INTERNATIONAL FEDERATION FOR INFORMATION PROCESSING

WG 9.4 : SOCIAL IMPLICATIONS OF COMPUTERS IN DEVELOPING COUNTRIES

Information Flows, Local Improvisations and Work Practices

Parallel Session A

Applications in the Public Sector

Friday, 26th May 2000

PARALLEL SESSION A: APPLICATIONS IN THE PUBLIC SECTOR

Chair: Shirin Madon

10:30-11:00 *The image and the action - The production of government information for the management of social assistance policies*
Dr. A.M.P. Cardoso Pontificia Universidade Catolica de Minas Gerais Brazil,
J.C. Bemfica Centro de Desenvolvimento e Estudos da Empresa de Informatica e Informacao do Municipio de Belo Horizonte Brazil,
A.S. Reis Universidade Federal de Minas Gerais Brazil

11:00-11:30 *The implementation of IT in reengineering the Thai revenue department*
Krisanna Kitiyadisai, Chulalongkorn University Thailand

11:30 -12:00 *Short-Term wins to lasting change* Nilimesh Barua, Revenue Service, India

PARALLEL SESSION B: SYSTEMS DESIGN AND COMMUNICATIONS ISSUES

Chair: Kristin Braa

10:30-11:00 *Information systems development in Nigerian software companies: empirical findings and methodological issues*
Mikko J. Korpela, University of Kuopio, Finland, Anja Mursu, University of Kuopio, Finalnd, H A Soriyan, Obafemi Awolowo University, Nigeria

11:00-11:30 *A venture capital website for South African micro and small enterprises*
Paul Licker University of Cape Town South Africa

11:30 -12:00 *A comparison of the impact of electronic meeting technology in two less developed countries*
Gert-Jan de Vreede Delft University of Technology, The Netherlands
Rabson J.S. Mgaya, University of Dar es Salaam Tanzania
Bart Comelissen, ZS Associates France, Jeroen Schuuring, CSIR-Mikomtek South Africa
Ralph W. Feenstra, Transport and Regional Development The Netherlands

12:30 – 13:00 **CONFERENCE CLOSURE**
Helen Zille, Minister for Education, Western Cape

13:00 – 14:00 **LUNCH**

14:00 – 16:00 **IFIP WG 9.4 MEETING**
LECTURE THEATRE 1

THE IMPLEMENTATION OF INFORMATION TECHNOLOGY IN REENGINEERING THE THAI REVENUE DEPARTMENT

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About the Author

Krisana Kitiyadisai is a lecturer in Public Management Information Systems at the Department of Public Administration, Faculty of Political Science, Chulalongkorn University, Bangkok. Her research interest includes the study of information systems failures, the management of IS in the public sector, the impacts of IT on the democratisation process and relevant political issues, and the application of SSM and MEASUR to social problems and systems. She holds Ph.D. in Information Systems from the University of London, London School of Economics.

Abstract

The Thai revenue Department has become the major source of government income as tax revenue accounted for 60% of total income or 10% of GDP. The Revenue Department was the first government agency to undertake a large and comprehensive computerisation project in 1991. But the Tax Computerisation Project had to be terminated by a compromised agreement between the government and contracting consortium in 1998. Left with the partial delivery of the integrated system, personnel at all levels had to create improvised and local solutions to their problems. This paper investigates the variables influencing systems failure by using the contingency framework and discusses the impacts of this experience on the improvisation process and future plan of the organisation.

Keywords: information systems failures, contingency theory, improvisation, tax computerisation, Thai Revenue Department, social systems.

Introduction

The twentieth century can be considered to represent the fusion of new public management and information revolutions to transform government (Muid 1994). This has been catapulted by the trend towards business process reengineering (Hammer and Champy 1992) and reinventing government (Osborne and Gabler 1992). The fear of being left behind by several reengineering activities in the private sector and of becoming bureaucratically obsolete together with the promising benefits from reengineering, the Thai government embarked on bureaucratic reform by setting up the Administrative Reform Commission in October 1992. The Civil Service Commission, with assistance from the World Bank, initiated several pilot projects towards the reform programme. Hence, the Seventh National Plan for Economics and Social Development (1992-1996) emphasised the promotion of efficient public services to increase users' satisfaction.

The Master Plan for Civil Service Reform in Thailand (1977) specifies information technology (IT) as a means of improving efficiency of the civil service. The National Information Technology Policy (1998) has been proposed to push Thailand into a new era of information society which includes the development of national information infrastructure and the use of IT to develop good governance. Furthermore, the Eighth National Plan (1997-2001) promotes good governance that requires public sector to become more efficient, transparent and accountable. Consequently, numerous reengineering projects with large budgets for information technology were initiated by public agencies during the 1990s. This trend goes very well with basic conditions for borrowing money from the World Bank.

In its lending policy towards the Third World and developing countries, the World Bank demands that the recipients develop a government with good governance. This means that the borrowing country has to adopt the new public management approach, i.e., the government has to increase efficiency in public service, reduce the size of the civil service, encourage competition in market system, privatise public enterprises, adopt strict budgetary discipline, decentralisation, and so on (Rhodes 1996).

The economic boom during the 1980s, the increase in international trade had exerted pressure on the out dated and complicated taxation which became a hindrance to export and worked against GATT (General Agreement on Tariff and Trade). Additionally, despite economic growth, tax revenues did not increase according to expectation. Therefore, changes in taxation system together with a new computer system project were undertaken by the Revenue Department. The Tax Computerisation Project was the first and the largest computer project to be approved by the Cabinet in which part of the budget was financed by the World Bank.

This paper discusses the context and factors influencing the failure of the Tax Computerisation Project (TCP), the local initiatives and solutions to their problems, lessons learned from this experience and how these affect further consideration and planning of computer projects in the future.

Theoretical Framework

Information Systems Failure

Despite the capabilities of IT in enabling the reengineering in organisations and borderless or virtual communications, failures of information systems seem to be more widespread. For example, the failure of the London Ambulance Service's Computer Aided Despatch Project (Beynon-Davies 1995; Computing 1993a), the Wessex Regional Information Systems Plan (Computing 1993b), and the Taurus Project of the London Stock Exchange (Computing 1993c). According to Checkland (1999), such costly failures call for a challenge of the basic thinking on the analysis of information systems and their provision.

Ackoff (1964) is one of the first to warn about the problems from management information systems, decision-makers are faced with information overload which can lead to misinformation. On the other hand, Mintzberg (1979) states that managers cannot depend on information provided by MIS as the information has only historical value. Tozer (1990) argues that the focus on trying to find solutions before understanding the problem leads to failure of IS. Other factors contributing to IS failure include the long development time which makes the system obsolete on delivery, high maintenance cost and lack of suppliers' support, misunderstanding of users' requirements and wrong expectations of the technological capabilities by executives (Tozer 1990).

Lyytinen and Hirschheim (1987) identify three different concepts for studying IS failure: correspondence failure refers to failure of IS to meet the original objectives, i.e., staff reduction, increased efficiency and productivity. Secondly, process failure refers to systems development process such as abandonment of project, schedule overrun and over budget. Thirdly, interaction failure refers to cases where users ignore or refuse to use information systems.

A very useful framework for understanding IS failure has been proposed by Poulymenakou and Holmes (1996). They put forward a contingency framework consisting of macro and micro variables affecting failure. The Macro variables are the external factors characterising the organisational environment of the IS project such as culture, planning, accountability, irrationality and evaluation. The micro variables are particular factors to that project, i.e., power and politics, resistance and development methods.

Culture gaps are a result of different beliefs, values, assumptions, etc. among various stakeholders such as between the managers and developers (Grindley 1991). Planning, especially in strategic planning for IS, the problems arise from the models which often bias towards the technical and engineering approach (Singh 1993). These models are too rigid being based on a top down approach (Ciborra 1994). Accountability of IS involves various stakeholders such as systems designer, programmers, managers, users, hardware suppliers all of which make it difficult to overcome the problem of establishing accountability (Nissenbaum 1994). On the other hand, the evaluation of IS tends to be highly political (Angell and Smithson 1991). And the irrationality of decision-makers in escalating development cost is due to psychological pressures, fear, pride or enthrenchment (Drummond 1994).

The micro variables of development methods include the familiar problems of difficulty in communications among stakeholders and the drawbacks of the life cycle approach (Avgerou and Cornford 1993). Despite drastic impacts of technology on organisation, managers are very often not prepared with change management programme (Strom 1993). The political problems such as sabotage and struggle arise as a result of new power structures and political relationships affected by implementation of information systems (Marcus 1983).

According to Sauer (1999), the common factors in IS failure are the lack of management support, inadequate resources, lack of value in the systems and non-involvement of users. The technical process of applying engineering principles to IS development misleads people to think that risk is under controlled. Sauer also points out that by accepting that risk is inherent, the trend has moved towards risk containment strategy in development process. This means that the IS development is easier to manage at the cost of downgrading the status of IS, ambitious or unique system and the competition in information systems (Sauer 1999).

Information Systems as Social Systems

Poulymenakou and Holmes (1996) states that the social nature of IS has to be the focus of analysis in order to mitigate failure. They also points out that the social aspect of IS has been widely discussed. On the other hand, Mumford and Weir (1979) have been emphasising the significance of social aspect of information systems and present systematic way for analysing and structuring users' requirements called ETHICS. This method helps in providing a good fit between the technical and social systems in organisation in order to ensure users' satisfaction and reduce their resistance.

Checkland (1981) has earlier recognised the limitation of hard systems thinking of the engineering approach which cannot tackle the soft ill- structured problems of the real world. Soft Systems Methodology (SSM) represents a framework for formulating basic mental acts of four types, i.e., perceiving, predicating, comparing and deciding an action via the six stages of the framework. SSM is a learning and iterative process in which the solved problem situation merely turns into a changed situation for further changes. Meanings of human activity systems and their attributes, Checkland (1981) contends, are only meaningful in terms of particular image of the world or Weltanschauung.

In addition, Stamper (1973) stresses the importance of social context in designing computer based information systems since organisations not only consist of formal systems but also informal systems in which the meanings, values, beliefs and norms are embedded. The over simplified view of information and the assumptions that the world of business can be modelled by using the mathematical approach are dangerous (Stamper 1985). He argues that the world of software builders is confined to data and devices for manipulating them while the information engineer has to deal with unlimited range of discourse according to business activities.

"We can never give mathematical or logical solutions to problems about the correct use of information in organisations and society." (Stamper 1994)

In the field of public administration, most information systems fail as a result of the unmanageable politics of system implementation process (Bellamy and Taylor 1994). They find that the difficulty lies in the fact that information does not carry agreed values and interpretations, and the process of informatisation affects inter-and-intra organisational relationships where impacts are difficult to control and record.

Improvisation and Information Systems

Ciborra (1994) argues that strategic information systems development is the outcome of bricolage which is "based on tinkering and learning by doing, which leads to an incremental increase of the actor's and organisation's competencies, and possibly to an original recombination of existing routines." (Nelson and Winter 1982) This improvisation of problem solving by using local cues, tools, and knowledge keeps the information systems development close to the competencies of local practices (Ciborra 1999).

In explicating his concept, Ciborra (1999) finds the philosophical foundation of improvisation in economic theory of market system propounded by Hayek (1945). He also argues that intuition, instinct and background experience play a major role in all carefully planned actions which seems systematic and rational on the surface by using the phenomenological investigation by Schutz (1967). The structure of improvisation in the process of decision making has been formalised as two components: in-order-to component which corresponds to Schutz's motives of action, and because-of for representing the component of action.

Ciborra's arguments have highlighted the uncertainty of the world of rationality, cool logical analysis, objective planning and structured decision making. His exploitation of phenomenological approach centres the IS development process in the social world where meanings, actions, experiences and artefacts are socially created and sustained. The decision making process has the characteristics of a coin: one face represents improvisation basing on subliminal activities of thoughts, and the other represent the rational, logical capability of thinking.

However, his supporting materials have been the subject of criticism. For example, the whole concept of Hayek's market system and its underlying ideas have been found to consist of logical inconsistency and conflicting assumptions (King 1987). Futhermore, Schutz's phrase of the stock of knowledge has been criticised for being misleading. It can lead to the assumption that knowledge can be treated as physical objects which can be neatly stored away in a warehouse and remain static (Kitiyadisai 1991).

Schutz's concept of relevance encompasses both the improvisation and rational aspects of decision making. Schutz (1970) conceives of relevance as the principle means by which we establish a relation between the prevailing stock of knowledge and the actual experience in everyday life, i.e., the guide for everyday action is based on system of relevances. Firstly, the thematic or topical relevance involves the perception of something being problematic in a particular situation. Secondly, interpretational relevance involves the application of the stock of knowledge to grasp

the theme or present perception of a problem in order to solve it. Motivational relevance refers to the course of actions taken to solve the perceived problem. According to Schutz (1970), all actions are governed by the particular goals of each actor in the social world.

To redress Schutz's weak points, the stock of knowledge can be replaced by Weltanschauung which conveys the dynamic and intangible aspects of accumulated knowledge whose meanings are grounded in social world. The concept of relevance can be seen as affordance which enables an actor to make decision (Kitiyadisai 1991). The roles of improvisation as well as rationality in IS development has been comprehensively reflected in Soft Systems Methodology (Checkland 1981). The in-order-to and because-of components can be translated into root definitions and relevant human activity systems while Weltanschauung encapsulates the actor's knowledge, learning process, background experiences, values, beliefs, etc.

The effort to separate or structure improvisation from the rational logical aspect of decision making is futile as "the deep nature of decision making appears to be one of improvisation." (Ciborra 1999, 145) The concept of improvisation has bestowed respectability to the social aspect of information system development. But, to over emphasis the role of improvisation can be as harmful as the worshipping of rationality.

Besides SSM, the logic of norms and affordances which lays the foundation of MEASUR (Stamper 1985 and 1994) explicitly takes into account both the formal and informal aspects of information systems in organisations. Both SSM and MEASUR allow the social contents of the actor and problem situation to be accounted for and represented in a systematic framework.

Levitt and March (1988) states that improvisation can lead to competency trap, i.e., the sub-optimal routines or solutions may prohibit more radical and new solutions. This can be misleading as the decision making process includes both the improvised, spontaneous aspect as well as the logical exploitation of learned affordances. The limitation would partly be a result of the actor's Weltanschauung and the process of bringing interpretational relevance in solving the problem. The quality and capability of one's Weltanschauung depend partly on the social world in which that person inhabits and his repertoire of learning affordances.

Research And Methodological Issues

This research is based on the interpretative approach suggested by Walsham (1995) which is a learning process whereby the researcher has to be open to field data and willing to change previous assumptions and theories. This approach helps in reminding the researcher that the collection and analysis processes involve certain subjectivity and that she is collecting other people's interpretations of the situation. Also, the researcher may encounter a breakdown in her interpretative understanding which should be regarded as an opportunity for further refinement (Lee 1999). As the researcher's questions may influence the interpretation of those being interviewed, she has to be aware of the political context of the organisation. Therefore, Walsham (1991) recommends that theoretical view of the studied organisation should be made

explicit, although he agrees that the difficulty of discussing power politics, the political metaphor, is that it is closely concealed. However, the interpretative approach and the awareness of these metaphors help in understanding the need for iterative process of interpretation, analysis and refinement.

The Revenue Department is chosen because the Tax Computerisation Project was the first comprehensive and largest IT project taken by the government during the hype of reengineering and reform of the public sector. This retrospective investigation has been welcomed by all interviewees as the project had already been terminated, i.e., there would be no repercussions on the project. Furthermore, reports, manuals, other relevant official documents are made available and some information is no longer held as confidential. Observation of some operational in-house information systems has been undertaken although much of the relevant data was gathered during interviews.

The data collection was undertaken by in-depth interviews without tape recorder, only detailed note taking. A series of interviews was undertaken from August till November 1999, the interviewees include: the Director of the Budget Standards Office at the Bureau of the Budget, the Director of the Information Technology Office at the Revenue Department, members of the Policy and Budgeting Evaluation Committee- the House of Representatives, the previous Deputy Director-General of the Revenue Department, the previous Director of the Tax Computerisation Project, the Deputy- Director of the Information Technology Office, the Director of Large Taxpayers Office, the Director of the Performance Improvement Unit together with two senior personnel, including two legal personnel from Tax Inspection Office.

The scope of interview is restricted to personnel at the Revenue Department and does not include the study from the point of view of the external consultants, contractors and subcontractors of the project. There is the practical reason of locating previous personnel of various firms and those subcontractors who were involved in the project. This is also to avoid complicated political issues, difficulties of reconciling different interpretations of the problem situation and over extending the focus of the research within the specified time and objectives.

The Revenue Department-A Case Study

The Revenue Department (RD) of the Ministry of Finance has been functioning for about eighty-four years and has become the major source of government income as tax revenues accounted for 60% of total income or about 10% of GDP. From 1988 to 1995, the Revenue Department exceeded its goals in tax revenue, but in 1996 the total tax revenues were 0.8% lower than official estimates, partly due to several reform programmes with big spending. By 1997, the year of economic crisis, the tax revenue was 15% below government's expectation (Louichareon 1998). The Tax Computerisation Project (TCP) of the Revenue Department was initiated in 1991 but the TCP has survived four governments with four Director-Generals. The context of the TCP has been full of drastic events and changes:

- The TCP started in September 1991.
- Value Added Tax (VAT) implemented, 1 January 1992.
- A New Director-General, 1 October 1992.

- Political unrest in Bangkok and burning of the Revenue Department Office, May 1992, hence the construction of new buildings from 1992-1995.
- Civil service reform/ reengineering, October 1992.
- The Project for Improving the Efficiency of the Civil Service, May 1995.
- Organisation restructuring, 1996.
- Prolong flood in Bangkok damaged several offices, September-October, 1995.
- A New Director-General, 1995-1997.
- A New Director-General, January 1997- August 1997.
- A New Director-General, 1997-present.
- Moving to new buildings, September 1997.
- Economic crisis, from mid 1997 onwards.
- Organisation restructuring, 1998.
- In 1999 the Revenue Department published IT Master Plan for Year 2000.

The Tax Computerisation Project

The Tax Computerisation Project (TCP) with the budget of 1,814.46 million bahts was financed by a loan from the World Bank of 804.72 million bahts (25 bahts = US 1 dollar). The government budget furnished the remaining 1,009.74 million bahts. The TCP is a turnkey project in which a consortium of four companies (RDC) consisted of: IBM Co. Ltd., IBM (Thailand) Co. Ltd., Loxley Co. Ltd., Professional Computer Co. Ltd. (PCC) and Data Centralen Service (Thailand) Ltd. (DC) which was a sub contractor of IBM (Thailand) for the provision of software. The RDC provided 124 systems staff and 60 trainers to train 12,000 users of the Revenue Department. On the other hand, the Revenue Department contracted a representative from a foreign consultancy and a Thai consultant to assist with the project.

The TCP consisted of five phases with all systems in the fourth and fifth phases to be completed by the end of October 1996 (Saengsirisuwan 1997). These phases were:

Phase 0	September 1991- March 1992
Phase 1	March 1992- November 1992
Phase 2	December 1992- September 1993
Phase 3	October 1993- March 1994
Phase 4	April 1994- June 1994
Phase 5	July 1994- September 1994

The TCP had to provide operational software for twenty-five systems for application, various databases, management information systems and financial systems including online networking for most of revenue offices throughout the country and specific networking with government agencies. The basic transaction systems included the followings:

TIN (Tax Identification Number)
VAT (Value Added Tax)
SBT (Specific Business Tax)
PIT (Personnel Income Tax)
WT (Withholding Tax)
PT (Petroleum tax)

Other systems functions included: refund and audit, delinquent taxpayers management, appeal and litigation, canvassing taxpayers, minimum value added tax assessment and intelligence. The networks consisted of:

- Departmental network: connecting the Revenue Office in Bangkok, Regional Offices, Area offices and all the divisions in the Revenue Department.
- Regional network: connecting all computer centres of nine Regional Offices and each regional computer centre linking to the provinces under each region.
- Provincial network: networking all District Offices in each province by centralised processing at the Provincial Computer Centre.
- District level: connecting all 826 district offices.
- Networking with other government agencies such as Bureau of Registration Administration, Department of Local Administration, Custom Departments, Excise Department, the Comptroller-General Department and the Ministry of Commerce.

The hardware configuration included: two large mainframes (IBM ES/9000 model 260), 9 medium mainframes (IBM RISC/1600 model 7015) for Regional Offices), 48 small mainframes (IBM RISC/1600 model 7013) for Provincial Offices, 9 data entry systems for Regional Offices, 15 remote line printers for Provincial Offices, 114 data entry devices, and Intelligent Terminals or stand alone PCs up to 1,319 terminals.

The RDC could deliver all the hardware according to the schedule, but software construction suffered from delay and development problems. By the end of the project, the RDC could only deliver a limited version for VAT (LVAT) and Specific Business Tax (LSBT).

Difficulties and problems with the project made the consortium request for an extension of the deadline from 1 December 1996 to 31 December 1998. Finally, the contract was terminated by a compromised agreement on the 1 August 1998.

Local Solutions and Improvisations

According to the agreement on contract termination, the RDC delivered all specified hardware and network equipment worth more than 100 million bahts. The two operational systems are only limited versions of VAT and SBT, the other systems such as TIN, PIT, CIT, WT and PT were not developed. The networking equipment was delivered in instalments. The network enables the use of email and electronic file transfer.

The Revenue Department encounters increasing demand for online information retrieval from within the organisation as the pressure for increasing tax revenues becomes top priority. The new organisation restructuring and the delivery of hundreds of PCs are supposed to coincide with the new integrated information system. The termination of the TCP means that most personnel have to depend on themselves in managing tax payers' information in order to achieve their targets and canvass more taxpayers.

The problems concerning the management of information are numerous. Firstly, the old system of Tax Identification Number (TIN) has been based on a system on a lease by Data General which is rather old and expensive to maintain. A study on system migration by the Asian Institute of Technology (AIT) has resulted in the decision to migrate the TIN to IBM SP2 which has been completed by the end of October 1999. The new system has been in operation since the 1 November 1999 and is still undergoing test before becoming fully operational with all functions. Old switching and networking equipment in Bangkok and provinces are being replaced by newly delivered equipment to enable online networking. It is expected that all revenue offices in Bangkok will be networking by January 2000 while those in the provinces will be fully connected by the end of February 2000.

Secondly, the unexpected problem found when starting to network some revenue offices is that the actual hardware and software environments in many revenue offices do not match the inventory and previous records. So, the process becomes more time consuming which is partly due to local adaptation and improvisation to solve short-term problems.

Currently, a team from the Asian Institute of Technology is investigating and preparing specifications for an integrated information system for the Revenue Department. This includes the PIT, CIT, SBT, VAT, TCL (Transaction Control Log) and VAT. Statements of requirements have been prepared for the PIT, SBT, CIT, and VAT. The main concern is to have the Transaction Control Log (TCL) system specifications ready by March 2000. The TCL is considered to be the basis upon which all other systems will be developed. More budget will be required to further develop specifications for the PIT, SBT, CIT and VAT.

Although the limited versions of VAT and SBT are very robust judging from the relatively easy Y2K maintenance, the question still remains whether the VAT system should be migrated to a new platform as the mainframe is eight years old and running out of capacity. Confidence has been gained via the process of trying to reverse engineer the VAT system during Y2K maintenance. Basing on testing documents and some old documents from the second group of software subcontractor, the team from the AIT and Revenue Department's programmers is trying to figure out possible paths for the system.

As many personnel wrote their own computer programs for their own use and these are often distributed to colleagues in various locations, regulations for controlling and standardising these local improvisations were enforced in 1996. Any in-house software has to be approved by the Information Technology Office and the Standard Office of the Revenue Department. Some software will be further developed by the Information Technology Office for countrywide distribution.

The other mechanism for finding solutions to organisation problems is through the Performance Improvement Unit which is a result of the government's effort in bureaucratic reform. The Unit was set up as one of the pilot projects under the efficiency improvement programme initiated by the Efficiency Unit of the Civil Service Commission. The role of the Unit is like a consultancy who seeks to improve

efficiency and quality of public service. The Unit's contribution to organisation includes the followings:

- In 1998 the Unit built software called LEGIS for managing delinquent taxpayers' accounts. The database enables the screening of large tax overdue. The second version is under construction by the Information Technology Office.
- A pilot project of Tax Map has been started for six large commercial districts in Bangkok three of which have been completed. An evaluation of this project would determine its further expansion.
- In 1998 the Large Taxpayers Office was set up as a recommendation of the International Monetary Fund (IMF) to enable the government's collection of revenues for paying back the loan. About 20% of taxpayers pay about 60% of total tax revenue. The criterion for a large taxpayer is a total tax of 500 million bahts per year.
- The other important contribution is the Withholding Tax Information System. The personnel of the Unit has built a software for managing records of tax payers who have paid withholding taxes and for cross- checking their records with the VAT system. This system was implemented since May 1999 and has produced over five million tax payers' records. Consequently, the system has increased tax collection by 27 million bahts. With the Miyasawa money form Japan, unemployed workers have been contracted to input data at all Area Offices and Provincial Offices improve their efficiency in tax collection.
- Another project for increasing taxpayers' satisfaction and to improve the image of the tax collectors had been in operation from 1994-1998. But it had to cease operation as a result of the economic crisis. The Project was called the Good Team. This team was to provide service to taxpayers at various big department stores during the last month of the fiscal year. Taxpayers could obtain advice on how to fill in tax forms, request for new tax ID numbers and information on taxes, submit their tax forms, and in some locations pay their taxes. The software was developed by the Unit with the support from the Standard Office.
- Another ongoing pilot project is the Qmatic system which keeps track of documents in the District Office so that tax payers could follow up their cases and monitor their progress. This system is expensive and has to be evaluated by the Regional Office. This is an improvisation from bottom up, i.e., the District Office, but with the support of the Unit. The Regional Office will have to forward the evaluation result to the Head Office for further consideration.

Additionally, qualified personnel are given sponsorships to study computing subjects at post graduate level in universities, and a team of programmers and system analysts have been sent to attend a specially designed course on computing and software languages at the AIT. These personnel are expected to work with the consulting team from the AIT on future projects at the Revenue Department.

Variables Influencing Project Failure

According to Block(1983), by his definition of a successful system, there could never be a successful information system. As information systems are social systems, they can never be perfect or meet all the specified goals fully in order to be truly successful. Risk is inherently there, in and around the information system, either by

risk control or containment, there is always risk. By using the contingency framework provided by Poulymenakou and Holmes (1996), reasons for the failure of the TCP can be explicated.

Culture

The civil servants' culture is rule-based and conservative, oriented towards fear of being disciplined so they can be very inflexible and strict in towing the official line in guarding its interest. All civil servants know that signing their names in accepting a contractor's deliverables mean a heavy burden of litigation if those deliverables turn out to be faulty or poor quality. Therefore, all important decisions have to wait for high level executives' decisions.

Firstly, the TCP was the first large and complicated project for personnel at the Revenue Office. The official viewed all changes to the agreed or expected requirements and specifications as bending the contract. This led to many discussions and negotiations before changes became acceptable. Secondly, the working style of foreign consultants, project leaders and systems analysts/programmers was unfamiliar to the slow pace and cautious civil servants, and that the difficulty of communicating in a foreign language cannot be over-estimated.

Planning

The most important factor in causing the failure of the TCP was the implementation of the VAT. The RDC was requested to sign the contract in September 1991 instead of the beginning of 1992 in order to take into account the requirements of the new tax system. This gave the RDC very little time to study the new systems' requirements and the systems designers were under a lot of pressure to produce the interim system for the implementation of VAT on 1 January 1992. This left the question on the process of government's policy implementation unanswered although the context of the impending VAT was debated in the mass media. The Revenue Department had for the first time experienced the new tax without any thorough prior study on its operational complications and legal impacts.

Consequently, the learning process by trial and error reflected in the innumerable changes of users' requirements for the VAT system. Changes in regulations concerning the VAT caused repercussions on other tax systems and their routine procedures which in turn required more changes in regulations and rules. Up to now, they are altogether over 90 regulations concerning the VAT. It was estimated that over 40 regulations were drafted on the VAT during the project. Hence, the programmers had to wait for the relevant law and regulations to be drafted before continuing with the design process. During the five years' contract, most of the effort was concentrated on the VAT and a small part of the SBT.

Accountability

There is a lot left to be desired on the issue of accountability as it seemed very difficult to know who was accountable for what. The contract was loosely drafted with vague systems' requirements, there were no concrete details on the specific functions of the application programmes, their capabilities or expected outputs. This led to disagreement over the scope of the project and the responsibility of the

contractors. Moreover, the high turnover of programmers and subcontractors' teams meant that accountability over the development process was unmanageable.
On the other hand, the official committees proceeded along the bureaucratic culture of conservatism and prudence. Also, the RDC had three different project leaders with new subcontractors while the Revenue Department also had a few project leaders and Director-Generals.

Irrationality

The project experienced a few changes in the leadership of the Revenue Department, i.e., three different Director-Generals. The signal of serious trouble with the project appeared when the RDC changed its software subcontractor and later requested for over a year extension of its deadline. The changes to the new tax system with its difficulties and problems coupled with RDC's complaints of changes in users' requirements in meetings could have persuaded an executive to question the feasibility of such a large project. Thailand was well under the economic crisis, the implementation of VAT during its first year had increased tax revenue, so a logical conclusion could be to try to finish the project in order to collect more taxes. So, the issue of irrationality depends on where the person sits and on whose side the judge is. Further question could be raised concerning the irrationality of the World Bank in approving the loan and the drafted proposal including the systems specifications in the first place. The motive for requesting a World Bank loan was to acquire know-how and technical assistance on the project. Approval from the World Bank boosted the organisation's confidence and faith in technological promises.

Evaluation

Although there were steering committees, a Thai consultant and a specially commissioned foreign consultant to follow up and monitor the project, the process was not disciplined and filled with many cancellations and postponements. The usual response was the lack of top executive's involvement and close monitoring of the progress. There was no evaluation mechanism for warning the executive of dangerous spiral of delays and setbacks. Evaluation is highly sensitive and criticism is often taken personally in bureaucratic culture, so the evaluation process also left much to be desired. Evaluation of the role of the consultants and steering committees should be as beneficial as a more concrete evaluation of the development of the project.

Power and politics

The termination of the project was inevitable as problems and difficulties escalated at the cost of the RDC and the Revenue Department. According to the regulations and contract, the contractor would have to pay penalty for being unable to deliver all the specified systems. But this would have meant a long drawn out legal process and a halt to the LVAT system already in operation. The RDC, whose main partner was IBM a multi-national with substantial leverage, and the government agreed to compromise and terminate the project in August 1998.

Resistance

Most of the personnel were not technology-oriented and lacked the required skill in working with computerised information systems. During the project, hundreds of training sessions were organised to prepare personnel for the new integrated information system so that users' resistance was not the issue. However, there was some initial resentment in having to undertake the dull task of inputting data into the system. It was up to the supervisors to communicate the vision of the Revenue Department and the Tax Computerisation Project to their personnel.

Development methods

Firstly, the scope of the systems' requirements was loosely stated in the contract which made the contractor rather surprised by the unexpected range of systems software and capabilities demanded by the Revenue Department. Secondly, the contractor did not conduct a thorough systems analysis of all the tax systems and there was no known systems analysis document. The subcontractor on software provision had to analyse users' requirements and the complicated VAT and other tax systems and learn relevant laws from Thai personnel whose mother tongue was not English. Thirdly, the co-ordination among the different contractors and subcontractors was not adequate as activities and plans did not coincide according to plan.

The frequent changes in users' requirements and the high turnover of programmers due to a change in subcontractors made it difficult to progress as new analysts had to start the learning process of Thai taxation. The departure of the first team of programmers meant that all systems documents went with them. So the new team had to salvage what was left with the system and produce a limited version for the VAT. The most unanimous conclusion for the cause of the failure was on the inadequacy of systems analysis and corresponding specifications, being second only to the hectic implementation of the VAT in January 1992.

Lessons Learned and Impacts on Future Plan

The prevailing consensus focuses on careful and detailed analysis of systems' requirements in order to avoid disputes and problems of frequent changes to the programmes. The Revenue Department is the first organisation to invest in sending personnel to a programming language course so that they can interface and work with the AIT team on creating detailed specifications for the Transaction Control Log before the invitation for bid.

The failure of the turnkey project under foreign staff with different languages and culture has affected the attitude of most senior officials to favour a smaller size project, not a turnkey one and possibly undertaken by local software houses or companies. Also, the delay of the TCP was perceived as partly due to problems experienced in trying to integrate all the various modules. So, the scope of the requirements and expectations of future IS have been drastically curtailed. There would be no more beautiful expectation for a large fully integrated system capable of being online to all the offices in the country. The present expectation of the TCL is a basic processing system for all tax categories and further expansion on its capabilities would be incrementally implemented. The system is expected to be simple and easier to maintain and with a shorter delivery schedule.

Executives have learned the painful lesson of being too lenient and not giving urgent and adequate attention to problems and unexpected delay during the project. Therefore, the next project will be faced with strict monitoring and evaluation during the development process. In addition, the choice of experts and consultants would be more selective by considering whether the consultants have substantial operational knowledge or experience with tax systems and tax law. Finally, the Revenue Department's policies on taxes have to be clearly defined and changes in subsequent regulations kept to a minimum.

Summary

From a theoretical point of view, the Tax Computerisation Project was considered as a large technical, complicated accounting system. Therefore, the RDC did not foresee the necessity to study the impact of the VAT on other operations and the consequences when interacting with other taxes and related regulations/law. The systems analysis aspect was undertaken very lightly and the vague systems' requirements seemed adequate as a basis for constructing the comprehensively integrated information system to cover all taxes and databases. The social aspect of the organisation as a bureaucratic system was also neglected as the concentration was on network and hardware configuration while a subcontractors were responsible for the software development.

The economic crisis and government policies gave rise to improvisations among the personnel in the Revenue Department at the district, area and provincial levels. The executives' attempt to harness and control the quality and distribution of improvised solutions helps in assuring the standard of practice. But some of these improvised efforts may be wasteful and in conflict with the organisation' strategic plan. Users can be reluctant to let go of their own efficient databases and local information systems. There is also the danger that the shift towards risk containment may lead to circumscribed systems and the lack of creative solutions.

The concern should be on how to exploit appropriate methodologies in the analysis of both the formal and informal systems while taking into account the technical and structured aspect within the social system. The usual approach of the programming community is still based on hard system thinking which may well lead to an efficient technical system at the cost of the social system as a whole. Then, more improvised and local solutions will be necessary for tackling short-term problems.

Despite abundant literature on information systems failures and this well-known example, failure cases seem to be the norm in Thailand at all governmental levels at the cost of tax payers' money. With the trend of reengineering and the hype of electronic commerce and wireless world, the path to efficient public service and good governance seems to be full of one choice. All progressive authorities ready for the next Millennium have been spending their ways into high tech paraphernalia and offices. The role of the big hardware and software companies is very critical in leading these earnest developing countries along the popular path of high investment in IT with promises of efficiency and effectiveness. The rivalry among these companies are also damaging to IT projects as the decision on an upgrade or a migration path depends on both technical and financial constraints. The IT industry

here is controlled by a few large multi-national companies and so is the know-how. Whether a project succeeds or fails, the suppliers always get richer.

References

Ackoff, R. "Management Misinformation Systems," *Management Science*, 14 (4), 1967, pp. 147-156.

Angell, I. O. and Smithson, S. *Information Systems Management: Opportunities and risks*, Macmillan, London, 1991.

Avgerou, C. and Cornford, T. *Developing Information Systems: Concepts, Issues and Practice*, Macmillan, London, 1993.

Bellamy, C. and Taylor, J. A. "Introduction: exploiting IT in public administration: towards the information polity," *Public Administration*, 27, Spring, 1994, pp. 1-12.

Beynon-Davies, P. "Information systems failure: the case of London Ambulance Service's Computer Aided Despatch Project," *European Journal of Information Systems*, 4, 1995, pp. 171-184.

Block, P. *The Politics of Project*, Yourdon Press, New York, 1983.

Checkland, P. *Systems Thinking, Systems Practice*, Wiley and Sons, Chichester, 1981.

Checkland, P. "Systems Thinking," in Currie, W. L. and Galliers, B. (eds.)

Ciborra, C. "The Grassroots of IT and Strategy," in Ciborra, C. and Jelassi, T. (eds.) *Strategic Information Systems: A European Perspective*, John Wiley and Sons, Chichester, 1994.

Claudio, U. C. "A Theory of Information Systems Based on Improvisation," in Currie, W. L. and Galliers, B. (eds.) *Rethinking Management Information Systems*, Oxford university Press, Oxford, 1999.

Computing Leader, 4 March, 1993a, pp. 15.

Computing "MPs throw books at health chiefs over Wessex fiasco", 13 May, 1993b, pp. 7.

Computing "City seeks redress for Taurus", 18 March, 1993c, pp.1.

Currie, W. L. and Galliers, B. (eds.) *Rethinking Management Information Systems*, Oxford University Press, Oxford, 1999.

Drummond, H. "Escalation in organizational decision making, a case of recruiting an incompetent employee," *Journal of Behavioral Decision Making*, 7, 1994, pp. 43-55.

Earl, M. J. "Putting IT in its place: a polemic for the nineties," *Journal of Information Technology*, 7, 1992, pp. 100-108.

Grindley, K. *Managing IT at Board Level: The Hidden Agenda Expressed*, Longman, 1991.

Hammer, M. and Champy, J. *Reengineering the Corporation: a manifesto for a business revolution*, Nicholas Brealey, London, 1992.

Hayek, F. "The Use of Knowledge in Society," *American Economic Review*, 35, 1945, pp. 519-30.

King, D. S. *The New Right: Politics, Markets and Citizenship*, Macmillan Education, London, 1987.

Kitiyadisai, K. *Concepts of Relevance in a Semiotic Framework applied to ISAD*, Unpublished Ph.D. Thesis, University of London, 1991.

Lee, A. S. "Researching MIS," in Currie, W. L. and Galliers, B. (eds.).

Levitt, B. and March, J. B. "Organisational Learning," *Annual Review of Sociology*, 14, 1988, pp. 319-340.

Louichareon, B. *The Evaluation of Efficiency and Effectiveness due to Revenue Department's administration Restructuring: a case study of Area 2 revenue Office*, Master Degree Dissertation, Department of Public Administration, Faculty of Political Science, Chulalongkorn University, Bangkok, 1998.

Lyytinen, K. and Hirschheim, R. A. "Information systems failures : a survey and classification of the literature," *Oxford Surveys of Information Technology*, 4, 1987, pp. 257-309.

Markus, M. L. "Power Politics and MIS Implementation," *Communications of the ACM*, 26(6), 1983, pp.430-44.

Mintzberg, H. *The Structuring of Organizations*, Prentice Hall, New Jersey, 1979.

Muid, C. "Information Systems and New Public Management-a view from the centre," *Public Administration*, 27, 1994, pp. 113-125.

Mumford, E. and Weir, M. *Computer Systems in Work Design*, Associated Business Press, London, 1979.

National Information Technology Committee Secretariat *The National Information Technology Policy*, National Electronic and Computer Technology Centre, Bangkok, 1998.

Nelson, R. R. and Winter, S. G. *An Evolutionary Theory of Economic Change*, Harvard University Press, Cambridge, Mass., New York, 1982.

Nissanbaum, M. "Computing and accountability," *Communications of the ACM*, 37 (1), January, 1994, pp. 73-86.

Office of the Committee for Bureaucratic Reform *Master Plan for Bureaucratic Reform (1997-2001)*, Civil Service Commission, Bangkok, 1997.

Osborne, D. and Gabler, T. *Reinventing Government*, Addison-Wesley, Reading, Mass., 1992.

Oz, E. "When professional standards are lax, The CONFIRM failure and its lessons," *Communications of the ACM*, 37 (10), October, 1994, pp. 30-36.

Poulymenakou, A. and Holmes, A. "A contingency framework for the investigation of information systems failures," *European Journal of Information Systems*, 5, 1996, pp. 34-46.

Rhodes, R. A. W. "The New Governance: governing without Government," *Political Studies*, XLIV, 1996, pp. 652-667.

Roos, H. T. "Managing Technological Change," *The Computer Conference Analysis Newsletter*, 326, September, 1993, pp. 13-14.

Rungrodjdee, N. *Improvement of the Delivery of Public Services to large Taxpayers*, Master Degree Dissertation, Department of Public Administration, Faculty of Political Science, Chulalongkorn University Bangkok, 1998.

Saengsirisuwan, A. *Approach, Problems and Obstacles in Applying Information Technology to VAT Collection*, Master Degree Dissertation, Department of Public Administration, Faculty of Political Science, Chulalongkorn University, Bangkok, 1997.

Sauer, C. "Deciding the Future for IS Failures: not the choice you might think," in Currie, W. L. and Galliers, B. (eds.).

Schutz, A. *The Phenomenology of the Social World*, Northwestern University Press, Evanston, 1967.

Schutz, A. and Luckmann, T. *The Structure of life-World*, Translated by Zaner, R. M. and Engelhardt, H. T., Northwestern University Press, Evanston, 1973.

Schutz, A. *Reflections on the Problems of Relevance*, Yale University Press, New Haven, 1970.

Singh, S. R. "Using information technology effectively," *Information and Management*, 24, 1993, pp. 133-146.

Nelson, R. R. and Winter, S. G. *An Evolutionary Theory of Economic Change*, Harvard University Press, Cambridge, Mass., New York, 1982.

Nissanbaum, M. "Computing and accountability," *Communications of the ACM*, 37 (1), January, 1994, pp. 73-86.

Office of the Committee for Bureaucratic Reform *Master Plan for Bureaucratic Reform (1997-2001)*, Civil Service Commission, Bangkok, 1997.

Osborne, D. and Gabler, T. *Reinventing Government*, Addison-Wesley, Reading, Mass., 1992.

Oz, E. "When professional standards are lax, The CONFIRM failure and its lessons," *Communications of the ACM*, 37 (10), October, 1994, pp. 30-36.

Poulymenakou, A. and Holmes, A. "A contingency framework for the investigation of information systems failures," *European Journal of Information Systems*, 5, 1996, pp. 34-46.

Rhodes, R. A. W. "The New Governance: governing without Government," *Political Studies*, XLIV, 1996, pp. 652-667.

Roos, H. T. "Managing Technological Change," *The Computer Conference Analysis Newsletter*, 326, September, 1993, pp. 13-14.

Rungrodjdee, N. *Improvement of the Delivery of Public Services to large Taxpayers*, Master Degree Dissertation, Department of Public Administration, Faculty of Political Science, Chulalongkorn University Bangkok, 1998.

Saengsirisuwan, A. *Approach, Problems and Obstacles in Applying Information Technology to VAT Collection*, Master Degree Dissertation, Department of Public Administration, Faculty of Political Science, Chulalongkorn University, Bangkok, 1997.

Sauer, C. "Deciding the Future for IS Failures: not the choice you might think," in Currie, W. L. and Galliers, B. (eds.).

Schutz, A. *The Phenomenology of the Social World*, Northwestern University Press. Evanston, 1967.

Schutz, A. and Luckmann, T. *The Structure of life-World*, Translated by Zaner, R. M. and Engelhardt, H. T., Northwestern University Press, Evanston, 1973.

Schutz, A. *Reflections on the Problems of Relevance*, Yale University Press. New Haven, 1970.

Singh, S. R. "Using information technology effectively," *Information and Management*, 24, 1993, pp. 133-146.

Stamper, R. *Information in Business and Administrative Systems*, John Wiley and Sons, New York, 1973.

Stamper, R.K. "Management Epistemology: Garbage in, garbage out," in Methlie, L. B. and Sprague, R. H. (eds.) *Knowledge Representation for Decision Support Systems*, North-Holland, Amsterdam, 1985.

Stamper, R. K. "Social Norms in Requirements Analysis and Outline of MEASUR," in Jirotka, M. *et al. Requirements Engineering: technical and social aspects*, Academic Press, London, 1994.

Strom, J. "Executives pushing IT panic button," *IT Magazine*, 25 (11), November, 1993, pp. 42.

Tozer, E. "Using information systems to build competitive advantage and cope with change," in Hussey, D. E. (ed.) *International Review of Strategic Management*, vol.1, John Wiley and Sons, England, 1990.

Walsham, G. "Organisational metaphors and information systems research," *European Journal of Information Systems*, 1(2), 1991, pp. 83-94.

Walsham, G. *Interpreting Information Systems in Organizations*, John Wiley and Sons, Chichester, 1993.

Walsham, G. "Interpretive case studies in IS research: nature and Methods," *European Journal of Information Systems*, 4, 1995, pp.74-81.

Yovits, M. C. *Advances in Computers*, Academic Press, New York, 1982.