Level). To participate in the global software development industry, the desired minimum level is Capability Maturity Measurement Integration (Level 3). Some firms are now working towards obtaining a CMMI-Level 3 certification. Dutch companies have observed that the quality of documentation and testing is sometimes inappropriate and quality assurance is weak. This means that the software needs to be sent back to Bangladesh for debugging and re-programming. The Dutch CBI (Centre for the promotion of imports from developing countries), which is an agency of the Ministry of Development Cooperation, started in 2002 to organise workshops on software project management for IT-professionals in the capital Dhaka. This course is offered as part of an integral export promotion program of CBI, which will also include export marketing assistance for a selected group of companies.

When software was identified by the government of Bangladesh as an industry with an important export potential, the Ministry of Commerce established a task force in 1997 to identify methods by which this sector could be developed. A report, which was submitted by a committee headed by Mr. Choudhury in September 1997, identified Bangladesh's competitive advantages as

- low labour costs
- high programmer productivity
- widespread knowledge of English
- the availability of a wide range of hardware platforms
- existence of an experienced software sector.

The report also identified four types of constraints (fiscal, human resources, infrastructure and marketing). The main constraints were recognised as poor

telecommunications infrastructure, the insufficient number and capacity of ISP's and the lack of contacts with international markets.

Of the task force's forty-five recommendations to the government and to the private sector, twenty-five have been acted upon and nine more are being implemented (Choudhury, 2000). Computer hardware and software imports have been exempt from duties and taxes. A 10-year tax holiday for software and IT service companies has been established. 100% foreign-owned companies are allowed and a 100% remittance of profit and capital gains for foreign investors is possible. An IPR (Intellectual Property Rights) law was enacted in 2000 and an Electronic Transactions & Cyber Crimes Law is being drafted. Software and data processing exporters are also eligible to benefit from the EPB's (Export Promotion Bureau) market promotion fund.

Recently, with support from the World Bank, the BDXDP (Bangladesh Export Diversification Project) issued on behalf of the Ministry of Commerce a report on supporting the IT exports growth (IBTCI, 2002). The BDXDP recommended that a shared sales office should be set up in the United States (Silicon Valley) to improve the penetration of foreign markets. Its goal must be to promote and speed up direct contacts between exporters and potential clients in the world's leading IT-market. This office is planned to be opened at the end of 2002.

Personal contacts are extremely important in establishing business connections, as, for example where Indian expatriates working in high-level technical and managerial positions in the U.S. and U.K. have been very instrumental in the growth of Indian software exports (Arora, 2001). The BDXDP report also mentioned that the Non-Resident Bangladeshi community abroad can be a significant asset to Bangladeshi companies entering foreign markets, e.g. through organizations such as TechBangla, SBIT (Silicon Bangla IT) or the AABEA (American Association of Bangladesh Engineers and Architects). The focus of promotional activities should be to create a number of successful exporting companies, rather than working to create a strong Bangladesh country brand.

The report identified that although the number of Internet Service Providers is growing rapidly, Bangladesh still has one of the lowest tele-densities in Asia (around 1 per 100 people – although it has doubled over the last few years with cell phones significantly contributing to it). Data transfer is poor and very expensive compared with competing countries. For this reason, a temporary 'IT Village' will be established with all the necessary telecom facilities to provide temporary front office space to software exporters. An IT incubator in the heart of Dhaka (at the 5 star Sonargaon Pan Pacific Hotel) has been operational since November 2002, and tenants are welcomed. Recommendations were also made in the fields of promoting direct investment (e.g. offering a 20 year tax holiday for approved projects) and education (e.g. establishing advanced courses on specialist IT industry management and marketing methods), (IBTCI, 2002).

3. SOFTWARE EXPORTS

International organizations such as the World Bank mentioned the trade opportunities for developing countries in the field of IT already several years ago (Schware, 1992). A growing export IT-sector is important for Bangladesh, since it generates foreign exchange and provides for highly skilled jobs. To achieve this, the education system must produce better-equipped students and the IT infrastructure should be improved. If such an IT-industry does not develop, the problem of the brain drain will continue to exist. Around 80% of graduates and teachers have indicated that they would migrate to other countries if they could (UNCTAD, 2001). So far, Bangladesh has lost the majority of its scientists, technologists and engineers to the western world.

Exporting IT services from developing nations such as Bangladesh is a complicated process (Tjia, 1999; IBTCI, 2002). Exporting software products is even more difficult. It will always take a lot of time and effective marketing is essential for any successful market penetration. It is still difficult for potential Dutch or European clients to find suitable information about the Bangladeshi IT-sector. Users that collaborate with Bangladesh are scarce and there are hardly any articles being printed on this subject in magazines. One way to change this and to conduct marketing and sales activities is to open a marketing office abroad. More than 300 Indian software firms established offices in Europe, especially in the U.K. Only with a local presence can marketing be done at an optimal level, but not a single IT-company from Bangladesh has an office in Europe yet. An alternative is to use local marketing partners or business agents.

Most successful companies in developing nations have started on a small scale and built their businesses up gradually. This should be the goal for Bangladesh as well. Nevertheless, export promotion is both expensive and time-consuming. Firms must be prepared to invest in marketing, especially in fields such as commercial representation, pre-sales consultancy, match-making, networking, advertising and travel. Because of these factors, the market entry costs are high. These high costs are one of the main disadvantages of the export of IT-services (Heeks, 1992).

In 2003, an estimated 20 - 30 Bangladeshi software developers, some of which are 100% export orientated, are working for foreign clients. Most of these exporters are service providers or sub-contractors working with overseas software developers; others develop and market their products direct to end users in the foreign markets. Apart from software development, also IT-services such as data-processing, GIS, 2D and 3D animation and multimedia are offered to foreign clients. There are no exact data, but the total software and IT-services exports are currently estimated at a maximum of \$ 30 million per year.

The major export market is the United States, where most of the marketing activities are taking place. Firms from Bangladesh are regularly attending the Comdex exhibition, both as visitors and exhibitors. A convention, TechTransfer, organized by a committee representing the private sector, the government and universities, was held in April 2000 in Atlantic City, U.S. (TechTransfer, 2000). It brought together resident and non-resident Bangladeshi IT professionals, to exchange views and knowledge and to discuss ways to promote the development of IT in Bangladesh. As a follow-up, TechTransfer 2 took place in December 2000 in Dhaka.

Apart from the United States, Bangladeshi companies also work for clients in various European countries, such as France, Germany, Italy, Sweden, Denmark, U.K., Switzerland and The Netherlands. The number of projects and the size of contracts however are limited, even though the working history is relatively long. Already in 1988, a software company was set up in Dhaka that exported software and IT services to Volvo Motor Company in Sweden. In 1989 another software company was started that had the large U.K.-based ICI Pharmaceuticals among its export clients. Unfortunately the tempo of growth of this industry could not be maintained due to many factors - some political, some infra-structural and some due to lack of a facilitating policy framework (IBTCI, 2002).

Compared with India, the IT-sector of Bangladesh is hardly visible in Europe. The public presence of vendors from Bangladesh was mainly limited to participations at the CeBIT in Hannover, Germany, which is the largest IT-exhibition in the world. In recent years, stalls at this fair are being sponsored by the DCCI (Dhaka Chamber of Commerce) and the EPB (Export Promotion Bureau). Also the Dutch CBI (Centre for the promotion of imports from developing countries) sponsored the participation at CeBIT of IT-companies from Bangladesh for several years. This was part of a marketing support project which started in 1995 and ended in 2000, when five companies (CITech Communications, Computer

Services, DECODE, Leads Corporation and Texas Electronics) presented themselves at the exhibition.

Companies from Bangladesh can sometimes be seen at other occasions. A recent IIR Offshore Outsourcing conference in London (May 2002) was sponsored by BASIS and some of the largest Bangladeshi firms including TechnoVista, Flora Systems, TCL, CreateMatix and CSL Software Resources were participating at the seminar. A software marketing delegation arranged by the Export Promotion Bureau visited several European countries, including The Netherlands, during October 2002.

4. THE CONNECTION WITH THE NETHERLANDS

Germany is the largest national market for Information Technology in Europe, followed by the United Kingdom, France and Italy. The Netherlands ranks number five in size (EITO, 2000). For more than 20 years, companies in The Netherlands have been using the services of IT-suppliers in developing countries. The Dutch, who have been international traders for centuries and who, compared with other European countries, have an international outlook are often willing to cooperate with foreign companies. An important advantage of offshore outsourcing is the possibility to reduce costs. Until the current economic recession, there has been a serious shortage of specialised IT-skills in The Netherlands for many years (FENIT, 2001). In developing countries, low cost and experienced software engineers are available in large numbers.

Dutch enterprises limit their orders primarily to India. Although the Dutch IT-market is relatively small, more than 200 Dutch companies have had their software developed in India. On a more incidental basis, software orders have also gone to many other developing countries and especially to Asia (Tjia, 1999). Dutch software destinations in Asia are Turkey, Iran, Pakistan, Sri Lanka, Nepal, Vietnam, Malaysia, Thailand, the Philippines, Indonesia (a former Dutch colony), China and North Korea (also attractive for its advanced animation sector).

Four types of international IT-collaboration can be distinguished:

- The client works temporarily together with a foreign software house for the duration of one or more projects. This is relatively uncomplicated and is the most popular way. Dutch based companies such as ABN Amro Bank, Atos Origin, the KLM and ING Group are working like this. In these cases, most of the work is being done offshore; on-site assignments are less popular.
- Joint ventures with foreign IT companies. This will intensify the relationship between the two organizations. An example of this is OTS (Orange Telecom Software), a joint venture that was started in 1991 between the Dutch KPN Telecom and TCIL of India. Joint ventures in the field of software development are still very rare; OTS has been closed recently.
- Dutch companies establish subsidiaries abroad. This is useful if large amounts of software need to be created. For this purpose, enterprises such as Philips, Vanenburg and Invensys/Baan have set up subsidiary companies in India. The ABN Amro Bank operated a software facility in Lahore (Pakistan). Another IT-firm recently set up an office in Kathmandu (Nepal).
- Foreign IT specialists can be employed directly and work on site. This method is not often used but, because of the scarcity of certain qualified personnel, some Indians are living and working in The Netherlands.

In recent years, some Dutch companies decided to outsource software projects to Bangladesh. The author estimates that not more than five Dutch organizations have had IT-experiences with this country. The author discussed this with three of these companies. The level of IT-education in Bangladesh is in general sufficient for the Dutch firms. Although these clients were relatively small and internationally unknown, they had no problems in finding qualified candidates in Bangladesh. The total costs per programmer are much lower than in India and compared to The Netherlands, cost savings of more than 50% (including overhead) could be achieved. There is a risk that staff leaves for a position abroad (especially the U.S. is a popular destination). However, they will tend to stay if the project is challenging (e.g. using new technology) or if a better working condition, additional training and other incentives can be offered.

5. CASE STUDIES OF DUTCH-BANGLADESH OUTSOURCING

Dijkoraad-hawar is a medium sized Dutch IT company specialized in the integration of graphical and alphanumerical information in technical environments (e.g. Computer Aided Design, Geographical Information Systems, Facilities Management). It has five offices in Holland. Providing IT-services is one of their activities and since 1998, they are working with a partner in Bangladesh. In Dhaka, the capital of the country, a small team of 5 programmers is producing software for the (Dutch) clients of Dijkoraad-hawar. One of their recent products was a service management module to be used by the Dutch national airline KLM. The choice for Bangladesh was by coincidence. One of the founders of the company, who later pursued his career in development-aid related projects, had an assignment in Bangladesh. When he came in contact with local software companies, he was surprised by their experiences and skills. He succeeded in establishing an initial relationship between one of these firms and Dijkoraad-hawar. The cooperation started when a staff member from Bangladesh spent several months in The Netherlands for training and familiarisation. After this period, all communication could take place through the Internet and by telephone. So far, no need was felt for Dutch staff to travel to Dhaka. In 2002, Dijkoraad-hawar started a second activity in Dhaka: data processing.

Another Dutch example is Amsterdam-based Metatude, which was set up in the beginning of 2000. It produces and markets software products, that allow its clients to develop on-line dialogues with stakeholders (e.g. surveys through the Internet). The founders of the company had planned to do all the software development activities in Amsterdam and rented a large office space for this purpose. In 2000 however, in the middle of the Internet-hype, it was not possible to recruit the required number of staff. Nobody seemed to be willing to work for an unknown start-up and the management was forced to consider offshore alternatives. They hired the assistance of a consultant of GPI Consultancy, and initially, three countries were looked at: Bulgaria (a Bulgarian IT-promotion project was active at that time), India (well-known) and Bangladesh (where the consultant had contacts). In each country, several software companies were contacted through e-mail. The feedback from Bulgaria was poor and not very convincing. India had a large choice of qualified suppliers but seemed to be expensive for a start-up with limited funding. Rather surprisingly for Metatude, the answers received from Bangladesh were detailed and responsive.

To gain more information, the next step for Metatude was to travel to Dhaka. During two weeks, meetings took place with ten local IT-service providers, some foreign companies and the Dutch Embassy. It was found out that sufficient IT-staff were available and that the costs to develop software were low compared to Holland. There did not seem to be a very large turnover of staff as was the case in India, also because of the low number of foreign companies in Bangladesh. It was also noticed that the international experience of firms in Bangladesh was limited and that the infrastructure was not very sophisticated. At the end of

the visit, three local companies were invited to work out a RFP (Request For Proposal). Finally, one partner, the owner of a small IT services company, was chosen. This person and his team were to be employed by Metatude and at the end of 2000, a subsidiary organization was set up in Dhaka. It was a disappointment that a senior architect could not be found locally (not even in nearby Calcutta in India). This meant that the Dutch project leader had to stay in Dhaka for a much longer period than originally planned. Dhaka was considered a safe place with less crime than in Amsterdam, but the noisy city is not always particularly attractive for foreigners for a long stay.

Around sixteen people are now working for the project and the overall outlook is positive. An important reason for the success was the involvement of an experienced local partner. The cultural differences had no major impact and appeared to be less than with Indians. The working environment was friendly and has an informal atmosphere. No experiences with corruption were encountered. Nevertheless, a lot had to be learned since the team in Dhaka had not developed packaged software for a foreign client earlier. There was not much experience with managing complex projects either. The infrastructure was sometimes disappointing (e.g. slow Internet access). This all had a negative impact on the communication between the Dutch team and the staff in Dhaka, and especially in the beginning. This meant that much more time and effort was required than originally expected, which resulted in delays. The first version of the product has now been delivered and work has started on the updates.

6. CONCLUSIONS

Bangladesh can be considered a potential destination for software outsourcing. The Dutch companies that worked with a partner from Bangladesh were satisfied with the results. One of the most interesting advantages is the potential to achieve a significant reduction in project costs. There is not a very large turnover of staff and the cultural differences had no major impact. These are advantages Bangladesh has over competing countries in the region, such as India.

The IT sector of Bangladesh is not yet well known internationally and the software exports are still limited. Many of the local IT companies do not yet have international experience. To improve this situation, export promotion should be a major goal for Bangladesh. Firms must be prepared to invest in marketing activities such as commercial representation, networking and advertising. If that is the case, then more companies from Bangladesh might be able to generate revenue from the Dutch market for global software outsourcing.

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8. APPENDIX

The following webpages have been accessed on April 15, 2003:

Bangladesh Government:	www.bangladeshgov.org
BASIS:	www.basisb.org
Bangladesh Computer Council:	www.bccbd.org
Bangladesh Computer Samity:	www.bcs-bd.org
Export Promotion Bureau:	www.epbbd.org
The Federation of Bangladesh Chambers of Commerce and Industry:	www.fbcci-bd.org
Cyber Bangladesh:	www.cyberbangladesh.org
Portal on Bangladesh:	www.bangla2000.com

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He promotes global outsourcing in Holland through seminars and study tours. He assists Dutch clients with feasibility study and country and partner selection (e.g. in Central and Eastern Europe, the Middle East and Asia). He conducts workshops in dealing effectively with different cultures (e.g. 'how to deal with the Dutch culture' for Indian IT-staff and 'how to deal with the Indian culture' for Dutch users).