

North Korea: an upcoming software destination

Surprising business opportunities in Pyongyang

Dutch companies are increasingly conducting Information Technology projects in low-cost countries. Also known as *offshore sourcing*, this way of working means that labor-intensive activities, such as the programming of computer software, are being done abroad. Asia is the most popular software destination, and Indian IT firms are involved in large projects for Dutch enterprises such as ANB Amro Bank, KLM, Philips or Heineken. More recently, we notice a growth in the software collaboration with China.

As a Dutch IT consultant, I am specialized in offshore software development projects, and I regularly travel to India and China. Recently, I was invited for a study tour to an Asian country which I had never visited before: North Korea. I had my doubts whether to accept this invitation. After all, when we read about North Korea, it is mostly not about its software capabilities. The current focus of the press is on its nuclear activities and it is a country where the Cold War has not even ended, so I was not sure if such a visit would be useful. And finally, such a trip to a *farshore* country would at least take a week.

Nevertheless, I decided to visit this country. This decision was mainly based on what I had seen in China. I had already traveled to China five times this year, and the fast growth of China as a major IT destination was very clear to me. China is now the production factory of the world, but China's software industry has emerged to become a global player in just 5 years. Several of the largest Indian IT service providers, including TCS, Infosys, Wipro and Satyam, have established their offices in China, taking advantage of the growing popularity of this country. However, I also noticed that some Chinese companies themselves are outsourcing IT work to neighboring North Korea. And since my profession is being an offshore consultant, I have no choice but to investigate these new trends in country selection, so I accepted the invitation to visit Pyongyang, the capital of North Korea. I happened to be the first Dutch consultant to research the North Korean IT-sector ever, and the one-week tour turned out to be extremely interesting. Quite surprisingly, the country offers interesting business opportunities for European companies.

Korea Computer Center

My study tour was organized by KCC (Korea Computer Center), the largest IT-company in the country. Established in 1990, it is state-owned and has more than one thousand employees. It is headquartered in Pyongyang and has regional branches in eleven cities. My accommodation has been arranged at the KCC campus, which comprises of several office buildings. It also has its own hostel, with a swimming pool, for foreign guests. These guests are mainly Asian (during my stay, there were Chinese delegations), so I had to get used to having rice for breakfast. In the evenings, the restaurant doubled as a karaoke bar, and some of the waitresses appeared to be talented singers. The campus is located in a rather attractive green area, and the butterflies flying around were the largest I had ever seen. It also has sporting grounds, and basketball was during my one-week visit the most popular game among KCC staff. An internal competition takes place during lunch hours.



Photo: KCC campus in Pyongyang

Korea Computer Center is organized in different specialized business units. Before their representatives started with presentations, I received a tour through the premises. As is the case in India and China, the programmers at KCC also work in cubicles. KCC develops various software products, of which some are especially designed for the local market. Examples are a Korean version of Linux and translation software between Korean, Japanese, Chinese and English. They also produce software for Korean character and handwriting recognition and voice recognition. Other products are made for export, and North Korean games to be used on mobile phones are already

quite popular in Japan. There are also games for PC's, Nintendo and Playstation; their computer version of Go, an Asian chess game, has won the world championship for Go games for several years. The games department has a display showing all the trophies which were won during international competitions.



Photo: winning KCC games

For several years, KCC is active as an offshore services provider and it works for clients in China, South Korea and Japan. For these markets, North Korea is a *nearshore* destination, and quite a few North Korean IT-staff do speak Chinese or Japanese. KCC also has branch offices in various Chinese cities, including Beijing and Dalian. It works for both foreign software product companies and end user firms, such as banks. For these clients, different types of applications have been developed, for example in the field of finance, security or Human Resources. Europe is a relatively new market for the North Koreans, and some of their products have been showed for the first time at the large international IT-exhibition CeBIT, in 2006 in Hannover, Germany.



Photo: KCC campus in Pyongyang

The level of IT-expertise was high, with attention to quality through the use of ISO9001, CMMI and Six Sigma. KCC develops embedded software for the newest generation of digital television, for multimedia-players and for PDA's (Personal Digital Assistants). Surprisingly, it also produces the software for the mobile phones of South Korean Samsung. I was shown innovative software which could recognize music by humming a few sounds. In less than a second, the melody was recognized from a database of more than 500 songs. Also applications for home use were developed, such as accessing the Internet by using a mobile phone to adjust the air conditioning. KCC also made software to recognize faces on photographs and video films. They gave me demonstrations of video-

conferencing systems, and applications for distance learning. There was a separate medical department, which made software to be used by hospitals and doctors, such as systems to check the condition of heart and blood vessels.

Supply of IT-labor

In countries such as The Netherlands, the enrollment in courses in Information Technology is not popular anymore among the youth, and a shortage of software engineers is expected. This situation is different in many offshore countries, where a career in IT is very 'cool'. Also in North Korea, large numbers of students have an interest to study IT. I visited in Pyongyang the large Kim Chaek University of Technology, where there are much more applications, than available places. Although my visit took place during the summer holiday, there were still students around at the faculty of Informatics. In order to gain experience, they were conducting projects for foreign companies. I spoke with students who were programming computer games or were developing software for PDA's. A large pool of technically qualified workforce is now available in North Korea. Some of the staff is taking courses abroad and foreign teachers (e.g. from India) are regularly invited to teach classes in Pyongyang.



Photo: student with PDA's

Business Process Outsourcing

Some companies in Pyongyang are involved in activities in the field of BPO (Business Process Outsourcing), an areas which includes various kinds of administrative work. Because of the available

knowledge of the Japanese language, the North Koreans are offering back-office services to western companies engaged in doing business with Japan.



Photo: data-entry at Dakor

In order to get an understanding of this type of work, I visited Dakor, which was established 10 years ago in cooperation with a Swiss firm. This joint venture is located at the opposite side of Pyongyang, across the Taedong river. It works for European research companies, and it receives from them scanned survey forms electronically on a daily basis. It processes these papers and returns the results within 48 hours to their clients. The company is also conducting data-entry work for international organizations such as the United Nations and the International Red Cross. Their data, which is stored on paper only, is being made available for use online. Dakor is also offering additional services, such as producing 2D and 3D designs for architectural firms, and it is also programming websites.

Animation

North Korea is already famous as a production location for high quality cartoons and animation. Staff of the American Walt Disney Corporation described the country as one of the most talented centers of animation in the world. The specialized state corporation SEK Studio has more than 1500 employees, and works for several European producers of children films. New companies are being founded as well, and I visited Tin Ming Alan CG Studio. This firm was set up in early 2006, and is located in a new office building in the outskirts of Pyongyang. Its main focus is in Computer Graphics and in 2D and 3D animation and it uses the latest hardware and software, including Maja. Some of the staff of Tin Ming Alan speak Chinese and the company has a marketing office in China. They are hired by Chinese advertisement companies to make the animation for TV-commercials. It also works on animation to be included in computer games. Several employees of this young company come from other animation studios and have more than ten years of experience in this field.



Photo: computer graphics at Tin Ming Alan Studio

The North Korean IT-sector seems to be dynamic, where new firms are being established, and where business units of larger organizations are being spun-off into new ventures. I visited the Gwang Myong IT Center, which is a spin-off from Korea Computer Center. It is specialized in network software and security, and it produces anti-virus, data encryption, data recovery, and fingerprint software. This firm is internationally active as well; it has an office in China and among its clients are financial institutions in Japan.

Issues of country selection

My study tour revealed that North Korea has specific advantages. The local tariffs are lower than in India or China, thus giving western firms the option of considerable cost reductions. The commitment of North Korean IT-firms is also high, and the country is therefore also an offshore option for especially smaller or medium sized western software companies. Outsourcing work to North Korea could also be used to foster innovation (e.g. developing better products or new applications). This country can be used for research as well (from Linux to parallel processing). Based from my interaction with Korean managers and software engineers, I do not believe that the cultural differences are larger than with China or India. My communication with them, both formal and informal, was pleasant. Communicating with North Koreans is clearly less difficult than with Japanese.

The North Korean companies have experiences with a wide range of development platforms. They work with Assembler, Cobol, C, Visual Studio .Net, Visual C/C++, Visual Basic, Java, JBuilder, Powerbuilder, Delphi, Flash, XML, Ajax, PHP, Perl, Oracle, SQL Server, MySQL, etc. They can do development work for administrative applications, but also technical software, such as embedded software or PLC's. North Korea is very advanced in areas such as animation and games, and I have seen a range of titles, including table tennis, chess, golf, or beach volley. The design of many of their applications was modern and according to the western taste.

Over the recent years, North Korea is opening up for foreign business. This process makes offshore sourcing easier, and even investing in an own software subsidiary or joint venture can be considered. This does not mean that North Korea is potential software destination for every user of offshore services. The country is a subject of international political tensions. In addition, a number of circumstances require specific attention, such as the command of the English language. As is the case with China, the North Korean IT-staff are able to read English, but they do not all speak it very well. Another issue is the relative isolation of the country, and in order to arrange a visit, a visa is required. The limited number of direct flights is another disadvantage; one can only travel directly from Beijing or Moscow. If projects will require a lot of communication or knowledge transfer, it might be recommended to do some parts of the work in China, by the Chinese branches of the North Korean companies. Executing a small pilot project is the best way to investigate the opportunities in more detail.



Photo: lunch at BPO service provider Dakor

Conclusion

North Korea has a large number of skilled IT-professionals, and has a high level of IT-expertise in various areas. The country is evolving into a *nearshore* software destination for a growing number of clients from Japan, China and South Korea. An interesting example of their success is the work they are doing for South Korean giant Samsung, in the field of embedded software for mobile phones.

North Korean IT-companies are now also targeting the European market, and the low tariffs and the available skills are major advantages. Smaller and medium sized software companies can consider this country as a potential offshore destination, and should research the opportunities for collaboration or investment in more detail. Taking part in a study tour, as I have done, is an excellent way to get more insight in the actual business opportunities of a country - not only in the case of North Korea but for all *nearshore* and *farshore* destinations.

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Author

Paul Tjia is the founder of GPI Consultancy, an independent Dutch consultancy firm in the field of offshore IT sourcing. E-mail: info@gpic.nl

Together with Professor Erran Carmel (American University, USA), Paul wrote the book: "Offshoring Information Technology - Sourcing and Outsourcing to a Global Workforce" (ISBN 0521843553). It contains more than 300 pages and is one of the most informative and detailed publications available on the subject. It is published by Cambridge University Press, and reprinted in 2006. The Table Of Contents is can be found at: <http://www.gpic.nl/bookTOC.pdf>



**Further information**

GPI Consultancy, Postbus 26151, 3002 ED Rotterdam
Tel: +31-10-4254172 E-mail: info@gpic.nl <http://www.gpic.nl>

GPI Consultancy is specialized in the field of offshore IT sourcing. It has the following main fields of activity:

- promotional activities (e.g. seminars, publications, videofilms, and study tours)
- consulting activities (e.g. feasibility study, country and partner selection, offshore transition, research)
- intercultural training (e.g. 'how to deal with the Dutch business culture', 'how to deal with the Indian business culture')