

CONTENTS

- 2 Message from the Secretary for Information Technology and Broadcasting**
- 3 Message from the Director of Information Technology Services**
- 5 Increase Commitment in IT**
- 6 The Vision, Mission and Values of the Information Technology Services Department**
- 7 Organisation of ITSD**
- 8 Use of IT in Government**
- 22 IT Infrastructure and Standards**
- 33 IT in the Community**
- 38 Quality Management**
- 40 Professional Work Force**

Message from the Secretary for Information Technology and Broadcasting

I have been working with the Information Technology Services Department (ITSD) in my different capacities since 1992. This long experience has left me with a great respect both for the importance of the Department's work, and for the technical skill and professionalism with which that work is carried out.

Since the establishment of ITSD ten years ago, we have witnessed fast and extensive advances in information technology (IT). These advances are bringing fundamental changes to the way we work and to the way we live. In short, IT will be the engine driving many important social and economic changes in the 21st century. It is therefore vital that Hong Kong should whole-heartedly embrace IT and capitalise on the vast opportunities it presents.

To ensure that we in Hong Kong can indeed rise to the challenges of the information age, the Hong Kong Special Administrative Region Government (HKSARG) has launched a comprehensive package of initiatives under Hong Kong's Digital 21 IT Strategy. ITSD is one of the key agencies tasked to implement those initiatives. To do so, ITSD has to broaden its role from a department that serves only the internal computing needs of the Government to one that also serves the IT needs of the community. This has in turn necessitated a culture change within the department. It is heartening to see that colleagues in ITSD are rising to this challenge.

I wish the department every success as it enters its eleventh year and the new millennium.

Mr K C Kwong, GBS, JP

Secretary for Information Technology and Broadcasting

November 1999

Message from the Director of Information Technology Services

This is a historic moment for the Information Technology Services Department (ITSD).

As Hong Kong enters the new millennium, it is our aim to reach new heights in our services to the Government, to our client departments and to the community.

Ten years ago, the former Government Data Processing Agency was reorganised to set up the Information Technology Services Department. In the past decade, we have been working to improve our services to user departments and to ensure that the Government makes full use of the growing potential of information technology. We are committed to continuing and improving this work. We will be business partners of our users with whom we will work together to solve problems and to whom we will give advice on the use of IT.

One tool we will use will be an integrated government-wide infrastructure. The key to this has been the building of a network infrastructure, connecting all bureaux and departments, and onto which has been added an electronic messaging facility for both internal communication and communication with the public. And to this, we will further add a secure central gateway enabling bureaux and departments to safely access the Internet.

With the advent of the new millennium comes a new mission: promoting the use of IT in the community. This is a welcome opportunity for the department to serve the community directly, and to make its accumulated wisdom and experience available to IT users outside government.

We have set up a new division in the department to reach out to various sectors in the community with the hope of forming a web that will bring out the best in all parties. We also bring IT to the community through various promotional activities.

With the introduction of the Electronic Service Delivery scheme next year, IT will form an integral part of the life of everyone who has dealings with the HKSARG. As part of this important development, ITSD will be there, ready to march into the new era with you.

Mr K H Lau, JP
Director of Information Technology Services
November 1999

Increasing Commitment in IT

IT Expenditure in the Government

Year	HK \$Million
1989/90	364
1990/91	824
1991/92	768
1992/93	610
1993/94	910
1994/95	1065
1995/96	1342
1996/97	1646
1997/98	1871
1998/99	2028

Number of Workstations Per 1000 Civil Servants

Year	No. of Workstations per 1000 Civil Servants
1992	77
1993	110
1994	170
1995	219
1996	305
1997	369
1998	406

Establishment in ITSD

Year	Establishment
1989	436
1990	513
1991	531
1992	577
1993	593
1994	674
1995	716
1996	772
1997	817
1998	892
1999	981

The Vision, Mission and Values

Vision

We will lead the Government and facilitate the community both in the development and the exemplary usage of information technology.

Mission

1. Promote and enable the extensive adoption and use of information technology in the Government.
2. Enable individuals, businesses and the Government to interact easily and securely through the use of information technology.
3. Promote the wider use of information technology in the community.

Values

Valuing people

We will respect and trust individuals, and value their contribution.

Integrity

We will conscientiously discharge our obligations to clients and the community.

Professionalism

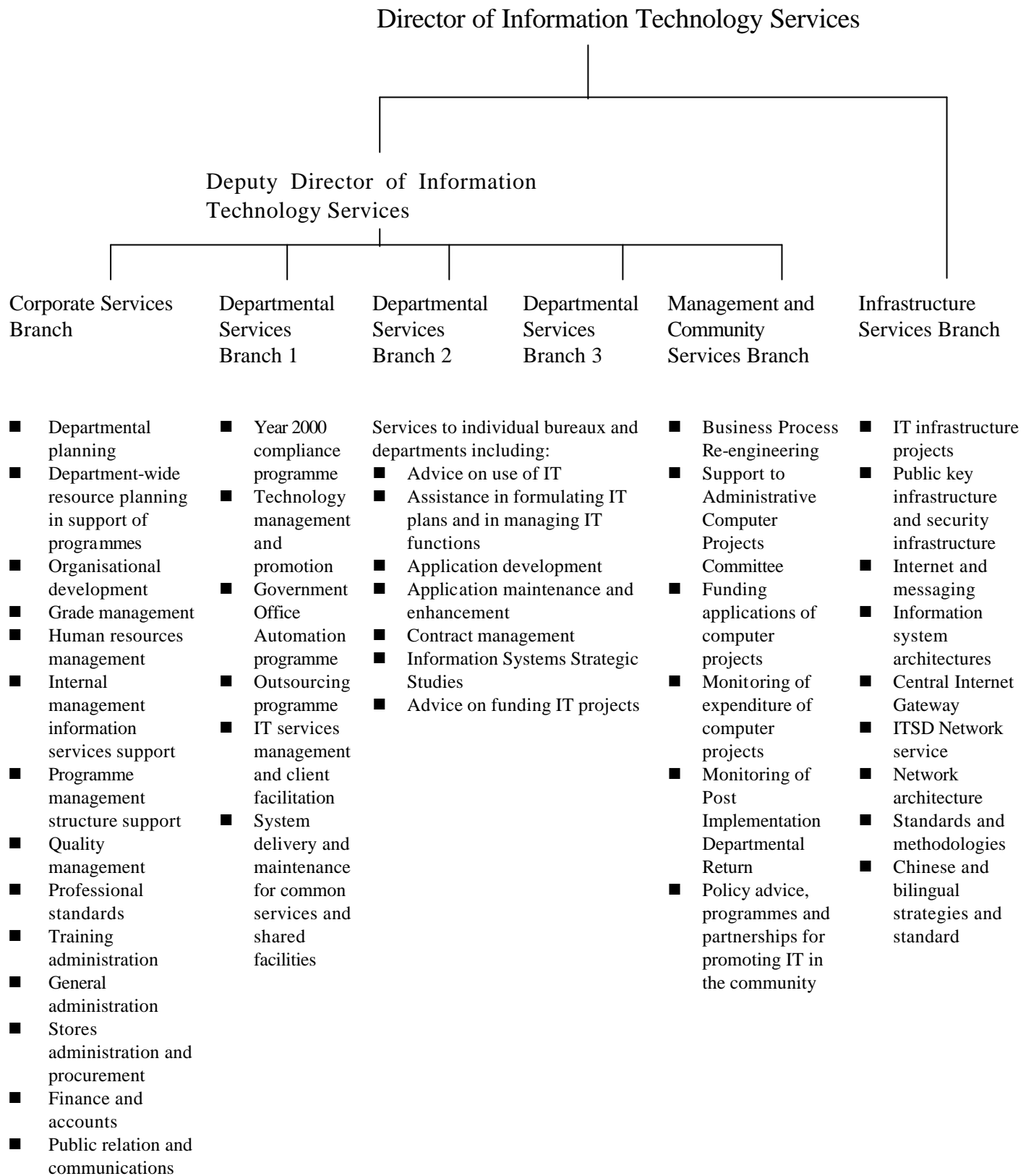
We will uphold the highest standards of knowledge, practices and ethics.

Striving for excellence

We will adopt a proactive attitude and strive to be a role model in the information technology community.

Organisation of the ITSD

Organisation Chart of the Information Technology Services Department



Use of IT in Government

- To provide advice and assistance to bureaux and departments in identifying and planning for their individual and collective IT needs.
- To enable the timely and cost-effective delivery and maintenance of quality IT solutions.
- To assist bureaux and departments in developing their IT management and capability to take full advantage of the benefits of IT.

Services to the Government

ITSD is taking a proactive approach to promoting the wider use of IT in Government. With this mission, the department provides a comprehensive package of services including Technology Management and Promotion, IT Services Management and Client Facilitation, and System Delivery and Maintenance for Common Services and Shared Facilities.

Technology Management and Promotion aims to keep bureaux and departments abreast of the latest technologies and products, as well as useful ideas for advanced IT deployment that can improve business processes and efficiency.

The Information Technology Solution Centre (ITSC), the focal point of the Technology Management and Promotion Programme, is aggressively achieving this objective through a wide spectrum of activities and services. They include Technology and Product Surveillance, publication of IT information and news, IT promotional events, provision of facilities for hands-on trials and demonstration of business solutions.

IT Services Management and Client Facilitation aims at helping bureaux and departments to enlarge their IT services and accelerate the delivery of IT solutions through the Outsourcing Programme.

System Delivery and Maintenance for Common Services and Shared Facilities involves a progressive implementation of a framework of common services and shared facilities to enable bureaux and departments to link up electronically. The Government Office Automation Programme provides workstations, networking equipment, office automation and e-mail facilities for communication across bureaux and departments. The Central Cyber Government Office will provide a portal services web site, a channel for dissemination of information and an electronic medium for intra-governmental transactions.

ITSD also runs a centralised front-end helpdesk to provide a single point of contact for all computer users and departmental support personnel.

ITSD is responsible for the **Year 2000 Compliance Programme**, the main objective of which is to ensure that the operations of the computer systems in Government continue smoothly into the next century.

Information Technology Solution Centre

ITSD launched its Information Technology Solution Centre (ITSC) in July 1999. The ITSC is the focal point for bureaux and departments to access the latest IT information and news, and to avail themselves of the various opportunities to make the best use of IT in their business.

ITSC has incorporated the former Technology Services Support Centre to provide one-stop services to bureaux and departments: IT information and news publications, IT promotional events including seminars, and conferences, exhibitions, and facilities for hands-on trials, prototyping, testing and development.

ITSC collects useful IT news and solutions information, and disseminates these materials through various means, such as the ITSC Newsletter and the Technology and Product Surveillance Reports. It researches the applications packages available on the market and maintains an active database for users. By making use of web technology, ITSC enhances the already established communication channels with bureaux and departments through its IT in Government Information Station (ITG InfoStation) web site, which acts as a hub in the Government enabling users to surf for IT information. A Packaged IT Solution Database and a set of Guides to the Acquisition and Use of Information Technology in Government Offices (The GAUGE Guides) are maintained. The web site is also a rich source of IT information and is constantly being updated in the light of changes in the technology market.

ITSC also organises regular IT seminars and exhibitions to keep bureaux and departments abreast of new technologies and products, as well as useful ideas for advanced IT deployment opportunities. It publishes a quarterly IT calendar to advise bureaux and departments of scheduled events.

ITSC has a showroom in the ITSD sub-office on 19/F Wu Chung House. The showroom contains facilities for demonstration software. Demonstrations are organised in the showroom for interested parties and the showroom also houses the advanced technologies and new tools now available for trial-use and prototype building.

Government Office Automation Programme and Enhancements

The Government Office Automation (GOA) Programme provides workstations, networking equipment, office automation software, including Chinese word-processing facilities, and electronic-mail facilities to officers at Master Pay Scale Point 45 and above for communication across bureaux and departments. Development of the Programme is now in full swing and is scheduled for completion by the end of the year 2000. In addition, enhancements such as the Government Common Applications System (GCAS) and Confidential Mail are being progressively rolled out in the Government.

ITSD has signed a 30-month service contract with an external service provider (ESP) for the provision of implementation services and on-going support services for office automation (OA) to government departments. This is one of the biggest outsourced information technology services awarded since the Government announced a new policy that gives preference to outsourcing IT development and maintenance projects. Under this agreement, the ESP will be responsible for the implementation of OA networks for bureaux and departments as well as for providing a call-centre helpdesk and on-site support services. The ESP will also be responsible for total project management and regular reporting to ITSD.

Central Cyber Government Office Initiative

The Central Cyber Government Office (CCGO) will have a portal services web site, a physical network infrastructure, a digital library, a web-based training environment, a channel for dissemination of information and an electronic medium for intra-governmental transactions when fully implemented. As a first step, the portal services web site has already been set up on a trial basis with preliminary content. It is expected that with the growing use of the CCGO, the civil service will come to appreciate and rely on the benefits brought about by this application of the latest technology, and will as a result be better equipped as part of the Chief Executive's IT vision to make Hong Kong a leader in the information world of tomorrow.

Outsourcing Programme

ITSD has adopted a vigorous outsourcing strategy for the provision of IT services within Government since April 1999. In pursuance of this

strategy, the department aims to enlarge the delivery capacity for IT services, to accelerate the delivery of IT solutions, and to create a market of sufficient size to encourage the further development of the IT industry locally. Outsourced services will cover applications development and maintenance, network management, desktop management, helpdesk services and computer data centre management. Apart from outsourcing on a traditional project-by-project basis, the department will also outsource selective services or all of the above IT services, through a long-term arrangement on a department-wide basis.

Year 2000 Compliance Programme

ITSD now provides IT services to all policy bureaux and some 70 government departments.

Internally, ITSD aims to ensure that all its computer systems will meet the British Standard Institution DISC PD2000-1:1998 A Definition of Year 2000 Conformity Requirements adopted for use by HKSARG. This will ensure that there will be no disruption in the operations of ITSD during the transition into the next century.

Externally, ITSD focuses on helping the Information Technology and Broadcasting Bureau (ITBB) to co-ordinate the Government's Year 2000 programme; promoting awareness of Year 2000 issues within the Government; and helping bureaux and departments to ensure compliance of their computer systems.

ITSD set up in March 1997 a high level management group - the "Year 2000 Compliance Programme Management Group" to ensure co-ordinated efforts in both the department's own Year 2000 Compliance Programme and its Year 2000 services to bureaux and departments.

The facilities of the ITSD Central Computer Centre, which are shared by many government departments, are confirmed to be Year 2000 compliant. A detailed contingency plan has also been formulated and tested. An ITSD Master Contingency Plan is in place to ensure quick responses to any Year 2000 problems, and a Year 2000 Emergency Response Centre has been set up to ensure smooth handling of any potential problems.

ITSD Central Computer Centre Services

The ITSD Central Computer Centre plays an essential role in the implementation and maintenance of the Government IT infrastructure. It facilitates the operation of inter-departmental applications and common applications, the provision of computer facilities for Government bureaux and departments, the provision of special hardware and software services, attention to special operational and security requirements, and the monitoring of the Government Network.

The ITSD Central Computer Centre consists of two Production Computer Centres, and one Development and Disaster Recovery Centre.

Production Computer Centre 1 is located in the department's headquarters at the Wanchai Tower, while Production Computer Centre 2 is located at the Sai Kung Government Office. The two centres operate 24 hours a day, seven days a week. The services provided include direct online access, data management, bulk processing, information distribution, computer output microfilming, network control, helpdesk service, computer facility management, and consultancy services in the preparation of computer sites.

The Production Computer Centres facilitate the implementation of many IT initiatives, for example, the Interactive Government Services Directory, the Government Electronic Service Delivery Scheme, the IT in Government Information Station and the Secure Central Internet Gateway.

The Development and Disaster Recovery Centre (DDRC) is located at the Tsuen Wan Government Office. Its function is to provide a standby disaster recovery service for mainframe and mid-range computer platforms to government departments and related organisations. All critical mainframe and mid-range administrative applications of government departments, including the ITSD Central Computer Centre, Immigration, Inland Revenue, Trade, Treasury and the Hong Kong Police Force, are covered by this service. As of September 1999, 60 critical mainframe applications and 36 critical mid-range applications have registered to use the disaster recovery service.

A mainframe development service is also provided by the DDRC. A mainframe computer has been installed and dedicated to the provision of development service. This mainframe computer has also been employed

as a test bed for Year 2000 compliance to help departments to prepare for the new millennium.

ITSD Central Computer Centre Helpdesk Service

The ITSD Central Computer Centre provides a round-the-clock helpdesk support service. The service is a centralised front-end helpdesk providing a single point of contact to all computer users and departmental support personnel who are ITSD Central Computer Centre users or operating in a microcomputer (PC) / local area network (LAN) or mid-range computer / client-server environment.

The helpdesk is equipped with the necessary IT expertise and facilities to handle most enquiries raised by users. For enquiries or problems which require specialised skills, the helpdesk will co-ordinate with the respective IT expertise group within the department in order to resolve the problems or to direct the cases to ITSD departmental liaison officers for follow-up action.

Services to Government Departments

ITSD provides a diagnostic service in which the operations of individual departments are studied and appropriate IT solutions are developed and applied.

Information Systems Strategy Studies

The department provides total IT services to government departments. These include the development and implementation of departmental information systems strategy plans, feasibility studies, information systems design and implementation, and processing of requests for the purchase of computer equipment and software.

Departments are encouraged to conduct studies to examine their longer-term computerisation requirements with a view to incorporating them in the departmental resource planning process.

The prime objective of an Information Systems Strategy Study (ISSS) is to recommend, in the light of policy and operational objectives of the department and the likely technological options and resource constraints, an Information Systems Strategy (ISS) to meet the department's

information needs over a period of five years normally. The department is expected to have an approved business plan before an ISSS will be undertaken in order to ensure that the maximum benefit is derived from subsequent IT expenditure.

From a service-wide point of view, conducting a departmental ISSS will provide a clear statement of direction and commitment from the top management of the department, and from the policy and resource bureaux on the short, medium, and long term IS development. This is based on an integrated and structured approach to bringing about new insights into the benefits to the operation of the department; to strengthening the corporate awareness of opportunities for using IT to improve the overall efficiency, effectiveness, and economy of the department; to assisting government to formulate IT policies and programmes ensuring that value is to be gained from money spent; and to assisting government to determine the amount of resources to be spent on IT and the setting of priorities among potential applications.

A user-oriented approach is adopted for the conduct of departmental ISSS. The environment, requirements and readiness of each department are very different and hence the scope and approach of the study must be adjusted to meet the individual department's situation. The study will be overseen by a steering committee chaired by a directorate officer from the user department, and comprising directorate representatives from the user department, its policy bureau, ITSD, and Finance Bureau (where necessary). Recommendations from the study would be business driven, not technology driven.

An ISSS for an average department usually takes six to nine months to complete. The department will also be advised to regularly update and review its ISS plan. This is important because the ISS will only be successful if it can be sustainable over time and be in alignment with changes in the business strategy as well as technological advances.

The funding arrangements for the implementation of an ISS plan are different from those of a normal computer project. In seeking funding approval for the implementation of the ISS plans, the user department may invite the approving authority to accept the financial implications of the whole strategy but to approve funding in phases. The user department must conduct a feasibility study before each phase so that changes in the financial implications and business requirements over time may be more accurately captured and made known to the approving authority. The

provision for actual expenditure will be monitored on an annual basis by the Administrative Computer Projects Committee which comprises representatives of the Information Technology and Broadcasting Bureau and ITSD, taking into account the availability of funds and the progress made in implementation. Such an arrangement simplifies the funds application procedure and allows some flexibility for the user department and ITSD in planning ahead. Furthermore, cost-benefit evaluations will be made along a more systematic and strategic approach.

The conduct of an ISSS is a major task involving heavy commitments in time, effort and resources from both the department concerned and ITSD, in addition to the huge financial implications of implementing it. Priority for the conduct of ISSS is therefore given to departments with relatively high IT potential and those already with an approved business plan.

Information Systems Strategy of the Education Department

All projects identified in the 1993 ISS plan of the Education Department (ED) were completed in April 1998 within budget and on time. Under this ISS, nine major application systems have been developed to support student enrolment, school places allocation, school information management, financial management, forecasting and planning in ED.

A total of 1,300 workstations have been installed in about 30 District Education Offices and ED sub-offices. In each of the 1,200 public sector schools, a local area network together with applications of 16 modules were installed to support school administration activities. In addition, a wide area network connecting ED, Hong Kong Examinations Authority and all public sector schools was established to enhance the communication efficiency between schools and ED.

With the successful implementation of the ISS plan, the efficiency collecting, retrieving, updating and compiling data for ED as a whole was enhanced. Through the use of computer systems, some of the administrative processes and the sharing of operation information across ED and schools have been streamlined. As a result, the quality of services provided by ED to students, parents, members of the public and schools have improved. About 100 post savings were achieved.

In 1997, a review of the ISS was conducted to assess the changes in the business environment of ED and in turn the impact on departmental objectives, critical success factors and information needs. A new ISS

plan was formulated for the five years starting from 1998 to support the policy and business needs of the department. Of these projects, the Year 2000 Compliance Project was completed in June 1999 while three other feasibility studies are in progress.

Information Systems Strategy of the Immigration Department

ITSD completed the implementation of the Immigration Department's ISS plan towards the end of 1995 and, as a result, a total of over 600 posts were saved. The realisable benefits amount to \$181 million per annum after the full implementation. In addition to achieving cost savings, the new systems greatly assist the department by improving the efficiency and service quality delivered to the public at immigration offices and control point arrival and departure counters. They also facilitate the provision of various immigration services over a single counter, as well as minimise the number of visits required to immigration offices, and the number of documents and evidence to be submitted by the public. The public can now enjoy better immigration services as a result of the successful implementation of the ISS plan.

With a view to bringing up-to-date the current ISS plan to accommodate additional computerisation requirements arising from changes in the internal and external environments, information technology, business strategy, departmental needs and workload, and other requirements, the review of the current ISS plan of the Immigration Department was initiated in May 1999 for completion by November 1999.

Information Systems Strategy of the Inland Revenue Department

The first ISS plan was completed in March 1997, and its successful implementation has so improved Inland Revenue Department's (IRD) operational efficiency that significant post and cost savings have been achieved. 254 posts were achieved in 1994/1995 as scheduled. It has also strengthened the department's capacity to deal with a greatly increasing workload.

The implementation of the second ISS plan has just commenced, and its successful implementation will further enhance IRD operational efficiency leading to more post and cost savings. Public services will be also improved by a more responsive and productive operating environment using emerging information technology. One of the new systems to be developed will improve voluntary tax compliance and enable more

effective measurement and enforcement of compliance, resulting in a potential increase in tax revenue. The full implementation of the plan will be completed by the end of the 2003/04 tax year.

Information Systems Strategy of the Judiciary

The ISS plan of the Judiciary is implemented by phases. The first two phases were approved in June 1994 and December 1996 respectively and have been completed. The final phase was approved in June 1999 and will be completed by September 2001. Upon the successful implementation of the ISS plan, applications will have been developed to provide direct support to the administrative and procedural activities of the Courts and Tribunals through the provision of the facilities to support Case recording, management and accounting; to provide Judges and Judicial Officers with access to information required for the performance of their judicial functions with facilities to support Legal reference and decision support; and to provide broad based assistance for the management and administrative activities of Judiciary.

Information Systems Strategy of the Department of Justice

The ISS plan of the Department of Justice was approved in April 1994. Upon the successful implementation of the ISS plan, information about virtually every aspect of the Department of Justice s activities will be available electronically to staff. As part of the plan, a new information support centre will be set up, equipped with modern graphical and statistical tools, to provide current and historical information about the department's activities and performance. Staff in the department will be able to exchange messages and documents quickly via a computer network; and the law library and administrative functions of the department will be computerised. The full implementation of the plan will be completed within 1999/2000.

Information Systems Strategy Study of the Land Registry

The Land Registry commenced its ISSS in May 1999, and the study was completed in October 1999. The recommended changes in the ISSS will enable the Land Registry to achieve its two major change initiatives, i.e. centralisation of land registration activities and the replacement of the current deeds-based registration system by a land title registration system that provides Government-guaranteed titles.

The ISSS has identified a number of projects that involve the implementation of a core business system known as the Integrated Registration Information System (IRIS) and three non-core business support systems during the period 2000 to 2006. Upon the completion of the projects, the Land Registry will be able to provide world-class land registration and search services to its clients. These include a centralised registration office that will enable turnaround time for registration services to be significantly reduced; provision of a centralised Help Desk with improved customer services; introduction of land search services via the Internet, and the availability of search services for seven days a week, and up to 24 hours a day.

Information Systems Strategy of the Legal Aid Department

The ISS plan of the Legal Aid Department was approved in July 1999. The implementation of the ISS plan will speed up the processing of legal aid applications; provide faster response to enquiries by legal aid clients; and enable the Legal Aid Department to manage cases more effectively. It will also shorten the processing time for payment to clients and provide comprehensive and timely management information. A total of 36 posts will be saved by 2002/2003 due to improved operational efficiency and elimination of duplicated work processes.

Information Systems Strategy of the Rating and Valuation Department

The implementation of the ISS plan of the Rating and Valuation Department (RVD) was successfully completed in July 1999. The ISS Plan includes 14 applications systems which support RVD in providing services to the public and other government bodies. The systems facilitate more accurate and consistent valuation of properties, which in turn reduces the number of proposals for each General Revaluation and the number of objections for interim valuation. They also provide RVD with more accurate and timely information on rates and rent in making policy decisions. RVD can then provide more accurate and timely analysis of property market prices and rental trends to the Housing Bureau which will facilitate the Bureau in the formulation of housing policy.

An ISS Review is currently being conducted and is scheduled for completion in October 1999. The Review will update the current ISS plan to accommodate additional computerisation requirements arising from changes in RVD's internal and external environments, business needs,

workload and other requirements.

Information Systems Strategy of the Social Welfare Department

The Social Welfare Department (SWD)'s ISS plan was formulated in 1997. Upon the successful implementation of the ISS plan by 2004, SWD will be able to provide a more integrated service to customers, taking account of both social welfare and social security needs. It will be able to monitor social welfare and social security service delivery more effectively through better distribution and sharing of data; improve the efficiency in planning and managing staff resources; plan and monitor the new service provision more accurately; and respond to ad hoc queries promptly. Furthermore, the implementation will also improve internal and external communications and the office automation environment.

Information Systems Strategy of the Water Supplies Department

The Water Supplies Department(WSD)'s ISS plan was formulated in February 1999 with the objective of implementing the identified information systems in five years under five strategic programmes. These programmes focus on organisation-wide improvement in strategic areas such as IT organisation and infrastructure; customer service; water supply and distribution operations; finance, administration and management information; and WSD's organisation structure. The implementation will lead to a positive transformation in the way that IT is provided across the department. Significant improvements in customer service, efficiency and information and knowledge management are anticipated.

Other Studies/ Projects

In addition to the above, the departmental ISS Consultancy Study for the Transport Department (TD) will commence in early 2000 and is expected to be completed within six months. It will recommend an ISS to meet the department's information needs from 2001 to 2005. The study will start with a business analysis of TD in respect of its existing business objectives, programmes and activities so as to identify, evaluate and prioritise change opportunities; to define the scope and objectives of all the change proposals; and finally to present the ISS setting out the change plan, financial and resource implication, indicative costs and benefits of the recommended changes.

For those government departments which have not yet established their

ISS plans, their computerisation requirements will continue to be processed on a project by project basis. However, departments are encouraged to plan their IT requirements in a systematic and strategic manner, and to draw up their own IT plans and update them annually as a basis for compiling their initial bids for computer systems in the Resource Allocation Exercise (RAE). An IT plan will take stock of the progress of computerisation within the department, identify areas where IT potential can be further exploited to enhance efficiency in the delivery of the department's functions, and set out the department's short and long term IT requirements. As of September 1999, there were about 350 approved IT projects with an outstanding commitment of \$1,608M.

Post Implementation Reviews

To ensure that the Government's investment in IT achieves its intended objectives in a timely and cost effective manner, a formal Post Implementation Review (PIR) mechanism was established in 1992/93 to monitor and evaluate the results of computerisation projects.

User departments are required to report in the form of a Post Implementation Departmental Return (PIDR) within one month after the system has live-run for six months. The PIDR covers the extent to which the system has achieved its agreed objectives, the utilisation of funds, the realisation of benefits envisaged and the progress of implementation. This will be followed, if necessary, by a PIR conducted by ITSD.

Information obtained in the PIDRs is used as the basis for the compilation of an Annual Progress Report on the Implementation of Government Computer Systems to the Finance Committee (FC) every year. For the 1998/99 Annual Progress Report to FC, ITSD reported a total of 72 projects. It was noted that 97.2 % of the projects had achieved their objectives, 94.4 % had realised the anticipated benefits, 97.2 % had kept the expenditures within the approved budgets and 66.7 % were implemented according to schedule.

IT Infrastructure and Standards

- To develop an information infrastructure with an open common interface through which the Government, business and the general public can interact easily and securely.
- To introduce common standards which apply to both the public and private sectors.

The Government IT Infrastructure was built up by connecting all the bureaux and departments together via the core Government Backbone Network (GNET). On top of this, common applications and services are provided to bureaux and departments to facilitate their efficient delivery of services to the public. Examples of common applications and services are Government-wide e-mail service, also known as the Government Communication Network (GCN), and the Secure Central Internet Gateway (SCIG). The long established Government Information Centre (GIC) will also form part of the SCIG with major enhancements to improve the services of the Government to the public.

ITSD has progressively adopted a number of internationally accepted structured standards and methods since 1988/89 to gauge its software development activities. These practices have facilitated the delivery of high quality IT services to government departments. The best practices include but are not limited to Function Point Analysis (FPA), Projects in Controlled Environment (PRINCE), Structured Systems Analysis and Design Methodology (SSADM), Rapid Application Development (RAD), and Object Oriented (OO) Methodology.

IT Infrastructure and Standards in the Community of the HKSAR

To facilitate the wider use of electronic transactions in the community as a whole and in support of the Electronic Transactions Bill, a voluntary recognition regime will be introduced to encourage interested parties in the private sector to provide commercial Certification Authority (CA) services. For this purpose, a Certification Authority Recognition Office (CARO) will be set up in ITSD by December 1999.

In addition, since a common Chinese language interface for information processing and exchange is a key component in the information infrastructure, ITSD is assuming a leading role in the promotion of ISO 10646.

Furthermore, to establish an infrastructure for the Government to deliver services electronically to the public, the Electronic Services Delivery (ESD) phase 1 project has been initiated. It will be the foundation for the development of Hong Kong into an electronic community.

Government Information Centre (GIC)

The development of the Internet in the past decade has changed our life

significantly. The Internet provides a convenient medium for disseminating information to the public and at the same time to access an unlimited pool of knowledge and information.

ITSD, together with the Information Services Department (ISD), set up the Government's official web site, the Government Information Centre (GIC), in December 1995. Starting with just the Hong Kong Government homepage and Government Supplies Department's homepage in its first launch, the GIC has now grown to host over 70 bureau and departmental web sites, with hyperlinks connecting to all government bureaux, departments and related organisations. Its visitor count has increased from 66,000 hits during its first launch to over 10 millions hits each month today.

The GIC is dedicated to the dissemination of information about the Government of the Hong Kong Special Administrative Region. A variety of information is available, including government policies, speeches, press releases, weather information, government forms and many others items. Specific information on government bureaux and departments is available in their own homepages, including organisation charts, performance pledges, publications, services and contact points. With the help of the search function (in both English and Chinese), information in all government web sites can be easily located. GIC also provides a channel for the public to communicate with different government bureaux and departments through electronic mail.

GIC is supported by both ISD and ITSD. The Internet Resource Centre of ISD assists bureaux and departments to set up and improve their homepages, while ITSD provides technical and operational support to bureaux and departments. ITSD also sets up and maintains the GIC services including web hosting, electronic mail, search engines and visitor statistics.

The GIC homepage can be reached at <http://www.info.gov.hk/>.

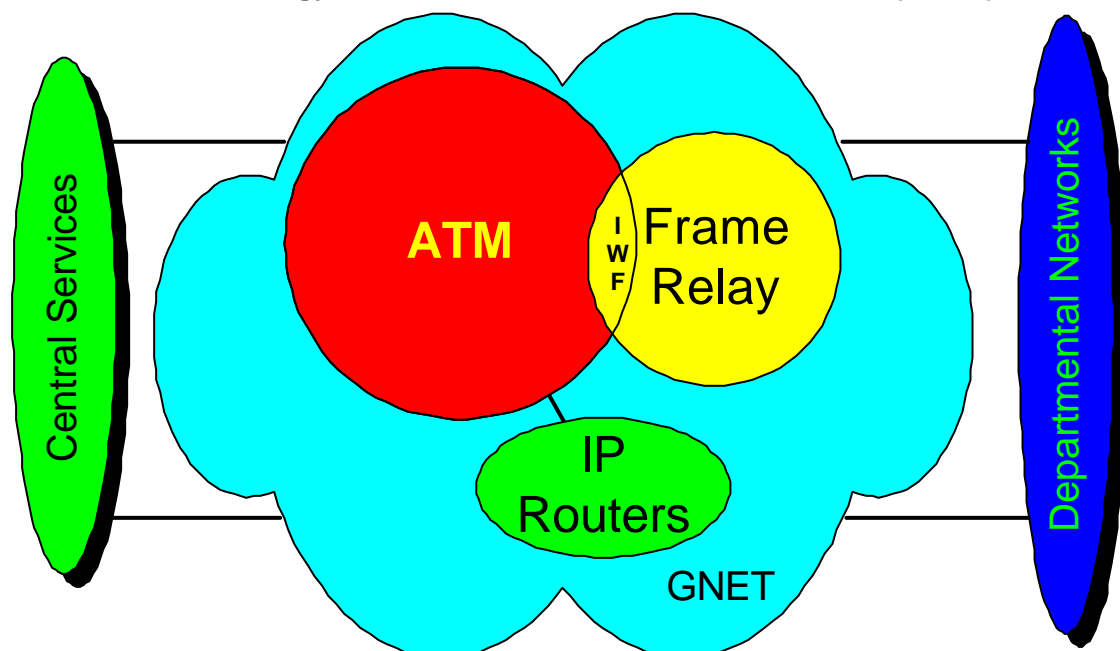
Government Network

The technology of the government data network is given in the diagram below. This network structure defines a framework in which departmental networks and central services will be interconnected together over a high-speed, wide-area communication backbone. The trunk of this core network is called the Government Backbone Network (GNET).

The architecture of GNET involves a mixture of routing and broadband switching technologies as this combination provides improved efficiency, performance, and administrative controls over a pure network-layer routing architecture. In order to support scalable bandwidth and different types of quality of services as required by today's highly demanding multimedia applications, the technologies of Frame Relay and Asynchronous Transfer Mode (ATM) have been adopted in the core design of GNET along with full resilience down to the physical level. The Frame Relay backbone and ATM backbone of GNET will be connected by the end of 1999 using the Interworking Function (IWF) as a further integration of the two switching technologies.

As of September 1999, 64 bureaux and departments have been connected to GNET to access the services offered by the Government Common Applications System (GCAS), and the Government Communication Network (GCN). With GNET in place, government users can now access different types of central services directly from their networked office computers, thus improving their productivity and efficiency. All bureaux and departments are expected to be connected to GNET by the end of the year 2000.

Technology of the Government Backbone Network (GNET)

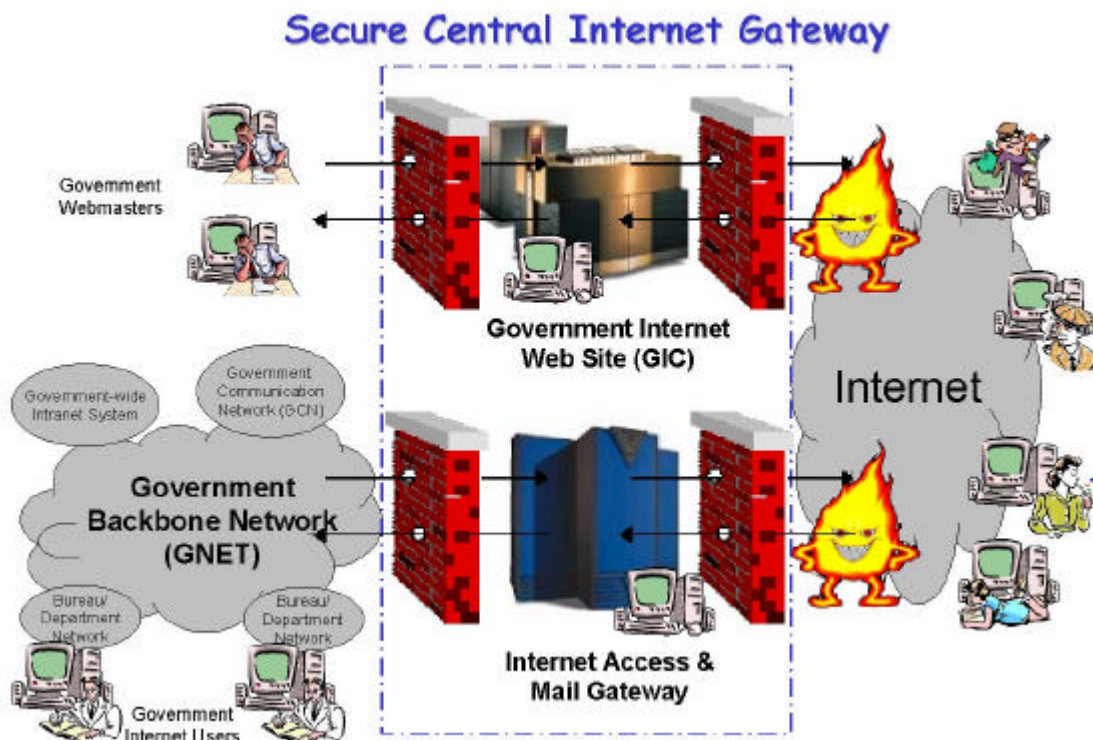


Secure Central Internet Gateway

As one of the major building blocks of the Government Backbone Network, a Secure Central Internet Gateway System is being established. This will enable government bureaux and departments to gain access to the Internet, and to disseminate information, communicate and transact business with the public over the Internet through a secure and centrally managed gateway.

The system will provide central management and administration of the government Internet web sites, the Government Information Centre (GIC), and Internet mail and access services for all government bureaux and departments.

Development of the Secure Central Internet Gateway System is scheduled for completion in early 2000.



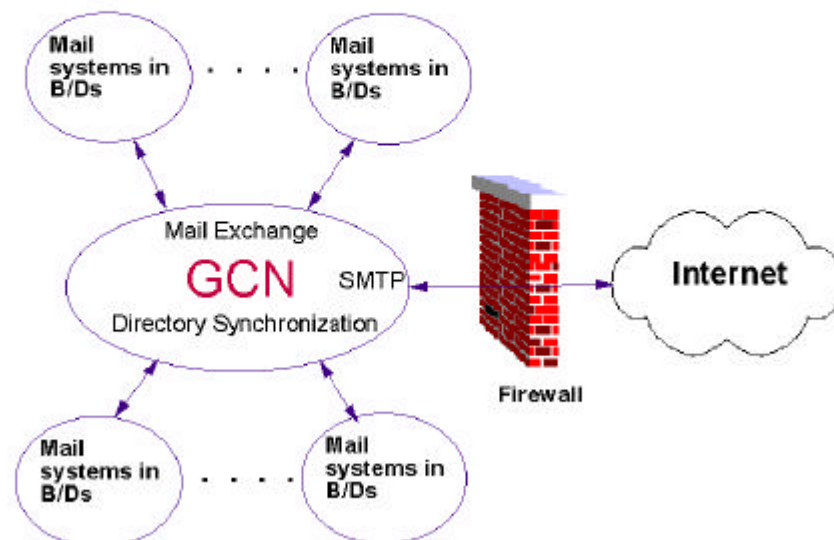
Government Communications Network

Another building block of the Government Backbone Network is the Government Communications Network (GCN) which links the resources and policy bureaux of the Government Secretariat with departmental headquarters for the purposes of information and mail exchange through electronic means.

The initial phase to link up the office automation Local Area Networks (LANs) in the Government Secretariat via telecommunications lines was completed in early 1996. The second phase of extending the network to 22 government departments was completed in June 1998, and the remaining departments are scheduled to be linked up by the end of the year 2000. A schematic configuration is presented in the following diagram.

The GCN functions as the central hub of an electronic post office which provides a central directory through which to store and forward mails. It operates on a 24 hours basis providing functions such as mail and document exchange, directory synchronisation, and other frequently used services such as bulletin boards.

Topology of Government Communication Network (GCN)



B/Ds – Bureaux / Departments

SMTP – Simple Mail Transfer Protocol

Standards and Methods

Resource Estimation

Function Point Analysis (FPA) techniques are being widely used in estimating human resource requirements for computer projects undertaken by ITSD. The estimation parameters are derived from actual resource utilisation data of real life projects, frequently captured for analysis. These figures are closely monitored and systematically compared with the industry average to ensure our productivity is up to par and quotations from service providers are reasonable.

Project Management

A structured set of project management practices designed specially for managing projects in the IT environment is being widely used in ITSD. Projects in Controlled Environment (PRINCE) has been referred to during the development of the practice. At present, all projects involving administrative systems are required to follow the methodology. Among the benefits achieved are the better planning of projects and the more effective management of exceptional situations.

Software Development

A structured systems analysis and design practice is being widely used in ITSD for developing computer application systems. During the development of the practice, Structured Systems Analysis and Design Methodology (SSADM), a methodology developed in the United Kingdom has been used. The practice contains a structural set of procedural, technical and documentation standards, clearly defining the expectation for the software deliverables to be delivered by the project teams.

Rapid Application Development

To facilitate faster systems development, the Rapid Application Development (RAD) methodology has been introduced in ITSD. RAD makes use of advanced computer tools and techniques such as prototyping, timeboxing and iterative development to shorten the system delivery time. In addition, RAD encourages user involvement during system development. As a result of the application of RAD, more systems of higher quality can be developed and implemented at lower cost.

Object Oriented Methodology

Object Oriented (OO) Methodology is a contemporary system development approach encouraging and facilitating re-use of developed software components. With this methodology, a computer system can be developed on a component basis which enables the effective re-use of existing components and facilitates the sharing of its components by other systems. By adopting the Object Oriented Methodology, higher productivity, lower maintenance cost and better quality can be achieved. This methodology is now in pilot phase in ITSD. More projects are expected to use this methodology.

Certification Authority Recognition Office

As proposed by the Electronic Transactions Bill, which was introduced into the Legislative Council in July 1999, the Director of Information Technology Services (DITS) will be the authority for granting recognition to Certification Authorities (CAs) which satisfy a set of pre-defined conditions. ITSD has started preparatory work for the establishment of a Certification Authority Recognition Office (CARO).

As the Government of the HKSAR adopts a minimalist but facilitative approach in the regulation of CAs in Hong Kong, there will be no mandatory licensing for CAs. Instead, a voluntary recognition scheme will be introduced. Recognition may be granted by DITS to a CA, a certificate, or a type of certificate issued by a recognised CA, or a repository which stores digital certificates and other information relevant to digital certificates.

Under the Electronic Transactions Bill, a digital signature will have the same legal status as a signature on paper if that digital signature is supported by a recognised certificate and is generated within the validity of that certificate.

The major functions of the CARO will be:

- to process applications from CAs for granting or renewal of recognition;
- to issue a code of practice to recognised CAs for compliance; and

- to monitor the compliance of a recognised CA with the certification practice statement issued by that CA, and the code of practice issued by DITS.

ISO 10646

As Chinese is the mother tongue of the majority of Hong Kong people, developing a common Chinese language interface is crucial to electronic communications between users in the community who prefer to communicate in Chinese.

The current critical issue of using the Chinese language in electronic communication revolves around the existence of multiple coding standards, with each of them covering only a subset of known Chinese characters.

ITSD is working closely with other governments and institutions under the aegis of the International Organisation for Standardisation (ISO) in the development of the ISO 10646 standard, which is an international coding standard aimed at encompassing the ideographic characters of all Asian languages into one common character set. ITSD has been working actively on the inclusion into ISO 10646 of the Hong Kong unique Chinese characters, and on the adoption of ISO 10646 in Hong Kong.

In May 1999, ITSD set up the Chinese Language Interface Advisory Committee (CLIAC) comprising representatives from the academia, the users and the industry to assist in the above work. ITSD also hosted the 13th Ideographic Rapporteur Group (IRG) Meeting in Hong Kong with representatives from China, Korea, Japan, Vietnam, Singapore, Taiwan and Hong Kong. The IRG is a specialist group under the Working Group on the ISO 10646 standard. In September 1999, the Hong Kong Supplementary Character Set (HKSCS) was published to facilitate electronic communication. The HKSCS is an updated version of the former Government Common Character Set and contains HKSAR's unique Chinese characters such as proper nouns and characters used in Cantonese expressions.

At present, more than 20,000 ideographic characters have been included in ISO 10646, and it is estimated that ISO 10646 will eventually comprise more than 60,000 ideographic characters. It is expected that ISO 10646 will become a superset of all the common coding standards and enable conversion and data exchange among different coding standards, and will

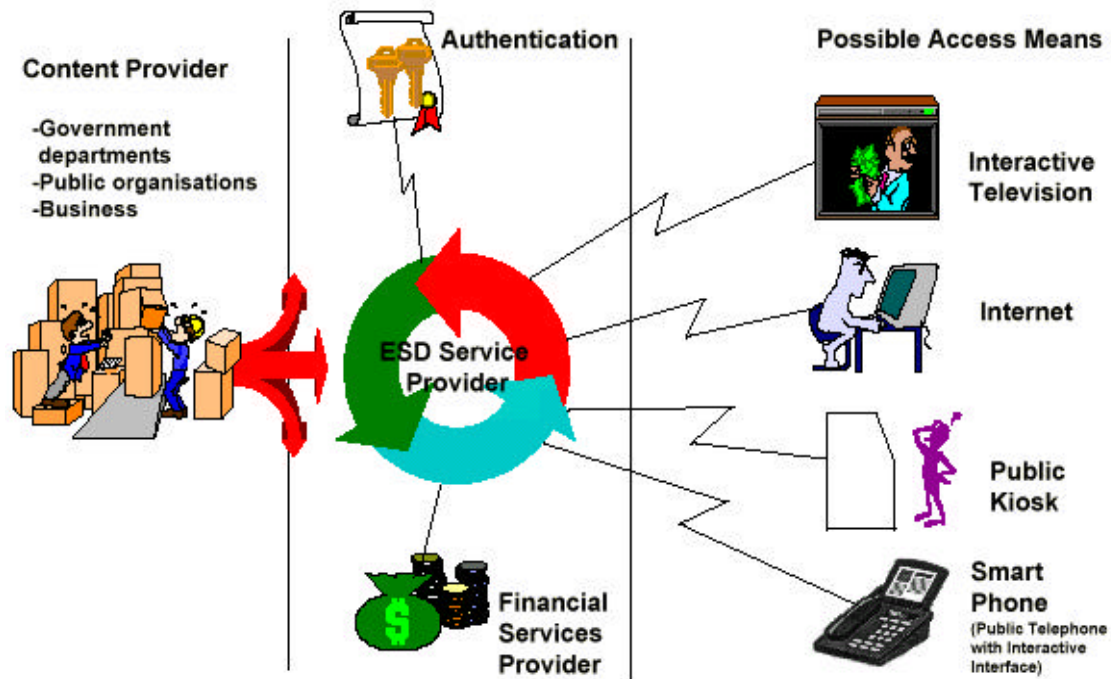
ease the existing limitations of Chinese language computing.

Gradual migration to the ISO 10646 standard is the path being taken for Hong Kong by the HKSARG. The Electronic Service Delivery (ESD) Scheme to be implemented in the latter half of 2000 is a good example to illustrate this. Under the scheme, public services will be provided through a wide range of electronic access means. It is scheduled that the Big-5 coding scheme and a common supplementary character set will be used to support ESD at the initial stage. The infrastructure supporting the implementation of ESD has to be able to transit into and support the ISO 10646 standard. This being the case, the ESD infrastructure will have greater flexibility in supporting both traditional and simplified Chinese characters. Besides, the adjustment will be minimal when the whole system adopts the ISO 10646 standard in future.

Electronic Service Delivery (ESD) System

To promote the wider use of information technology in Hong Kong, an information infrastructure with an open common interface will be established through which the Government, business and the general public can interact easily and securely. Government will take a lead in creating demand for services that make effective use of the shared infrastructure through the introduction of on-line delivery of government services, or Electronic Service Delivery (ESD). With ESD, the public will be able to transact business with Government through a diversity of access devices, and government departments will be able to improve the quality and efficiency of the delivery of their services to the community.

The ESD infrastructure is depicted in the following diagram.



Overview of the ESD Scheme

In order to allow the ESD infrastructure to be utilised, expanded, capitalised and developed further for other electronic services apart from delivering Government services, it is expected that the private sector will own and operate the ESD infrastructure. The private sector will then be able to make use of the same open, common information infrastructure for conducting electronic commercial transactions at a later stage.

IT in the Community

- To foster the development of the local IT industry.
- To work in close partnership with the local IT industry, academic and other professional bodies to encourage the cross-fertilisation of ideas.
- To promote awareness and understanding of IT and its applications.
- To promote and facilitate the wider use of IT in the community.

ITSD provides support and services in fostering the development of the IT industry locally and in promoting and facilitating the wider use of IT in the community. It helps to promote the awareness and understanding of IT and its applications through active promotion programmes. It also works in close partnership with the local IT industry and with the academic and professional bodies to promote the use of new and emerging technologies in the community.

IT Industry Facilitation

Networking hour (May 1999)

This event was co-hosted with the Hong Kong Information Technology Federation with a view to building up connections with IT practitioners and to outlining the IT outsourcing strategy of the Government.

Tripartite Forum on Commercialisation of IT Research Results (June 1999)

The objective of the Forum was to enable IT researchers from six local universities to meet with investment professionals and IT industry practitioners to promote the commercialisation of their IT research results.

The event was jointly organised by ITSD, Hong Kong Venture Capital Association, and Hong Kong Information Technology Federation.

Seminar for SMEs on Tendering of Government IT Projects (August 1999)

This seminar was arranged with the objective of informing and exchanging views with the local IT industry, in particular the SMEs, on government tendering procedures, the SME Loan Scheme, and the facilitation measures for bidding government IT tenders. The seminar was organised with the support of the Hong Kong Computer Society, the Hong Kong Information Technology Federation, the Information and Software Industry Association, and the Hong Kong IT Alliance.

Promotion of Chinese Language Interface

A series of seminar, workshop and presentation forum were held to promote a common Chinese language interface for information processing

and exchange. They comprised a seminar on ISO 10646 in April 1999, a workshop on ISO 10646, the universal multiple-octet coded character set, for information processing and interchange in May 1999, and a presentation forum on the Hong Kong Supplementary Character Set in September 1999.

IT Promotion

Roving Show on ESD

The first phase of the Electronic Service Delivery (ESD) scheme will be launched in the second half of 2000. In order to provide an initial introduction of the scheme to the general public, a roving show was hosted at seven popular MTR stations and shopping centres from June to August 1999. A short film was presented to introduce the general concept of ESD. Information kiosks with ESD simulation software were used to explain and demonstrate some of the services provided. They also allowed the public to experience the ease of use and convenience offered by ESD. Leaflets and souvenirs were also distributed. More than 16,000 persons visited the show.

Bi-monthly seminar on E-commerce for Hong Kong Industries

To enable Hong Kong companies, especially SMEs, to embark on e-commerce to explore new markets and to strengthen their competitiveness, ITSD, ITBB, Hong Kong Trade Development Council and Hong Kong Information Technology Federation jointly organised a series of seminars starting from June 1999 targeted at the major manufacturing or services industries in Hong Kong. The seminars highlighted the benefits of e-commerce to SMEs and successful cases of e-commerce applications. Participants in the seminars were also given an information kit on e-commerce.

Expo and Fair

ITSD participated in various expos and fairs to promote the ESD scheme and the services provided by the Interactive Government Services Directory (IGSD) launched in March 1999.

Community Cyber Point

This project involved installation of 50 personal computers at 20 different community halls/centres. The computers were installed at the customised Cyber Workstations, accessing Interactive Government Services Directory (IGSD) through a customised application front end. Free e-mail and the Internet services were provided to the public.

IT Appreciation for Parents

This project provides IT knowledge to about 90,000 parents of secondary school students in Hong Kong. It is scheduled to commence by late 1999.

ITSD has invited speakers from the Education Department, the Crime Prevention Bureau of the Hong Kong Police Force, universities and non-profit organisations, to present their professional views and advice on IT through a video production of about 65 minutes. The video will be shown at each school during the financial year of 1999/2000.

Academic (IT) Quiz

This project aims to promote IT awareness in the community, and in particular, to enhance the IT understanding and awareness of secondary school students.

The Hong Kong Youth Cultural and Arts Competitions, the Home Affairs Department and Radio Television Hong Kong have been the organisers of the Academic Quiz for over 20 years. This year ITSD joined the sponsorship of this popular quiz and the quiz was renamed as Academic (IT) Quiz to recognise the organisers' objective to promote IT awareness.

A total of 13 episodes of the competition will be broadcast on the two local Chinese TV channels from January to April 2000. In each programme, questions on interesting IT topics will be included to promote the interest of secondary school students and TV viewers in IT. An IT trophy will be awarded to the best performing school team in the final contest.

Digital 21 Web Site

This web site was launched by ITSD in June 1999 as a dedicated channel

through which the HKSARG can disseminate information and progress related to the Digital 21 IT Strategy. It is a joint effort of ITSD and other bureaux and departments and its content will be enriched on a continuous basis.

The web site is available at <http://www.digital21.gov.hk>.

Quality Management

Quality is an area to which the department has been giving a great deal of emphasis and attention.

Since 1988, ITSD has progressively adopted a number of internationally accepted standards and methods to gauge and continually enhance its software development activities. A software quality management framework modelled along the international quality management standards ISO 9001 has also been introduced to ensure the delivery of quality software products.

The quality management framework was built upon the following Quality Policy of the department:

Quality Policy

Quality of products and services delivered by ITSD to users/customers is the concern of every person in the organisation. All personnel should thus be involved creatively in providing quality products and services through :

- Their responsiveness to user/customer needs;
- The provision of satisfying work and meaningful careers for all employees;
- The constant measurement and monitoring of all operations;
- The continuous improvement of procedures, processes, products, and services;
- The performance of operations in a responsible manner;

thereby to promote the interests of users and ultimately of the Government of the Hong Kong Special Administrative Region.

The quality of products and services will be maintained in accordance with current ITSD policy, standards and procedures.

The Quality System will embrace a Total Quality Management philosophy and will comply with appropriate international quality standards.

In November 1998, ITSD was awarded its first ISO 9001 Certificate by the Hong Kong Quality Assurance Agency (HKQAA) and the British Standards Institution (BSI) for its internal support services. The services covered under the ISO Certification include methodology development, support, training and quality assurance.

The Professional Work Force

Government IT Staff (as at 30.9.99)

There are three grades of IT staff in the Government. They are the Analyst/ Programmer grade, the Computer Operator grade and the Data Processor grade.

Analyst/Programmer grade staff conduct information systems studies, design, implement and maintain application systems, provide technical support, and manage IT projects. In addition, they also provide support to the ITBB in developing IT infrastructure and the setting of standards, in fostering the development of the IT industry locally, and in promoting and facilitating the wider use of IT in the community. Currently 74 % of the 860 Analyst/Programmer grade staff are on the establishment of ITSD and the remaining 26 % are on the establishment of other government departments (Census and Statistics Department, the Housing Department, the Hong Kong Police Force, the Hongkong Post and the Treasury).

Computer Operator grade staff handle site preparations and the operations of mainframe and mid-range computer systems installed in ITSD and other departments, while Data Processor grade staff handle the data-entry from hard copy onto computer readable media. The staff of these two grades are mainly on the establishments of the various government departments. Only about 27 % of the 510 Computer Operator grade staff and 16 % of the 260 Data Processor grade staff are on the establishment of ITSD for the operation of the ITSD Central Computer Centre computer and data preparation services respectively.

To complement the work of the IT staff, ITSD has an establishment of 20 Management Services grade staff. They conduct business process re-engineering studies, plan, monitor and control the funding of IT projects, and perform post implementation reviews. In addition, they also participate in promoting the awareness of IT and facilitating the wider applications of IT in the community.

Contract Staff (as at 30.9.99)

To cope with the significant IT demand and workload, ITSD has also employed contract staff through the use of term "body-shopping" contracts. At present, there are about 630 contract staff engaged in this manner to provide services for about 120 project teams, of which one-third are engaged by other departments.

A separate arrangement for the acquisition of professional services has also been used to further enhance the department's ability to meet the increasing demand for IT services. Under this arrangement, the contractor is required to complete assignments which could range from a short study to the development of a large scale system. The contractor is also required to provide a programme management service to ensure that the planning, deployment and management of human resources is organised in a coherent manner to maximise its responsiveness to a diversified demand for IT services.

Staff Development & Training

Government IT staff are continuously updated with new knowledge and techniques through training programmes arranged by the ITSD Training Centre. Training takes the forms of classroom training, computer-based training, video-based training, independent study programmes, and skill transfer arrangements made under specific procurement contracts. Participation in computer conferences, secondments and attachments to other organisations is sponsored by the department to keep staff abreast of the latest developments in IT and to gain field experience in those relevant state-of-the-art technologies. On average, over 1,200 courses are organised for some 6,000 attendees annually.

In addition to the training courses organised by the ITSD Training Centre, the department also encourages and sponsors its staff to take professional examinations and obtain professional qualifications relevant to their duties.