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Country Paper

Why IT Projects Fail
(United Kingdom Lead Paper)

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1. The Reason for Choosing This Topic

Until early 1990s, we used to build centralized computer systems using mainframe computer-based technology. As the number and scale of mainframe-based systems grew, so did the size and capacity of computers.

Such centralized systems were generally designed and developed using the waterfall-method. The scale of the systems' development expanded as the capacity of computers increased. This, in turn, required a longer time frame for systems development. Moreover, any change in relevant laws and regulations would require more work on a system under development. For these reasons, by the time a system was put into operation, it often ended up totally useless.

Recent downsizing trend in computers brought about computer systems based on the client-server (C/S) model. At the beginning, like the centralized systems, C/S computer systems were designed and developed using the waterfall-method. However, as time passed, the spiral-method became more popular except for the development of larger scale systems. In the spiral-method, the project members break the system into a set of smaller functions and develop each modules separately.

Nevertheless, the C/S model brings about different types of challenges. Because of the decentralized nature of such systems, often similar data is created and similar processing is carried out by different user departments. Moreover, servers of C/S systems are less reliable than mainframe computers. Therefore, the total cost of running a C/S-based system would almost equal that of a mainframe-based system.

A C/S-based system, which is "spirally" developed, would run smoothly as long as the system development project members stay in the user department. Once these persons leave the department, however, it is often the case that nobody can operate the system properly since no documentation is available, including the operating manual. This is because systems are often developed under extreme time pressure and proper documentation is ignored.

The C/S-based system is no longer used only for file servers, but it is also used for application and database servers. Further, due to the emergence of application service providers, many companies have opted not to have the system of its own.

I would like to look at how we should audit C/S-based systems under such circumstances. I would also like to discuss what kind of factors lead to systems development failures.

2. IT Project Failures in Japan (Examples)

2-1. National Diet Library Visitor Control System

This IT project was a part of telecommunications work for the National Diet Library Building Construction Project in 1986. It had the following objectives:

- 1) To automate the access to the library
- 2) To automate the lending and collecting of Library books

The system was not utilized at all due to a mismanagement of the systems design. The Project proceeded as follows:

- 1) The project was planned and implemented by the Ministry of Construction and its works were contracted out to a private firm.
- 2) The Ministry examined the system upon completion and delivered it to the National Diet Library.
- 3) When the library staff began training on the operation of the system, a telecommunications failure occurred, and its operation was suspended.
- 4) During the testing, it was found that the performance would be extremely slow during peak hours. After partially running the system for some time, its operation was eventually discontinued. The system required 7 to 9 seconds to process each transaction, while it was necessary to process one transaction within 1 to 2 seconds for smooth operations during peak hours. To meet this requirement, it was found that the system had to be re-designed and developed completely from the beginning.

There are three main factors for this failure:

- 1) Library staff familiar with library operation were not among the project team;.
- 2) Clear instructions were not given to the systems engineer of the firm.
- 3) Project members did not properly assess and validate various performance indicators that the contractor presented.

2-2. Information Management System of X Ministry

The Information Management System, which was developed in early 1980s, had the following functions, some of which are utilized as planned while others are not:

1) Providing Client Information

① Client Information Inquiry Function

When a client code is entered, summary information on the client and past service contents are shown on the screen.

→This function is seldom used for the following reasons:

- Particular client information is useful only to a given division which takes care of the client.
- Because data input is not mandatory, the database is not constantly updated.
- The database is not designed to fully meet end-user needs. The past service contents records are either irrelevant or insufficient for the end users to prepare for next business.

② Business Reporting Function

After a project is completed, the project members enter the relevant accounts, amount, numbers of project members and working days required, etc. Using such information, the standard and numerical sections of a business report are electronically created.

→This function is mainly used only in preparing the title page of business reports, because of the following reasons:

- This system covers the similar areas to the “business statistics system” which was developed before, and little effort was made to clarify the role of each system.

- The main section of a business report describes the details of the results of each project. This section cannot be automated and has to be filled manually.

2) Automating Business Trip Management

① Business Trip Documents Function

This function electronically creates documents required for business trips once the relevant data are entered.

→ The function has been utilized to automate what used to be done manually.

② Business Trip Budget Management Function

This function creates status reports of budget for business trip. Annual travel budgets for each bureau and division is registered. After each business trip is completed and trip expenses accounts are settled, the system will update the current status of the budget. It also performs a query function, such as creating business trip expenses for each staff member.

→ The system is seldom used for the following reasons:

- It is faster to manually fill in requisite forms than going to the computer rooms to enter or get the data.

- In case some budget information is immediately required, the system is unreliable because data are not updated in a timely manner.

③ Business Trip Expense Calculation/Disbursement Function

This function electronically creates invoices based on the travel expenses (such as transportation expenses) which are calculated automatically using inputted trip schedule.

→ The system is used because it is significantly faster than manual calculation.

The Information Management System is thus unevenly used. This can be explained by the following factors:

i) End users did not participate in the development of the system. As a result, the different sets of data that each division handled differently are forced to be processed in the same way.

ii) Database systems were developed without taking into account the fact that the computer rooms is far from staff rooms and that only a few terminals are available.

iii) The system was designed to process jobs that had not been handled even manually.

The Information Management System is now being revised as a C/S-based system. The new system reflects end-user needs. However, because it has to be constructed in a short period of time, it is not sure whether it can be implemented successfully.

3. Project Operating System in Japan

3-1. Japanese Government Organizations and Project Development

Japanese government organizations are hierarchically arranged. A large-scale project often involves different government agencies, all of which have to come to a mutual agreement after time-consuming groundwork. Therefore, decision making process is

generally slow. Moreover, it is often the case that the leading body of a project has no decision-making power, requiring longer time to develop a computer system involving more than one ministry.

4. IT Audits in Japan

In the Board of Audit of Japan, the Information Technology Division is responsible for the IT-related audits. However, because the Division is busy developing various C/S-based systems, it has not conducted such audit recently. Each audit division in the Board now conducts IT audits of the government agencies. The Board therefore needs to train more auditors in IT.