

An Information Systems Strategy Study in the Legal Department of the Hong Kong Government (1992-1993)

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INTRODUCTION

The primary emphasis of this paper is to describe the experiences and results of an Information Systems Strategy Study in the Legal Department of the Hong Kong Government which was concluded in October 1993. The paper will show why the study was necessary, its objectives and the practical benefits expected from implementing the Study's recommendations.

2. Incompatible systems

The Legal Department of the Hong Kong Government began acquiring computer based office technology in the mid-eighties, somewhat later than many other jurisdictions. However, in common with most other jurisdictions, we acquired systems to meet immediate and particular problems, with little thought or opportunity to ensure future compatibility between the systems. In fact, even if we had had the money and time, it is only recently that diverse systems have been available with common interfaces.

3. A strategic study

Although we have had some notable successes, such as our Chinese and English text Bilingual Laws Information System, it became clear that the increasing pressure for more computer based office solutions would lead to even more proliferation of incompatible systems. The solution was to undertake a strategic study of our current and projected information technology needs and to adopt a plan to acquire the necessary tools.

4. Appendix materials

The Appendix includes some information about the size and organisation of the Department and its Divisions and the systems now in use.

5. Other matters

Before giving an overview of our strategic study I would like to make some general observations about recent developments in the field of information technology.

6. Data and text sharing problems being resolved

I have already mentioned one recent change of importance. It used to be the case that the sharing of text and data between different programs and computing platforms was very troublesome, if not impossible. In large part due to the increased capacity and power of personal computers, these problems are near to complete solution. The almost seamless movement of text between

different programs, with all of its formatting and font information intact, is a very recent development and it comes in pre-packaged form without the need for professional programming assistance.

7. Power up! Costs down!

While the power and reliability of the personal computer keeps dramatically improving, the cost continues to drop. This, coupled with the increasing sophistication (and simplicity of use) of software, puts office technology solutions within reach of even modest budgets.

8. Word processing for lawyers, like it or not

One of the conclusions of our strategic study was that word processing still remains one of the best productivity tools, the one that is most easily cost justified. However, the unique feature about word processing today is that it is word processing by the lawyer, not the lawyer's secretary. When one considers the inherent inefficiency of all of a lawyer's words having to be created at least twice, once by the lawyer by handwriting or by dictation and then again by the secretary's typing, it is obvious that productivity can be improved if the lawyer is willing to do his own typing.

9. Voice to text technology

Perhaps the long promised "voice to text" technology will make the transition easier for those lawyers who are reluctant to use keyboards. Even though "voice to text" is not yet perfected, it is clearly easier now for professionals to learn to use computers. The widespread availability of graphical user interfaces, colour, excellent HELP files and tutorials make computing less of a challenge than it was so recently. The new user need never encounter DOS, that cryptic, difficult to remember, disk operating system that discouraged all but the most dedicated from accepting computers in their office.

10. EMail

Our strategic study recommends that all of our lawyers and virtually all of our support staff have computers on their desks and that they all be capable of communicating electronically (EMail). We have had this facility for some of our lawyers and staff for the last 3 years and I can personally attest to its usefulness, particularly at the senior management level. It obviates the need for telephone messages and reduces the number of meetings.

INFORMATION SYSTEMS STRATEGY STUDY

11. The need for strategic planning

In the Legal Department, the acquisition of computers and other office technology, on a project by project basis, resulted in the creation of separate 'islands' of technology which served the needs of the inhabitants of each island but which created barriers to the exchange of useful information between the islands. It became difficult, and due to time constraints, practically impossible to share information, particularly information that would be useful to the managers of the Department who have to explain and justify the application of scarce resources to central agencies of government and to legislative bodies.

12. Information Systems Strategic Study (ISSS)

The Hong Kong Government recognised the inefficiencies caused by applying new systems in response to immediate problems. In 1991 it began a programme of conducting Information Systems Strategy Studies (ISSS's) for Departments where the application of information technology was perceived to be likely to result in increased productivity or efficiency. The studies would result in a strategic plan for the application of information technology in the Department over a period of 5 years, with annual reviews and adjustments to keep the plan current. Because the Department already had some systems installed and because we were under pressure from our own managers and lawyers to expand, diversify and integrate them, we were able to justify an early commencement of an ISSS.

13. An ISSS consultancy

Our ISSS started in October 1992 and was concluded in October 1993. While some of the departmental strategic studies have been conducted by the Hong Kong Government Information Technology Services Department, others, including the Legal Department's, have been done by management consultants with experience in carrying out such studies. Our consultant was chosen by competitive tender from among submissions we received from international firms operating in Hong Kong. We chose the firm of Deloitte Touche Tohmatsu, who employed experts from the USA and Australia. The cost was USA \$410,000, plus the time invested by the Legal Department and Information Technology Services Department Services staff.

14. Objectives of the ISSS

The objectives of the strategic study were to -

- (a) identify information systems needs, at both the Department and Division levels;
- (b) prioritise needs yielding greatest improvement in services, while considering costs for systems;
- (c) develop short and long range plans, including time frames and investments;

- (d) recommend standards for selecting software and hardware that consider future integration needs; and
- (e) analyse the Department's structure to optimise the use of information systems.

15. A report of 6 volumes

The strategic study has resulted in the production of a report of 6 volumes. The following paragraphs describe the various stages of the study and the conclusions reached.

16. Volume 1 - Strategic Alignment and Baseline Review

This first phase of the study consists primarily of a detailed analysis of the Legal Department, its identified problem areas, structure, objectives, cultural and critical success factors, business functions, existing information management systems and technologies, and information sharing needs within and outside the Department.

The Appendix contains some of the information extracted from this volume, including the current organisation and strength of the Department and a description of its existing computer applications.

A conclusion of note from this volume is that the compartmentalisation of the Department into various Divisions has resulted in an inefficient exchange of ideas and technology, non-standard methodologies, inhibitors to integrated systems, obstacles to the sharing of reference documents and disparate solutions to common problems and information needs.

17. Non-ISSS initiatives

Early on during the study, we and the consultants also identified certain subjects and projects which were outside the contracted scope of the consultancy but which it might be valuable for the Department to undertake to improve its productivity. They included -

- (a) Weighted Workload Management - a quantification and ranking of the combined internal and external demand for services over a specified period of time;
- (b) Productivity Measurement and Analysis - an ongoing quantification of how effectively and efficiently the work demand is converted to legal services;
- (c) Full Scale Business Re-engineering - the streamlining and restructuring of the Department in order to reduce costs and increase productivity by improving efficiency and effectiveness;
- (d) Total Quality Management - an ongoing programme to ensure that defined quality targets are achieved and maintained; and
- (e) Change Management - a technique for ensuring the effective and efficient implementation of

organisational, operational, cultural and other changes in an organisation.

Implementation of our Information Systems Strategic Plan (ISSP) will involve some of initiatives, particularly re-engineering at the work-flow process level and change management. However, the thorough implementation of the initiatives described succinctly above require large investments of time and money to be done properly. For the time being, we have decided to treat these initiatives as long term goals so that we can focus our efforts on the implementation of the ISSS.

18. Volume 2 - Strategic and Potential IT Systems

This volume, building on the information obtained from Volume 1 about how the Department operates, presents the Logical Applications Architecture and ranks the proposed applications according to their relative importance to the information systems strategy and their potential impact on the Department's efficiency and effectiveness. An "application" is a computer program or combination of programs that fulfil a functional information requirement, and a "logical application" is, for example, the 'application' of the word processing function without regard to the physical way in which the application is provided to users. That is, no recommendations are made at this stage as to whether word processing will be provided at individual work stations or via a central computer.

The following logical applications were identified -

- (a) Library Management - this includes the traditional law library needs of cataloguing, ordering, lending and tracking; but also includes legal opinions reference management and the Department's full text retrieval legislation databases;
- (b) Tracking - addresses the unique and independent information processing needs of the 5 law Divisions of the Department with regard to tracking of cases (civil, criminal and appeal), the giving of advice, the drafting of legislation, counsel assignment and scheduling, hiring of non-Departmental counsel to conduct cases (including fees accounting and management), evidence tracking, extraditions, and confiscated assets and their liquidation;
- (c) Documents Management and Archival - this includes the preparation, storage, indexing, updating, backup, recovery, retention and archiving of documents;
- (d) Office Automation - this includes document processing (word processing in English and Chinese, graphics and spreadsheet functions; document scanning for the capture of text and images for incorporation into documents or other applications; electronic mail, calendaring and scheduling; file disk utilities; and voice mail which allows for use of the telephone to send and receive digitally recorded voice messages to and from voice mailboxes;
- (e) Master Index - addresses the common information processing needs of all Divisions of the Department with regard to the elimination of the data and information compartmentalisation problems identified in Volume 1. The index provides a central Departmental level cross index to all cases and documents which are processed by the various divisions;
- (f) Information Centre - generates operating, statistical and management information reports using inter and intra Division transaction data extracted from production databases. Users in each Division will be able to use the extracted data to define and tailor unique reports and prototype, demonstrate, modify and finalise various operating, statistical and management information reports;
- (g) Common Interface - this ensures that all users will operate on the same types of applications (Graphical Users Interface - GUI, for example), the same terminal and application access security, standard data exchange interface and external applications interface;
- (h) Administration - this covers the processing needs of the Administration Division with regard to personnel management, purchasing and financial and accounting transactions and inventory of equipment and supplies.

Not included in the list of recommended applications are a document imaging system or a litigation support package. Imaging was considered too expensive to cost justify and litigation support would be considered on a case justification basis.

19. Volume 3 - Technical Infrastructure

This report provides a logical (as opposed to a physical) definition of the architectures for the technical infrastructure needed to support the implementation of the logical applications identified in Volume 2. Three architectures are identified -

- (a) Computing Platform - defines the technical standards and conventions for the Application Program, Application Program Services, Operating Systems and Hardware components;
- (b) Data - defines the sources and destinations of data and databases;
- (c) Network - defines the logical work groups in the Department and their information exchange needs.

The report also includes diagrams of these architectures and recommends a strategy on how to move from our existing systems which do not conform to the new applications or architectures.

It is perhaps useful here to state that because this is a "strategic" study, the report does not actually recommend particular hardware or software, but rather the elements and capabilities that must be met by whatever hardware and software is chosen. It is therefore not possible at this stage to say what products we will be obtaining. However, it was necessary for the purpose of preparing the costs and benefits analysis in Volume 5 to make certain assumptions about the products needed in order to estimate costs. Following is a brief list that may give a more concrete feel for the way we are heading -

- (a) We will be using a "client-server" configuration of PC's (about 650 of them), bigger PC's as servers and mini computers with both network and PC laser printers, all connected by local area network with communications access to remote locations;
- (b) By the time purchases are made (we hope in 1994), 486 PC's will have entirely replaced 386's. Windows graphical user interface is the likely choice over IBM OS2 because of the wider software selection. Colour monitors will be standard. A low capacity laser printer for each counsel to reduce time away from the desk;
- (c) The network software will probably be Novell Netware, but Windows NT will be investigated;
- (d) Servers and minis will be UNIX based, but Windows NT Advanced Server will also be looked at.

20. Volume 4 - Management Infrastructure

This report recommends the management structure necessary to implement the strategic plan and manage the Department's information resources. Its recommendations include -

- (a) A definition of the scope of responsibilities of the Information Technology Services Department (to provide technical assistance and advice using their own or contacted staff) and the Legal Department (to be solely responsible for the information and data assets and the management of the application softwares which are essential to the delivery of legal services to the government);
- (b) The establishment of an Information Resource Management Programme to organise, train and empower the executive and divisional levels of management to administer effectively the Department's information and data assets, including the delivery of information to end-users and implementation of the strategic plan;
- (c) The establishment of a new unit within the Department to be responsible for information resource management, including policies and procedures for the use of the various applications identified in Volume 2. The appendix includes

several pages of detail about the responsibilities of the proposed unit;

- (d) The establishment of a new executive level Information Resource Management Committee, a strategic plan implementation Steering Committee, divisional steering committees and project teams for implementation of the strategic plan. The executive level Information Resource Management Committee will be a permanent committee consisting of the Attorney General and his management committee plus the director of the new Information Resource Management Unit.

The establishment of a group of staff within the Department whose responsibilities are devoted to the effective implementation and maintenance of information systems, including ongoing training of users, is considered vital to the success of the strategic plan. Experience in other projects and in other jurisdictions has shown how critical it is to avoid leaving the implementation of these projects solely to the computer professionals. It has also proven unsatisfactory to rely on only the part time involvement of regular staff whose other duties hinder the most effective use of computer applications. Ideally, in a legal department environment, a legally trained person should perform this role in order that there be a thorough understanding of the user's needs and the credibility necessary for effective communication of training and ideas.

21. Volume 5 - Recommended Strategy, Costs and Benefits Analysis

As might be expected, the results of the costs and benefits analysis are crucial to determine whether a case can be made for acquiring the funds necessary to implement the recommendations made in the earlier volumes. Calculation of costs and benefits is almost as much art as science. Assumptions need to be made and recognised, and a different assumption can lead to greatly different, but still legitimate, results. For example, costs can be based on current dollars, even though the prices may change before purchases are made. Assumptions can be made as to price and inflation trends, or the issue can be ignored. Because a large investment is made at the beginning of the project, a return on investment calculation at the end of 1 year may make the project seem prohibitively expensive, whereas at the end of 5 or 8 years the project might seem eminently justifiable.

It is difficult to condense this volume into anything meaningful in the context of this paper, but it might be useful to describe a few of the cost and benefit concepts used -

- (a) Non-recurrent costs - one time costs associated with the acquisition, development and implementation of the systems (includes system development and re-engineering costs, capital costs, training, site preparation and start up consumables);

- (b) Recurrent costs - costs associated with the ongoing operation and maintenance of the systems (this includes hardware and software maintenance, rental of data lines, consumables, on-going training and staff costs);
- (c) Tangible benefits - quantifiable dollar savings to be realised with the implementation of the systems (includes staff savings and system maintenance costs of old systems being replaced and self insuring on PC maintenance rather than entering into maintenance contracts for several hundred PC's);
- (d) Notional benefits - benefits measurable in dollar amounts but which cannot be realised as hard dollar savings (includes staff savings where gains in productivity and efficiency represent less than 100% for various grades of staff, and cost avoidance benefits obtained from not needing to acquire future staff or equipment due to gains in productivity and efficiency resulting from the system implementation;
- (e) Intangible benefits - those that cannot reasonably be quantified in dollar terms though they may be as or more significant and material than the tangible or notional benefits (examples are more responsive to enquiries, more comprehensive management information, lower error rates or increased effectiveness and speed).

As an indication of the size of the proposed system, the non-recurrent cost over 5 years is estimated at US \$12.5 million. The recurrent costs are so dependent on assumptions about staff redeployments, etc. that I will not provide them here. On the savings side, the plan is esti-

mated to result in the elimination of about 30 secretarial/typist/clerk posts. The break even point where total costs - total benefits occurs in year 8.

22. Volume 6 - Implementation Plan

The implementation plan recommended dividing the implementation into 2 phases, with the first phase including library management, document management and archival and office

automation. Left for the second phase, to start in the 3rd year, are the master index, tracking, information centre and administration.

This report contains detailed recommendations for all of the projects and activities that will need to be undertaken, including pre-implementation projects, staff acquisition, space and facilities, and hardware and software and management.

CONCLUSION

23. While a strategic study of the magnitude described in this paper may not be justified (or even necessary) in smaller jurisdictions, for a Legal Department of the size and complexity of Hong Kong's we consider that the study was very worthwhile. It confirmed our intrinsic belief that a comprehensive information systems strategy was necessary to make the best use of our resources in the next few years.

24. Although the initial cost of implementing the plan will relatively high, there is no doubt that a better, more productive, Legal Department will be the result. We also expect that the provision of modern office technology to our professional and support staff will contribute to both pride and satisfaction in the Department's work.

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5. Information Resource Management (IRM) Program Organisation

Hong Kong Legal Department

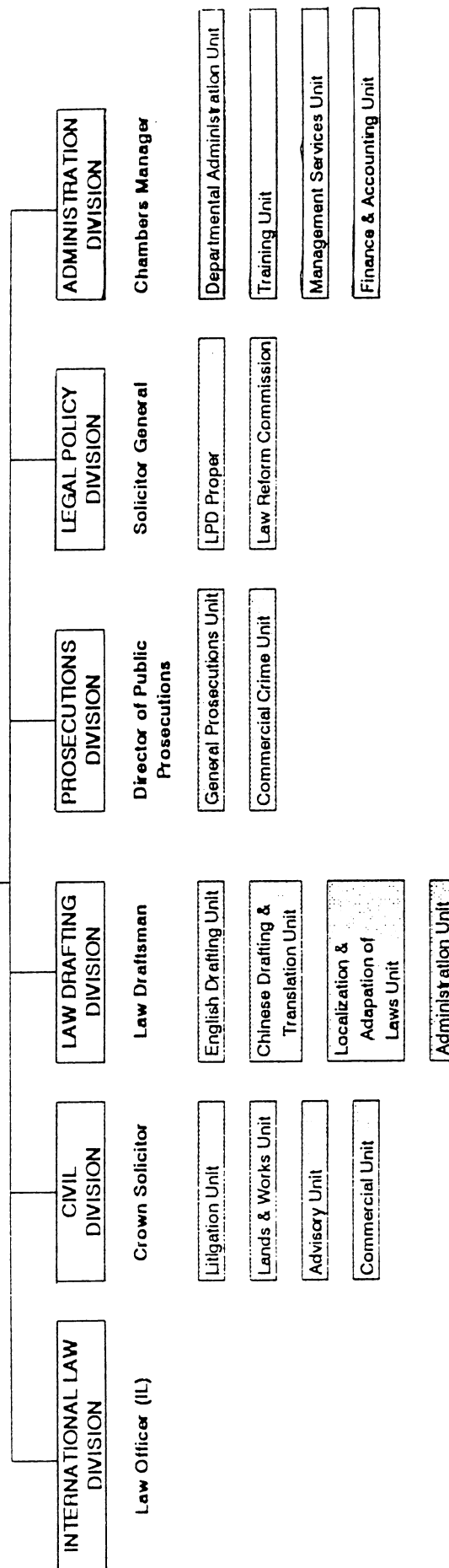
Information on current situation

1. The Department has 267 lawyers and 545 support staff divided into 6 Divisions including Prosecutions, Civil, Law Drafting, International Law, Legal Policy and Administration.
2. There are 400 installed PC's, about half on lawyers's desks, and 120 connected to an EMail network.
3. Current significant applications include -
 - (a) Bilingual Laws Information System - this Wang mini-computer supports full text retrieval (using STATUS software) of all Hong Kong statutes (in Chinese and English), judgments of Hong Kong superior courts, legal opinions and other Departmental documents; external communications for public access to the databases; EMail services; word processing in Chinese and English for the Law Drafting Division;
 - (b) Prosecutions Management Information System - a mini-computer based system providing case tracking, counsel scheduling and statistics reporting;
 - (c) Litigation Indexing Support System - a Wang mini-computer acquired for a particularly large commercial crime prosecution. It uses full text retrieval and document indexing software;
 - (d) Work-in-Progress System - for capturing, maintaining and storing civil litigation case data.

Organisation Chart of the Legal Department

(as at 1.9.1993)

ATTORNEY GENERAL



Total Establishment in Division:	10 + [1]	140 + 1# + [5]	104 + 1# + [5]	340 + [4]	64 + [6]	129 + 1# + [1]
Establishment of Counsel Posts:	6 + [1]	66 + [5]	31 + 1# + [2]	103 + [3]	45 + [4]	-
Establishment of Support Staff Posts:	4	74 + 1#	73 + [3]	237 + [1]	19 + [2]	129 + 1# + [1]

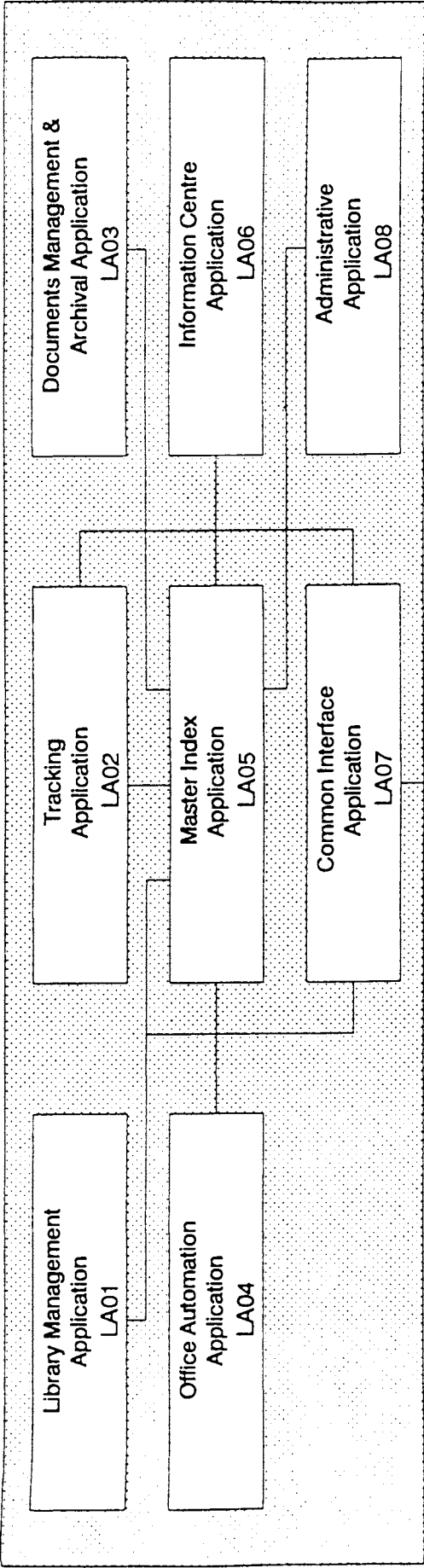
Total Establishment in Department: 787 + 3# + [22]
 Total Establishment of Counsel Posts: 251 + 1# + [15]

Legend: # supernumerary posts
 [no.] supernumerary post held against other vacant post

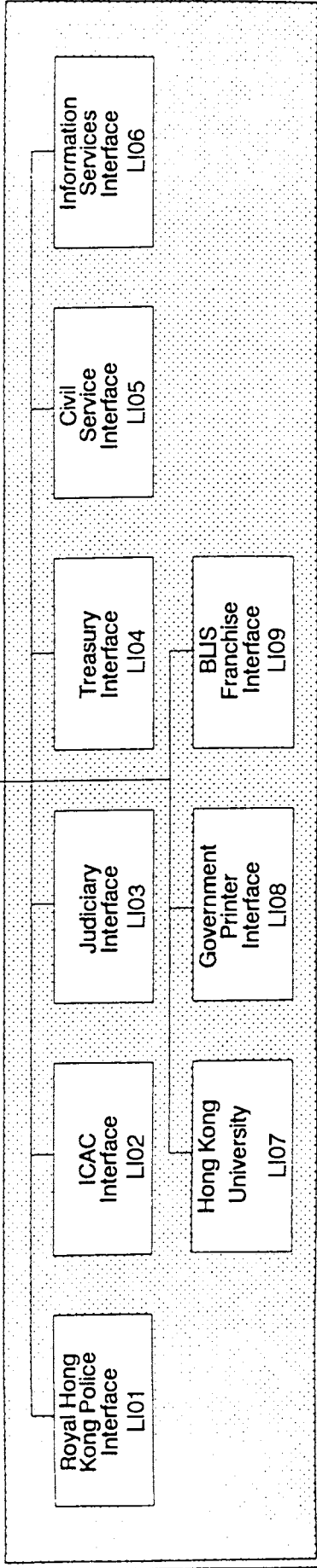
Legal

Business Applications Portfolio and
Logical Interfaces - Context Diagram

Legal Department - Logical Applications:



Hong Kong Government - Logical Interfaces:



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Exhibit 2.2.1

LA02 Tracking Application

Logical Modules - Context Diagram

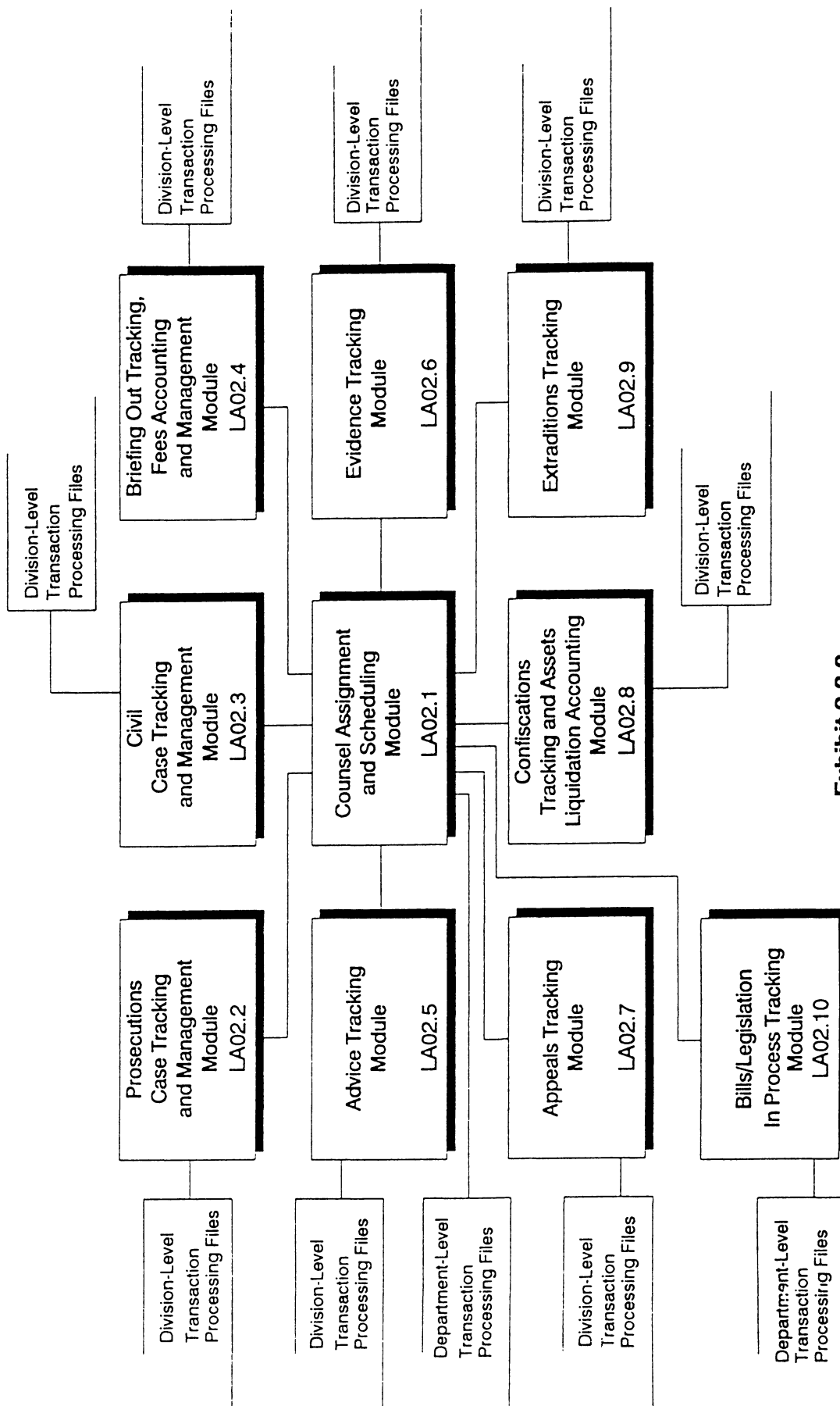


Exhibit 2.3.3

Information Resource Management (IRM) Program Organisation

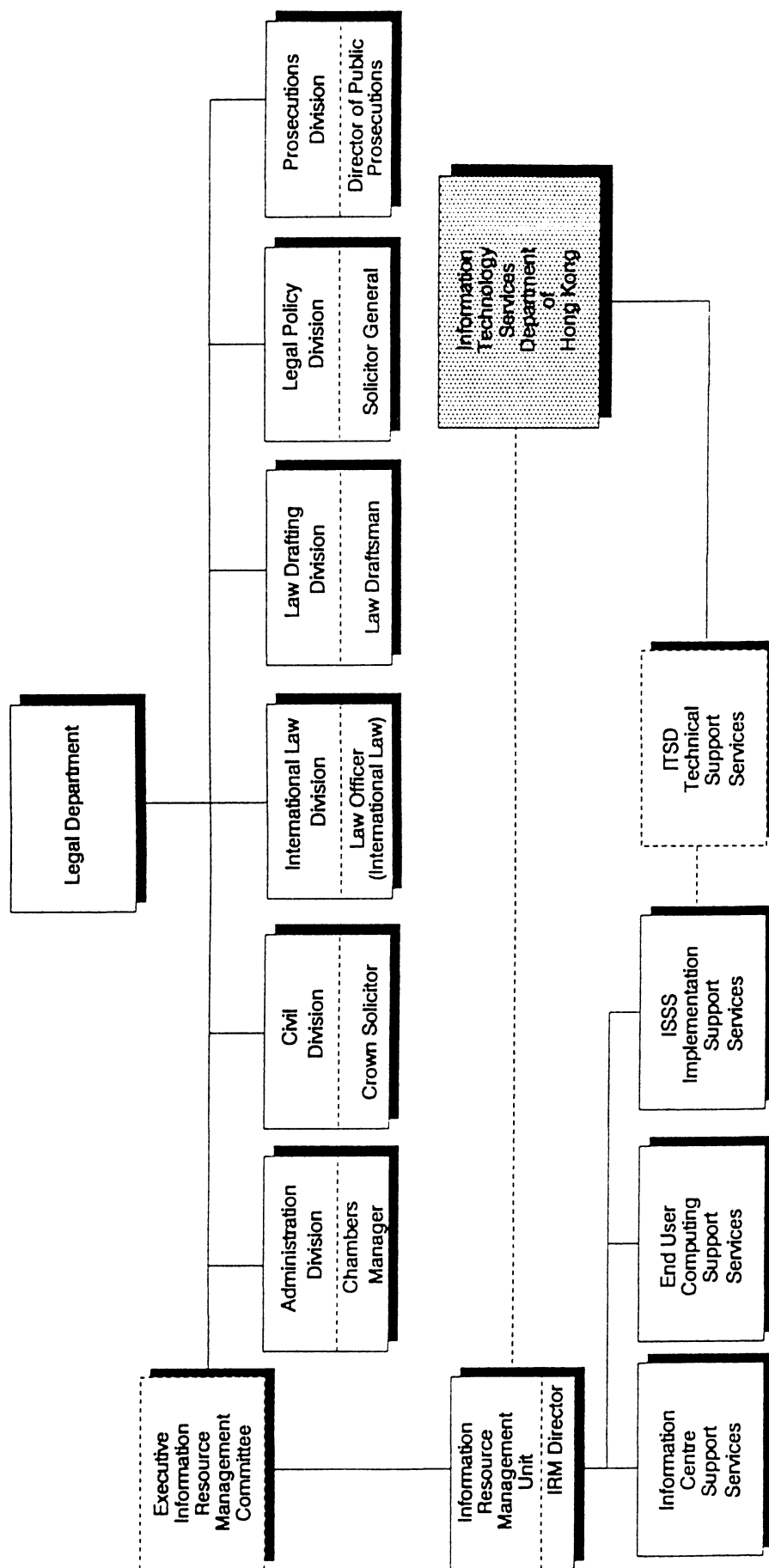


Exhibit 4.2.1

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