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An e-Commerce Success Story
of
HKSAR Government –
Electronic Tendering System (ETS)

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Abstract

This paper describes the first G2B (Government-to-business) electronic tendering website in the world that allows both tender dissemination and tender offer submission.

The ETS is an internet-based electronic tendering system for the Hong Kong SAR Government. It was developed, maintained and operated by Global e-Business Services Limited (“GO-Business”), a subsidiary of Computer And Technologies Holdings Limited (SEHK: 0046).

ETS is mainly designed for displaying, disseminating and submitting of tender information for Government Supplies Department (“GSD”). It includes the display of tender notices, contract award notices and General Terms and Conditions, dispatch of tender documents, receipt of offers, etc. By subscribing to the service of ETS, subscribers can “Logon” to the system and enjoy additional functions such as on-line registration as GSD registered suppliers, updating of company information, downloading tender documents and clarifications, submitting queries on tenders and submitting tender offers whenever they wish, and wherever they are.

Through the internet-based ETS, GSD could rapidly expand its potential supplier pool and thus create a much more competitive environment. As a result, GSD would be able to receive more competitive offers and with more choices. ETS could effectively assist GSD in the reduction of paper usage in printing large number of paper-based tender documents to be collected by suppliers. Furthermore, ETS has brought in new suppliers (both local and overseas) who had not participated in GSD tenders when only paper-based methods were available.

For suppliers, ETS could dramatically shorten the time and save the cost for preparing and submitting bid offers for GSD. Suppliers could access the system via widely available Internet Explorer browser without the need to install software and perform tender offers submission anytime and anywhere.

ETS is the “first” G2B (Government-to-business) electronic tendering website in the world that supports two-way transaction process to allow online tender posting as well as submission. It is the first Internet-based service of its kind in the world and is the first commercial service using the Hong Kong Post Public Key security Infrastructure (PKI). The service has won the first Hong Kong eAward presented by the Hong Kong Productivity Council (HKPC) for the service’s innovation and design. In November 2000, ETS also won the Best Public Sector Site in the Hong Kong Economic Time and UUNet Internet Award. All transactions process by ETS are recognized under the Electronic Transaction Ordinance (ETO) enacted in early January 2000. The technology platform used for delivering the ETS service had also gone through comprehensive operation and security testing, including an audit by Hong Kong Productivity Council (HKPC) to ensure its reliability and security.

Today, ETS is being operated and managed by GO-Business as a powerful and robust online electronic tendering platform. It links the supplier community worldwide directly with GSD, which is the central purchasing, storage and supplies organization for the Government of the Hong Kong Special Administrative Region serving over 80 Government departments, subverted organizations and certain non-government public bodies. In the year 1999-2000, GSD procured around HKD 4,440 million worth of goods and services. By end of May 2001, a total of 1,112 tenders, which accounts for 72% of the total number of tenders, with value below HK\$10 million per tender, have been issued through the ETS.

GSD has successfully transformed the traditional paper-based tendering process to a robust and highly secured Government-to-Business (G2B) e-commerce application platform. This has a strong impact on other government departments, quasi-government organizations and commercial sector to follow suit and hence accelerate the pace of e-commerce adoption in Hong Kong, particularly in the electronic procurement and supply chain management areas.

ETS will be most welcome by the World Trade Organization (WTO) which actively advocates public tendering within the member countries to promote fairer trade

among countries. ETS encourages a competitive trading environment and hence foster the growth of industries in Hong Kong.

1 Executive Summary

The Electronic Tendering System (ETS) operated and managed by Global e-Business Services Limited (“GO-Business”) provides an electronic means through the use of Internet technology for handling tender and related activities. It is the “first” G2B (Government-to-business) electronic tendering website in the world that allows both tender dissemination and tender offer submission for Government Supplies Department (GSD) of the Hong Kong SAR Government.

ETS saves both time and cost for GSD and suppliers in the purchasing process. It has opened up new possibilities for making the purchasing process swifter, more responsive and able to function with less paperwork. With ETS, suppliers are offered more business opportunities and in return, GSD could achieve improved value for money in purchase.

ETS was built on a strong security framework which ensure confidentiality, integrity and authenticity of tender documents submitted. The technical platform of ETS also guards the system against intrusion and virus attacks (Please refer to Appendix I for ETS Security framework). It used the most advanced commercially available encryption technology and has gone through comprehensive operation and third party security audit on a regular basis.

The implementation of ETS is a great step forward in the promotion of e-commerce. Through ETS, a standard for e-tendering services in Hong Kong has been created and extended from government sector to the business world.

2 What is ETS?

Electronic tendering is basically a secured means of transferring documents electronically. It includes both tender dissemination and tender offer submission on a web-based environment.

The ETS is an internet-based electronic tendering system for the Hong Kong SAR Government. It was developed and operated by GO-Business, a



subsidiary of Computer And Technologies Holdings Limited (SEHK: 0046). ETS is the first G2B electronic tendering service in the world that allows both way tender document exchange. Whereas in most parts of the world, most electronic tendering system only allow one-way traffic as compared with ETS that allow two-way not only on submission but also on clarifications, query, addendum, postponement, etc. ETS is in line with HKSAR Digital 21 IT Strategy and in particular recently announced revised focus by the Security of Information Technology and Broadcasting, Mrs Carrie Yau.

ETS is accessible by suppliers at any place any time. It is a secure repository for companies (whether or not they are registered suppliers of GSD) to access and download latest tendering information from GSD, including tender notices, tender documents, tender clarifications and addendum as well as notifications of contract award. By subscribing to the service of ETS, subscribers could access the system by simply entering their username and password through a standard internet browser. Virtual tender boxes would be created by GSD to receive tender proposals submitted by suppliers through secured electronic channel over the internet. On-line help and guidance are available to ensure ease-of-use. All transactions processed by ETS are recognized under the newly enacted Electronic Transaction Ordinance (ETO).

3 Objectives of ETS

ETS is designed for the purpose of extending the reach of tender invitations without boundary, resulting in improved value for money in purchase through a broadened supplier community. The use of internet brings information to the attention of new suppliers who may not have access to the Government Gazette or the local press.

ETS simplifies internal workflow of both GSD and its suppliers by reducing the demand for printing, binding and dispatching of documents in hard copy. It makes the process more efficient by less paperwork and repetitive re-keying jobs during tender preparation resulting in savings in administration cost and storage space.

ETS provides a highly secured framework which ensures all transactions would fulfill privacy/confidentiality, integrity and authenticity. Details of its technical infrastructure would be discussed in the coming session.

Other objectives of ETS includes:

1. To make the procurement process, specifically for tendering, more open/fair/transparent;
2. To promote B2B e-commerce by setting an example;
3. To support environmental protection by using less paper.

4 ETS and GSD

Traditional tendering process involves a large amount of paper work spanning multiple departments across government organizations. More than often, these activities can be a burden to repetitive purchasing for most departments. This is why ETS was introduced to streamline the way tendering is being conducted, saving both time and cost for GSD and other government organizations for a more effective way to acquire goods and services from external suppliers. ETS solves this problem via state-of-the art technologies

in both channel available – the Internet, to provide a platform for document interchange between suppliers and the enterprises.

ETS links the supplier community worldwide directly with GSD, which is the central purchasing, storage and supplies organization for the Government of the Hong Kong Special Administrative Region serving over 80 Government departments, subverted organizations and certain non-government public bodies. In the year 1999-2000, GSD procured around HKD4,440 million worth of goods and services.

ETS was brought into operation on 7 April 2000 to handle tender value below HK\$10 million. GO-Business is the exclusive service provider for operating and maintaining the system as well as supplier recruitment and registration. Through the joint effort between two parties, ETS has successfully attracted 1,400 suppliers to register as subscribers by end of May 2001. A total of 1,112 tender had been issued through the system which account for 72% of the total number of tenders issued (under \$10 million) and represent 74% of tender values since its launch in April 2000.

Through the Internet-based ETS, GSD could rapidly expand its potential supplier pool and thus create a much more competitive environment. As a result, GSD would be able to receive more competitive offers and with more choices. ETS could effectively assist GSD in the reduction of paper usage in printing large number of paper-based tender documents to be collected by suppliers. Furthermore, ETS has brought in many new suppliers (both local and overseas) who had not participated in GSD tenders when only paper-based methods were available.

In addition, ETS is able to provide GSD with a channel to publish its Tender policy online. It could also enable the publishing of general terms and conditions and highlight only specific terms and condition of each tender during each tender posting. ETS could also integrated with the backend procurement management system (PMS) to improve productivity and reduce

administrative work so that GSD staff could focus on higher value-added tasks like negotiation with vendors.

5 ETS and the Community

Before the launch of ETS, tender notices are available on the internet for viewing only. If suppliers are interested in a particular tender, they need to obtain the tender documents from the Procurement Division of GSD or need to wait for tender documents sent by mail. Repetitive re-keying work and printing/binding tasks involved unexpected administrative cost and waste of staff time. Suppliers also need to deposit tenders into the tender box located at GSD office physically, resulting in transportation cost and the risk of late tender arising from frequent traffic jams in Hong Kong. Besides, many overseas suppliers would find it difficult to participate in GSD tendering exercise.

ETS could dramatically shorten the time and save the cost for preparing and submitting bid offers for GSD. Based on GSD's estimation, it takes 3 days and 31 minutes respectively through courier and fax sending a 42-page document from Ottawa to Hong Kong and it cost around US\$30 and US\$4. While the document is sent via Internet, only 2 minutes and US\$0.11 is required. It means a 2,160 times faster and over 270 times cheaper when submitting documents through ETS comparing with courier.

ETS also allow round the clock service available on-line at all time. Suppliers could access tender documents in electronic form which would facilitate tender preparation, saving the time in receiving tender notices and submitting bids. No business opportunities would be missed through "Tender Opportunity Matching Service" for tender notice. On the other hand, tender barrier would be removed in which local and overseas suppliers would be able to register as subscribers and perform the registration, tender submission and other related activities any time.

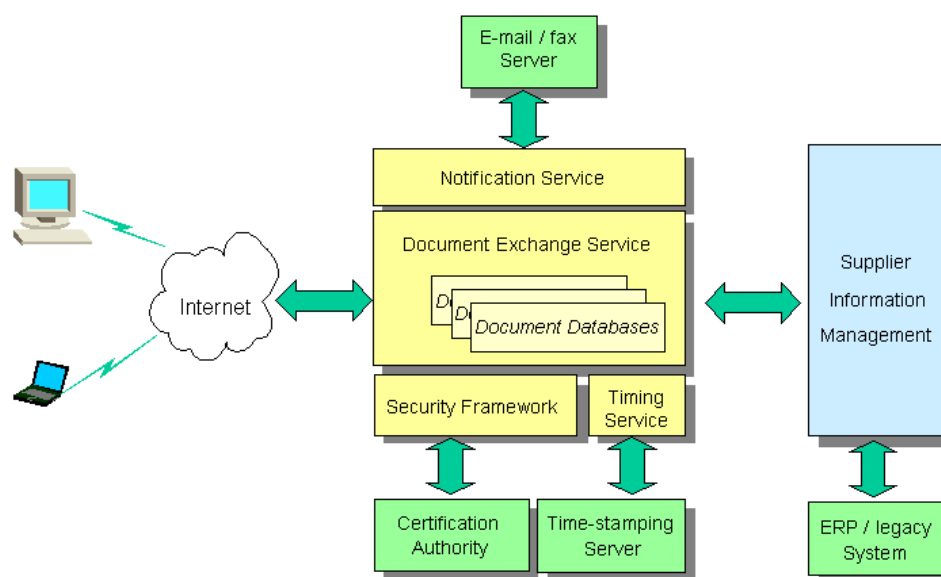
Value-added services have been provided for ETS suppliers in using the system. Personalized e-mail notifications which disseminate the latest tender information would minimize the risk of business opportunities missing. Suppliers could customize their e-mail notifications by selecting the criteria for the kind of tender notices they wish to receive. Bizchedule, a comprehensive online virtual office, would help suppliers to keep business appointments, calendar, and to find out the details of the latest industry events. ETS suppliers could make use of Bizchedule service to mark down key events such as availability of new tenders and tender closing on users' calendar automatically to avoid overlook of tender opportunity.

It was a challenge for suppliers to overcome the personal resistance and adapt to the technology change in the early stage. The take up rate of the suppliers has been slow in the first two months mainly due to the fact that suppliers have been used to paper-based tendering procedure. The situation changed when GO-Business has devoted much effort with GSD staff to promote the advantages of ETS to suppliers. Suppliers then became more confident in ETS after they understand the security of the system and realized the benefits brought to them.

ETS required re-engineering of existing business processes for the suppliers. This experience is of value for those small and medium enterprises in Hong Kong to meet the broader challenges of e-commerce they will meet in the near future.

6 How does ETS operate?

ETS is built and operated on secured open platform for e-business applications, enterprise-wide infrastructure and security platform. End-users will be able to access the system via widely available Internet Explorer Browser without the need to install software.



ETS Architecture Overview

ETS employed the use of Advanced Internet, Client/Server application development tools, document management and state of art system and network security products such as Java JDK, Baltimore J/Crypto, Visual Basic, MS ASP, HTML, FileNet SDK, Oracle.

ETS uses a number of special equipment and services to provide a highly secured platform. It makes use of state of art security products such as Security Dynamics SecurID Token Card, firewall, intrusion detection and anti-virus. ETS also use Hongkong Post Digital Certificate and PKI Infrastructure (first user in Hong Kong). PKI is an advanced solution to address Authentication, Non-repudiation, Integrity, Confidentiality and Legal commitment. ETS supports digital certificates (iCert) issued by the Certification Authority (CA) operated by the Hongkong Post.

ETS is regularly synchronizes with Hong Kong Observatory time-stamping services for time measurement and recording. The downloading of tender document (and tender clarification/tender addendum), the start and finish time of tender offer submission is recorded in the system to reduce tender time conflicts.

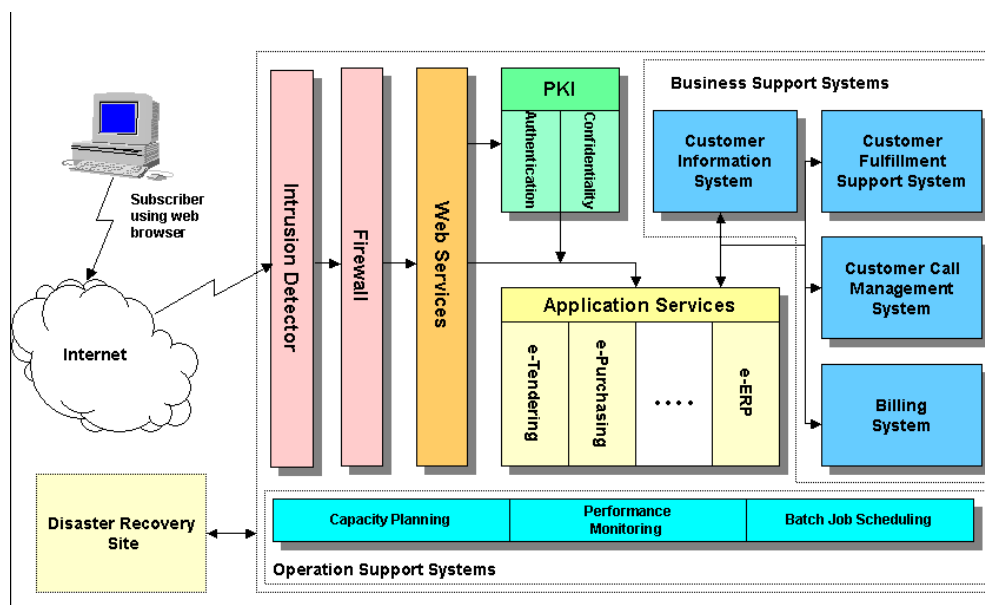
7 Uniqueness of ETS

Being an early project under the Government's Digital 21 IT strategy, ETS is the "first" G2B electronic tendering website in the world that supports two-way true transaction process to allow online tender posting and submission. It sets an unprecedented example for Government to outsource the tender / procurement services to a third party contractor.

ETS is the first application to be recognized by Electronic Transactions Ordinance April 2000. Under the Ordinance, all subscribers of ETS must obtain a digital certificate called "iCert" which is facilitated by the Hong Kong Post Certificate Authority. The core components of ETS are designed with high resilience and availability, facilitating 7*24 operations around the clock.

ETS deploys strong encryption technology through PKI-based security framework to ensure extremely high level of data confidentiality, integrity and identity authentication. To ensure the security of ETS, GO-Business had appointed Hong Kong Productivity Council as an independent consultant to endorse and audit the full system design and implementation.

ETS have several other outstanding features. It provides bilingual language with both Chinese and English version to suit different subscribers. It supports both open and restricted (invitation) tenders in which restricted tenders only allow access from invited suppliers with the valid access code. To reduce the conflicts relating to the tender submission time, tender closing time, etc., ETS uses the time-stamping from the Real Time Service offered by the Hong Kong Observatory which is an independent third party.



Technical Infrastructure endorsed by HKPC

Operated under Application Service Provider (ASP) model, ETS is provided on a pay-as-you-use model rather than the traditional software-licensing model. ASP model means ready to market, proven solution, no software/hardware installation and minimal setup cost. By adopting this model, the overall costs to GSD and suppliers are also minimized.

8 Future of ETS

As laid down in the Hong Kong Digital 21 Strategy, Electronic Tendering System was one of the highlights which marks the government's commitment to lead by example in the use of e-business. Aiming to help promoting Hong Kong as the world's premier business city, the Hong Kong Government is actively implementing and driving e-procurement initiatives.

Besides, The World Trade Organization (WTO) is actively advocating public tendering within the member countries to promote fairer trade among countries. ETS is the first service for government purchasing organizations to use electronic tendering on such a large scale for the receipt of tender bids as well as for the distribution of tender documentation. It will encourage a

competitive trading environment and hence foster the growth of industries in Hong Kong.

During the time of writing, GO-Business had already successfully won the ETS Phase 2 contract to further enrich ETS with the GSD originated Central Tender Board tenders. ETS Phase 2 widens the total tender value which means that more tenders could be included in this system, providing more business opportunities to suppliers. Additional features for subscribers would be provided, including the ability to store the data input in tender offer submission screen so that users could later retrieve it for future processing. It will also allow users to download tenders in multiple parts and resume uploads of tender offers should the upload is disrupted by internet disconnection. In ETS Phase 2 enhancement, e-Cert (in addition to i-Cert) would also be accepted as the choice of digital certificates. This continuous partnership highlights GO-Business' capability not only on technology innovation, but also the ability to assist GSD to operate a mission-critical e-business applications.

9 Conclusion

GSD has successfully through ETS transformed the traditional paper-based tendering process to a robust and highly secured Government-to-Business (G2B) e-commerce application platform. This has a strong impact on other government departments, quasi-government organizations and commercial sector¹ to follow suit and hence accelerate the pace of e-commerce adoption in

¹ The e-tendering.com which was launched in January 2000 is an extension of ets.com.hk to the commercial sector. e-tendering.com is a B2B electronic tendering websites for other public sectors and commercial sectors. Other projects which have been developed on ETS technology and infrastructure are: SOCAM.com for well-known local and inland construction industry consortium – Shui On Construction Co. Ltd.; China Tendering Project which facilitates the tendering process for China Provincial Government.

Hong Kong, particularly in the electronic procurement and supply chain management areas.

About Global e-Business Services Ltd. (GO-Business)

GO-Business is a subsidiary of Computer and Technologies Holdings Ltd. (C&T), a publicly listed company in the Hong Kong Stock Exchange (0046). GO-Business specializes in the provision of e-Business services to the business community. The establishment of GO-Business represents C&T's total commitment to provide the most advanced and reliable e-Business applications services to the business community of this region.

Building on its success as provider of a state-of-the-art Electronic Tendering System for the HKSAR Government Supplies Department (GSD), GO-Business has also extended its business coverage to the fast-growing areas of electronic procurement applications services for both the Government-to-Business (G2B) and Business-to-Business (B2B) sectors.

GO-Business means cost-effective, world-class electronic business solutions and services in procurement management for large, medium and small enterprises. It means a range of essential applications including www.e-tendering.com, Electronic Tendering System, Ariba e-Procurement, and other service that help our customers:

- access the latest market intelligence for quicker response to market changes;
- achieve more effective strategy planning, and
- achieve prompt implementation of practical and secure e-business solutions