

BMA's INFORMATION SYSTEM INTEGRATION PLAN: IT MANAGEMENT ORGANIZATION*

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Abstract: *With the information systems integration plan being laid out for hardware and software infrastructure, yet another important component, namely peopleware must also be thoroughly thought of. Proper management organization is indispensable for the successful integration and subsequent operation of information systems. With a wide variety of information systems at hand, Bangkok Metropolitan Administration (BMA) must put together an effective and efficient team of information technology staffs to support, as well as to further develop the information systems. Therefore, the IS integration plan needs to include the plan for IT management organization as an integral part. However, in reality, there are constraints in terms of organizational change and human resource allocation. Especially, in a government agency like BMA, a change in the organization structure or an increase in human resource is very difficult to attain in an appropriate time frame, if not impossible at all. Hence, a stopgap measure is sometimes required. This paper summarizes the recommended IT management organization that should be adopted together with the implementation of the IS integration plan. This presents a pathway towards a comprehensive solution that should be derived when the IT Master Plan of BMA is to be developed.*

Keywords: *Information System, Information Technology, System Integration, Information Technology Management*

1. INTRODUCTION

Bangkok Metropolitan Administration (BMA) has a formidable task of taking care of one of the biggest metropolitans in the world. Its responsibilities include urban chores, healthcare, traffic planning and management, construction control, residential registration, and education, etc. Basically, BMA is a scaled-down version of Thai government. With the complexity of tasks at hand, BMA, like all other metropolitan administrations, needs to embrace information technology to assist in the operation, as well as planing and decision making. Hence, there have been a number of IT related projects developed in BMA during the recent years. However, many of the projects have been developed independently. In order to make use of its various IT projects and IT infrastructure developed within the projects the best way it can, BMA has initiated a study and development of Information System Integration Plan in 1998. The study examines existing and planned IT projects, then draws up a plan to integrate different information systems of BMA in terms of software, data, hardware, and networking infrastructure. In such an integration plan, one indispensable part is of course the IT management organization.

This paper is a part of the consulting work done to develop the Information System Integration Plan for BMA as described by Assumption University of Thailand. The result of the work is extensively documented in a series of reports [1-3]. This particular paper is drawn up from materials of Chapter 6 of the Final Report [3]. It discusses the background of the existing IT

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management organization of BMA, as well as the problems and constraints. Then, a new IT management organization is proposed. Notice, however, that this proposed management organization is meant to serve as a stopgap measure awaiting a major re-structuring that should be studied and planned during the development of the BMA IT Master Plan in the future.

2. CURRENT SITUATION

There are four main IT related divisions that are responsible for the development and operation of information systems in BMA. The four divisions are Computer system development division, Computer system control division, Computer system service division, and Land information system division. They all belong to the Policy and Planning department together with some other non-IT divisions. Moreover, there are a number of different committees that have been appointed to oversee IT policies, projects, and procurements. Yet, some non-IT departments and divisions do sometimes undertake IT projects themselves without the involvement of IT personnel.

The situation poses the problem of coordination among various parties concerned. There is also a lack of centralized policy for IT development. This sometimes results in confusions and worse duplications of work. For example, when different departments want to acquire Geographical Information System (GIS), with neither a good coordination nor a centralized policy, they may end up with GIS products from different vendors with different data formats. That would lead to the problems of data exchange between systems and maintenance of different systems.

The major problems that can be identified include

- the lack of one central body to oversee IT policy and development,
- the difficulty in getting IT related issues from the operational level IT divisions to the top management for decisions and actions since the management at the departmental level to which the divisions belong may not be so keen in IT; note that the IT divisions belong to Policy and Planning department,
- the career path of IT personnel is unclear above the division level, and
- resources allocated for the IT divisions are inadequate compared to the workload assigned; the allocation of resources sometimes needs to be shared/competed with other non-IT divisions within the department.

One major constraint at the moment is the Thai government policy not to increase the headcount of its civil servants. This requires us to plan for the re-structuring of IT management organization *without* a major increase in headcount until the time that this policy is relaxed in the future.

3. CENTRALIZED COMMITTEE

In order to solve the first problem at the executive level, a centralized IT committee is proposed. This committee is proposed to be the supreme committee taking care of any IT related matters. It is the policy body of BMA concerning all IT issues. Problems and conflicts that cannot be tackled at the lower levels would ultimately be resolved by the decisions of this committee. All other existing IT-related committees should be reorganized as sub-committees and report to this IT committee. This committee may be called BMA Information Technology Steering committee or IT committee in short. This supreme IT committee has the responsibilities including but not limited to the followings.

- Laying down policies and guidelines regarding the usage and the development of IT in BMA, as well as overseeing the development of BMA's IT Master Plan
- Screening and approving IT related projects in accordance with the IT Master Plan developed
- Overseeing the progress of IT related projects approved including the continued evaluation of such projects
- Issuing IT standards to be followed in all IT procurements, and revising the standards periodically according to the pace of technology advancement
- Outlining plans for personnel development so that IT deployments can be effectively and efficiently utilized

This committee should comprise the following members.

- Deputy governor and/or advisor to the governor assigned by the governor to take charge of IT policy as *Advisor(s)*
- Chief Information Officer (CIO) of BMA (a deputy permanent secretary) as *Chairman*
- Department director of Information Technology department (a new post to be created) as *Vice Chairman*
- Chief Information Officers (CIO) of all other departments (a deputy director of each respective department) as *Members*
- Representatives from groups of district offices as *Members*
- Division directors of four IT divisions of IT department as *Members*
- IT experts from outside as *Members*
- Secretary of IT department as *Member* and *Secretary*

4. IT DEPARTMENT

In order to solve the remaining problems cited in Section 2, a dedicated IT department is needed. This IT department would serve as the working arms of the IT committee. Initially, as a stopgap measure, the IT department can be created by grouping together the four IT divisions currently belonging to the Policy and Planning department. With the creation of the IT department, the gap between the IT committee and the four IT divisions would definitely be bridged. There will be much clearer separation of IT tasks from non-IT tasks. Resources and policies would be better consolidated under a new IT department director whose responsibilities are solely on IT issues. This is much needed in BMA since IT would definitely be more and more pervasive into every aspect of BMA's operations. IT would play more and more important roles. Without an appropriate IT management organization, BMA can expect lots of troubles in the future. The degree of hindrance could be as bad as major BMA's operations gradually being crippled in time.

This IT department would also boost the needed moral of IT personnel. They will have a clearer career path. They will be able to convey messages and be understood by bosses, who are dedicated to IT, all the way to the CIO of BMA without any breakdown in the chain of command. The IT department proposed here is just the first step towards the development of an effective IT management organization of BMA. The structure of the full-fledge IT department should only be determined when a full analysis of IT requirements of BMA is conducted in conjunction with the development of the IT Master Plan. Only by such IT management organization, we can ensure the effectiveness and the efficiency of IT employed in BMA. The IT department would have main responsibilities as follows.

- Managing the usage of IT in BMA
- Managing all IT related projects
- Determining IT standards to be proposed for the approval of IT committee
- Analyzing and planning for the development and usage of IT
- Serving as the secretary of IT committee

In this initial stage, the proposed stopgap IT department should consist of the following divisions.

- Secretariat office
- Computer system development division
- Computer system control division
- Computer system service division
- Land information system division

The structure of this new IT department is shown in Figure 1. Notice that this IT department is expected to grow, more divisions and section with in divisions will be added depending on the rate of growth of IT usage in BMA. This may sound unorthodox since the use of IT is supposed to increase efficiency and reduce manpower requirement. Actually, the efficiency gained would be in other departments. Such gains would help those departments perform more tasks with existing resources or perform existing tasks with fewer resources. The IT department is basically an investment to be paid for the overall gains in BMA's operations made possible by the use of IT.

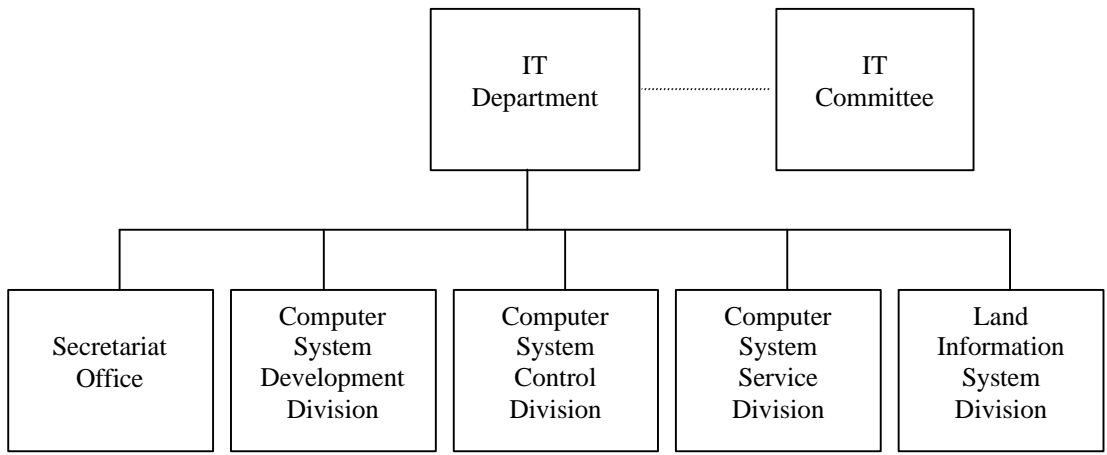


FIGURE 1: BMA IT DEPARTMENT

First to be discussed is the Secretariat office. The organization of this office is shown in Figure 2. Like Secretariat office of other departments, the responsibilities of this office are as follows.

- Document flow management and general administrative chores
- Executive assistance and secretarial works
- Personnel management
- Financial management
- Meeting rooms management
- Legal proceedings and contracts management
- Works not assigned to any other divisions in the department

This office should consist of the following workgroup and sections.

- Executive assistance workgroup
- General administration section
- Personnel section
- Finance section

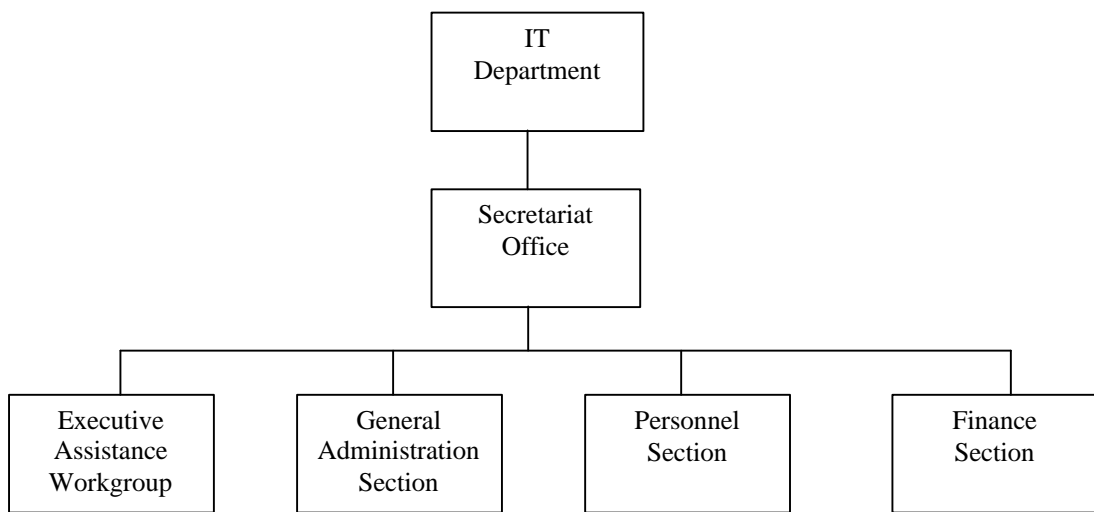


FIGURE 2: SECRETARIAT OFFICE

The remaining part of this IT department would comprise the four IT divisions currently belonging to the Policy and Planning department. This would ease the establishment process of the IT department since the additional manpower required will initially be minimal. Hence, the proposed IT department would be *politically* viable. However, the responsibilities and the sections of each division have to be rearranged somewhat in order to streamline the overall IT operations. The rest of this Section discusses each division, its responsibilities and its organization, one by one.

The first of the four divisions is the Computer System Development division. In general, this division is supposed to take care of the planning and development of information systems for management. Specifically, the responsibilities of this division are as follows.

- Assisting BMA executives in the development of IT policy
- Studying the use of information systems for management
- Planning, analyzing, designing, and developing information systems for management
- Scrutinizing and selecting appropriate alternative(s) for the procurement of information systems for management
- Conducting the procurement of information systems for management
- Overseeing the development and implementation of information systems including the processes of acceptance testing and personnel training
- Planning for the continued development and expansion of information systems for management
- Developing and maintaining application software
- Evaluating the development and usage of information systems for management
- Planning for IT personnel development.
- Disseminating IT knowledge to all BMA personnel
- Managing information warehouse to support executives as well as other departments of BMA
- Managing computer library for the use of BMA personnel
- Establishing standards for data structure and coding
- Establishing standards for information security

This Computer System Development division could possibly be renamed to Information System Development division to better reflect its responsibilities. The organization of the division is shown in Figure 3. The division should consist of the following workgroup and sections.

- General administration workgroup
- Planning section
- System development section
- Training section

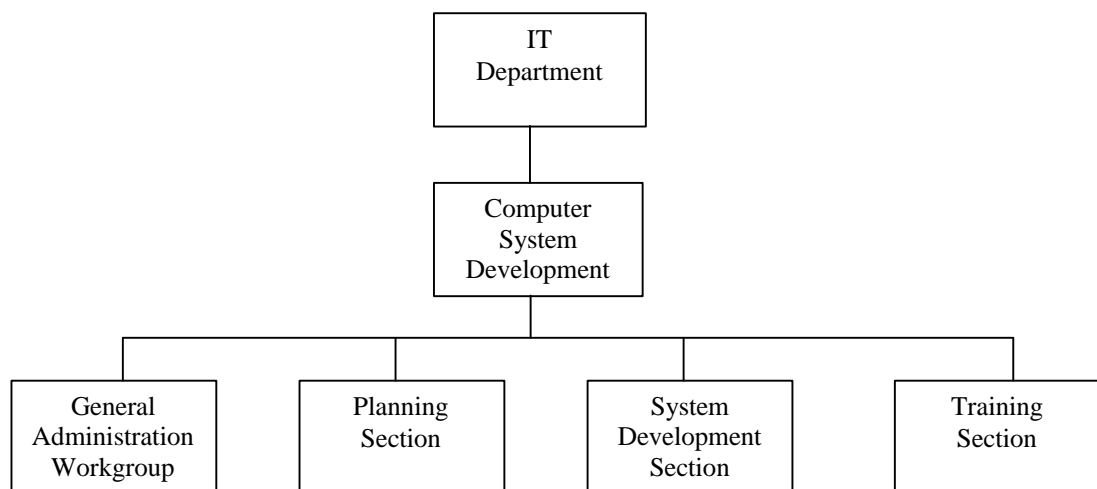


FIGURE 3: COMPUTER SYSTEM DEVELOPMENT DIVISION

After the information systems have been developed, their operations must be administered and controlled. This includes the network infrastructure of BMA. Another division called Computer System Control Division is supposed to take charge of such responsibilities. Specific responsibilities of the division include the followings.

- Establishing guidelines for the employment of operating systems, database management systems, and computer networks within BMA's IT infrastructure
- Overseeing the operation and the maintenance of computer systems, computer networks, and database management systems
- Solving technical problems pertaining to computer systems, computer networks, and database management systems
- Planning for the continued development and expansion of computer system and computer network infrastructure, as well as database management systems
- Establishing guidelines in data entry and processing
- Managing BMA's computer network and IP addresses
- Managing BMA's Internet connection
- Maintaining computer system security
- Providing advises in solving problems pertaining to computer systems and networks to other departments

This Computer System Control Division may be renamed to Computer System and Network Operation Division to reflect the responsibilities. The organization of the division is shown in Figure 4. This division should include the following workgroup and sections.

- General administration workgroup
- Computer system section
- Computer network section
- Database management system section

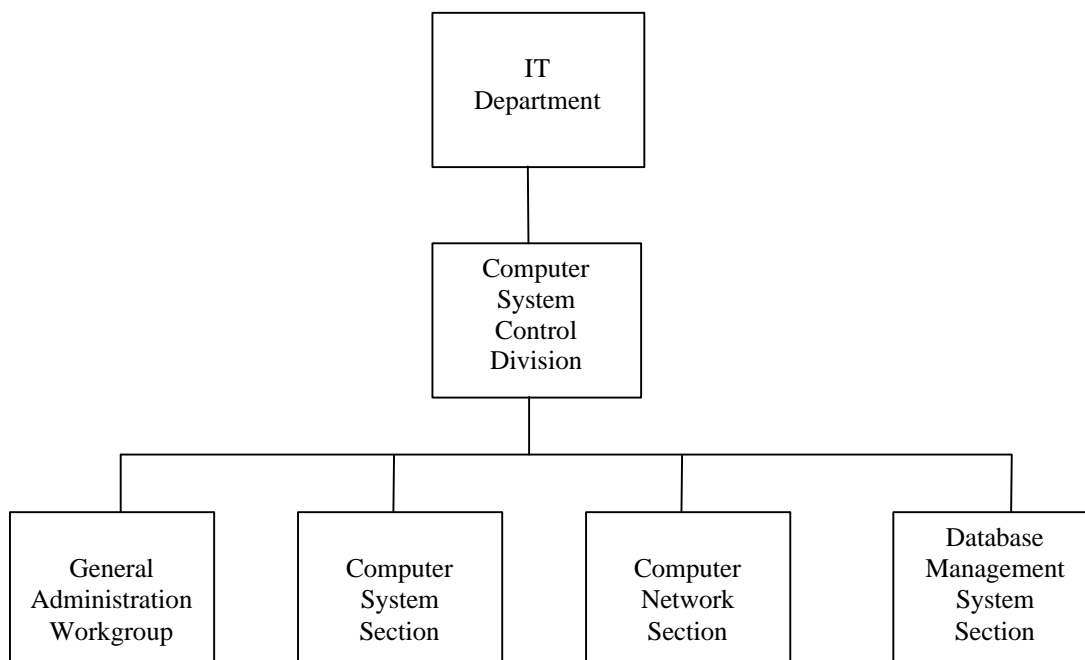


FIGURE 4: COMPUTER SYSTEM CONTROL DIVISION

Next division is the Computer System Service Division. The division is responsible for all support functions. The division provides first-line user support for all users in BMA. The supports provided range from instructions on personal computer applications, solutions to hardware problems to creation of media for presentation and training. Specific responsibilities of the division include the followings.

- Assisting in and providing services for the usage of microcomputer, peripherals, and application programs
- Assisting in and providing services for the creation of computer based media including but not limited to multimedia presentations
- Providing computer system related technical support to the executives and users in BMA
- Maintaining microcomputers and peripherals
- Serving as the first-line help desk for all users
- Interfacing with respective division(s) to help users solve their problems
- Procuring computer related materials such as diskettes, printer toners, etc.
- Managing a Web site storing all the media created
- Managing BMA Web contents for the dissemination of information within the Intranet of BMA for the perusal of BMA personnel, as well as onto the Internet for the general public

This division could possibly be renamed as Information System Support Division, again, to reflect the responsibilities. The organization of this Computer System Service Division is shown in Figure 5. It should include the following workgroup and sections.

- General administration workgroup
- Microcomputer service section
- User support section
- Technique section
- Media creation section

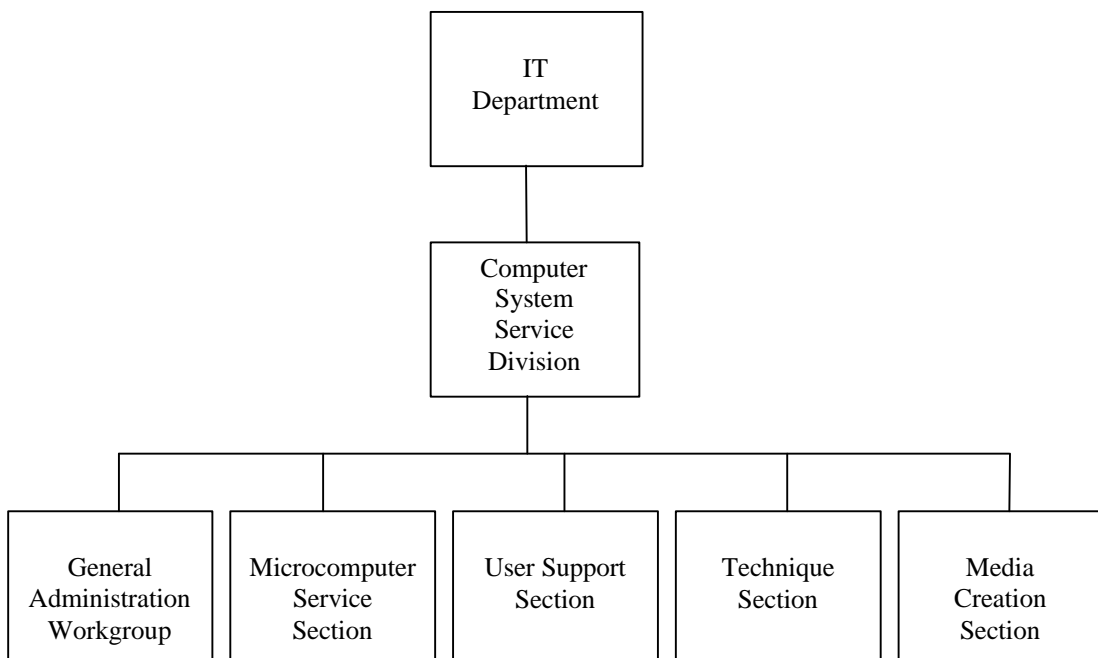


FIGURE 5: COMPUTER SYSTEM SERVICE DIVISION

The last IT division of this IT department is a quite specialized division dealing with Geographical Information System (GIS). For historical reason, this division is currently called Land Information System division. The division is responsible for the development and maintenance of GIS and GIS data to be used in various functions of BMA. Specifically, the division's responsibilities are as follows.

- Establishing policy and plans for the development of geographical information system of BMA
- Analyzing and prioritizing action plans, as well as evaluating the administration and usage of GIS
- Serving as the GIS based information center for BMA's urban development activities
- Interfacing with related agencies (within as well as outside BMA) in order to create a network the can link the agencies' GIS based data together for the purpose of collaboration and sharing
- Establishing GIS standards for BMA
- Taking charge of Base Map development for the area responsible by BMA
- Establishing Fundamental Geographic Data Set (FGDS) for each department of BMA
- Establishing standards for data transfer including GIS data codes
- Working with different agencies to establish collaborations and funding for the development of GIS and personnel
- Taking care of the main GIS Web server
- Assisting other departments in utilizing GIS and GIS based information

This Land Information System division could as well be renamed to Geographical Information System Division to reflect the responsibilities and the current stage of technology. Its organization is shown in Figure 6. The division should have the following workgroup and sections.

- General administration workgroup
- Information and planning section
- System development section
- GIS network section

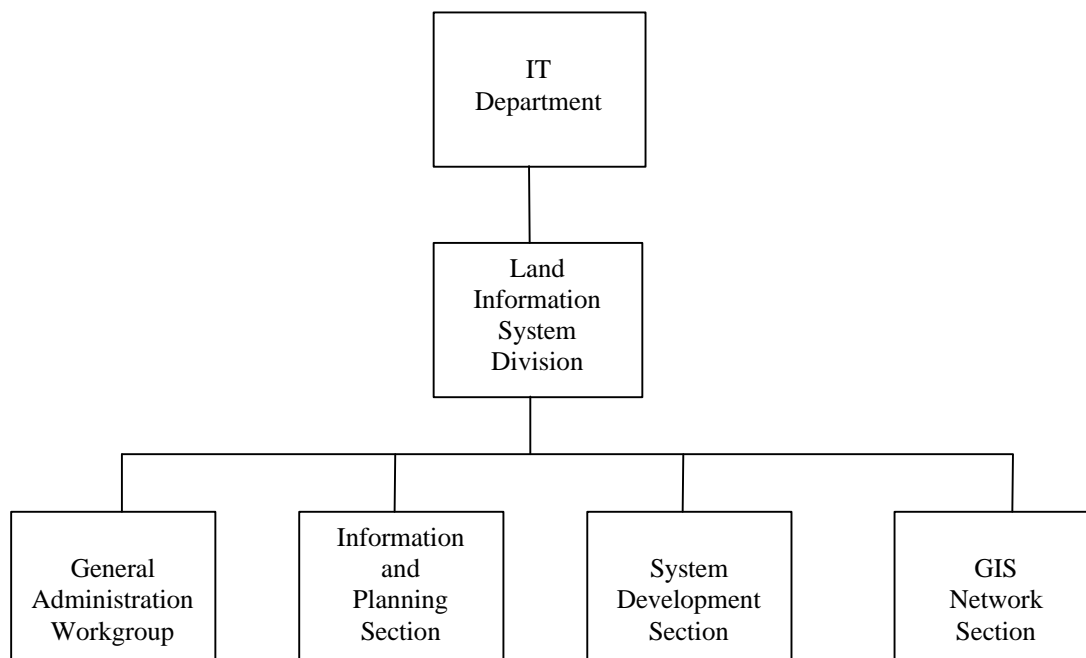


FIGURE 6: LAND INFORMATION SYSTEM DIVISION

5. IT STAFF FOR OTHER DEPARTMENTS

Apart from the information systems provided by the IT department, some departments may also have smaller systems of their own. Many departments are linked to main information systems provided by the IT department. In either case, within each department, there are users to be supported, as well as systems and networks to be maintained. Initially, there should be an IT workgroup established in every department to tackle the aforementioned tasks. The responsibility of this IT workgroup would include the followings.

- Administering servers of information systems installed within the department
- Administering computer networks of the department
- Maintaining the computer systems and networks of the department
- Providing initial assistance to users of the department
- Interfacing and working with the IT department in the development, administration, and maintenance of the information systems taken care of by the department

Initially, this workgroup could be attached to one of the divisions such as the Planning division. When the needs grow, the workgroup could be upgraded to a section and subsequently an IT division in its own right. These IT staffs would serve as the operational arms of the department's CIO.

6. IT STAFF FOR DISTRICT OFFICES

Likewise, each district office also has a number of information systems installed within. There are quite a big number of users to be served. There are both local systems within the district offices and systems linked to main information systems managed by the IT department. An IT workgroup is also needed to be established here within each district office. The responsibilities of the workgroup, which are very similar to those of the department's workgroup, would include the followings.

- Administering servers of information systems installed within the district office
- Administering computer networks of the district office
- Maintaining the computer systems and networks of the district office
- Providing initial assistance to users of the district office
- Interfacing and working with the IT department in the development, administration, and maintenance of the information systems taken care of by the district office

This workgroup can initially be attached to one section of the district office, and could potentially grow up to the section level itself if needed in the future.

7. CONCLUSION

This paper presents a proposed IT management organization of Bangkok Metropolitan Administration which is a very big and complex government agency taking care of millions of lives in Bangkok. The proposed IT management organization has been put together as a stopgap measure in conjunction with the development of Information System Integration Plan to solve the immediate problems outlined in Section 2. The management organization is structured into two levels. The *policy* level is consolidated under a single IT committee chaired by the CIO of BMA. This would alleviate the problems caused currently by uncoordinated decisions and policies made by a number of different IT related committees. Then, at the *operational* level, an IT department should be established. This would serve as the operational arms of the CIO and the IT committee. At the beginning, the IT department could just consist of the existing four IT divisions currently belonging to the Policy and Planning department. This would ease the establishment of IT department politically since there would not be too many additional personnel required initially. With the establishment of the IT department, IT activities will be more consolidated, and IT personnel will have better moral knowing that they have clearer career paths. There is also a need in setting up IT workgroups in other departments and district offices as well.

The organization presented in this paper provides a seed for proper management of IT for BMA. The organization should grow and possibly be adjusted depending on the rate of IT adoption

of BMA. Long term planning for the IT management organization should be conducted again when the IT Master Plan is to be developed.

8. REFERENCES

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