DEVELOPING PERFORMANCE INDICATORS TO EVALUATE ORGANIZATIONAL INTELLECTUAL ASSETS OF THAI ACADEMIC LIBRARIES

by

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ABSTRACT

Intellectual assets are strategic resources that underlie a library's sustainable growth. Many library experts are striving to design indicators for measuring the intangible sides of library organizations. However, very little effort has been made to develop indicators with specific reference to intellectual assets. The purpose of this study is to apply intellectual capital concepts to academic library settings by exploring types of intellectual assets from a new perspective for library managers, explaining the motivation behind an interest in intangible assessment, and developing indicators to evaluate measurable surrogates for library intellectual assets.

The researcher selected the case study methodology to investigate the actual development of indicators at three university libraries in Thailand. Using multiple methods of data collection, document reviews and semi-structured interviews yielded the case descriptions, key success factors associated with intellectual assets, and initial intangible indicators. Small-scale surveys were sequentially undertaken to test user acceptance of the suggested indicators. The case findings from within-case analysis were compared to examine similar patterns across the three case libraries that led to the formation of theoretical propositions and the modification of the conceptual framework for developing intangible indicators.

The key findings from this study are as follows: (1) library collections and services can be treated as an additional category of library intangibles because they are derived from a combination of human, structural and relationship assets; (2) two main motives for interest in intangible assessment are tracking progress on knowledge management projects and supplementing library evaluation reports with information on intangibles; and (3) most indicator users at the operations management level place more emphasis on the indicators developed for assessing human assets, as well as on collection and service assets.

This research makes a major contribution to knowledge on library performance evaluation by providing the theoretically-informed, empirically-supported propositions that intellectual capital reporting principles are relevant and applicable to internal assessment practices in Thai academic libraries. These propositions may be transferable to other information service units where their contextual conditions are similar to the case study libraries.

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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

BNQP	Baldrige National Quality Program
BSC	Balanced Scorecard
EFQM	European Foundation for Quality Management
IAM	Intangible Assets Monitor
IC	Intellectual capital
ISO	International Organization for Standardisation
KM	Knowledge management
KSFs	Key success factors
LIRG	Library and Information Research Group
LIS	Librarianship and information studies
LISIM	Library and Information Services Improvement Matrix
LO	Learning organization
MERITUM	The OECD's research project on *ME*asu*R*ing *I*ntangibles *T*o *U*nderstand and improve innovation *M*anagement
OD	Organizational development
OECD	Organization for Economic Co-operation and Development
QA	Quality assurance
R&D	Research and development
RBV	Resource-based view
ROI	Return on investment
SCONUL	Society of College, National and University Libraries
TQM	Total quality management
UNECE	United Nations Economic Commission for Europe

CHAPTER 1
INTRODUCTION

This thesis investigates the development of performance indicators for evaluating organizational intellectual assets within the academic library context of Thailand. It looks into the possibility of adapting the principles of intellectual capital (IC) measurement and reporting, which originated in the private sector, so as to be able to incorporate them into the evaluation of library operations and services. The introductory chapter is divided into eight sections in order to establish the research setting for this study. The chapter describes the research background, the current status of librarianship and information studies (LIS) research on intangible assessment, and the state of academic libraries in Thailand as the research setting of this study. Moreover, it clarifies the point of departure for the investigator's research journey, the research objectives and expected contributions, an overview of the methodology and scope of the study, and definitions of the key terms used throughout this thesis. It concludes with a brief overview of each chapter in the thesis.

1.1 Background to the study

Academic library managers traditionally stress the importance of tangible assets. Their organizations cannot operate information resource provision and service delivery efficiently without money, library collections, technology, a workforce and space. Resource management in academic libraries, therefore, emphasises costing as well as allocating an annual budget for acquisition of educational materials, procurement and maintenance of information technology, staff employment and development, and operation and maintenance of buildings (Baker, 1997; Brophy, 2005). Value from these tangible assets, i.e. money and physical resources, secures libraries' day-to-day operations rather than ascertaining their enduring and sustainable success. To make the latter happen, libraries have to shift their attention from tangible assets acquisition to intangible assets management. The intangible

assets in library settings are simply the amount of organizational knowledge available – from various sources, such as human resource capability, innovative services, insights into library stakeholders' needs and expectations, etc. – to invest in the maintenance and development of either knowledge-based resources or intangibles (Cribb, 2005).

Recently, business trends in IC management have stimulated some library and information professionals to take a growing interest in intellectual or intangible assets as strategic resources. They believe that libraries can exploit intellectual assets to add value to core products and services for their users if these assets are managed effectively (Koenig, 1997; Pierce and Snyder, 2003; Van Deventer and Snyman, 2004; Huotari and Iivonen, 2005; White, 2007b). Tangible assets may be necessary for operations management, but intellectual assets can bring future benefits to those owners who possess them. There is no doubt that intellectual assets are of significance to library management in the long run.

Organizations cannot manage current resources or internal capabilities that they do not know about. IC identification and measurement is, therefore, a stepping stone to IC management in the private, public and non-profit sectors. It supports the function of management control as it can be employed to check enterprises' actions relating to the advancement of organizational memory. Information gained from IC measurement or intangible evaluation can also be used as a communication tool for reporting organizations' worth to stakeholders (Mouritsen et al., 2004b). Consequently, experts in IC management propose many methods for measuring knowledge-based capital, ranging from calculations about the economic value of such capital to the design of proxy measures for examining financial and non-financial surrogates associated with these strategic resources. Each IC measurement method has both strengths and weaknesses (Bontis, 2001; Marr and Spender, 2004; Sveiby, 2007).

The selection of suitable methods depends on organizations' particular needs in different situations (Bontis et al., 1999). For instance, some large companies in manufacturing industries where intellectual assets can be turned into a profit may want to choose measurement methods for valuing those assets that disclose their official valuation in financial reports, and converting them into intellectual property (Al-Ali, 2003). On the other hand, measuring intellectual assets in the public and

non-profit sectors generally has to concentrate on achieving sustainable, non-financial results in respect of key organizational requirements (Wall, 2005; Kong, 2007). Managers of public and non-profit organizations may consider methods for using proxy measures to reveal the virtual level of intellectual assets and the performance of intellectual activities in scorecards (Cinca et al., 2003; Kong, 2007). Like the organizations in the public and non-profit sectors, library administrators can adopt the scorecard method of intangible evaluation as an additional management tool for developing performance indicators and measures of intellectual assets and activities that suit the library context, particularly if they already have a strong interest in more intangible-oriented management ideas, for example total quality management (TQM), knowledge management (KM), and Kaplan and Norton's (1996) Balanced Scorecard (BSC).

There are many systems of library performance measurement relating to intangible aspects of library operations and services such as internal quality audits, outcome/impact assessments and measuring overall strategic performance with the BSC. These previous measurement systems have arguably become inadequate for today's libraries, which are surrounded by a knowledge-based and innovation-driven working environment that has made them more accountable for the competencies of library staff, innovative information services and products, and the true worth of such services and products to the communities that libraries are serving. However, most widely-used performance measures in the library and information service sector still rely on the traditional models of tangible assessment that mainly account for tangible assets, efforts and resources (White, 2007b). The concept of intangible indicator development for reporting information about library resources, as well as performance with reference to intellectual assets and activities, is quite new to the area of library evaluation. Intellectual assets and activities are new forms of library value. We need to seek new indicators or measures to evaluate the existence of these newly defined kinds of assets and activities in libraries. As Sveiby (1997: 155), who is one of the pioneers in measuring intangible assets, insisted, "If we measure the new with the tools of the old, we won't be able to perceive the new".

Developing typical indicators to evaluate libraries' organizational intellectual assets is not easy. This initiative requires the clear definition of library intellectual assets; a specific way to assess library intangibles; and practical uses for novel indicators in library performance measurement.

First, it is necessary to identify exact descriptions and understanding of intangibles from library and information professionals' viewpoints before evaluating these assets in academic libraries. Despite its origin in organizational and management science, the field of intellectual capital is multi-disciplinary because every organization has its own intangibles and they are derived from many different professional fields. The meaning of intellectual assets varies from discipline to discipline (Marr and Chatzkel, 2004). When librarians refer to strategic resources, their definitions may be similar to or different from components of intellectual capital in companies.

Secondly, past applications of strategic performance measurement have focused on library scorecards, adopting Kaplan and Norton's (1996) BSC to group all financial and non-financial measures according to four perspectives: finance, internal process, customer, and learning and growth (Ceynowa, 2000; Poll, 2001; Matthews, 2002; Self, 2003; University of Hull, 2007). The fourth perspective is likely to be a starting point for devising indicators of intellectual assets. It suggests that organizations consider what they want to and should do to succeed in business for the long-term. As a result, the BSC's learning and growth perspective is the genesis of knowledge-based resources (Marr and Spender, 2004). However, implementation of library scorecards is mostly intended for overall performance assessment. Only a few practical case studies have been undertaken to look at this perspective in depth (e.g. Franklin, 2003; Cribb, 2005).

Finally, it is uncertain whether intangible measures and conventional metrics can complement each other in library evaluation systems. The library literature on assessment has particularly grasped the importance of service quality since library and information work relates generally to routine operations. Non-financial measures are designed to monitor good performance based on the operational strategy for areas such as library collections, information supply chain and customer surveys (Town, 2000; Ford, 2002). In contrast, library intellectual assets are interpreted as part of the parent organizations' resources at the strategic level (Huotari and Iivonen, 2005). Using operational indicators to evaluate strategic resources is one of the challenges

faced by academic librarians who may not recognise that recent developments in measuring the performance of universities have gradually required them to evaluate the intangible value of library operations and services, such as library effectiveness, quality, commitment, acceptability and organizational knowledge (Saracevic and Kantor, 1997; Townley, 2001).

This research is therefore designed with respect to applying the development of intellectual performance indicators to the evaluation of services and operations in the academic library sector. It constitutes a further investigation to find out what intellectual assets really are from library managers' perspectives, how the scorecard method currently used in many libraries can be adapted to develop new indicators with reference to intellectual assets, and the extent to which the intangible indicators are compatible with libraries' existing performance measures.

1.2 Current status of LIS research on intangible assessment

There are numerous publications on library performance evaluation (e.g. Van House et al., 1990; Lancaster, 1993; Abbott, 1994; Morgan, 1995; Town, 2005; Brophy, 2006) but relatively few items on the evaluation of library intellectual assets using performance indicators. Most of the academic work is based on theoretical and descriptive articles (e.g. Corrall, 1998; Koenig, 1998; Wideback, 1999; White, 2007b; Kostagiolas and Asonitis, 2009), with some authors introducing IC theory to library and information professionals and describing the possible applications of IC measurement principles as an additional management tools for evaluating strategic performance in libraries (e.g. Koenig, 1997; Dakers, 1998; Van Deventer, 2002; Pierce and Snyder, 2003; Iivonen and Huotari, 2007). Research studies on intellectual assets evaluation in the library and information service sector are still at an embryonic stage of gathering solid empirical evidence to support the feasibility of applying the IC concepts and intangible measurement frameworks originating in the management sciences discipline to the evaluation of library performance and operations. Empirical research in this field is of significance for justifying the implementation of intellectual performance evaluation and reporting systems within libraries' actual self-assessment situations.

The journal articles giving a general overview of IC concepts have never been introduced in isolation from other intangible-centred management approaches such as KM and the BSC (Koenig, 1997). A key step forward occurred in the late 1990s when the introduction of IC management practices in Skandia (the Swedish financial services company) and Dow Chemicals (the American diversified chemical company) stimulated several library academics' enthusiasm for IC concepts. Based on the early articles introducing the principles of intellectual assets evaluation to the area of library administration or management (e.g. Koenig, 1997; Corrall, 1998; Koenig, 1998; Wideback, 1999), libraries can apply such IC accountancy explored in the private sector to define the intellectual assets that are critical to long-term value creation in information resources and service delivery for their users and provide their stakeholders with new information on how libraries go about their intellectual activities in alignment with their parent institutions' purposes in managing organizational knowledge.

The arguments about the strategic importance to library performance of measuring intellectual assets have led to the publication of more descriptive papers on different issues of library intangible assessment between 2003 and 2007. These issues include classification schemas for categorising intangibles (e.g. Pierce and Snyder, 2003; Van Deventer and Snyman, 2004; Iivonen and Huotari, 2007), internal motivations for considering the use of intangible assessment in libraries (White, 2007b) and methods for evaluating and reporting intellectual assets (Pierce and Snyder, 2003; Van Deventer and Snyman, 2004; Hendriks and Wooler, 2006; White, 2007a). Examples of well-known evaluation methods recommended by several descriptive papers are the return on investment (ROI) for information services, BSC framework, and Sveiby's (1997) Intangible Assets Monitor (IAM). The ROI is a calculation of the estimated costs of service delivery processes compared to employees' throughput and service qualities (Hendriks and Wooler, 2006), whereas the BSC and IAM are based on the scorecard approach which identifies intellectual assets relevant to an organization's strategy, designs indicators that serve as proxy measures for each asset, and then gives an account of the indicators in scorecards or reports (Sveiby, 2007).

In terms of previous studies in the field of applying IC measurement to the evaluation of library services and operations, very little empirical research has been conducted in the library and information service sector. For instance, Portugal (2000) presents different approaches to a determination of the intangible value of information services provided by librarians and information professionals working in American corporate libraries and information centres. The valuation approaches suggested in his report are drawn from survey interviews with bosses of the libraries and information centres. Van Deventer (2002) examines whether a combination of the BSC and IAM as a hybrid IC measurement model is applicable to a South African research library monitoring the success of its KM initiatives. This hybrid model was tested through a participative action research study. It is evident that early studies into assessing the knowledge-based resources of libraries have concentrated greater attention on the area of IC measurement models.

As few empirical research studies on intellectual assets evaluation have been undertaken to date, further investigations in this field in other types of libraries are needed to extend past research by inquiring into the full stages of designing intellectual performance measurement systems. Work done in other types of organizations shows that the design stages generally cover the identification of intellectual assets or intangibles, reasons for evaluating them, selection of suitable evaluation models, and development of indicators for each intangible (Sanchez et al., 2000; Marr and Chatzkel, 2004; Bornemann, 2006). Moreover, it is necessary to investigate the potential for intellectual assets evaluation in various types of library organizations and the use of intangible indicators in different contexts.

This study satisfies the above key need for inquiring fully into the development of intellectual performance indicators. The researcher chose academic/university libraries in Thailand as a representative sample of cases for study in the South East Asian region to address the central research question: How do Thai university libraries, as typical representatives of academic libraries, develop performance indicators to evaluate their organizational intellectual assets?

Conducting the research project on intellectual assets evaluation in Thai academic libraries offered conceptual promise for building explanations that there are causal relationships between library performance and strategic resources. This study also aimed to contribute practical advice on generating new performance indicators to

evaluate intellectual assets in an academic library setting. While the explanatory case findings and performance indicators articulated in this thesis are specific to the case study sites, it is hoped that most research results can be generalized to other libraries where their organizational characteristics, administrative contexts and library evaluation practices are similar to those of the case libraries.

1.3 Personal experience and interest in the area of the study

Sources of the research ideas for this study include not only related literature on performance evaluation from the LIS field and empirical work on IC measurement from the management science discipline, but also the investigator's personal experience and interest in the area of his investigation. A range of beliefs, motivations, values, and experience forms the background factors or internal frames of reference that every researcher brings to empirical studies. Background factors shape the main components of research designs, such as research frames, processes, and methods of interpreting fieldwork data (Rossman and Rallis, 2003; Creswell and Plano Clark, 2007). This section describes the investigator's background factors that reflect on the process of his research into the development of Thai academic libraries' intellectual performance indicators. This backstage view helps readers of this thesis realize that his research topic being investigated, the outcomes sought from the present study, and interpretations of patterns in the research findings implicitly stem from the personal experience and motivation as a point of departure for this research journey.

The researcher graduated with a bachelor's degree in library science from Chulalongkorn University, Thailand, in 1995. With a year's experience as a law firm librarian, he had a desire to further his LIS education by applying to the library school at the same university. The researcher was redirected toward an academic career in 1997 while enrolling in a LIS master's programme. He accepted a position as a junior lecturer at the Department of Library Science of Chulalongkorn University. It could be said that he took this teaching position with little professional experience of library and information work. However, the researcher had worked in close collaboration with some groups of library practitioners and information specialists to create educational pursuits from the practitioner oriented perspective.

This collaboration contributed in many ways to the network of library professional life. For instance, the researcher could understand a technical language commonly used by Thai library and information professionals that was necessary for discussing mutual interests in the library communities.

In 1999, the quality assurance (QA) system of Chulalongkorn University was established to ensure that its faculties and departments were meeting the required standards. So every unit in the university, including the researcher's academic department, was instructed to conduct internal audits, collect performance data in accordance with QA measures, produce self-study reports, and receive the university's auditors to check what each unit did on the basis of the standard requirements. The researcher then went through the university's QA standards thoroughly. He had training in internal audit procedures. He learned about the QA measures which were obligatory for the teaching units. He did this to assist the Head of the Library Science Department in preparing the self-study reports.

Through taking part in several internal audits, the researcher thought that his university, like other higher education institutions in Thailand, designed lists of QA measures with the main purpose of evaluating the research, teaching and learning activities of academic units in mind. The groups of stakeholders who actually developed performance indicators or measures in the institutional context of quality management consisted of university executives, QA auditors and academics. Talking to some senior librarians who joined the same training course as the researcher, he learned that most of them felt that support units, especially academic libraries, were hardly ever involved in choosing their own measures that reflected the typical quality of information resources provision from a library and information professional's perspective. They reacted very well to the use of measures demanded by their parent organizations, but lacked a proactive role in developing in-house indicators.

The researcher has had some experience of collaborating with some library administrators to seek meaningful indicators for evaluating the quality of library management and existing services. He therefore wanted to see library and information professionals in the Thai university community have active participation in the processes of designing library performance indicators for on-demand evaluation. He personally believed that having the opportunity to develop a list of indicators in-house would enable university libraries to communicate their internal

performance evaluation needs to their parent organizations. This communication might help us find mutually satisfactory indicators which made a trade-off between internal needs and externally imposed mandates.

By 2004, the growth of management studies, scholars and consultants had disseminated the principles and practices of new management tools related to organizations' intangible aspects in different sectors such as the BSC, KM and IC management. Many university executives showed their interest in the adaptation or application of these management tools in the higher education sector. At last, they demanded to know for certain whether their libraries were monitoring alignment of their long-term performance with the strategic plans and scorecard metrics of the universities, assessing the effectiveness of KM initiatives, or measuring the level of intellectual assets in parallel to those of the universities. This influential contemporary movement aroused the researcher's curiosity about how Thai academic libraries could move ahead in the improvement of library operations management and evaluation practice using these intangible-focused management concepts while being part of a larger institutional effort.

The researcher's desire to find out, from the library and information profession's perspective, what viable approach to intangible assessment would work well in academic library settings made him select a research topic in the area of library evaluation. Thus, his research focus for the inquiry was concerned with the development of performance indicators for evaluating the knowledge-based resources and KM activities of Thai university libraries. He pursued this research project with the expectation of making significant contributions to the knowledge in the field.

1.4 Research setting

Opportunities for making a theoretical contribution to the field of IC measurement, management, and reporting are enabled by determining the extent to which theoretical concepts are likely to hold true in different settings. The decision regarding in which novel setting to conduct research can allow researchers to see something new from various perspectives and extend the IC concept to other

organizational domains (Marr and Chatzkel, 2004; Marr and Moustaghfir, 2005). This case study research can make a theoretical contribution by transferring the IC measurement approach into a new empirical context, i.e. performance measurement or evaluation in an academic library setting.

The investigator specifically chose the Thai academic library sector as his research setting for two reasons. First, academic libraries are generally regarded as the best developed among other types of libraries in Thailand, in respect of their large proportion of professional staff, volumes of information resources, user-focused services, regular evaluation activities, modern information technology, and national networks (Wareesa-ard, 2004; Butdisuwan, 2005). As many Thai academic libraries grow further in size and services, they may have an interest in the introduction of new management tools (e.g. the principles of intangible assessment) that are appropriate to the challenging managerial tasks that they face. A library's growth is an important factor which influences the application of management ideas or tools (Pors et al., 2004).

Second, Thai academic libraries, like other library organizations and information service units, have implemented performance evaluation systems that cover some aspects of intangible assessment or IC reporting, even though such systems have not been developed specifically for assessing the libraries' collective resources and activities with reference to intellectual assets. Examples of their general management approaches are the internal QA system for higher education institutions in Thailand and the BSC (Thai Commission on Higher Education, 2008). Some scholars note that a QA system can be used to map core knowledge in products, operational processes, management practices and customers through the development of suitable measurements and metrics (Caddy, 2000; Heng, 2001). Meanwhile, Kaplan and Norton (2004) assert that the BSC as a performance measuring system can be employed to quantify intangible assets such as strategic competencies, information systems, and teamwork. Therefore, Thai academic libraries where these two general management tools have already been initiated have the potential to operationalise intangible assessment.

While the academic library sector has tremendous commonalities from place to place, it also responds to the particularities of particular national traditions and histories. It may be useful to highlight at least some of the key features of the academic library sector in Thailand.

Thai academic libraries belong to six types of higher education institutions: public universities, autonomous universities, private universities, teachers' colleges, vocational and technical colleges, and research institutes (Wareesa-ard, 2004). The 2008 statistics showed that there were 118 academic libraries, with collections that in total amount to 3,000,000 volumes (National Library of Thailand, 2008). Most libraries in large universities are characterised by the following:

1. They receive substantial funds from governmental bodies or their parent institutions.
2. There is recognition that the libraries are core units that play significant roles in supporting the universities' missions — teaching, learning, and research.
3. Their library and information professionals are well-qualified with some holding master's and doctoral degrees from overseas (Butdisuwan, 2005).

As the topic of assuring the quality of higher education has been a long-standing priority in Thailand since 1999, the emphasis on performance measurement at the institutional level has taken on increasing importance with the establishment of the national education standards and QA framework for auditing, reporting, and maintaining quality teaching in Thai universities. This movement in institutional QA has shifted the evaluation of both Thai universities and their libraries from traditional cost accounting to internal quality audits which are more concerned with non-financial resources, performance, and outcomes (Kanjanapanyakom, 2005). In 2002, the Higher Education Internal Quality Assurance Committee was established by the Thai Ministry of Education to support, enhance, and develop the internal QA system for higher education institutions. The Committee imposes a prescribed set of QA indicators on each institution's internal quality audit activities. These indicators specify some key quality elements considered to be more intangible, such as human resources' competencies, management practices, and strategic success (Thai Commission on Higher Education, 2008). Because of this, every unit within the

institutions (including university libraries) has to prepare for internal audits by carrying out a self-assessment, compiling performance data in the form of a self-review report, and have an on-site visit from external auditors. In other words, internal quality audits now serve as a formal evaluation of service quality for most academic libraries. It was expected that running such quality audits would bring a new culture of assessment to the university libraries because they have move beyond mere counting of tangible elements (the size of collections, expenditures, tallies of customer use of resources, etc.) to conducting performance evaluation to learn about the true worth of their operations and services (Hiller and Self, 2004).

1.5 Aims, objectives and expected contributions

The research aims to show how IC measurement concepts are compatible with and can contribute to library evaluation work. Recognising three major issues with intangible assessment – identification, measurement methods and the indicator development process – there were four general purposes in carrying out this research project, namely to:

- explain which intellectual assets are vital to deriving future benefits from libraries;
- justify clear incentives for intangible evaluation among three management levels – operational, controlling and strategic level– before trying to assess knowledge-based resources;
- suggest a model for developing indicators that are practical for various styles of library management; and
- yield a set of performance indicators as well as measures that are important and easy to understand when library and information professionals have to interpret information on knowledge-based resources.

Regarding the research context, this study also had four specific objectives to achieve, namely to:

- identify the organizational knowledge and intangibles of Thai academic libraries;
- understanding the reasons why Thai library administrators need intangible assessment;
- explore an appropriate process of indicator development; and
- develop performance indicators as a proxy for evaluating intellectual assets in the context of Thai academic libraries.

This study proposed to make four major contributions to theory and practice in the field of library performance evaluation. First, it was expected that the present research into the development of intellectual performance indicators could build theoretical propositions about the application of IC theory and practices, enabling readers of the thesis to transfer these propositions from the libraries studied to other cases in similar settings. Second, it was anticipated that the results of the investigation would provide a robust theory foundation for developing an indicator system for intangible assessment in academic libraries. This original contribution would impress on researchers in the field of library performance evaluation how insights into intellectual capital measurement based on the principle of strategic management could be applied in library evaluation. Third, for library administrators who might already have an interest in employing evaluation tools in connection with the intangible aspects of library organizations (e.g. QA in library and information services and the BSC), the present study would make recommendations for library evaluation practice. It would not only provide the theoretical propositions and rigorous insights, but also apply them to develop practical guidelines on how to evaluate library intellectual assets using specific methods and performance indicators. Lastly, this thesis should help university executives, external auditors, and others concerned with the evaluation of library operations and services accept the non-tangible value and quality of their academic libraries, and gain a better understanding of library intellectual assets and activities. This acceptance would also lead to a search for better evaluation frameworks that are appropriate for assessing their libraries' intangible value in the future.

1.6 Overview of methodology

In order to achieve the aims and objectives listed in Section 1.5, the study chose a case study research strategy and mixed methods to collect qualitative and quantitative data for answering the central question of this research: How do Thai university libraries, as typical representatives of academic libraries, develop performance indicators to evaluate their organizational intellectual assets?' The study was guided by the four specific research questions:

1. Which are the most important intellectual assets for Thai academic libraries?
2. Why do Thai library administrators want to evaluate library intellectual assets?
3. How do libraries choose performance indicators as proxies to demonstrate their intellectual assets?
   - 3.1 What are the libraries' key success factors relating to their intellectual assets?
   - 3.2 What dimensions of library performance should the indicators focus on?
   - 3.3 What surrogates for library intellectual assets should be measured?
4. What are suitable performance indicators for evaluating the library intellectual assets?

Methods

The researcher designed a multiple-case study for gathering case evidence in three university libraries. This multiple-case design divided fieldwork procedures into two phases. The study commenced with a qualitative phase to identify existing knowledge-based resources and activities in the academic libraries, explore library administrators' different motives for their interest in intellectual assets evaluation, and suggest an initial list of intellectual assets indicators by using the scorecard process of strategic performance measurement. Qualitative methods of data collection and analysis were followed by a quantitative phase to test whether the suggested indicators were perceived to be important and comprehensible to potential

users, those who were or would be responsible for preparing information about library performance related to intellectual assets.

Data for this multiple-case study were derived from three sequential sources of evidence – documentation, interviews and a survey. First, administrative document analysis reflected the needs of university executives and revealed what they wanted to know about library intellectual assets. Secondly, semi-structured interviews with library directors and deputy directors were undertaken to identify classifications of knowledge resources as well as to explore possible performance indicators. These interviewees also acted as experts who reviewed draft survey instruments for each case library. Thirdly, researcher-administered questionnaires were used to survey division heads and senior staff from the three case study libraries. All respondents were asked to judge whether the proposed performance indicators were understandable and important to their libraries.

Analysis of the research results was conducted at two levels, within-case and cross-case. For the within-case analysis, qualitative evidence generated the case background and provided the identification of intangibles found in each case library, motives for intangible evaluation and initial lists of intangible performance indicators. Subsequently, the three libraries' initial indicators and sample measures gained credibility from the quantitative data of three small-scale surveys. All the case evidence from the three individual case reports was examined through a cross-case analysis to discover replications across the case libraries. This higher-level analysis led to the validity of these comparative results as the theoretical propositions and drew conclusions from the present study.

Delimitation of scope

This research project obtained both qualitative and quantitative data by reviewing the administrative documents, interviewing the library administrators, and conducting three surveys within the case study libraries. Thus, the research results only reflected the internal perspective of library and information professionals' opinions about library intellectual performance and assets. An external perspective from various groups of library stakeholders who might be involved with intangible evaluation of library operations and services was beyond the scope of this thesis. The limitations

of the case study research methods justified in the research project are discussed in Chapter 3, Section 3.6.

1.7 Definitions of key terms

Many words used throughout the thesis have meanings that may differ somewhat from definitions used by library and information professionals in other contexts. Table 1.1 provides the key terms as defined within the context of the present research in order to communicate accurately the meanings of these terms to readers of the thesis. The terms listed below are arranged in alphabetical order.

Key terms	Definitions
Evaluate	Gather meaningful data which managers want to know about their library's intellectual assets so that they can decide how well the library is doing in creating, maintaining, increasing, and utilising the intellectual assets (Koenig, 1997). This thesis uses the verbs 'evaluate' and 'assess' interchangeably.
Input measures	Measures concerned with the volume of budgets, facilities, information technology infrastructure, and equipment that support intellectual activities and KM practices in a library (Cribb, 2005).
Intellectual assets	Non-financial resources controlled by a library that enable the library to improve the efficiency, effectiveness, quality and sustainability of library operations and information services in the long term. These assets include capabilities of human resources, structured representations of organizational competencies (e.g. knowledge repositories, information systems, and best practices in information work), knowledge about library stakeholders (e.g. users, parent organizations and sponsors), value-added collections and quality services, etc. Most are intangible in nature (Koenig, 1997; White, 2007b). The terms 'intellectual assets', 'knowledge-based assets', 'organizational knowledge', 'intangibles', and 'strategic resources' refer to the same thing in this thesis.
Intellectual performance	Activities concerned with the purpose of creating, maintaining, increasing, and utilising intellectual assets. Such activities include formal and informal training, KM projects, evaluation of products and services, implementation of marketing and public relations plans, etc (Roos and Roos, 1997).
Key success factors	A selected number of necessary conditions or areas that are critical to an organization's attainment of long-term objectives indicated in its strategy. Key success factors are succinctly represented in general terms to form the basis for identifying specific indicators of intellectual performance and assets (Rylander et al., 2000).

Table 1.1 Definitions of key terms used in this thesis

Key terms	Definitions
Knowledge management	Concerted actions to capture and organize valuable expertise in library and information work as well as collective knowledge of resources, services, and stakeholders in the tangible form of best practice documentation or knowledge repositories; distributing the captured knowledge throughout a library; encouraging appropriate staff members to use that knowledge for increasing productivity; and creating the culture of team learning, group cooperation, knowledge sharing and so on (Gandhi, 2004).
Measures	Pieces of numerical data that quantify measurable inputs, processes, and outputs of intellectual assets. They act as surrogate measures enabling an organization to make an inventory of its current intellectual assets as well as estimate performance levels of its past intellectual activities (Roos et al., 1997).
Output measures	The degree to which intellectual assets are produced, increased, retained and exploited (Nonaka et al., 2000).
Performance indicators	Verbal statements which are designed to qualitatively describe what an organization wants to achieve in connection with its intellectual performance and assets, such as success in the execution of practical knowledge development, and progress in KM practices. Performance indicators are chosen on the basis of the organization's key success factors (Roos and Roos, 1997).
Process measures	A quantification of throughput times spent as well as the major tasks done in undertaking intellectual activities or KM projects (Nonaka et al., 2000).
Scorecard method	A top-down, process-based approach of developing indicators and measures which concentrate on disclosing an organization's achievement of strategic objectives related to intellectual performance and assets in its summative evaluation reports, i.e. scorecard reports. This approach does not aim to develop indicators that quantify the economic value of intangibles to the organization. Key success factors, performance indicators, and measures are hierarchically designed by linking the top management's expectations to the operations management's actions (Marr et al., 2002).
Surrogate or proxy measures	Diverse units of measurement which are used when exact measures are elusive. Because the intangibility of intellectual assets make them difficult to measure, many managers rely on surrogate or proxy measures that are more quantified, easier to collect, and already available in their organizations. For example, number of users' complaints can be used in place of a user satisfaction survey to make knowledge about users visible and measurable (Danish Ministry of Science Technology and Innovation, 2003).

Table 1.1 Definitions of key terms used in this thesis (continued)

1.8 Structure of the thesis

There are seven chapters in the presentation of this thesis. A short description of the contents of each chapter follows.

Chapter 1 sets the background to the research project. It indicates the need for more investigation into the evaluation of academic libraries' intangible aspects, i.e. their intellectual assets and activities, by developing intangible performance indicators that suit their organizational contexts. It explains the particular context of the study and researcher's personal perspective on the phenomenon under investigation. The significance of the research is discussed to formulate its aims and objectives and the possible benefits of the research are then presented. The first chapter also introduces the methodology for carrying out this research project, states the limitations in the scope of the study, and provides definitions of the key terms used in the thesis.

Chapter 2 reviews the literature on academic library evaluation and IC measurement to clarify the relevant theories as well as the concepts which underpin this study. Previous library research relating to intellectual assets is analysed to define the gaps in work in this field that helped to identify the specific research questions. The last section of this chapter connects the research questions derived from a critical review of the literature to a tentative conceptual framework for investigating the development of intellectual performance indicators in academic libraries. This framework covers an *a priori* set of coherent, well-constructed themes or subjects expected to emerge from this research project. Associating such initial themes with the research questions enabled the investigator to bear in mind the need to collect only empirical data that were relevant to answering the questions.

The methodology of this study is presented in Chapter 3. It describes the researcher's stance on the choice of the case study as the research strategy. Furthermore, it justifies the selection of a mixed-method approach to data collection and analysis techniques as appropriate for the case study strategy taken in this research project. It also covers the quality control of the multiple-case design, limitations of the case evidence, and ethical issues concerning the interviewees and respondents' participation in this investigation are also provided.

Chapter 4 describes the pilot case study undertaken in the exploratory stage of the main study. It provides the reflections on the trial run of this research that helped to establish the competence of the investigator and to refine his pre-planned research design.

Chapter 5 presents the findings of the three actual case studies based on the within-case analysis of the qualitative and quantitative data. The presentation of these findings is produced in the form of individual case reports.

Chapter 6 examines the similarities of the findings among the three case studies to generate cross-case results that are transferable from one case library to others. Next, it compares the most significant results of the cross-case analysis to some relevant findings from previous studies. Possible explanations for the research results are discussed at the end of this chapter.

Chapter 7 summarises all the research results in relation to the research questions to build the study's theoretical propositions that can be tested by further inquiries. This chapter then presents the revised conceptual framework, the contributions of the study to scholarly work on library evaluation, practical applications of this research in the evaluation of library intellectual assets, and suggestions for other researchers who may be interested in conducting future studies in the field. Finally, this thesis concludes with the researcher's reflections on how this research project achieved its objectives and on his own personal research journey.

Summary

This introductory chapter sets the scene for the whole thesis. It is intended to serve as an orientation for readers of the thesis before they read through the more detailed exposition in the chapters that follow. In the next chapter a critical appraisal of library evaluation and IC measurement literature relating to the research topic is given to inform the important theoretical issues on which this study is based.

CHAPTER 2
LITERATURE REVIEW

The purpose of this chapter is to develop theoretical perspectives on the research into the development of performance indicators for evaluating library intellectual assets through a review of relevant literature. The chapter begins with a detailed description of the process used to carry out the literature review. Because the research topic falls into two main fields — library evaluation and IC measurement, the literature on library evaluation or performance assessment is examined in an attempt to explore its relevance to intangible assessment in academic libraries. The result of this review is presented in the second section. The next section is the subsequent review of the IC measurement literature that aims to identify significant aspects of intangible indicator development from the management science discipline. The fourth section of the chapter provides an analytic review of the research literature to place investigative boundaries for this study. Gaps discovered in current knowledge and research questions are presented in the fifth section. The chapter concludes by delineating an initial conceptual base of key research issues that illustrates a connection between the theoretical perspectives, previous findings, and research questions.

2.1 Literature review process

The purpose of the literature review in this study is grounded in the three major issues of the research focus — the identification of intellectual assets, intangible assessment methods, and the development of performance indicators — as noted in Chapter 1, Section 1.5. Reviewing the literature on these issues enables the investigator to (Hart, 1998):

- compile both theoretical work and empirical research on library evaluation and IC measurement relevant to the research topic;

- establish the research context by relating prior theories and practices to the research questions of this study; and
- identify main methods and techniques of data collection in previous work to choose the research methodology that is appropriate for this study.

The investigator adopted Fink's (1998) process of doing research literature reviews to identify and evaluate relevant information sources and reading material.. More than 40 search terms or 20 combinations of keywords have been used to locate relevant literature. Core journals, conference proceedings, guidelines, textbooks, databases and websites are examples of information sources. Balancing publications written by library and information professionals and management academics is crucial to synthesise the initial conceptual base for the pilot phase of this research project. Figure 2.1 shows six steps in preparing the literature review.

2.2 Academic library evaluation

Library evaluation is the process of monitoring library objectives and judging how well they are achieved (Feather and Sturges, 2003). An increase in accountability to stakeholders causes academic libraries to gather meaningful data relating how much good they do to organizational goals through performance measures/indicators (Abbott, 1994). Although a few practitioners try to distinguish library evaluation from performance assessment, these terms are more or less synonymous (Morgan, 1995). Academic libraries are required to undertake evaluation or assessment for the following reasons (Lancaster, 1993):

- Comparing recent performance with past work
- Justifying the existence of services
- Benchmarking successful operations against other libraries.

Library managers use management data obtained by assessing performance to make decisions, solve problems or allocate resources. To know exactly what should be evaluated, library operations are viewed as a system for the information supply chain (Brophy, 2006).

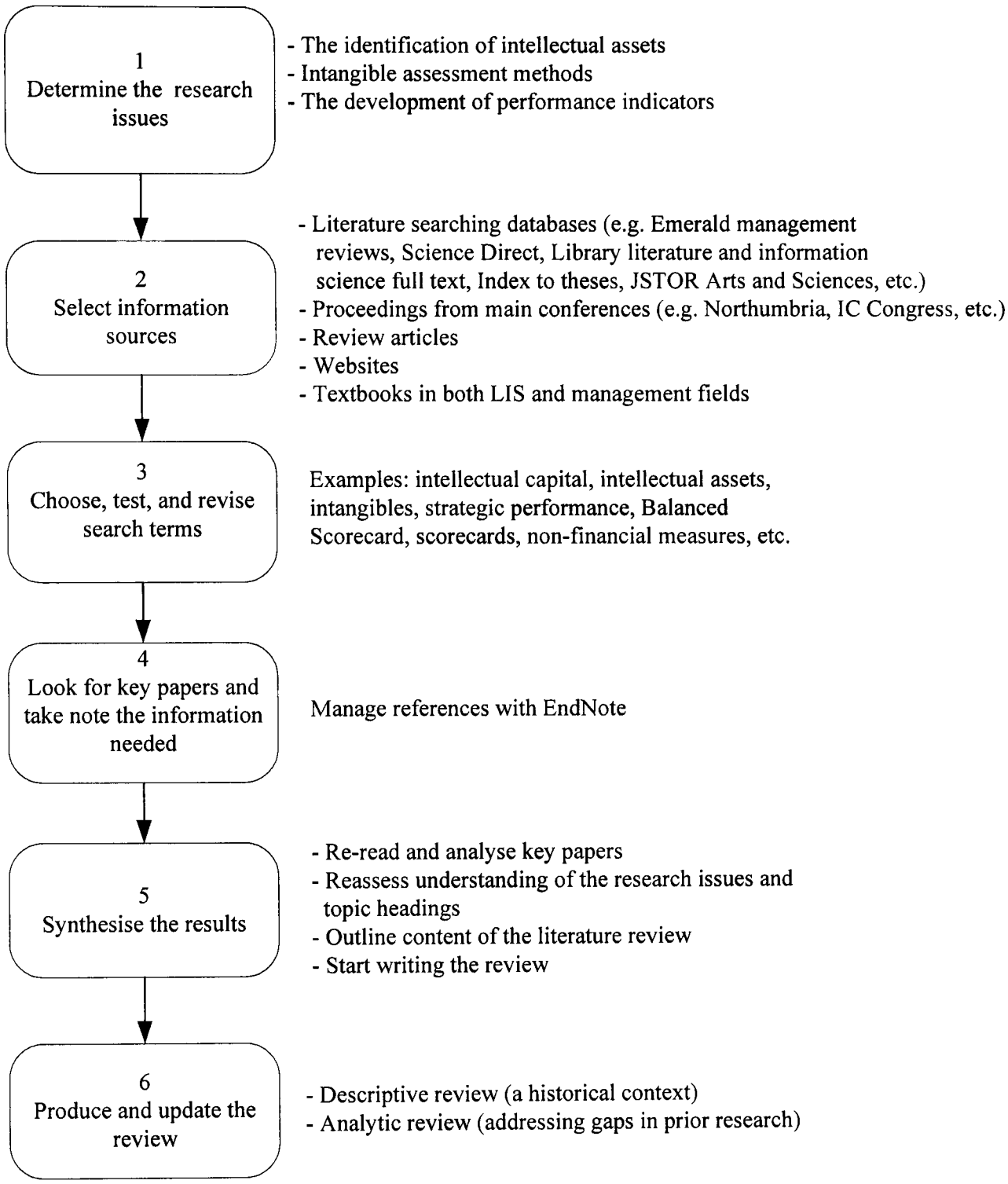

Figure 2.1 Literature review process (adapted from Fink, 1998)

The academic and practitioner literature on library evaluation has a long history (Cullen, 1999). There have been many developments of library evaluation in theory and practice that relate to the focus of this study. To analyse the evolution of this field, the following review of literature selects three main areas for consideration (Saracevic, 2000):

1. Subject of evaluation
2. Dimension of performance to evaluate
3. Evaluation models

Subject of evaluation

What a library is evaluating reflects changes in political, societal, and institutional values of the time (Pritchard, 1996; Feather and Sturges, 2003). Objects under library evaluation range from tangible items (e.g. resources, expenditures, equipment, etc.) to the intangible sides of library organizations (e.g. outcomes, effectiveness, quality, etc.).

Since the 1990s, when Van House et al. (1990) declared input/output assessment tools for American academic libraries, academic library evaluation has gradually changed from mere statistics to performance measurement informing managers about the relational consequences of library's actions. This transition inspired library managers to seek assessment frameworks for notifying the effectiveness of academic libraries within their educational community. A systematic view that classifies library operations or systems into three components — input, process, and output — still dominates past and present approaches to performance evaluation in libraries (Cullen, 1999; Brophy, 2006). According to this dominant view, a library first supplies all significant resources required for the function of information work; for instance, an annual budget, conventional aspects of human resources (number of staff and its costs), equipment and premises. Secondly, library and information professionals, using the allocated input, perform a variety of tasks such as acquisition, cataloguing, documentation and information delivery. Next, a number of library collections and services will be produced in this system as output (Van House et al., 1990).

Dimensions

The dimensions of library performance to be assessed depend on the viewpoints of key stakeholders who are involved with or influence evaluation activities in libraries, such as evaluators, decision-makers and users. Some stakeholders may be interested

in gauging aspects of library operations or work performance in terms of input, process, and output. Others may make judgements on library performance based on their experience of using information products and services (Nicholson, 2004). For example, we decide the efficiency of invested resources by comparing them with services provided. The relation between staff's effort and the quantity of library services are inspected to discover the productivity. A customer survey of information utilisation tells us about the cost-effectiveness. Users' success in learning, studying or researching reveals library effectiveness (Morgan, 1995). Another example of an evaluation dimension is accountability. The library accountability required by stakeholder groups has led universities or parent organizations into the development of performance measures for assessing value for money of their library services, future resource allocation and success in fulfilling strategic objectives at the institutional level (White, 2007b). The library has to cope with so much pressure on many changing dimensions of evaluation.

Evaluation models

There are four potential models based on Cameron's (1986) management concepts of organizational effectiveness that can be deployed to evaluate library performance. They encompass the goal model, the system resource model, the internal process model and the strategic constituencies model (Broady-Preston and Preston, 1999; Cullen, 1999).

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The goal model

An organization is effective if it achieves its goals and objectives. Examples of this model are output measures apparent in library benchmarking, guidance or standards which indicate collection size, number of users and service usage.

The system resource model

A library is successful when it can obtain needed resources from external sources. This model relates to input metrics of cost management such as finances, facilities, staff and equipment.

The internal process model

The model focuses on measuring work process throughput and times among library functions. An example of this model is International Standard for Quality Management Systems (ISO) 9000/9001 that covers those operational efficiency indicators, for instance the number of books issued per member of staff and the number of items added to stock per member of staff.

The strategic constituencies model

This well-rounded model helps a library think of its parent institution and users' needs while it is evaluating how well library and information services perform, so all groups of library stakeholders can participate directly or indirectly in evaluation activities. Service quality evaluation, outcome assessment and strategic performance measurements are the sample models.

Every academic library is faced with a complex environment that is full of regular audit, serious competition and questioning the existence of libraries. University executives who fund libraries and customers who use information services demand greater library accountability in terms of quality as well as value. Therefore, measuring tangible resources and outputs has recently shifted onto the strategic constituencies model – service quality, outcomes assessment and strategic performance measurements – to give comprehensive evidence on library performance mostly based on intangible quality (Bertot, 2004). An in-depth analysis of the literature in relation to the scope of this research topic is presented below in order of the subject of library evaluation.

2.2.1 Service quality

Marketing research on commercial services influences university libraries to adapt the principle of service quality for measuring user satisfaction. Determining quality in library and information services can be made on the basis of Parasuraman et al.'s (1988) GAPS model describing the service quality gap. They believe that the service

quality gap should be decided through customers' feedback only, hence the rating-scale instrument named SERVQUAL has been developed to find out customers' expectations and perceptions. This tool surveys their opinions on five dimensions of services (Parasuraman, 2004): reliable services, responsive workers, assured performance, empathising with customers and tangible benefits of services.

Many library researchers bring the SERVQUAL model to user satisfaction studies in the academic library setting. They try to manoeuvre the libraries into applying SERVQUAL (Nitecki, 1996); elevate the scope of the service quality gap (Hernon and Altman, 1998); suggest standardised indicators for measuring the whole service; and modify the five evaluation dimensions of the SERVQUAL questionnaires (Nagata et al., 2004).

Good progress with service quality constructs began when the Association of Research Libraries cooperated with Texas A & M University in testing the particular template called LibQUAL+™ for assessing academic library users' perceptions. This innovative instrument has four important features (Cook et al., 2002):

- The LibQUAL+™ template is practical because a team of investigators spent many years refining it.
- Its four quality dimensions reflect the uniqueness of library services: affect of service, personal control, access to information and library as place.
- Due to a web-based survey, it is convenient for respondents to answer the questions as well as for collectors to handle the data.
- The LibQUAL+™ method is widely implemented in several American, British and Australasian university libraries (Cullen, 2006).

However, there are limitations to this survey instrument. For example, libraries outside the USA cannot adopt the LibQUAL+™ immediately, since it was developed for the American context. Another reason is that the questions of the four assessment aspects may not be designed for considering electronic services or digital media (Brophy, 2006). As a pioneer of the SERVQUAL, Parasuraman (2004) agrees that the next decade of service quality information systems need multi-dimensional indexes to measure network-based services.

2.2.2 Economic value

The application of economics methodologies in the calculation of financial success has evolved over the years from the library's perspective into the stockholder's perspective which has the different mindset of economic value. In the past, the return on investment (ROI) focused on a cost-benefit analysis of a whole library, for instance, a ratio of total resources gained or lost in a process to the total amount of resources provided (White, 2007a). In contrast, the contemporary ROI is to estimate how much the return on money is when a governing body or a user invests in a library's specific projects/activities.

An illustration of a new ROI method is Sumsion et al.'s (2003) market added-value model. They propose valuation formulae for assessing diverse types of public library activities: book loans, audio-visual loans, acquisition of electronic materials, information provision and other services. Their performance indicators can generate market prices to disclose good value for money that investors should get as benefit from libraries. Besides the calculation resulting from parent organizations' viewpoints, the monetary value can be summed by asking customers how much money they are willing to spend on information services and to accept for loss of libraries. This economists' technique is known as contingent valuation (Missingham, 2005). The British Library study (2004) is one good example where tax payers were invited to value products and services offered by libraries. However, a longitudinal investigation of the estimated cost is required to measure changes in the libraries' economic value that fluctuates over time according to their users' attitudes.

An alternative to the conduct of longitudinal investigations into libraries' ROI and contingent valuation applications is the meta-analysis method. Aabø (2009) introduces this quantitative method to the library valuation field by statistically integrating research findings across 38 ROI studies undertaken in the USA, UK, Australia, New Zealand, South Korea, and Norway. Her meta-analysis represented ROI figures or cost-benefit ratios of the participating libraries, which were mostly public libraries in the 38 studies included. Aabø's (2009) results created greater comparability between the different valuation studies in reporting precise monetary benefits of library and information services, but her dataset for the analyses covered ROI figures from few academic, school, special and national libraries.

2.2.3 Outcome/Impact

The results of the SERVQUAL/LibQUAL+™ are not an end in themselves. They encourage academic libraries to enhance internal processes which external stakeholders rarely discern. Universities and customers really expect value-in-use of library services (Saracevic and Kantor, 1997). For this purpose, some library researchers have been enquiring into outcome assessment approaches to discover both the monetary value and the social impact of academic libraries.

Many things make it difficult for academic libraries to assess social impact aligned with universities' missions, especially personal targets in studying; teaching; and researching. Some kinds of outcome are intangible such as changes in behaviour and knowledge after patrons use information products. Some academic/career achievements are long-term effects (Cram, 2000). The latest efforts to appraise the qualitative performance of library services have initiated evidence-based projects on impact indicators in British university libraries.

Markless and Streatfield (2006), who carried out research on college library effectiveness, found that a process model for developing outcome measures will be successful if it is planned carefully in accordance with the strategy for supporting teaching and learning. They also recommend that libraries should keep process performance separate from impact in indicator and target setting.

Another impact initiative is a collaboration between two British groups, the Library and Information Research Group (LIRG) of the Chartered Institute of Library and Information Professionals and the Society of College, National and University Libraries (SCONUL), to assess the social impact of library services in 22 higher education libraries. Each volunteer library can choose its own interest in the topics of outcome assessment, but they have to report in the same detail about success factors, impact measures, evidence sources and research methods of measurements (Poll and Payne, 2006). The LIRG/SCONUL initiative is endeavouring to create non-financial measures to meet individual needs. This decentralised approach is the opposite to the standardisation approach which emphasises comparable and 'fit-for-all' indicators (Poll, 2003).

2.2.4 On the move to multidimensional frameworks for library evaluation

Constructs for library evaluation have moved away from three independent dimensions — the measurements of service quality, economic value, and social outcome/impact — towards holistic approaches for assessing total quality and the strategic performance of library organizations. This emerging move looks outward to the interdependence of performance measures from different dimensions in terms of the extent to which the needs of people having a stake in libraries are met (Broady-Preston and Preston, 1999; Nicholson, 2004). It is different from traditional evaluations in the 1980s, which kept the quality of service separate from the value created for library stakeholders (Brockman et al., 1997).

A classic paper by Orr (1973) poses two simple questions ('How good is the service?' and 'How much good does it do?') that librarians have to answer when they want to develop quantitative measures for assessing libraries operations and services. The first question would be asked if library professionals are aiming to design measures of quality (capability). The second question represents an effort to invent measures of value (benefit). Orr's (1973) notion of distinguishing between the two types of measures divides the rationale behind the evaluation of libraries and information service into two purposes: assuring users of service quality, and communicating economic and/or social value to funders (Brophy and Coulling, 1996).

Quality assessment is a judgement about information products and services within the organizations from which they are offered or delivered in relation to specified criteria (Brophy and Coulling, 1996). Quality judgements, therefore, are seen to refer to comparable measures for ease of benchmarking among library organizations (St. Clair, 1997). Common categories of measures that are generally used for judging the quality of libraries include input measures (e.g. amount of expenditure, numbers of facilities, workforce, etc.) process measures (e.g. time spent in internal operations, quantity of tasks/activities performed, etc.), and output measures (e.g. numbers of services, volumes of information resources, usage statistics, etc). Many lists of such measures have been devised and published in the form of agreed standards, handbooks, and toolkits (see, for example, the work by Van House et al., 1990;

Lancaster, 1993; Hernon and Altman, 1998; Jones et al., 2000; McClure and Bertot, 2001; Poll and Boekhorst, 2007).

Value measurement, on the other hand, is a stakeholder's overall assessment of the utility of information products and services based on perceptions of what is received and what is given (Brockman et al., 1997). The usefulness of services takes into account an intrinsic value/perceived benefits for individual users, and the cost-effectiveness of performing the services, which funding bodies want to know from their libraries. Such value is unique because of the uniqueness of stakeholders' experience (Saracevic and Kantor, 1997). It is unlikely that measures of value can be precise, quantifiable, and able to be replicated (Cram, 2000). As a result, several library scholars of value measurement have tended to propose general guidelines on the development of measures of value rather than provide any standardised metrics (see, for example, the work of Usherwood, 1999; Poll, 2003; Markless and Streatfield, 2006; Poll and Payne, 2006). Estimation of libraries' economic value (e.g. cost-benefit calculations, ROI figures, contingent valuation, etc.) and outcome/impact measures (e.g. levels of user satisfaction, responses to surveys about library use, etc.) are good examples of such measures that are commonly used to gauge the value of academic library and information services.

Regarding a separation of interest between quality and value, Brophy and Coulling (1996) argued that library managers could not isolate the one question ('How good is the service?') from the other ('How much good does it do?') in the real-life context of library performance evaluation. Balancing the use of measures of quality and measures of value is desirable to yield meaningful performance data for library management activities (Hiller and Self, 2004). Even though quality assurance systems still dominate assessment practices in the library sector as part of institutional performance measurements, there are many outcome/impact measures (including other novel indicators and scorecards) already imposed by parent organizations and these are incorporated into traditional measures of assuring service quality (Poll and Boekhorst, 2007). According to Bryson (2006), the quality of service has become one of the critical components in the value creation process to provide value-added information products for end-users. The next subsection discusses two mainstream frameworks for library evaluation — total quality management and strategic performance management — that combine the dimension of value with the quality environment.

2.2.5 Total quality and strategic performance

As noted by Cullen (1999) and Town (2000) in the 2nd Northumbria International Conference on Performance Measurement in Libraries and Information Services 1997, the best way to improve methods of library performance measurement in the future is to interpret statistics with a long-term view. If performance indicators are grounded in comprehensive frameworks for strategic performance measurements, the set of indicators will be more coherent than those created solely by observation. Additionally, the strategic frameworks help libraries become accustomed to a proactive role beyond a routine inspection. There are two main approaches currently adopted in academic libraries: Total Quality Management and the Balanced Scorecard.

Total Quality Management

TQM is a managerial philosophy inspired by W. Edwards Deming who is one of the pioneers of quality management in manufacturing industries. TQM specifies four principles that help organizations enhance their performance: customer orientation, continuous improvement, management by fact and human resources development (Wang, 2006). Today, TQM is flourishing in the private and public sector of European countries and the USA.

The European Foundation for Quality Management (EFQM), a membership based not for profit organisation established in 1988, has promoted the EFQM Excellence Model since 1991 as the prototype for assessing eight fundamental concepts of excellence which are important to sustainable advantage in business. Unlike conventional TQM, the EFQM adds three extra concepts – leadership and constancy of purpose, maintenance of partnership and corporate social responsibility – to underpin its model. To evaluate organizational excellence, each fundamental concept is judged by criteria relying on three maturity stages: start up, on the way and mature (EFQM, 2003). The following are examples of the EFQM Excellence Model implemented within the library context.

A two-year research project on self-assessment tools for quality management in UK public libraries in 2000 (Jones et al., 2000) produced the model of total quality systems named 'Library and Information Services Improvement Matrix' (LISIM) consisting of three core features. First, the LISIM is a broad outline of self-assessment. It does not elaborate on explicit methods; hence libraries can choose robust tool kits based on their own strategies. Second, its management principles concentrate on consistency of purpose, continuous improvement, benchmarking and management by fact. Third, this model centres on human factors – visible and visionary leadership, stakeholder consideration and employee development, involvement and satisfaction.

In Switzerland there are several case studies successfully applying the EFQM Excellence Model to assessment processes. Herget and Hierl (2007) affirm that these excellence projects assist Swiss libraries in taking a holistic approach to service management whether for performance measurements or strategic planning.

For an American approach, the National Institute of Standards and Technology's Baldrige National Quality Program (BNQP) promotes the Baldrige Education Criteria for Performance Excellence Framework so that higher education institutions may use it to conduct organizational self-assessments or apply to the BNQP for the Malcolm Baldrige National Quality Award. To build up a university profile based on a systems perspective, participating organizations assess seven categories and items by themselves (Baldrige National Quality Program, 2007):

1. Senior leadership, governance and social responsibilities;
2. Strategic planning and deployment;
3. Student and stakeholder relationships and market knowledge;
4. KM measurement and analysis;
5. Workforce engagement and environment;
6. Work process management; and
7. The outcomes of 1-6.

Harer and Cole (2005) adjusted the BNQP's 1999 Education Criteria for Performance Excellence to suit academic libraries' language, functions and processes. The results of this Delphi study show that the seven categories of the criteria can be employed to identify 82 performance measures assembled in 42 critical processes for assessing quality in academic library services and programmes. Two expert panels of the Delphi technique also concluded that the student, faculty and stakeholder focus (category 3) is the most useful concept in preparing evaluation methods for library effectiveness.

Balanced Scorecard

Kaplan and Norton (1996; 2001) introduced the BSC as a tool for performance measurements. It helps organizations translate strategies into performance indicators from four balanced perspectives:

- Finance: How do we look to shareholders?
- Customer: How do customers see us?
- Internal process: What must we excel at?
- Innovation and learning: Can we continue to improve and create value?

These questions permit the combination of financial metrics and non-financial measures to monitor the success rate for four dimensions. The results of assessments can be displayed on a scorecard or a graph to prove which strategic objectives reach the organization's targets.

Trying out the BSC in academic libraries commenced from 2000. Most initiatives are not ground-breaking because the four perspectives of the original BSC have been assumed to assign performance measures. Despite using the same tool, each library has its own aspirations for implementation. A review of existing literature reveals that there are at least four motivations behind decisions to set up BSC projects:

- To enable library administrators to formulate new strategies and action plans for strategic management (Pienaar and Penzhorn, 2000).
- To integrate indicators derived from various tools of management control, such as quality management, metrics for electronic services and cost analysis, into a fully comprehensive system of performance measurement that interrelates strategy, evaluation and action (Ceynowa, 2000; Poll, 2001).
- To improve service delivery by creating only critical measures of performance control; paying attention to other perspectives outside information resources and services; preventing the library from overlooking organizational goals; and learning important lessons from scorecards (Self, 2003).
- To harmonise the library's subsidiary scorecards with the university's BSC (Cribb, 2005).

The mission of library operations is to provide information products and services for users. It has been argued by Matthews (2006) that we should add a new perspective – information resources – to the Library Balanced Scorecard. A BSC project of the Carlsbad (California) City Library in USA has been experimenting with five perspectives as he suggested.

In a process of developing performance measures, the University of Virginia Library is a good illustration of how library personnel select the BSC metrics. The Library formed four task forces to analyse its strategic plan, translate vision statements into strategic objectives, recommend a few pilot measures and targets for the four BSC perspectives, and offer methods of data collection for each measure. After that all task forces put their propositions to the coordinating group for a final decision. Lastly, this group appointed the right staff for gathering data about organizational performance (Self, 2003).

In summary, library evaluation cannot happen independently of contexts. If changes arise it is necessary for libraries to develop new performance measures for monitoring their performance under new conditions if changes arise (Rowley, 2005). Academic libraries implement tools of service quality evaluation based on marketing

ideas when QA is the main concern of university administration. In the same way, outcome assessments have been increasing since stakeholders expect value for money as well as social impact from library and information services; economic valuation is thus adopted to generate measures beyond operational indicators. When libraries require holistic solutions to show their long-term values aligned with parent organizations' strategies, TQM principles and the BSC framework for measuring overall performance are considered for library strategic management. The emergence of knowledge-based organizations in the 21st century has been challenging academic libraries to manage their knowledge or intangibles as strategic assets. For this reason, new performance indicators are needed to evaluate these unseen resources before managing them properly.

2.3 Intellectual capital measurement

The intellectual capital field has been evolving since the 1990s when the knowledge-based economy occurred due to a boom in the professional service industry (Løwendahl, 2005). These modern companies, such as management consultancy and law firms, are heavily involved with employees' competence, network partners and client relationships based on information and knowledge (Gronroos, 2007). Many management consultants and economic experts have begun exploring the knowledge base hidden behind business practices and they urge organizations to attach a lot of importance to these invisible assets (Brennan and Connell, 2000; Petty and Guthrie, 2000; Kaufmann and Schneider, 2004).

2.3.1 Definitions

Intellectual capital has various names and meanings because the field concerns several disciplinary perspectives such as strategic management, accounting and human resources (Marr and Moustaghfir, 2005). The terms 'intellectual capital', 'intellectual assets', 'intangible assets', 'intangibles' and 'knowledge-based resources' are all found in the literature. However, these resources are largely called 'intellectual assets' by international organizations such as the United Nations

Economic Commission for Europe (UNECE) and the Organization for Economic Co-operation and Development (OECD). They mean knowledge-based items or manifestations of the existence of knowledge owned by the organization from which value can be extracted and used to increase organizational effectiveness in accordance with its strategy (UNECE, 2003).

Bukowitz and Williams (2000) asserts that intellectual assets are slightly different from 'intellectual capital'; describing practice in PricewaterhouseCoopers, they explain that the latter looks like 'raw knowledge' which is still not articulated and converted into intellectual assets. For instance, tacit knowledge belongs to each employee and may not serve any purpose of the organization. In other words, ownership and strategic alignment are two considerations if we contrast intellectual assets with intellectual capital. However, for simplicity, the above terms are used interchangeably in this study.

2.3.2 Characteristics

Intellectual assets have ambiguous qualities which are the opposite to those of general resources. It is impossible to rationalise them by the conventional concepts of fixed assets. Knowledge assets display three characteristics which relate to the organizational learning process. They are dynamic, organization-specific and beneficial to sustained competitive advantages.

"Knowledge assets are the inputs, outputs and moderating factors of the knowledge-creating process" (Nonaka et al., 2000: 20) whereas money, machines or raw materials are only defined as input into business operation systems. An example of knowledge assets is feedback from customers. It may be recorded on databases to help librarians have new ideas for generating an innovation in information products. After the customers receive the value-added service, they will make comments about the service once again. This structured feedback acts in relation to input and output, and as a stimulant to learning activities at the same time.

Another characteristic of organizational intellectual assets is that they are context-specific. They interlock with each firm's corporate strategy. It is for companies themselves to determine what intangibles are critical to their future benefits. They possess very individual knowledge assets although others in the same sector will generally have similar types of resources (Bontis et al., 1999).

The resource-based view (RBV) is a suitable approach to distinguish knowledge resources from tangible resources (Kaufmann and Schneider, 2004). According to the RBV perspective, an organization can boost sustained competitive advantage over others in the same domains or sectors if they possess strategic resources that their rivals lack (Barney, 1991; Meso and Smith, 2000). Intellectual assets become a kind of strategic resource because of four features: they are valuable, rare, inimitable and non-substitutable. Tangible assets such as budgets or premises can be easily acquired by competitors, but its knowledge base or intangible assets are regarded as good long-term investments to create value in products and services for stakeholders (Marr, 2005; Roos, 2005).

2.3.3 Classifications

It is commonly accepted that there are three components of such strategic resources. They comprise human resources, structural capital and relational capital. Human resources are collective capabilities derived from individuals in firms. They include capacities, experience, motivation and staff satisfaction. Structural capital is organizational competence in the forms of databases, technology, routines and culture. Finally, relational capital signifies networks formed by the organization with customers, suppliers, partners and stakeholders (OECD, 2006).

2.3.4 Motives for measuring intellectual assets

IC and KM specialists believe that the most important knowledge resides in employees', customers' or suppliers' brains. However, it is difficult to judge this tacit knowledge. An alternative path to knowledge evaluation is to measure surrogates for intellectual assets and disclose them annually. Business practices on

reporting intellectual capital started up in Scandinavian companies (Edvinsson and Malone, 1997; Sveiby, 1997). They have been gradually developed into theory, national requirements and international guidelines respectively (European Commission, 2006; OECD, 2006). Incentives for firms to measure intellectual assets are as follows:

- Raising awareness of organizational knowledge or collective memory;
- Supporting an appraisal of the organization's achievements in KM projects such as knowledge transformation and sharing;
- Using information on intellectual assets for internal purposes i.e. strategic planning, making a decision, operational control, work improvement; and
- Communicating the information to stakeholders to demonstrate the organization's wealth (Probst et al., 2000; Marr et al., 2003; Mouritsen et al., 2004b).

2.3.5 Measurement models

There are many methods of intellectual assets evaluation tailored to corporations and non-profit organizations. Some IC models have significantly similar constructs and indicators that are just labelled differently (Bontis, 2001). Evaluation models have begun with an extended balance sheet approach to show the economic value of knowledge resources, yet the scorecard methods tend to be the preferred approaches because they let organizations design 'fit-for-purpose' indicators for themselves (Roos, 2005). Therefore, this part of the review focuses on popular scorecard models applied in research, namely Kaplan and Norton's (1996; 2001; 2004) Balanced Scorecard and Strategy Map, Sveiby's (1997) Intangible Assets Monitor and the European Union's Guidelines for Managing and Reporting on Intangibles (MERITUM, 2002).

Balanced Scorecard and Strategy Map

Even though the BSC is not directly designed for evaluating intellectual assets, literature on intellectual capital always refers to the learning and growth perspective as the source of intellectual assets. Types of intangibles contained in this perspective are staff/strategic competencies, technology infrastructure/strategic technologies and climate for action (Marr and Spender, 2004; Ashton, 2007). The BSC still suggests a flexible process of measure development such that organizations get a chance to check and change performance measures when they have feedback from users of the indicators (Shulver et al., 2000). Nevertheless, the BSC does not give any templates for assigning performance indicators to measure intangible assets.

In 2004 the BSC was developed into a technique for strategic management called the Strategy Map. Kaplan and Norton (2004) fostered a complete description of the value creation process in companies by linking the four perspectives to financial success. The Strategy Map can show cause-and-effect factors which will drive strategic performance. An additional slant is to alter three key components of the learning and growth perspective: staff competencies, technology infrastructure and climate for action (Ashton, 2007). These are replaced with human capital, information capital and organization capital in the same way as the classifications of intellectual assets. The new explanation is similar to intellectual capital gurus' ideas that confirm the role of knowledge resources in organizations and an upward trend in intangible assessment (Marr and Adams, 2004).

Intangible Assets Monitor

Sveiby (1997) makes a practical contribution to intellectual assets measurements by offering the IAM as an accounting framework to measure three families of intangible assets: external structure, internal structure and individual competence. External structure represents intangible relationships with customers and suppliers. Explicit administrative tools and processes are classified into internal structure such as manuals, software and information systems. Meanwhile, individual competence means both professionals' expertise and supporting staff's skills.

According to Sveiby (1997), interpretations of data gained from measures are more difficult than the indicator selection process. Organizations should consider three measurement dimensions – growth and renewal, efficiency and stability – before choosing a few indices for each intangible family. This framework provides sample measures to help interested groups implement it. Importantly, the IAM scorecard should be produced on a single page to embrace information on intangible assets as a supplement to an annual report.

The IAM is appropriate for knowledge-intensive firms where business operations rely on individual competence (Jensen, 2003). In Sveiby's (2001) opinion, people-centred companies will create value through knowledge transfers which interact among external structure, internal structure and individual competence. These transfers are dynamic and thus organizations need knowledge strategies. His model has been moving from the resource-based view to the knowledge-based theory.

The European Union's Guidelines for Managing and Reporting on Intangibles

The Targeted Socio-Economic Research program of the European Union funded a research project, Measuring Intangibles to Understand and Improve Innovation Management (MERITUM), to develop *Guidelines for Managing and Reporting on Intangibles* (Intellectual Capital Report). The MERITUM *Guidelines* are the output of 80 case studies undertaken in six countries: Spain, France, Finland, Sweden, Denmark and Norway. The draft *Guidelines* also were validated by experts at the final phase of this project (MERITUM, 2002). Hence, the MERITUM project has credible evidence to underpin its conceptual framework (Palacios and Galva´n, 2007).

Based on the *Guidelines* (MERITUM, 2002), the contents of intellectual assets are categorised into human capital (the knowledge that employees take with them when they leave the firm which provides intellectual capital); structural capital (the knowledge that stays within the firm at the end of the working day); and relational capital (all resources linked to the external relationships of the firm, with customers, suppliers or R&D partners). Companies have to separate intangible resources from activities, then financial or non-financial indicators will be selected to measure both static and dynamic notions of intangibles. The *Guidelines* also provide examples of

intangible management systems as well as preparation for intellectual capital statements.

The MERITUM framework advises organizations to release a detailed report of knowledge resources. This narrative format should have three elements: vision of the firm, the summary of identified intangibles and the systems of indicators. Reporting the dynamic flows of knowledge assets goes beyond other scorecard methods which only illustrate a snapshot of valuation at a limited time (Marr and Spender, 2004).

With regard to their characteristics, intellectual assets presumably have an intangible quality to them like the intangible services, outcomes and objectives of academic libraries, so intangible assessments in profit-making organizations are quite similar to evaluation of social impact and strategic performance in library services. For instance, firms have gradually replaced economic valuation of intangibles with scorecard methods which allow them to state proxy indicators for interpreting the importance of knowledge resources in the achievement of the aims and objectives of the organization.

In summary, there is a growing interest in the research field of intellectual capital measurement in the private sector. Many business studies are based on the assumption that organizational knowledge will bring future benefits to companies even if it will be difficult to evaluate these non-physical resources (e.g. Hall, 1992; Roos and Roos, 1997; Bontis et al., 1999; Meso and Smith, 2000; Nonaka et al., 2000; Marr and Spender, 2004). This situation is not different from relevant literature about libraries' intellectual capital.

2.4 Previous library research relating to intellectual assets evaluation

This section reviews the empirical literature on intellectual assets to discover the status quo of intellectual assets evaluation in the library context and identify shortfalls in prior research for shaping up the research questions of this study.

When management educators review literature in the area of intellectual capital (Brennan and Connell, 2000; Petty and Guthrie, 2000), Roos et al.'s (1997) conceptual roots of intellectual capital are always mentioned to arrange published writings in two branches: strategy and measurement. Empirical studies on library

intellectual assets equally fall into both roots. As can be seen in Figure 2.2, the strategic root revolves around knowledge development and leverage in organizations because knowledge is a key part of intellectual assets. The measurement root concentrates on accounting for human resources and reporting organizational intellectual assets with scorecards.

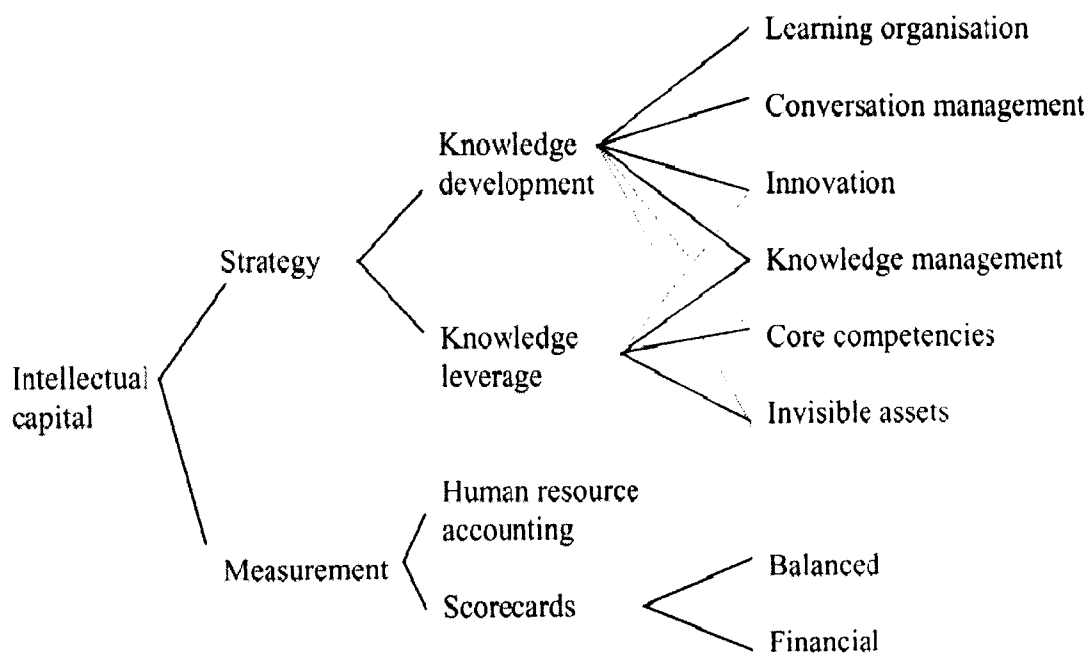

Figure 2.2 Conceptual roots of intellectual capital (Roos et al., 1997)

2.4.1 Knowledge development and leverage

IC strategy ranges over various topics such as KM, the learning organization (LO), and organization development (OD). The following are examples of academic library research into the first root.

Fowler (1998) conducted a case study to test the LO model of accelerating innovation at three levels of an American university library – individual, departmental and organizational. Staff's use of the Internet was chosen as the dependent variable to analyse the LO process in the study site. Data gained from interviews and questionnaires showed the effects of lifelong learning and team learning in an increase in Internet usage, so the first two levels of learning may bolster innovation in an academic library. For the third level, there were fewer relationships between shared vision in the workplace and innovation. Conversely, the

shared vision depended heavily on background variables, for instance professional reading and committee service.

Holloway (2004) interviewed twelve people who were responsible for OD applications to gather sample rationale, activities and trends in academic research libraries. One element of OD relating to organizational knowledge was to learn how to work collaboratively and across hierarchies. Due to diverse implementation, it was difficult to discover the big picture for the OD activities. A majority of interviewees answered that assessment or measurement of the intangibles such as impacts and outcomes of the OD applications was a very challenging task in accountability. The Balanced Scorecard tended to be the most interesting framework for monitoring performance success in organizational effectiveness.

Figueroa and Gonzalez (2006) undertook exploratory descriptive research in four Chilean faculty libraries to describe the KM processes, LO activities, and information management (IM) practices by combining documentary evidence with in-depth interviews. The results of their qualitative study revealed that the case libraries had been orienting themselves towards users in both service quality and the quality of information. Transforming information into knowledge was a crucial implication to build learning communities for university libraries but it was blurring the boundary between IM and KM.

The studies initiated by Fowler (1998), Holloway (2004) and Figueroa and Gonzalez (2006) indicate two research constraints on knowledge development and leverage in academic libraries: difficulty in shifting from staff learning to organizational learning and a contradiction between IM and KM. Wilson (2005) warns library and information professionals against making enquiry about the intellectual capital strategy. He remarks that information managers are always taught to handle the contents of information products, whereas organizational learning and KM involve people-related activities in collective communication such as communities of practices and knowledge sharing. These ideas are outside the control of IM. On the other hand, he prefers measuring intellectual assets to managing them because the measurement root seems to be the potential choice for demonstrating the true value of each organization.

Even though IC measurement is a desirable premise, it has not been widely applied in libraries. For instance, a survey by Pors et al. (2004) found that there were seven respondents from 411 Danish public library managers and 237 UK academic/special library managers replying that they had introduced intellectual capital accountancy as a management tool between 2001 and 2003. In the USA Davenport et al. (1998: 3) did a survey to classify 31 KM projects into four types of objectives: "to create knowledge repositories; to improve knowledge access; to enhance the knowledge environment; and to manage knowledge as an asset". As for the last objective of KM projects, it may be hard work for most librarians, who are familiar with tangible assessment, to measure and evaluate knowledge resources which are different from budget, library collections, or facilities (Townley, 2001). A few KM applications for libraries are linked to IC measurement to add value to information services (Gandhi, 2004). If we consider existing library studies on the measurement branch, it can be divided in to two sub-roots: human resource accounting and scorecards.

2.4.2 Human resource accounting

In the sub-root of human resource accounting, Dakers (1998) pioneered the people assets audit in the British Library because staff's skills are crucial to organizational resource allocation, workforce development plans and exploitation of these skills for improving library services. To account for the BL's talents, the BL Consultancy Services sent survey forms to 2,500 staff who were requested to fill in their formal qualifications, career history, experience and expertise. The search for consultants would produce a human resource information system as a tool for managing intellectual capital since valuable knowledge is embedded in people's brains.

After Dakers's (1998) project, human capital assessment in libraries has been evidenced by White's (2007c; 2007d) writings. The two-article set discusses possibilities and challenges in implementing job appraisals as an organizational performance measurement. The idea of starting human capital assessment may support libraries in their overall management decision making and planning processes for library staff development, recruitment and retention. However, it is not easy to audit human assets. During a period of developing a human capital valuation, library administrators have to cope with communicative barriers to the definition of

performance appraised; complexities surrounding organizational processes; a bias in favour of subjective evaluation; and an information gap between operational management and strategic alignment. As Wilson (2005) points out, auditing human assets for the whole organization is beyond information managers' control. Perhaps it is less helpful than the concept of self-development.

2.4.3 Scorecards

This sub-root has two facets: (a) measuring intellectual assets to estimate financial values just like intellectual property and (b) assessing both knowledge and intangibles in accordance with organizational goals.

Financial scorecards

Portugal (2000) researched into monetary calculation of knowledge resources in special libraries. He interviewed informants from 125 American companies in connection with intangible valuation of libraries and information centres. There were two findings of particular concern to this investigation. First, it seems feasible to estimate library intellectual assets. Four suggested methods consist of:

- ROI and cost benefit analysis. Focuses on benefits to the organisation overall, rather than to the individual, often isolated, user.
- Knowledge value added. Estimates the amount of embedded knowledge residing in or accruing to new products and services, then compares time investment to rank sub-processes in terms of their costs.
- Intranet team forums. Tracks information flow of new products and services by monitoring discussions and individual information streams, loci and topics using specialised software. The value of the latest innovations in products and services can be compared to the costs and the usage of the information which produced them.
- Intellectual capital valuation. Measures growth in and benefit of intellectual assets by monitoring five different perspectives: customer; process; development; human; and financial (Portugal, 2000: x-xiii).

Secondly, only two firms evaluated the intangible value of their libraries and information centres with return-on-investment and cost-benefit analysis. This hints economical valuation is not a popular method – even in the private sector. Therefore, financial scorecards may not be suitable for academic libraries as non-profit organizations.

Balanced scorecards

From the public sector perspective, it is generally agreed that the balanced scorecard methods can help public service organizations recognise their own intangible assets by means of performance indicators. Those performance indicators will show the social value of public services derived from organizational intellectual assets instead of market value. "Such accounting concepts as profit from operations, working capital, trade names, or goodwill either have no meaning or mean different things in the public sector" (Cinca et al., 2003: 254).

Some academics argue that the balanced scorecard methods do not reflect a dynamic transformation of information into knowledge (Orna, 2005) and they only yield a static snapshot of knowledge resources (Nonaka et al., 2000), yet library and information professionals seem to be familiar with these methods. Empirical library research on strategy-based scorecards for evaluating intellectual assets/capital or innovation always relies on two methods: Kaplan and Norton's (1996; 2001) learning and growth/potentials perspective of the BSC and Sveiby's (1997) IAM. It is precisely the same as White's (2004) recommendation after conducting a case study of knowledge management in Oxford University Library Services that the BSC and/or the IAM designed to aid strategic performance measurement can be adopted for assessing progress in intellectual asset development for libraries. The intangible dimension of the BSC and/or the IAM has been the subject of empirical studies by Franklin (2003), Van Deventer (2002), Cribb (2005) and Mundt (2007).

Franklin (2003) published The University of Connecticut Libraries' experience with organizational assessments in 1999 and 2002. In this case study the learning and growth perspective overlapped with appropriate organizational structure and process in terms of organizational effectiveness. To assess the desired effects upon the restructuring from four divisions to seven functional areas, the Organizational

Review Project Team (ORPT) was formed by the library directors to develop 18 statements of achievement for the library-wide reorganization and 15 qualitative measures used for justifying the new functional areas. Methodologically, the ORPT surveyed the attitudes of all staff members with five-point Likert scale questionnaires (strongly disagree to strongly agree), and afterwards average scores of each performance measure were calculated to show how well the Libraries and the functional areas were doing. The classical BSC (Kaplan and Norton, 1996; 2001), which had not yet evolved into the Strategy Map (Kaplan and Norton, 2004) as a guide to aligning intangible assets, formed the basis of the case study of The University of Connecticut Libraries. However, there is no doubt that their surrogate measures were concerned more with organizational performance than knowledge resources.

Van Deventer (2002) carried out an 18-month action research project to put intellectual capital (IC) management into practice within the context of South African information support services. Not only was the BSC used to translate the institutional strategy into measurable objectives, Sveiby's (2001) knowledge transfers strategy was also modified to set up small initiatives under an umbrella project of IC applications. At the end of this inquiry, the case site could produce its 43-page IC report on four components – human, structural, customer and financial capital – to communicate best practice in developing each type of capital. IC management is appropriate for the chosen service environment; however, her IC report tends to be a very detailed description which measured all success in many IC development activities. She admitted disclosures of fewer critical activities would be a better way when intangible assessment is implemented during the initial stage. According to Pierce and Snyder (2003), the results of intangible assets evaluation should be represented in a simple and concise explanation by selecting only one or two performance indicators for each category of intangible assets.

The broad concept of the BSC, combined with the IAM, may not be a single path to assess actions or activities relating to intellectual assets in libraries. An additional path is to explore the learning and growth/potentials perspective of the BSC more fully to assign specific proxy indicators for evaluating intangibles or innovations as Marr and Spender (2004: 21) observe that this perspective 'would be the natural home for indicators measuring knowledge-based assets'.

Cribb (2005) reported the workforce development scheme in Bond University Library, Australia. Kaplan and Norton's (2004) newly explained perspective of learning and growth was employed to generate goals and measures based on three types of intangible assets: human capital, information capital and organizational capital. The Library believed that it could improve library services and create value for the University's stakeholders if it possessed the highest quality staff and had a culture of innovation and creativity. On this basis, 12 measures were proposed by the Planning Review Team as mechanisms for monitoring library activities in human resource development, for instance, the percentage of library budget spent on staff development and the number of new products and services. The Library reviewed the amount of evidence every year in accordance with its scorecards. A staff perception survey was also undertaken every two years to evaluate the cultural readiness of the staff.

At the 7th Northumbria International Conference 2007, Mundt (2007) presented a framework tested in Stuttgart Media University, Germany, for measuring innovation in library and information services. In this framework innovations were defined as new products, improved processes and added-value services. To measure the success in innovation projects, the BSC potentials (learning and growth) perspective was selected to design operational indicators such as input, processes and results. There were three maturity phases in the evaluation criteria: creativity, development and marketing. Examples of project-based indicators included project expenditure; number of research and development (R&D) staff members per year (per innovation project); and adherence to time schedule. Some institutional-based indicators were also suggested to assess how innovative a library is:

- Library staff with R&D tasks as a percentage of total library staff
- Expenditure on R&D as a percentage of staff costs
- Refereed articles and conference papers per member of R&D staff

The recent study by Mundt (2007) links directly to organizational intellectual assets of academic libraries because it tries to measure innovation and investment in R&D which are two significant IC elements.

2.5 Gaps in the empirical literature

Performance indicator development for intellectual assets in academic libraries deals with the balanced scorecard methods. Earlier literature in this root provides a good starting point for understanding the intangible side of library resources and furthermore previous implementation of intangible assessments shows that library managers gradually realise the roles of strategic resources, though some practitioners do not mention whether they are measuring intellectual assets.

Best practices in developing performance indicators with the BSC learning and growth perspective are certainly welcomed, but there should be many more theoretical accounts explaining why these indicators are chosen. Along with the analytical review of empirical studies, more research needs to be conducted by library and information professionals to fill three gaps in the topic of intellectual capital measurement for academic libraries arising from: narrow interpretation of strategic resources, the lack of some significant processes steps in implementation and the need to explore cultural difference in intangible assessment.

First, it would appear that self-interest and a lack of dedication to achieving a real balance may lead to insufficient evaluation in terms of the range of resources covered. In several inquiries about intangible measures some aspects of the learning and growth perspective receive more attention than others. In other words, three classifications of intellectual assets – structural, human and relational assets – have been investigated separately in academic libraries. For example, The University of Connecticut Libraries has been assessing structural assets, namely organizational structure and process (Franklin, 2003) while Bond University Library has been monitoring human assets, thought as its mechanism for human resource development (Cribb, 2005).

Second, prior attempts at measuring strategic resources in academic libraries respond to the BSC as the measurement method, but fail to provide holistic solutions in terms of the process described. In the research frameworks used for evaluating intellectual assets in the commercial sector, the issues are often addressed step-by-step (Johanson et al., 1999; Wilson et al., 2000; MERITUM, 2002):

1. Identifying intellectual assets in organizations
2. Outlining the reasons for reporting intellectual assets
3. Choosing methods and tools for intangible assessment to fit organizations' requirements or purposes
4. Deciding the reporting pattern for information on intellectual assets

When compared with the issues set out above, library research on IC measurement only emphasizes the third issue. For instance, Van Deventer (2002) posed eight research questions in her thesis ranging from knowledge economy management philosophies to the impact of having introduced intellectual capital management within the information support service environment. Half of her questions related to tools and techniques for measuring growth in intangible assets (the third issue). The three remaining issues were not extensively investigated. When we examine the meanings of intellectual assets as defined by library experts at the outset and try to understand the reasons why academic libraries should evaluate their knowledge resources, our research will certainly contribute to the cross-disciplinary field of intellectual capital measurement. As Marr and Chatzkel (2004) maintain, a good definition, outside the management discipline, of what is IC is very important to an improvement in communication between researchers and owners of intellectual assets. In addition, it will be easier for choosing the right tools and techniques if we can specify the motivation behind the decision to start intangible assessments (Jensen, 2003).

Third, empirical studies on IC measurement in libraries have been undertaken in the UK (Dakers, 1998), USA (Portugal, 2000; Franklin, 2003), South Africa (Van Deventer, 2002), Australia (Cribb, 2005) and Germany (Mundt, 2007). Despite the significant research interest in this area internationally, scant attention has been paid to intellectual assets reporting by libraries in South East Asia. A review of the relevant literature yielded only a Singaporean based survey of Nanyang Technological University's Library that assessed whether the Library was a learning organization (Michael and Higgins, 2002). It should be noted that even though we can learn lessons from developed countries, "different countries implement management tools and approaches in different ways" (Pors et al., 2004: 26). To date not enough effort has been made by other South East Asian libraries to investigate

intangible assessment within the context of their own national culture and other unique features. The investigator of this multiple-case research chose Thailand, one of the South East Asian nations, to conduct his doctoral investigation in the geographical context of university libraries in a developing country.

The present study thus fills these gaps and advances past literature by identifying organizational intellectual assets apparent in Thai academic libraries' strategic plans; investigating a process model of indicator development; establishing evaluation criteria; designing performance indicators by gathering data from library staff; and evaluating library intellectual assets with the indicators and criteria.

Using a holistic approach, the descriptive case study therefore sets out all critical strategic resources possessed by the typical cases and how to assess them effectively. Not only did the study aim to gain a greater understanding of strategic resources expressed in terms used by Thai library and information professionals, it also anticipated that theoretical propositions generated from the case findings would make a significant contribution to the theory of library performance measurement that probably was interpreted from the IC perspective within the South East Asian environment of academic libraries.

2.6 Initial conceptual base for the study

This section integrates the information from all the literature review into an initial conceptual base for the study. This conceptual base explains the focus areas of the study and guides the fieldwork tasks — collecting empirical data, analysing case evidence, and structuring case study reports — for the pilot investigation (see Chapter 4). The section discusses the four theoretical constructs which are shaped by *a priori* theory and previous research. These constructs include the identification of library intellectual assets, the classification scheme for library intellectual assets, and the intangible assessment framework, and the process of performance indicator development for evaluating library intellectual assets.

The conceptual base of performance indicator development was devised from the extensive review of relevant literature to answer the four research questions of this investigation (see Chapter 1, Section 1.6). Conducting a feasibility study in the pilot

case inquiry tested the compatibility of this initial conceptual base with the research context. It had four main constructs underpinning a line of inquiry.

2.6.1 Identification of intellectual assets in libraries

This construct is a prerequisite for designing performance indicators of intellectual assets. It provides an emerging picture of how knowledge resources are aligned with strategies; and how they are identified with existing approaches of management (MERITUM, 2002; Roberts, 2003; Thorleifsdottir and Claessen, 2006).

Analysis of how the library's organizational knowledge is mentioned in corporate and operational strategies becomes a starting point for recognising the importance of relating to value creation through information services for stakeholders. This enables us to understand strategic objectives, critical intangibles and collective efforts to create or increase knowledge resources (Sanchez et al., 2000). In essence, the end result of this determination can be expressed in various value-creation logics such as conventional value chains, quality/customer oriented chains (Ashton, 2007) and Strategy Maps (Kaplan and Norton, 2004). It depends on the core processes of library operations as well as the steering tools or management approaches that academic libraries select to execute organizational performance measurement. Examples of management approaches generally found in libraries are quality management and the BSC (Rowley, 2005).

After drawing the value creation logics connected with intellectual assets, the next task is to compare components of organizational steering models for performance assessment that already exist within the libraries with components of intangibles based on the intellectual capital perspective. This baseline mapping ensures that the investigator can supplement a new set of intellectual indicators with current performance measures. As Wang (2006: 616) points out "there are very few cases of implementing intellectual capital in the library as a single management tool, but the concept is often applied along with other solutions, e.g. TQM and balanced scorecard." Moreover, the mapping structure helps identify the relevant language of business to avoid confusion. For instance, either 'skills' or 'know-how' may be an

appropriate term to use in communication between the researcher and the participants when we want to probe deep into human capital (Marr, 2005).

2.6.2 Classification of library intellectual assets

Many academics and practitioners in the library and information field classify knowledge resources into a few groups with a strategic management and strategic accounting lens. Kaplan and Norton's (1996; 2004) BSC Strategy Map is their popular reference point. Another approach is the Dynamic Intangible Assets Monitor (IAM) which uses accounting theory for disclosing stocks of intangible assets parallel to tangible assets (Sveiby, 1997). Libraries, like other organizations, seem to have three categorizations of intellectual assets: human assets, structural assets, and relationship assets (Pierce and Snyder, 2003; Iivonen and Huotari, 2007).

- Human assets include expertise, core competencies and learning.
- Structural assets embrace a diverse range of library management systems and processes, such as organizational structure, management information and work processes.
- Relationship assets include customer relationships, reputation and image.

It is possible to follow the above classification to develop a set of indicators for taking account of, measuring, and evaluating intellectual assets in academic libraries, as it represents a general convergence of IC categories that are commonly accepted in national guidelines and in academic papers on IC reporting (MERITUM, 2002; OECD, 2006). Nonetheless, Kostagiolas and Asonitis (2009) categorised a range of library intangibles into three accepted dimensions of capital (human, structural, and relational), but remarked that academic libraries should not limit the identification and classification of their intellectual assets to these three distinct asset categories. They suggested that a better way of exploring library intangibles is to modify the conceptual scope of intellectual assets so that it suits the particular needs of each library, such as organizational cultures, expectations, quality criteria of products and services, user satisfaction, etc. This modification enables library administrators to examine how their workplace's intellectual assets can create added value for users

and design intangible indicators which are aligned with their own priorities for intellectual performance.

2.6.3 Intangible assessment framework

Motives for intangible assessment in academic libraries

Contemporary academic libraries have to communicate their strategic impact to universities by maximising appreciation of library roles. Intellectual assets measurement is a potential tool that higher education libraries can initiate as part of knowledge management projects within larger systems (Huotari and Iivonen, 2005). White (2007b) points out the benefits of intangible assessment, in that it helps libraries:

- expand the scope of traditional evaluation towards a library's worth;
- align library management's ability with the parent organization's intellectual capital strategy;
- utilise information on intellectual assets to make decisions about the maintenance and improvement of organizational knowledge.

Measurement viewpoints

Libraries establish measurement systems to track their accomplishment in specific contexts. Crucial aspects of performance must be specified as measures to express the relationship between a quantitative statement and an indication of performance (King Research, 1990). Each aspect is a part of library strategy, structure and operations. The expression of measurement reflects the library's viewpoints and external perspectives of executives and users (Nicholson, 2004). Input, process, and output are general types of measures used to track library performance.

Evaluation criteria

After identifying measures, evaluation criteria have to be selected to judge library performance in terms of which intellectual components should be finally improved or enhanced. Traditional criteria of process-focused libraries consist of efficiency, effectiveness, cost-effectiveness, cost-benefit, relevance, quality and benefits

(Nicholson, 2004: 176). Meanwhile, knowledge-based organizations add other criteria such as growth/renewal and stability (Pierce and Snyder, 2003).

2.6.4 Indicator development process

There are three main steps in indicator development with the scorecard process model. The organization must first link stakeholders' expectations to key success factors (KSFs) relying on components of intellectual assets. It must then build performance indicators based on these key success factors to describe qualitative targets for knowledge resources. After that each prospective indicator needs to be translated into measures for quantifying intangible stocks and learning activities (Probst et al., 2000; Rylander et al., 2000; Roos, 2003).

Intellectual assets, especially implicit knowledge, cannot be measured or their absolute values found out directly (Caddy, 2000). Therefore performance indicators would be developed to measure library initiatives, effects, activities, and resources relating to organizational intellectual assets – in other words, a set of performance indicators contains derived or proxy measures. The ultimate target is to check characteristics of indicators to gain common acceptance in practice (Danish Ministry of Science Technology and Innovation, 2003).

Summary

In conclusion, this chapter has articulated some frames of reference emerging from the literature on library evaluation and intellectual capital measurement. They are helpful in understanding some of the key concepts in intellectual assets evaluation. These concepts help in addressing unresolved issues in prior studies which have been formed into the research questions and the conceptual base of indicator development, respectively. The next chapter introduces the research methodology used in this study to obtain the data to answer the research questions and also link the evidence support the blueprint for developing performance indicators.

CHAPTER 3
METHODOLOGY

This chapter examines the case study strategy as an appropriate research methodology used in this study to illuminate its central question about the possibility of developing intellectual performance indicators in the context of Thai academic libraries. The case study methodology provided a foundation for the multiple-case design chosen for this investigation and enabled the investigator to explore the case libraries' intellectual assets, explain the mainspring of their interest in intangible assessments, expound on a suitable process of designing performance indicators for evaluating library intellectual assets, and describe a set of important indicators which were understandable to the potential users of indicators in the case libraries. The chapter is organized into seven sections: justification for choosing the case study methodology, the research design for conducting this study, multiple methods of data collection, data analysis techniques, quality control of case findings, limitations of the case study approach, and ethical considerations.

3.1 Justification of the methodology

The purpose of this section is to justify the choice of methodology as a suitable methodological strategy that underpins the investigator's research design and the methods used over the course of studying his research topic: the development of performance indicators for evaluating intellectual assets of Thai academic libraries.

It seems appropriate at this juncture to clarify the distinction between the two terms — research methodology and methods — before the investigator proceeds to discuss the process of his research project in the subsequent sections. Research methodology can be defined here as a philosophical reflection upon a strategy or approach about which particular methods are appropriate for gathering empirical evidence and a fundamental consideration of the applicability and advantage of employing particular methods that are more amenable to making inquiries into specific kinds of subject matter such as people, organizations and social events

(Creswell, 2009). Some examples of methodological strategies commonly used in LIS research are the survey, experiment, case study, bibliometric analysis, action research, grounded theory, and historical research (Hider and Pymm, 2008). On the other hand, research methods refer to specific techniques for systematically collecting both quantitative and qualitative data in research sites as well as procedures for analysing such data related to research questions or hypotheses (Crotty, 1998). Researchers select different varieties of research methods, i.e. data collection techniques and data analysis procedures, that are compatible with their chosen methodologies. These methods can be used with more than one research methodology. Research methods frequently used by LIS researchers include the questionnaire, interview, observation, and statistical analysis (Powell and Connaway, 2004).

After distinguishing the difference between 'methodology' and 'research methods', the three critical decisions that the investigator of this research project made in designing his empirical study are stated expressly. They are the decisions on the philosophical research paradigm, the approach to reasoning from research data, and the methodology adopted in this study.

3.1.1 Philosophical research paradigm

A research paradigm is a basic set of beliefs or philosophical assumptions that influences researchers to determine the way they respond to three fundamental questions (Guba, 1990: 18):

(1) Ontology: What is the nature of reality or the 'knowable'?

(2) Epistemology: What is the nature of the relationship between the knower (inquirer) and the known (or knowable)?

(3) Methodology: How should the inquirer go about finding out knowledge?

The answers given to these questions are paradigms which guide the entire procedures of academic inquiries. It is likely that researchers working in the same field of interest share similar paradigmatic positions even though each of them may have different views of ontological, epistemological and methodological foundations (Maxwell, 2005). Most philosophical foundations underpinning LIS research are dominated by those of social science (Hjørland, 2000; Wilson, 2003).

Paradigms for librarianship and information studies research

According to Burke (2007), there are four alternative paradigms of social science that LIS researchers can apply in designing and conducting their empirical studies: positivism, post-positivism, critical theory, and interpretivism. The ontological, epistemological and methodological bases of these paradigms are summarised in Table 3.1.

Positivist thinkers believe in a single reality. They gather unbiased data with instruments objectively by separating themselves from the events they are studying. Their investigation process begins with hypothesis formulation and finishes with theory verification. Large numbers of research populations are important for them to predict or explain particular actions and therefore quantitative data will be analysed for statistical representations (Pickard, 2007). The positivist epistemology (i.e. testing theories against observable facts without a researcher's intervention) and its associated research methods (e.g. survey and experiment) has been claimed as one of the mainstream paradigms in social sciences and LIS (Van House, 1991).

The post-positivistic paradigm is an evolved form of positivism. Post-positivists modify the belief in non-intervention of researchers by recognising a possible social involvement for both researchers and participants to gain knowledge that is more relevant and subjective. Nonetheless, they agree with the positivist tradition that there would seem to be some certain truth existing in a social world where they can describe characteristics, explain patterns, predict trends and then understand reality with certainty based on probable evidence. Such a world view of post-positivism is called 'critical realism'. Post-positivists use multiple methods of data collection and analysis to formulate research results that meet conventional criteria of reliability

and validity employed to judge positivist research (Guba, 1990; Guba and Lincoln, 2005; Pickard, 2007).

Critical theory is a school of thought about making an effort to join empirical investigations, tasks of interpretations, and a critique of social reality. Critical theorists claim that knowledge is socially constructed, contextual, and dependent on interpretation. They stress the necessity of understanding complex systems of contexts and interpreting of subjective meanings — values, situations, relations, events, ideas, social practices and processes — that reflect the nature of the surrounding social environment and its historical contexts. A common research approach employed for critical research is triangulation that combines different methods ranging from document analysis and interviews to recording observations on fieldnotes and interpretation of material artefacts (Kincheloe and McLaren, 2005; Burke, 2007).

Interpretive researchers assume that there are multiple realities of a social world. They are interested in studying the process of events or activities in a particular organizational and cultural setting. Interpretivists recommend that researchers can use themselves as a primary instrument of inquiry when entering into field sites. This method enables the researchers not only to observe contexts in which events occur, but also to collect subjective evidence such as people's behaviours, actions, and feelings. Interpretivism places emphasis on theory building that is grounded in individual participants' experiences. Some research methods and techniques are closely related to this philosophical assumption such as qualitative case study, narrative analysis and action research (Mellon, 1990; Gorman and Clayton, 2005).

Paradigms	**Ontology** (Nature of reality)	**Epistemology** (What can be known; relationship of researcher and research subjects)	**Methodology** (How knowledge is gained)	**Products** (Forms of knowledge produced)
Positivist	Reality is out there to be studied, observed and understood	How the world is really ordered; research findings are true; a researcher is isolated from research subjects	Experiments, surveys, verification of hypotheses, inferential statistics	Facts, theories, laws, predictions
Post-positivist/Critical realist	Reality exists but is never completely known, only approximated	Approximations of reality; research findings may probably be true; a researcher can be seen as one of the data collection instruments	Frequency counts, descriptive statistics, qualitative methods can be included	Generalisations, case study reports, descriptions, patterns
Critical theory	Virtual reality is shaped by social, political, cultural, economic, ethnic, and gender values	Subjectivity in knowledge; researchers' viewpoints frame the inquiry	Discourse/dialogue analysis and dialectical methods	Value-mediated critiques that challenge existing social hierarchies
Interpretivist	Multiple realities are constructed	Knowledge formation is a process of human interaction; a researcher and participants collaborate in building conceptual understandings	Qualitative and dialectical methods	Case narratives, interpretations, grounded theory

Table 3.1 Alternative inquiry paradigms for LIS research (adapted from Hatch, 2002: 13; Guba and Lincoln, 2005: 93)

Paradigms for library evaluation research

The ontological and epistemological underpinnings are implicit, rather than explicitly mentioned, in many previous studies on the development of performance indicators/measures for evaluating intangible aspects (e.g. effectiveness, quality, and impact) of academic libraries. However, the purposes and methodological approaches used in these past studies imply that the research issue, intangible indicator development, can be researched within two philosophical assumptions: the positivist and post-positivist (i.e. critical realistic) paradigms. It should be noted that the prevailing investigations into library performance measurement or evaluation of most library scholars are mainly influenced by management research and theories of organizational performance measurement (Brophy, 2005). Library evaluation experts, like management researchers in the similar area of expertise, have been trying to establish legitimacy within the broader scientific community. The positivist and post-positivist/critical realist are their paradigmatic preferences because they believe that reporting on organizational performance has to provide a neutral representation of real operations and activities. Quantitative data about inputs, processes, and outputs of organizations may be translated into performance information. For this reason, these researchers can be considered to follow a paradigm of realism rather than others such as interpretivist and critical theory (Norreklit et al., 2007).

In the positivist tradition, past studies of performance indicators for academic libraries concentrate on developing agreed indicators or standardised measures to "judge all academic libraries by the same yardstick" (Brophy, 2005: 186). Such 'one-size-fits-all' indicators are based on a need for robust and rigorous evaluative tools. Library evaluation researchers adopting this paradigm would design a possible list of indicators with reference to relevant LIS literature and academic work in other fields; use an instrumental approach (survey methods) by asking a random selection of LIS experts or library stakeholders to determine and rank the designed indicators in terms of importance, feasibility, and usefulness; and generalise the survey respondents' high-ranking indicators to a standard set of instruments for evaluating library performance. Indicators and models for evaluation of library services and operations that emerge from the positivist paradigm and instrumental approach are labelled as 'deterministic evaluation' tools (Budd, 2001).

Indicator development research in the post-positivist/critical realist paradigm, on the other hand, is focused on the importance of understanding library contexts and indicator users' needs to design meaningful performance indicators/measures that suit each library organization (Cullen, 1999; Brophy, 2006). A set of performance indicators developed in a particular setting is obviously first introduced in the setting in which it is developed — it is judged by people in the research sites on the basis of whether it makes sense to them. A consensus on the same set of indicators is reached by testing it in other academic libraries. For instance, Cotta-Schonberg and Line (1994: 55) expressed a basic assumption of the post-positivist perspective in their pilot project conducted at the Copenhagen Business School Library:

> Libraries in some countries have evidently tried to agree a total set of indicators before starting to apply any of them. Meanwhile, many individual libraries have instituted their own measures, which are unlikely to be totally consistent with those used by other libraries. It seems much better to approach the matter empirically, starting with a set of measures, testing them in one or more libraries, and then seeking agreement between libraries of the same type. In this way a standard set of measures may be established and applied throughout the country.

From this perspective, critical realist researchers prefer to develop indicators as local scales but their overall goals are still similar to those of the positivists, namely the search for a single national instrument of library performance.

Table 3.2 provides some examples of the LIS literature on intangible indicator development that fall into the two stances mentioned above — positivism and realism. There are strengths and weaknesses in both stances. Indicators that emerge from the positivistic view are generally collected rigorously, scrutinized by experts, and gauged for consistency using statistical tools. However, this sort of paradigmatic stance often overlooks the larger social context in which academic libraries are operating (Van House, 1995). Indicators developed from the post-positivist realism tend to be linked to the contextual differences across academic libraries and are derived by systematically understanding the perceptions and expectations of library stakeholders, such as their parent organizations and library users. This not only

provides a good source of indicators for internal control by library management, but also offers prospects for enhancing the external use of libraries' evaluation data as an effective communication tool. However, there is a limitation that indicators developed from this standpoint alone may not have the full potential to accurately or reliably benchmark library performance against external standards for library and information work (Van House, 1995).

Paradigmatic position for this study

There are two primary concerns which shape the research paradigm chosen by the researcher for this study: the main objective and the nature of the study. This investigation's main objective is to apply the IC theory of management science and intangible assessment principles originated in private sector organizations to a new setting, i.e. Thai academic libraries. The development of intellectual performance indicators for academic libraries (a surrogate for reality to be studied and understood) may be similar to or different from the indicator development process of private sector organizations. Such surrogate reality is not static and it depends on the indicator users' perceptions of the libraries where ideas about intangible assessment are introduced.

Even though this investigation specifically focuses on academic libraries' strategic resources and collective actions with reference to the IC perspective, its investigative nature, like other conventional studies on library performance measurement, is about the evaluation of library operations and services through the use of performance indicators/measures. Library performance indicators can be thought of as an instrument or supporting tool which will be of use to information unit managers for their library organizations' overall performance improvement, library planning and decision making, process management control of information resource provision and service delivery, and reporting performance data to stakeholders (Abbott, 1994; Hiller and Self, 2004). These instrumental purposes of performance indicators lead many researchers in this field, including the investigator of this study, to attempts at simplifying the complexity of performances and activities and quantifying what to evaluate (e.g. effectiveness, quality and intangibles) in different forms of proxy indicators; for instance, qualitative statements, quantitative measures, and indicators designed in question format (Brophy, 2006). As Norreklit et al. (2007) indicate the

function of organizational performance evaluation is to produce performance information that tends to be tangible, rigid and fact-based. In addition to making the element of intellectual assets selected for evaluation visible, another nature of this investigation involves another distinctive feature of intellectual assets evaluation, which is that they are context-specific. There is no a comprehensive list of intellectual performance indicators that will suit every type of organization. "Different tools will be useful to different companies [organizations] in different situations" (Bontis et al., 1999: 393). In discussion of the distinctive nature of intangible assessment in library settings, White (2007b: 81) states:

> As each organization has inherently different intangibles it uses to create and deliver information services, staff with differing knowledge and information resources, and customers and stakeholders of each library requiring uniquely different tangible and intangible strategic responses and impacts, there should be no surprise in the fact that no "one size fits all" in intangible assessments....

The main objective (applying the conception of IC reporting in a new settings) and nature of this study (looking for measurable characteristics of intangibles to develop proxy indicators or indirect measures in the tradition of accounting performance measurement, and trying to understand the library context in which indicators of intellectual assets are developed) are the primary factors that influenced the investigator to choose the post-positivist/critical realist standpoint as an appropriate research paradigm for this investigation.

The paradigmatic position that the investigator takes here — one that is indirectly supported by some LIS academics (for example, Cotta-Schonberg and Line, 1994; Van House, 1995; Pritchard, 1996; Brophy, 2007) — is that the objects of evaluation, including intellectual assets and activities, incorporate the expectations of multiple constituencies in and around academic libraries which have an interest in their performance. It is unrealistic to design a single set of objective indicators (i.e. positivists' generalised, universalised view of reality) for information service organizations where their missions, goals and workplace contexts vary from library to library. As the focus of library evaluation research shifts from the uniformity to

Examples of LIS research	**Brief description**
Positivist	*One- size-fits-all, expert-led indicators*
Van House et al.(1990)	Builds on a systematic (input-process-output) model to develop a set of well-tested, practical output measures that all kinds and sizes of American academic libraries can use to evaluate their services to users.
SCONUL (1992)	Identifies numerical indicators of university libraries' performance in the UK. All indicators, based on local statistical studies, can be employed to measure effectiveness, efficiency, cost-effectiveness, and productivity.
Cullen and Calvert (1995)	Develops key performance indicators for measuring academic library effectiveness perceived by six stakeholder groups. This New Zealand university libraries study adopts the constituency satisfaction model which is derived from organizations in the public sector.
Poll et al.(1996)	Suggests 16 user-oriented indicators for academic libraries of all types to measure efficiency, service quality, user satisfaction, and cost-effectiveness. Each indicator presented in the international guidelines has a definition and describes methods showing how performance data will be collected.
Hernon and Altman (1998)	Provides specific, practical instruments that may be chosen to measure service quality and customer satisfaction. Their assessment procedures are designed for academic and public libraries, but they can be applicable to other settings.
Post-positivist/Critical realist	*Local determination, library-selected indicators*
Cotta-Schonberg and Line (1994)	Develops both quantitative and non-quantitative indicators of resource allocation, resource utilisation, quality, efficiency, market penetration, and productivity. The authors undertook a pilot evaluation in a small academic library to test the usefulness of their proposed indicators.
Cook et al.(2002)	Experiments with locally-developed measures for assessing the delivery of library service quality in the actual contexts of the member libraries' assessment practices. Such experiments are seen as an ongoing learning process for improving the measures that best fit the local situation and moving into the implementation of the LibQUAL+^{TM} assessment protocol at the national level.
Cullen (2006)	Develops a new instrument to evaluate an academic library's culture of assessment through a series of focus groups and test the validity and consistency of the instrument in six university libraries. A modified version of this instrument was further piloted in a larger sample of libraries to test its full validation.
Markless and Streatfield (2006); Poll and Payne (2006)	Sets up a general process model for developing performance and impact indicators to test and adapt it in academic library settings. Participating libraries could choose areas in which they wished to assess their impact, and generate impact indicators by themselves. They were required to share the experience and compare the in-house indicators with others to develop sector-wide impact measures in the end.

Table 3.2 Two paradigms in research on academic library indicator development

the specificity of indicators developed from local determination of library needs and tested in real-life situations, the post-positivist/critical realist paradigm is increasingly accepted in this field of research.

Taking the post-positivist/critical realist position begins with the ontological root that there is an objective reality that we can approximate and represent as best we can. However, we should realise that theoretical preconceptions, background knowledge, the values of a researcher, and other elements of subjectivity in inquiry processes can influence what is studied and shape the reality we try to explain (the epistemological assumption of this paradigm). This research paradigm allows research participants to get involved with researchers' knowledge-generating activities. It loosens a certain number of constraints considered to be problematic in the positivist paradigm: less rigour for more relevance; less precision for more richness; less elegance for more applicability and more subjectivity; and less verification for more discoveries (Lincoln and Guba, 1985; Guba, 1990).

With the post-positivist/critical realist paradigm in mind, the investigator of this study agrees that the nature of the phenomena being studied should not be limited to performance indicators alone, but it is essential to understand the library intellectual assets under evaluation, the needs of indicator users, and the scope of intangible indicator development in the contexts of each academic library's organizational structure and current evaluation practices. This research paradigm leaves room for a more contextual understanding. It is thus more amenable to instrumental utilisation of the developed indicators. The investigator can depart from his position of independence from the design processes of the indicators in order to act as a facilitator working with the research participants and enabling them to create initial lists of indicators, but at the same time he is aware of the possibility of bias in his work.

As a result of choosing the post-positivist/critical realist paradigm, the investigator of this study had the opportunity to borrow theories from management research and develop theoretical propositions for designing performance indicators for evaluating intellectual assets that are unique to academic library settings in general and Thai university libraries in particular. The researcher anticipated that the contribution of this thesis to theory development in the LIS field would improve the existing body of knowledge on assessing and managing intellectual capital and intangible assets.

3.1.2 Research approach

The second decision made by the investigator of this study concerns the research approach for his investigation. This decision is justified on the basis of the post-positivist/critical realist paradigm in which the investigator chose to carry out his research project on indicator development for library intellectual assets.

Inquirers in LIS, as social scientists, generally approach their research in two ways: deductively and inductively. In the deductive approach, inquirers begin with theories and use research to test their theories. This approach proceeds as follows: (1) form a theory underpinning the research, (2) make deductions or suggest hypotheses from the theory, (3) collect data to test those deductions or hypotheses empirically, and (4) use research results to confirm, modify, or refute the theory employed to develop the hypotheses. Such a four-step process is also called the hypothetico-deductive approach (Bryman, 2004; Creswell, 2009). This approach to research reasoning is applicable to many quantitative research methodologies employed in LIS research: for instance, surveys, experiments, and bibliometric analyses (Powell and Connaway, 2004; Pickard, 2007).

The inductive approach is simply the converse of the hypothetico-deductive approach. Researchers selecting the inductive approach collect empirical evidence and then analyse that evidence to develop experience-based knowledge, theories, models, or explanations. This approach progresses through the following stages: (1) observe and gather data about research subjects (e.g. human actions and phenomena) without making assumptions or specifying hypotheses in advance, (2) review the data in order to identify important concepts and possible patterns that summarise the observed subjects, (3) draw tentative conclusions, and (4) re-examine the data to build a credible explanation or suggest a theory (Bryman, 2004; Creswell, 2009). The inductive approach can be used with qualitative research methodologies in the field of LIS such as grounded theory, action research, and qualitative case studies (Mellon, 1990; Gorman and Clayton, 2005; Creswell, 2009).

Approaches to library performance evaluation

According to Town (2000), many previous studies on library performance evaluation have adopted the inductive approach to developing performance indicators/measures for academic libraries: for example, the Effective Academic Library Framework for the Higher Education Founding Council for England, and the Practical Guide to Performance Indicators for University Libraries of SCONUL (1992). With the inductive approach, performance indicators are derived from traditional library statistics which are readily available and easily quantifiable. These quantitative indicators have been used for comparative purposes. Library expenditure, circulation counts, and visits by users are examples of such traditional performance indicators (SCONUL, 1992). Town (2000: 43-44) also expresses his opinion on the inductive approach to library performance measurement and evaluation:

> ...Current systems of [academic library] measurement are based on inductive reasoning. We count everything we can and then attempt to construct a performance measurement system based on the observations... Thus we reach a data set based on accreditation and practicality with no underlying assumptions about why the elements [for measurement] are significant, but which, however, are assumed to equate to library performance measurement.

Shi and Levy (2005) identify three characteristics of the inductive reasoning behind academic libraries' traditional assessment practices: one, a list of performance indicators is mainly developed from library practitioners' perspectives; two, it offers only a descriptive snapshot of day-to-day work at one point in time; and three, there is no overall framework for constructing theoretically meaningful definitions of performance data or statistics collection. The use of this purely inductive approach, i.e. lack of a theory to define indicators, may cause academic libraries to select indicators/measures that do not illustrate a true picture of which aspects of library performance should be assessed in an environment of increasing demand for library accountability, economic pressure, and structural change (Pritchard, 1996; Town, 2000).

To avoid some pitfalls in adopting the purely inductive approach above, the hypothetical-deductive or theory-based approach to library performance and measurement has been suggested by several academics and practitioners in the LIS field; for instance, the work of Cullen (1999), Town (2000), Shi and Levy (2005), and Brophy (2006). There is a trend away from the data-driven mode of reasoning towards the hypothesis-driven inference because the latter will ensure that the design of indicators is aligned with larger performance measurement systems wholly set in their parent organizations. Such larger systems usually reflect mainstream theories and principles from other fields, for instance:

- Scales for measuring customer service quality (SERVQUAL instrument) from marketing (Cook et al., 2002; Parasuraman, 2004);
- Quality management, Total Quality Management, and the Malcolm Baldrige National Quality Award's Educational Criteria for Performance Excellence from operations management (Brophy and Coulling, 1996; Brockman et al., 1997; St. Clair, 1997; Harer and Cole, 2005);
- The Balanced Scorecard and Strategy Map from strategic management (Kaplan and Norton, 2004; Matthews, 2008).

Making use of theory models provides a basis for developing a more coherent rationale behind the definition and adoption of performance criteria and indicators/measures for academic libraries.

Chosen approach for this research

In the area of performance measurement research, there are benefits and drawbacks associated with both the inductive and hypothetical-deductive approaches to developing indicators related to intangible aspects of organizations (organizational effectiveness, performance, quality, etc.). The inductive process seems appropriate when the relevance, practical application, and simplicity of use are central to inquiries into indicator development. Indicators derived through this inductive approach are primarily based on detailed observations, understanding of indicator users' needs, and studying the usefulness of indicators with reference to the

organizational circumstances surrounding inquiries. Two major drawbacks of this approach are subjectivity in choosing new indicators used for performance assessment practices and trouble with generalising the same indicators to different organizations. In comparison with the inductive process, researchers who select the hypothetical-deductive approach tend to focus on a set of common indicators whose statistical validity and reliability can be tested in diverse settings. Key dimensions of performance can also be explicated with a theoretical foundation. However, this approach may fail to demonstrate other performance indicators defined by users that reflect the actual operations of organizations, since a set of indicators derived from the hypothetical-deductive process draws largely on theoretical concepts rather than existing indications of performance or empirical data found in real-life situations (Pinder and Moore, 1980; Franceschini et al., 2007).

When considering whether to take the inductive or the deductive research approach to investigative work, the research area and the emphasis of research are two major issues for researchers choosing the research approach that best suit their research projects (Creswell, 2009). The research area of this study is about intangible assessment using performance indicators. It is not completely theory-free. There is a wealth of both management and library literature from which the investigator can define a tentative conceptual framework that supports and informs the direction of his investigation; for example, IC theory, guidelines on IC reporting in the private sector, previous management and library research on intangible assessment, KM practices in library and information work, and BSC implementations associated with library intangibles and strategic performance measurement. The investigator opted for the deductive approach, whereby he first posed the research questions and developed the preliminary conceptual framework containing theoretical preconceptions as focal points for the identification of what should be investigated in the scope of his research, and then he utilised this framework to look for relevant evidence in the research sites. He anticipated that the initial version of the conceptual framework would finally be modified as it was benchmarked against empirical data gathered in the fieldwork (Miles and Huberman, 1994).

On the other hand, the emphasis of this study — performance indicator development within an IC frame of reference — is relatively new to LIS research. There is little existing literature on library performance measurement and evaluation that reveals the application of IC reporting ideas in real-life contexts of academic libraries. Thus, it was considered important for the investigator to use the inductive approach to analyse the empirical data because the particular research settings of this study were liable to produce different findings. The inductive process consisted of data reduction, description and interpretation (Miles and Huberman, 1994). This analysis enabled the investigator to develop performance indicators of library intellectual assets as well as to build theoretical propositions about the LIS applications of intangible assessment that are more specific to academic library organizations.

Some researchers may have settled on either the inductive approach or the deductive approach as being the single way of conducting this research. However, the investigator of this study took the view that the hypothesis-deductive (theory-driven) and inductive (data-driven) modes of reasoning are not competitive, but are complementary. A combined approach could strengthen the investigation and make it less unlikely that the most critical research issues would be overlooked. Figure 3.1 depicts the combined deductive-inductive approach used for this study. The investigator started his research with a tentative conceptual framework implying that certain data should be found. The task of the investigator was to allow deductions from this initial framework to suggest data collection questions and shaped the general interpretation of data (the deductive approach). Important patterns in the data which the investigator collected would be reasoned inductively to produce a revised conceptual framework; build theoretical propositions which were appropriate for the introduction of intangible assessment in academic libraries; and propose a list of common performance indicators for evaluating library intellectual assets.

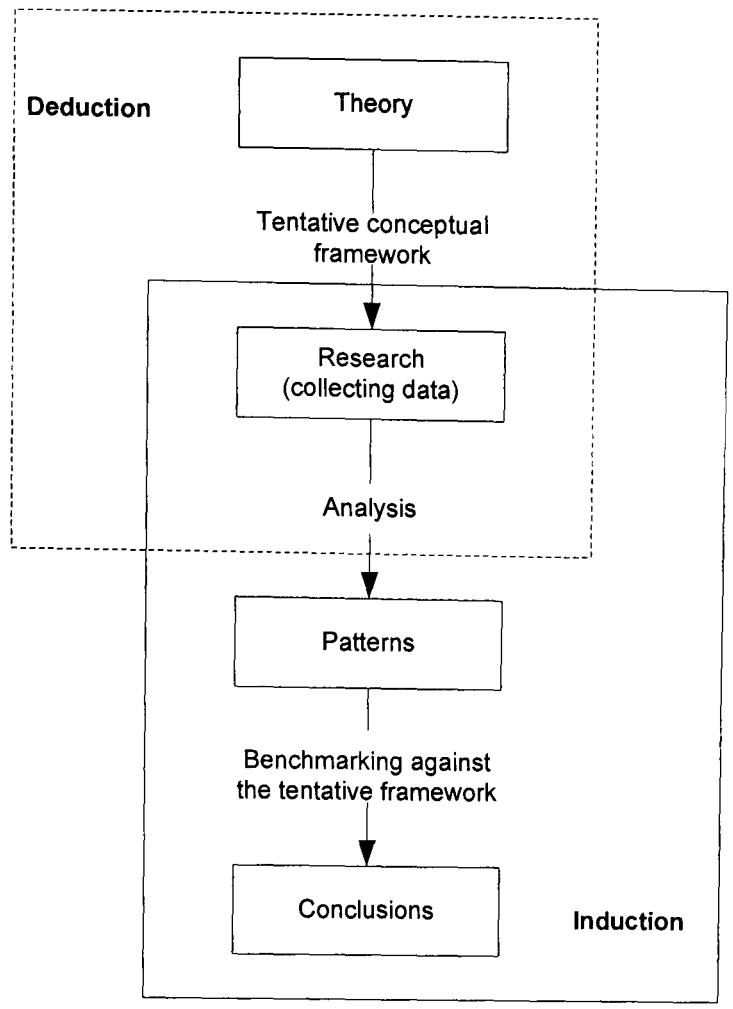

Figure 3.1 The process of deduction and induction for this research (adapted from Ezzy, 2002; Bryman, 2004)

3.1.3 Research methodology

As previously defined, a methodology is a systematic and focused strategy for investigating research subjects to develop or test theory. Methodological considerations have to be consistent with research paradigms and approaches chosen by researchers. This part of the thesis reviews the use of research methodologies reported in previous LIS research on indicator development. It also justifies why the investigator of this study decided to adopt the case study methodology as a research strategy that is suitable for his research context and then briefly describes the characteristics of this chosen methodology.

Methodologies in previous studies

Past research around the area of this study has taken either the positivistic paradigm or the critical realist paradigm. Thus, the main methodological choices underlying most previous studies on performance indicator development are survey methodology and multiple methodology (e.g. case study strategy and mixed-methods research). The survey methodology obtains information from large numbers of research populations to predict particular actions, explain different variables in which researchers are interested and identify the relationship between those variables. Quantitative data are analysed for statistical representations (Pickard, 2007). Surveys and Delphi studies are popular methods of data collection in this methodology paradigm. For example, Harer and Cole (2005) used a Delphi method to define the critical processes and performance measures based on concepts of TQM. Their results, which were concluded from questionnaires sent to sixteen panellists, provided standard measures. Even if their quantitative methodology is very good with rigorous benchmarking of library performance, we do not understand the rationale behind the panellists' choices of these indexes.

Researchers who choose the multiple methodology conduct their studies using multiple methods of data collection. This methodology yields a level of depth and nuance that is unavailable when any single method is applied in isolation. Many experts believe that it is possible to construct robust and meaningful indicators if we can reconcile quantitative and qualitative methodology (see Lithgow, 1993; Usherwood, 1999; Cullen, 2006). For instance, Cotta-Schonberg and Line (1994) mixed concrete evidence, derived from statistical data and a questionnaire study, into telephone interviews of a tentative nature to establish the most valid indicators of the Copenhagen Business School Library's performance. A recent example is Cullen's (2006) development project on the culture of assessment tool that encourages Australian university libraries to evaluate their strategic planning and allocation of resources and exploitation. She used focus groups to revise a prototype for the tool, then dispatched questionnaires to 40 respondents to collect survey data about the culture of each library.

Chosen methodology for this study

This study intended to build explanatory theory of intellectual assets evaluation in the context of Thai academic libraries. At the same time, it had to yield performance indicators as surrogates for actual knowledge-based assets which serve a useful purpose in the real world. The use of multiple-methods of data collection implied by the critical realist paradigm seemed to suit both theoretical and applied aims of the research. It takes the stance that:

- Quantitative methodology can be combined with qualitative methodology.
- Research questions will lead the enquiry into potential techniques of data collection and analysis. Research paradigms are not a primary factor in decision-making (Tashakkori and Teddlie, 2003; Maxwell, 2005; Creswell and Plano Clark, 2007).

Considering the multiple methodology, the case study strategy is one that mixes within single settings data sources such as document analysis, interviews and questionnaires. Its evidence may be words, numbers or both (Eisenhardt, 1989). This research strategy is a flexible research methodology which can be either qualitative or quantitative depending on the study object and the investigation process (Pickard, 2007).

This study aimed to develop performance indicators for evaluating Thai academic libraries' intellectual assets. There are four reasons why the case study methodology was the most appropriate research strategy for making the investigation viable.

One, intellectual assets evaluation is still an evolving area of LIS research. There are no previously published studies that have discovered library intellectual assets in developing countries although many library practitioners have employed case studies reporting the implementation of intangible assessments in university libraries (Franklin, 2003; Cribb, 2005; Mundt, 2007). As Benbasat et al. (1987: 370) suggested, "a case approach is an appropriate way to research an area in which few previous studies have been carried out." For instance, the case study strategies were the most popular research methods widely used to generate theories, find indicators of intellectual performance and diversify the context of measurement when the field of IC measurement interested management researchers in the 1990s (Brennan and Connell, 2000; Petty and Guthrie, 2000; Marr and Chatzkel, 2004). In the same way,

doing case study research in academic libraries seemed to fit the theoretical nature of capturing participants' perspectives from practice and providing description of intellectual assets evaluation as a novel idea in Thailand.

Two, the case study methodology can be adopted to answer the research questions of why and how, exemplified by the prior project on 'Measuring Intangibles to Understand and Improve Innovation Management' of the European Commission, when the research team carried out cases studies in France. They posed the following main questions: how intangibles were defined and classified; how a set of indicators had been set up to monitor intangibles; and why the firms should have such indicators. Using multiple means of data collection such as semi-structured interviews and internal documents led the case investigators to comprehensive results and they finally replied to the three research questions (MERITUM, 2002). Similarly, the present study addressed the 'why' and 'how' questions to enquire about library intangibles. It was therefore probable that the in-depth case approach would be useful in IC research.

Three, performance indicator development is a part of the evaluation phenomenon which relates to key themes like parent organizations and library staff. For example, parent organizations want to assess library effectiveness whilst staff commitment supports the success of evaluation programmes. It is essential to investigate these managerial and organizational variables which have complexities surrounding them and understand how the real-life context and new measures interact. The case method has the strength to help researchers examine the elaborate phenomenon in a natural setting (Yin, 2003b).

In brief this study's position on research paradigm is critical realism. A combination of deductive and inductive approaches was chosen to inform the research process of this doctoral inquiry. The inquirer selected the case study methodology as his research strategy to investigate a young research field; to focus mainly on 'how' and 'why' questions; and to understand the complexities of the indicator development process taking place in each case. This methodology allowed him to combine qualitative and quantitative techniques in the single site.

3.2 Research process

A list of stages in the case study research process is described in this section. It represents important issues that the investigator considered in conducting this study. Some general points were taken from different case study methodologists (for example, Benbasat, 1987; Eisenhardt, 1989; Perry, 1998; Yin, 2003b).

The primary purposes of this research were to build an explanatory theory of organizational intellectual assets in the context of Thai academic libraries and to develop new performance indicators as the research output by using the case study strategy. Accordingly, this study started with a pre-planned structure but finished with induction to generate theory. The process of this case study research had five stages (see Figure 3.2):

1. Stage of focusing and designing the line of inquiry. The main issues included:
    - Clarifying research questions
    - Reviewing the literature and using prior theory to establish a conceptual framework
    - Crafting case study instruments
2. Preliminary preparation. The main issues included:
    - Conducting the pilot study (single-exploratory case study)
    - Refining the case study refinements
    - Practising an analysis and presentation of pilot case evidence
3. Stage of carrying out the individual case studies
    - Collecting case evidence
    - Carrying out within-case analysis
    - Composing the individual case reports
4. Making cross-case analysis
5. Drawing implications for theoretical propositions on the basis of cross-case findings

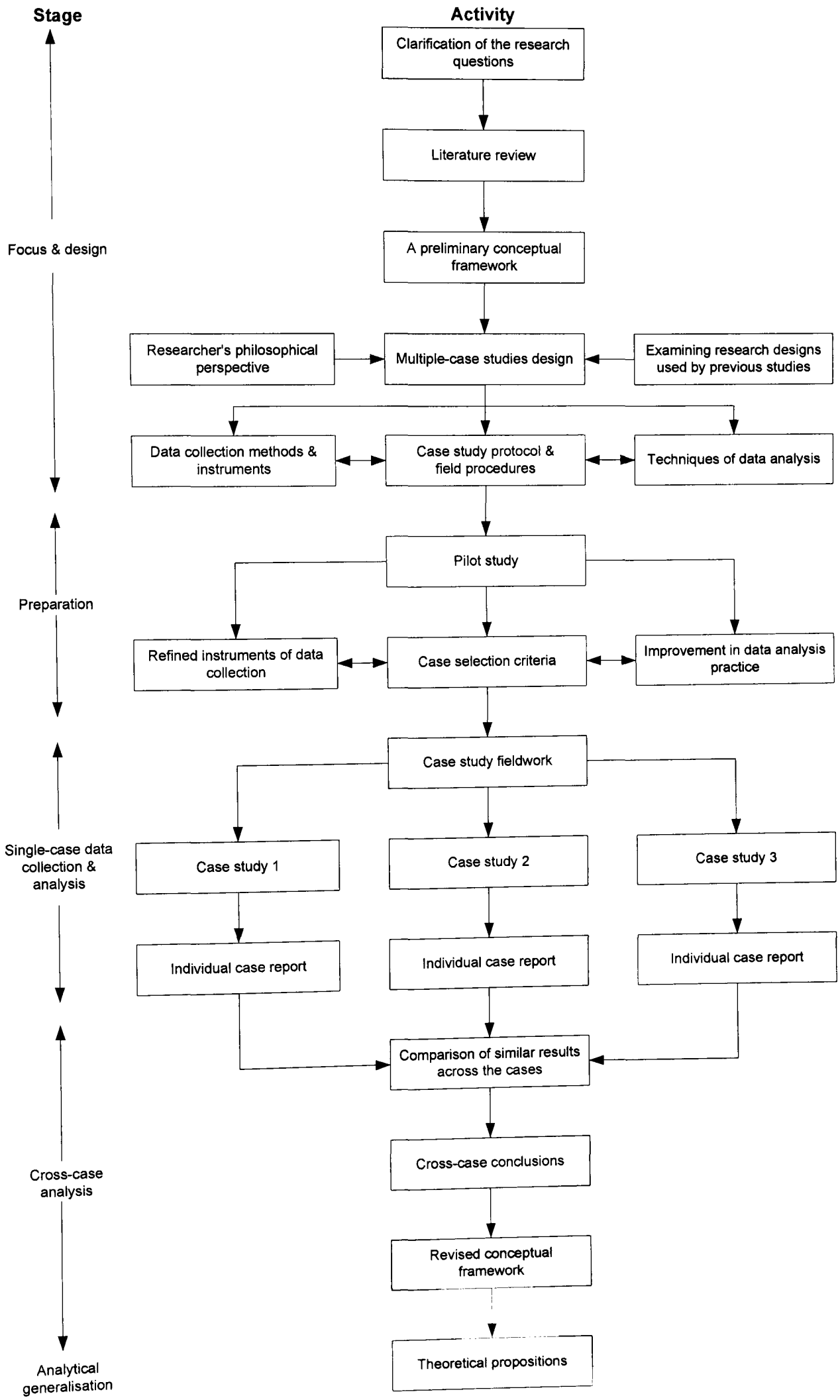

Figure 3.2 Research process for this study

Multiple-case study design

Beyond the above research process, the investigator established as a result of the lesson learned from the pilot case study (see Chapter 4) that the actual investigation needed a multiple-case design for generalising case findings and that purposive sampling should be used for choosing potential respondents for the quantitative phase of the fieldwork. As a result, this study utilised more than a single library to explain the complexities of library intellectual assets which are organization-specific. These complexities were defined differently by library strategies, management styles and performance measurement systems. As a holistic unit of analysis, the investigator gathered and analysed data in the chosen workplaces one by one. The significant findings of one site were compared with others. The whole study could represent sophisticated results between the cases. It also helped predict a further consolidation of leading indicators across Thai academic libraries.

Case selection

To select potential sites for the multiple-case study, the prior research on IC measurement was considered and Yin's (2003b) replication logic for prediction about similar results was used to specify selection criteria.

The first selection criterion was the size of the library that "plays probably a very significant role in relation to the amount of management tools and approaches employed" (Pors et al., 2004: 23). If prospective cases had a large number of staff members, there would be a tendency for IC implementation in the library as a new management tool (Wang, 2006). Another criterion was readiness of the likely candidates for intangible assessment. They should have common organizational steering models such as TQM, BSC and benchmarking tools because these management schemes were known to help actual cases to make sense of IC measurement (Roberts, 2003). The third criterion was that actual cases must show active interest in the management of intangibles or KM, for instance, KM activities and training in organizations. We could carry out a case study in the group of 'beginners' to establish 'first practice' even though they have no experience in the measurement, management and reporting information on intangibles (MERITUM, 2002).

Characteristics	Kasetsart University Library	Srinakharinwirot University Central Library	Thammasat University Libraries
URLs	http://www.lib.ku.ac.th/main_eng.HTM	http://lib.swu.sc.th/en/index.php	http://library.tu.ac.th/main/frame2.html
Established in	1951	1954	1934
Core collection	Agriculture	Educational studies	Social sciences
Size - Workforce - Number of books - Reading space	 130 543,393 1,200 seats	 116 277,964 900 seats	 171 529,831 1,195 seats
Library visits per annum	976,396	803,408	779,729
Steering models of library evaluation	Quality assurance	Quality Assurance	- Quality assurance - ISO 9000 - Management by objectives
Interest in KM	- Knowledge sharing the intranet - Policy on best practices	- Human resource development project - Compiling work procedure for knowledge repositories	- Human resource development project - The promotion of library staff doing research in the branch libraries

Table 3.3 Background information on the actual cases

In using the selection criteria, 39 academic library websites were the starting point for screening potential cases. Three large university libraries were finally chosen as the participating sites of this multiple-case study, based on the thoroughness of information on their websites and the accessibility of entering the field. Table 3.3 provides background information for the actual cases.

3.3 Multiple-methods of data collection

Referring back to the research questions of this study, qualitative evidence was needed to describe the following subjects: the concept of knowledge resources in the library, motives for intangible evaluation and indicator development process. Meanwhile, a suggested set of performance indicators and measures would gain credibility from quantitative data. A variety of evidence sources and procedures for data collection could be employed to provide stronger substantiation of case findings (Eisenhardt, 1989). As noted by Petty and Guthrie (2000), multiple techniques of data collection seem to be more useful if IC capital researchers want to examine complex results of a distinctive situation and normalise them by comparing intellectual capital with other organizations.

3.3.1 Data collection decisions

For the three case studies, primary sources of evidence relied on documentary evidence, semi-structured interviews and a small-scale survey. The reasons for choosing these techniques were as follows.

Documentary evidence

According to White and Marsh (2006), the use of document-based sources in LIS research is useful when researchers need background information to describe research sites correctly and thoroughly. For this study, an analysis of administrative documents was used to search for the case libraries' strategic goals in relation to their intellectual assets or activities and identify what information the libraries wanted to know about their intellectual assets. The internal documentation of the libraries that the researcher used for this purpose included strategic plans, QA

manuals, self-assessment reports, annual reports, and other QA documented procedures. The documentary evidence could facilitate the understanding of the organizational situation in the case libraries where the development of new intangible indicators would be introduced and integrated into their existing systems of performance measurement and evaluation. Also, such documentary evidence was analysed to identify the libraries' KSFs in connection with their intellectual performance and assets.

Semi-structured interviews

Interviews used to collect data in LIS research are generally divided into three types: unstructured, semi-structured and structured (Gorman and Clayton, 2005). Researchers employ unstructured interviews when they want to inquire about little-known topics. They can gain rich and meaningful data from this interview format because a predetermined interview schedule is not required. Nevertheless, it is difficult to analyse such unsystematic data. Semi-structured interview schedules use written questions as a guide in order to achieve some consistency of data, but these questions are usually open-ended to encourage interviewees to elaborate their opinions on topic being studied. One disadvantage to this format is that its data may be subject to bias if interviewers are not well-trained in aspects of interviewing. Structured interviews lend themselves best to statistical analysis. In interviews of this type, questions and response categories are determined ahead of time, enabling quantitative results from large samples of research population to be analysed and summarised. The weakness of structured interviews is that richness of data is constrained by interviewers' control (Drever, 2003; Powell and Connaway, 2004; Pickard, 2007).

The research topic of this study is about the development of performance indicators for evaluating intellectual assets that is an abstract concept (Pierce and Snyder, 2003). Library and information professionals' perceptions of intellectual assets evaluation may vary from person to person, such as critical intellectual assets, motives for interest in intangible assessment, and measurement viewpoints. The flexibility of semi-structured interviews makes them so well suited to looking at these different views on the intangible indicator development. Recognising that each

library and information professional may not understand the same words with the same ideas, this interview format can allow the investigator to substitute question wording that may be more easily understood or ask some complicated queries in several different ways. Furthermore, data gained from semi-structured interviews seems to be easy to identify a coding frame when compared with unstructured interviews.

Researcher-administered questionnaires

After completing the qualitative phase (documentation and semi-structured interviews), a list of performance indicators was selected to formulate questionnaires. Conducting a small-scale survey in each case study provided a broad picture showing which developed indicators that were important and understandable to potential users of the indicators in real situations. The researcher-administered technique of survey administration was employed here because it gave the investigator greater control over which staff members were responding to the questionnaire and enabled him to establish rapport with respondents, recognise their misunderstanding of a question and assist them immediately.

3.3.2 Case study instruments

Document analysis form

The researcher examined internal documents for each case. They provided information about existing intellectual assets. He recorded such information on an analysis form which had four elements – bibliographic data, reasons why the document was needed, annotations and points relevant to intangible assessment (see Appendix A for a copy of the document analysis form).

Interview guide

The interview guide was designed for interviewing library administrators. There are 10 main questions connecting to the conceptual model: performance management in current use, intellectual assets classification, evaluation framework and desired performance indicators/measures (see Appendix B for a copy of the interview guide).

Each informant spent around 45 minutes answering all the questions. The interview guide was handed to the interviewees a few days before the interviews.

Researcher-administered questionnaire

Items for the researcher-administered questionnaire were produced after completing the qualitative phase of the data collection. The questionnaire could not be constructed in advance, except for general instructions, because the questions related to the proposed performance indicators, which were derived from – and therefore depended on – the result of the qualitative phase. The questionnaire contained closed and open-ended questions. Respondents were given possible performance indicators to judge the understandability and perceived importance of those indicators. A Likert scale was used, with 1 being 'very difficult to understand/least important' for evaluating intellectual performance and 4 being 'very easy to understand/most important' (see Appendix C for a copy of the questionnaire).

3.3.3 Data preparation for analysis

This subsection concentrates on procedures for converting the raw data (documentary evidence, interview data, and survey data) into a form useful for data analysis.

Documentary evidence

Content analysis of the case libraries' administrative documents encompassed four parts: finding and gaining access to the documents, collecting data from them, organizing the data, and analysing the data. The researcher had no problem negotiating with the library administrators to get access to such documents. He could find some of the documents easily by searching on the libraries' web pages. Many internal documents were made available in one room, i.e. the central filing area. When working with these documents, the researcher read them and took detailed notes on document analysis forms such as summaries of contents, keywords, and objectives of the publications (see Appendix A.2 for an example of filling in a

document analysis form). All the paper-based forms were transformed into Word files and were stored in the case study database.

Interview data

All the interviews were carried out in Thai language. The researcher used digital recording software — Adobe Audition 2.0 — to capture the spoken data with permission from the interviewees. After the audio files were transcribed, the interviewees were provided with a copy of the full transcripts so that they could make certain that the information was correct or suggest revisions. Meanwhile, the researcher had to translate the approved transcripts into English for later analysis. He decided to translate only parts of the interviews that were relevant and interesting to save his time. He employed these English partial transcriptions (see Appendix B.2 for excerpts from the partial transcriptions) to make a list of direct quotations or evidence for supporting his case findings of the three case studies. Selected quotes from the English version of the semi-structured interviews were imported into the case study database to corroborate the documentary evidence.

Survey data

Procedures for preparing the survey data gained from the questionnaires were as follows (Fowler, 2002):

- Check the survey responses for completeness
- Develop a simple codebook
- Assigning numeric values to each response
- Key in such coded data to an Excel spreadsheet

Case study database

For organising and storing the data from each case study, the researcher created the case study database using qualitative data analysis software, namely NVivo 7. Three evidentiary sources — documentation, interviews and survey data — were imported into the NVivo folders (see Figure 3.3). Besides the case study database, a cross-

referencing system between textual and numeric files was set up to track a line of enquiry during the fieldwork period. This chain of evidence was maintained to improve the credibility of the case studies in respect of both information and process (Clayton, 1995; Yin, 2003b).

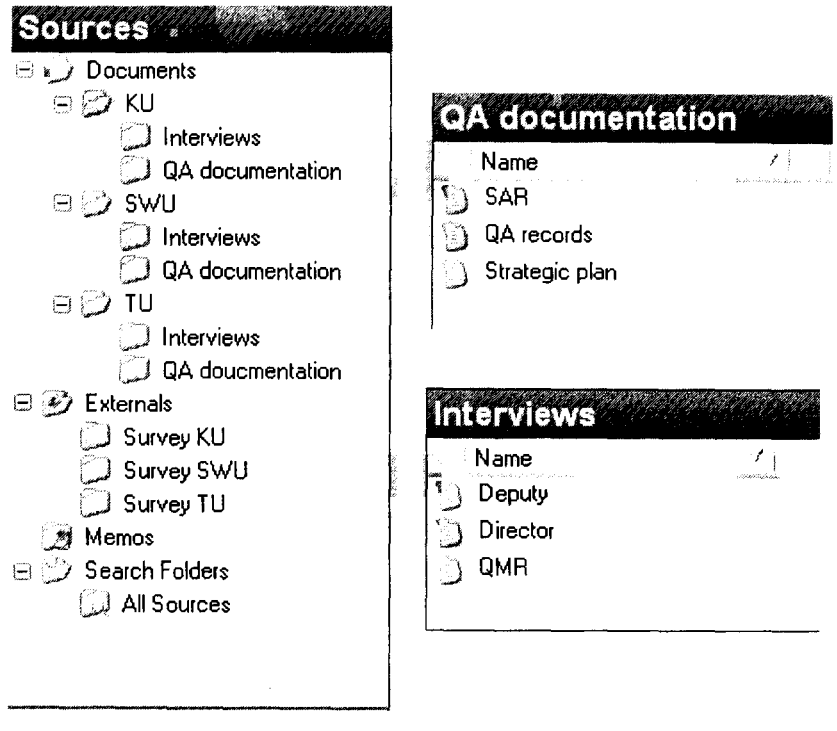

Figure 3.3 Maintaining the case study database with NVivo

3.4 Data analysis techniques

Data analysis in this research consisted of analysing the textual data using qualitative techniques and the numeric data using the quantitative techniques.

Textual data

The textual data of the word-processing documents and partial transcriptions were analysed with two analytic techniques: developing a case description and creating a logic model (Yin, 2003b). The first technique, i.e. "story telling", was used to examine the case libraries' organizational context where the development of intellectual performance indicators would be introduced. Such a "contextual story" covered the libraries' strategies and its existing system of performance measurement. The second analytic technique was employed to illustrate the possible connection between the case libraries' current performance evaluation practices and IC theory.

In the next stage of the qualitative data analysis, the researcher examined the textual data based on the conceptual framework for developing intangible indicators described in Section 2.6 of Chapter 2 and Section 4.6 of Chapter 4. He interpreted such data to design a draft set of performance indicators for each case site. This set included key success factors, qualitative statements for indicating level of intellectual performance, and sample measures for quantifying library intellectual assets. All the indicators developed from the qualitative data analysis were converted into questionnaire items to statistically test the user acceptance of each suggested indicator. The experts who reviewed a draft survey instrument were the participants in the semi-structured interviews, except the library director.

Numeric data

The researcher utilised a descriptive statistical technique to aggregate and summarise all the data collected from the Likert-scale questionnaires. He calculated the mean score and standard deviation for each questionnaire item (i.e. the suggested performance indicator), to describe the respondents' opinions on the importance and understandability of the indicators at a collective level. Items with high mean scores and low standard deviations represented the case libraries' preferred indicators, based on the respondents' perspectives. The Excel spreadsheet was used to analyse the mean scores and standard deviations for the questionnaire items. The combination of the results derived from the analysis of both qualitative and quantitative data constituted the answers to the research questions of this study

Assembling the analysed data within the individual case studies

Within-case analysis was the specific technique used with each case library under study. The investigator studied each case site's written documentation, interview transcripts and survey response data as a separate case to identify unique patterns within the data for that single library. He prepared detailed case study write-ups for each case library, categorizing interview questions and answers and examining the data for within-group similarities and differences (see the results of the within-case

analysis presented in Chapter 5). Figure 3.4 shows an example of how the qualitative data were coded in the NVivo software. The researcher created a concept-driven coding system which was derived from the theoretical basis of the literature review and conceptual framework to identifying patterns of the qualitative evidence (see Appendix G for example of the concept-driven coding).

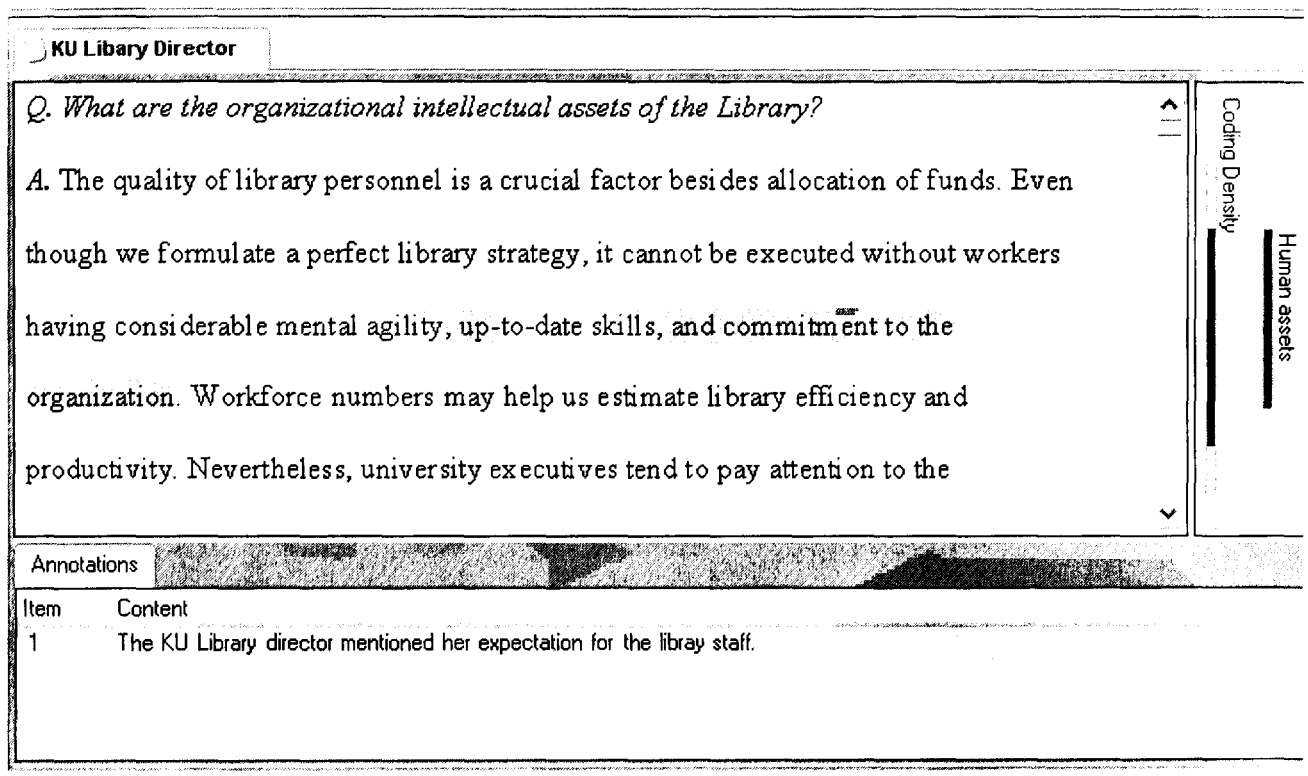

Figure 3.4 Example of coding

Searching for cross-case patterns

Cross-case analysis followed the above-mention technique of within-case analysis. The investigator examined pairs of cases, categorizing the similarities and differences in each pair. He then searched for similar pairs for differences, and dissimilar pairs for similarities. Doing the cross-case analysis could reveal some replications of the organizational contexts and performance indicators developed from each case study (see Chapter 6 for the characteristics of these comparative findings and comparisons with the relevant literature).

3.5 Quality control of case findings

The centrepiece of a research programme's success relies on the quality of research data (Stouthamer-Loeber and van Kammer, 1995). This guarantees that investigators respect truth in data collection, analysis and reports' findings.

The positivist paradigm is held to be appropriate for testing the rigour of case methods. It conforms to criteria for judging the quality of case study design through the following tests (Rowley, 2002):

- Construct validity involves attaching data gathered from site visits to research questions and theoretical propositions to create correct concepts as well as to reduce subjectivity in the researcher's intervention.
- Internal validity involves establishing a cause-and-effect relationship between the studied context and key variables within cases.
- External validity is concerned with the extent to which some internal validity can be generalised to other contexts.
- Reliability is the extent to which research activities of a study such as data collection and analysis can be repeated with the same results when they are undertaken in similar circumstances.

Yin (2003b) identifies many tactics coming from the positivism approach that will result in better, more complete data. Table 3.4 summarises well-known tactics used to reduce errors in data cleaning, interpretation and documentation in the present study.

3.6 Limitations of the case study methodology

The potential threats in this research have two dimensions: the external generalisation of case study results and the objectivity in data sources.

First, a critical aspect of the case study approach is that it is difficult to generalise case findings to different settings. Empirical studies based on case study method may be criticised when we compare them with large-sample survey research. To minimise this weakness, a multiple-case study was adopted to accumulate similar patterns

across chosen sites, leading to the transferability of theoretical propositions. It is said that multiple cases can provide more compelling evidence as well as having higher external validity than single cases (Voss et al., 2002)

Research quality criteria	Case study tactic	Phase of research in which tactic occurs
Construct validity	• Select data from administrative documents analysis and in-depth interviews to develop survey questionnaires	Qualitative data collection
	• Ask key informants review the interview transcripts and draft questionnaires	Qualitative data analysis
	• Establish record linkages to connect small-scale survey data to qualitative data	Quantitative data collection and analysis
	• Share draft reports of individual cases with participants by giving a short presentation	Data representation
Internal validity	• Use logic models to explain causal relationships	Qualitative data analysis
	• Use descriptive statistics to support the qualitative results	Quantitative data analysis
	• Do pattern-matching between cases	Cross-case analysis
External validity	• Use theory in the individual case studies	General procedures in data analysis
	• Use replication logic in the multiple case studies	Cross-case analysis
Reliability	• Use a verbal description of the research process and procedures (case study protocol)	General procedures in data collection
	• Establish a case study database	General procedures in data collection

Table 3.4 The tactics for quality control in this study (adapted from Yin, 2003b: 34)

Secondly, case study method is often associated with qualitative data such as documents and interviews. This can introduce bias on the part of the researcher and participants. Sequential forms of mixed methods data collection were therefore applied to seek out objective data to reduce the subjectivity of the study by applying the survey approach. Sequential forms in the broad sense of triangulation provide the opportunity to connect subjective evidence such as semi-structured interviews to objective data derived from a small survey. As a consequence, "the inclusion of a

quantitative component can make the qualitative approach more acceptable" (Creswell and Plano Clark, 2007: 78).

Using multiple sources of evidence is not a guaranteed way to deal with the validity of case findings. A combination of documents, interviews and questionnaires may still have bias (Maxwell, 2005). However, careful pre-planning of the investigation helped to anticipate troubles with the credibility of plausible interpretations and explanations, through the use of a case-study protocol which set forth the plan for the investigation in step-by-step detail.

3.7 Ethical considerations

Whatever methodology is chosen for research in a social science (including LIS), it is every researcher's duty to consider ethical issues associated with data collection methods, approaches to contacting human participants and the presentation of data in the case study reports of this research. Also, they should anticipate ethical problems which may arise in their field-sites (Bryman, 2004; Creswell, 2009). All research involving human subjects are relevant to three fundamental ethical principles: beneficence, justice, and respect for persons. The principle of beneficence requires researchers to undertake studies that have social benefits but do not harm individual well-being. The principle of justice means that there is the fair and careful selection or exclusion of certain classes of individuals such as prisoners, elderly people and handicapped. Respect for persons requires that researchers have to obtain permission from human participants in advance before gathering empirical evidence (Sieber, 1992). According to Gorman and Clayton (2005: 43), the first two principles — beneficence and justice — are sometimes of less concern as ethical issues in information research, because topics of empirical studies in the LIS field are not so sensitive that human participants have a chance to experience a high risk of harm.

The basic ethical principle, which information researchers mostly encounter during research processes, is the respect for their subjects. When doing research in information organizations (e.g. libraries, information centres and archives), researchers have a responsibility to conduct investigations ethically. Both participating people and organizations must be informed about research risks; they

have the right to volunteer to take part in a study or refuse their consent at any time; and their personal information supplied in the research must be treated confidentially (Gorman and Clayton, 2005). The ethical principle of having respect for persons becomes a special responsibility connected with obtaining their cooperation in providing data and requires more assistance from participating organizations when using a case study design (Bassey, 1999).

The investigator of this research project considered ethical issues relating to respect for the human participants and research sites in two parts of his research process: gaining ethical approval before the commencement of the research project, and maintaining ethically responsible conduct in the case study fieldwork.

3.7.1 Gaining ethical approval to commence the research project

The scope of this research design was about academic library organizations. It proposed using the case study approach to gather information mostly from individual people. Its data collection methods comprised document analysis, semi-structured interviews, and small-scale surveys. The three methods involved three groups of human participants: the library directors who gave permission to do the fieldwork in their workplace and allowed the investigator to access the libraries' internal documents; the library administrators (the directors, deputy directors and administrative assistant) who took part in the interviews; and the divisional heads/senior librarians who offered to complete the surveys. For this reason, an ethical review was required to ensure that the investigator's proposed research project was carried out according to ethical guidance and in conformity with the University of Sheffield's Research Ethics Policy. The investigator applied to the Ethics Administrator of the Department of Information Studies for ethics approval after consultations with the supervisor. His application was approved by the Departmental Ethics Administrator in February 2007.

For the entry stage of data collection, the investigator prepared information sheets and consent forms for the three groups of potential participants: the library directors as gatekeepers granting permission for initial access to the case libraries, the interviewees, and the survey respondents. The participant information sheets described the research project's purposes, its data collection procedures, and its

possible advantages, along with assurances of the voluntary nature and confidentiality of taking part in the research project. The consent forms obtained the participants' signed statements confirming that they understood factual information about the study and could decline their assistance to the investigator for any reason. Copies of these documents are provided in Appendices E-F.

3.7.2 Maintaining ethically responsible conduct of the case study fieldwork

"Since case studies frequently employ a range of different data collection techniques for the one study it is likely that a greater range of ethical issues will arise when using a case study design than with other designs" (De Vaus, 2001: 245). The investigator undertook the fieldwork in the case libraries on the basis of case study design. Some particular ethical issues encountered from the beginning to the end of this case study fieldwork were considered carefully.

The matter of informed consent was treated with caution at the start of data collection. The investigator made contact with the three directors of the candidate libraries selected to do the fieldwork. The same procedures were followed in conducting the pilot study that preceded the main study, which is reported in the next chapter. This initial contact was a major factor in securing permission to consult the libraries' administrative documentation as well as obtaining access to each person whom the investigator interviewed and used as survey respondents. Gaining entry in these case libraries as research sites was a simple process. As noted by Gorman and Clayton (2005), most library professionals in universities and research institutions usually welcome the presence of researchers. They are accustomed to research activities performed in their workplace because of the institutional ethos. Hence the investigator's request for site visits met without refusal from all the library directors. They gave their written consent and allowed the investigator to use the libraries' internal documents, interview the library administrators, and conduct the small-scale surveys. In the research sites, the timetables for every semi-structured interview and survey were arranged at the prospective participants' convenience by contacting them in advance. All the interviews and surveys also took place at their workplace. Doing this helped the participants feel more comfortable because they were in their

own areas of operation (Naumes and Naumes, 2006). The investigator provided the participants with information sheets that described the voluntary participation as well as the confidentiality of their answers and then obtained their written informed consent prior to doing the fieldwork.

The participants' privacy, an important consideration in data protection, was a central issue after finishing the stage of data collection. Both interview and survey data were stored electronically in the case study database. The investigator replaced the participants' full names with identification numbers when storing their answers to data collection questions in computer files. Keeping the people's names anonymous applied to the stage of writing up the separate single-case study reports. If quotations from the interview transcripts were needed to support the interpretations of case findings, the investigator cited the interviews using the participants' positions in the libraries or their job titles only. Yin (2003b) points out that the names of the entire case settings should be identified in case study reports produced by researchers if research topics do not relate to a controversial issue; the research does not affect the subsequent actions of the case members being investigated; or the research demonstrates a typical example in an ideal situation. In this regard, the investigator made a decision that giving the research participants assurances about individual anonymity might be sufficient for this research, whereas the case sites' identities should be identified by their real names. After asking for permission, all the library directors were willing for the investigator to reveal the names of their libraries in his study reports. In addition, all the library staff were happy for their quotes to be linked to their positions or job titles as necessary to contextualise their comments. They were pleased that such disclosure made their library organizations' stories in the development of intellectual performance indicators publicly recognised and accessible to a wider audience.

Summary

In conclusion, this chapter discussed the reasons why the post-positivist/critical realist paradigm, the combined research approach of deductive and inductive reasoning, the case study methodology, the multiple techniques of data collection and analysis were selected for this investigation. It also outlined the design for the multiple-case study, including the quality control of research data, the limitation of case study strategy and the ethical issues in the inquiry process. The next chapter unfolds aspects of the pilot study undertaken to shape the complete research design for the actual case inquiry.

CHAPTER 4
PILOT STUDY

This chapter is concerned with the pilot case study conducted by the researcher in preparation for the actual data collection of the main study, i.e. the multi-site case investigation. The pilot phase of this investigation details many preparatory tasks performed to test the usability of the preliminary conceptual base described in Chapter 2, and to look at the feasibility of the research design developed in Chapter 3. It includes some lessons learned from the pilot work that resulted in the development of the researcher's investigative skills in how to handle his planned field procedures. In the six sections that follow, substantive and methodological issues of the pilot study are presented in the form of the pilot case report. The report begins with the background of the pilot study to discuss its aims and steps for piloting. The second section provides an abridged version of the initial key concepts that guided the conduct of the exploratory case study. The next section explains data collection and analysis methods used in this trial fieldwork. The fourth section describes the results of the exploratory case study. Reporting these initial results was a useful exercise for the researcher as preparation for thinking about writing the actual case reports. The fifth section presents the recommendations drawn from the pilot inquiry for improving the research design, data collection procedures, and data analysis and representation techniques used in the real case studies. This chapter ends with the conceptual framework for the main study.

4.1 Background of the pilot study

A pilot study is a preliminary trial of research which is essential to the development of reliable and valid research processes for carrying out actual studies. There are basically two senses in which the term 'pilot study' is defined in textbooks on social science research methods (Lewis-Beck et al., 2004). Under the narrow definition, pilot studies are only those which are associated with pretesting of research instruments employed to gather empirical data, such as questionnaires, interviews

and content analysis (Wilkinson and Birmingham, 2003). The purpose of this pretesting is to refine important elements — wording, format, length and validity — of designed instruments by trying them out on a small sample of the research population (Fowler, 2002). The broad definition of 'pilot study' refers to a small-scale version of a main research study conducted in its initial phase by resembling the proposed research methods and field procedures in every detail. This pilot work enables researchers to assess the feasibility of their full-scale studies; hence, pilot work data can illustrate the researcher's potential to achieve their proposed research projects. Contributions of each pilot test can be evaluated to determine whether it will probably be worthwhile to actually go ahead with main studies (Teijlingen and Hundley, 2001). The exploratory pilot work reported here was undertaken in the light of the broad definition of 'pilot study'. Its extent involved a complete run through of all the procedural steps of the case study approach described in Chapter 3.

Aims of the pilot study

The investigator conducted this exploratory pilot work to test not only the proposed data collection tools, but also to assess the pre-designed process of his actual case study research. Its primary goal, in keeping with Yin's (2003b) recommendations on an inquiry into a pilot case, was for the pilot test to find out how the initial design decisions as a whole would work under realistic conditions. It was intended to be more informative than a sample pretesting of the adequacy of the research instruments. There were in effect four aims of this pilot case study:

- To ascertain whether the preliminary development of the theoretical basis for intellectual assets evaluation was usable in a library context similar to the real cases the investigator would study.
- To examine how the tentative research questions could be answered by some kinds of case evidence.
- To assess whether the proposed research methods were appropriate for developing performance indicators related to library intellectual assets.
- To pretest and improve the case study instruments (document analysis form, semi-structured interview guide, and questionnaire).

The case evidence from this pilot study assisted in making some final decisions about the research design and modifying some methodological aspects. To prevent the misuse of the pilot data, there was no inclusion of such data in the research results of the actual inquiry (Teijlingen and Hundley, 2001). The investigator started the main study with "a complete research design, a whole new set of sources (sites) of information, and a fresh set of data" (Yin, 2003a: 7).

Steps for piloting

The researcher set out his action plan for the conduct of the pilot study. This plan specified a sequence of eight steps in which he had to perform tasks on the trial fieldwork. These steps are summarised in the following list:

1. Develop the pilot work's preconceptions about intellectual assets evaluation from prior theory and research
2. Identify its study issues by posing the initial research questions
3. Design a single-case study, define a unit of analysis, and choose appropriate methods of data collection and analysis
4. Select the location for the pilot case study
5. Gain access to the pilot site and draw up ethical considerations
6. Collect, store and analyse the pilot data
7. Try out a designed structure for data presentation
8. Write a pilot case report

4.2 Preconceptions about intellectual assets evaluation

The initial conceptual base, which was previously identified in Section 2.5 of the literature review chapter, was tested in this pilot study to gain additional information by which the conceptual framework for the main study could be developed. The pilot pretesting was undertaken to collect and analyse exploratory case findings within the following broad themes:

- Identification of library intellectual assets
- Classification of library intellectual assets

- Intellectual assets evaluation framework (motives for intangible assessment, measurement viewpoints and evaluation criteria)
- Indicator development process

As noted in Chapter 2, two theoretical perspectives underpinning the identification and classification of intellectual assets in academic libraries were the RBV and the IC perspective. The former assumes that organizations possess different types of strategic resources (e.g. collective knowledge and intangibles) which enable them to develop different organizational strategies. An organization has a sustained competitive advantage to the extent that it can effectively exploit its strategic resources and its rivals cannot imitate its strategies. Organizational knowledge and intangibles are, therefore, a kind of strategic resources due to four distinguishing features: they are valuable, rare, inimitable and non-substitutable (Meso and Smith, 2000).

Another influential concept is the IC perspective. According to this perspective, strategic resources or intellectual assets are regarded as good long-term investments to create value in products and services for stakeholders. When organizations arrange to evaluate their intellectual assets, it means that they attempt to measure stocks of intangibles and assess learning activities. The pilot study followed the IC standard classification outlined in the subsection 2.5.2 by categorising library intellectual assets into human assets, structural assets, and relationship assets.

This pilot study adopted the scorecard method, which is a foundation of well-known guidelines on disclosing intangible assets in several countries (e.g. European-Union countries, Denmark and Japan), as the process of performance indicator development. For the library context, White (2004) suggested that organizational knowledge of academic libraries can be possibly assessed by the scorecard method. This method followed the process model for creating an intellectual capital measurement system described in the pioneering work of Bontis et al.(1999). As shown in Figure 4.1, at the beginning the researcher considered and analysed the pilot case library's strategic plan to identify components or statements that could be referred to its intellectual assets and activities. Doing this made the researcher understand what the long-term strategy of the library was about. Next, the library's mission statement was translated into a set of KSFs containing more concise terms.

The researcher then identified performance indicators which related to these KSFs. The indicators were developed in the form of qualitative statements that describe desired targets for achieving each success factor. After that the researcher looked for measures or metrics available from the library's QA standard to quantitatively assess intellectual assets and activities mentioned in the performance indicators. Finally, these indicators and measures would be classified by the categories of intellectual assets — human, structural and relationship assets.

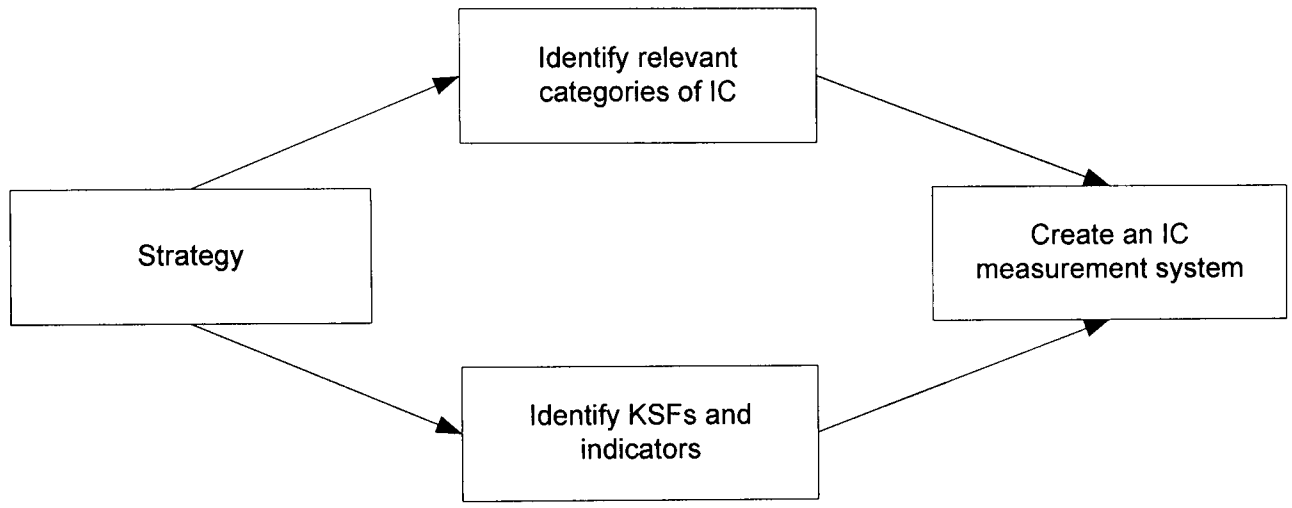

Figure 4.1 The process model (Bontis et al., 1999)

4.3 Methods

In order to replicate the research questions of the actual case study as much as possible, this pilot study had four research questions to explore:

1. What are library intellectual assets?
2. Why does the library need to evaluate its intellectual assets?
3. How should the library develop performance indicators to evaluate its intellectual assets?
4. What are appropriate performance indicators for library intellectual assets?

The researcher decided to apply a single-case study design for collecting, analyzing and reporting preliminary data in the pilot study. Chulalongkorn University Central Library was chosen as the location of this trial run, using Yin's (2003b) criteria for pilot case selection: convenience, ease of access, proximity to the researcher's main workplace and the availability of experts willing to make

suggestions about the research design. Fieldwork in the Central Library was undertaken from July to August 2007.

The case study approach was chosen to explore complexities of the indicator development process taking place in the Central Library. This exploratory approach enabled the researcher to generate the preliminary data that were embedded in the pilot site's context. The pilot work was intended to make certain that previous theories and initial concepts of intellectual capital could be applied to the evaluation of an academic library in Thailand. Lessons learned in this exploratory fieldwork were formulated to increase the ease with which the researcher could plan for the actual case study research. Data for the pilot were derived from three sequential methods–documentation, semi-structured interviews and a self-administered questionnaire survey. Since the trial fieldwork was carried out in Thailand where Thai is its national language, the researcher translated an initial interview guide and a survey tool directly from English into Thai. The experience of pretesting both types of the research instruments led to modifications of some data collection questions, so that their meanings were expressed more precisely in terms that made sense to the participants.

Documentary evidence

The use of the Central Library's administrative documents was to understand its organizational context, such as the strategic objectives, formal system of library performance evaluation, and existent performance measures in relation to IC concepts. These documents included the strategic plan, QA documentation, annual reports and other internal records of the pilot site.

Semi-structured interviews

The semi-structured interviews with the library director and five department heads were carried out to discover their opinions about intellectual assets, success factors, an interest in intangible assessment, and possible evaluation criteria that might be essential for their workplace. The pilot data from the interviews helped to clarify the

documentary evidence and design a draft set of performance indicators from the library administrators' perspectives.

Qualitative data analysis

Word-processed documents and verbatim transcripts gained from the above two modes of qualitative data collection were stored in NVivo 7 software to code such textual data line by line. The choice of coding labels for the textual data relied on two sources — terminology named by the interviewees and the relevant literature. The qualitative evidence was analysed to look for meaningful information about the identification and classification of library intellectual assets, and the intangible assessment framework for the pilot case study. It also allowed the researcher to develop a list of performance indicators which would be included in a survey instrument.

Self-administered questionnaires

Doing a survey helped to judge whether the indicators developed from both the documentation and the semi-structured interviews were important and understandable to the indicator users in the pilot case library. The researcher designed questionnaire items or rating scales based on the qualitative findings. The experts who reviewed the draft questionnaire items were the six interviewees in the qualitative phase of data collection (see Appendix D.2 for an expert review form). Self-administered questionnaires were sent to eight librarians and two subject specialists in six departments of the pilot library. These respondents were asked to complete three sections of the closed-ended questions (see Appendix D.1):

- Demographic data
- Rating their assessment of the importance of the performance indicators
- Rating their assessment of the understandability of each indicator.

Quantitative data analysis

The questionnaire responses were coded and stored in Microsoft Excel. The researcher calculated the mean of each indicator, using a 4-point Likert scale (most important/understandable to least important/understandable). He aimed to use these quantitative results to test the practicality of the indicators at the operational management level of the pilot case library.

Ethical issues

The conduct of this exploratory case study was based on internal documents and data from people. Before the commencement of the trial fieldwork, the researcher had to obtain permission to collect data at three levels: from the ethics administrator of the Department of Information Studies; from the library director as a gatekeeper; and from the study participants (the interviewees and survey respondents) who provided the data.

The main ethical issues involved in the pilot testing were informed consent, confidentiality of the data to be gathered, and anonymity of the results to be reported. The researcher prepared information sheets to ensure that the gatekeeper and study participants were given sufficient information to allow them to decide whether or not they wanted to take part. The information sheets contained the details of the research project such as the study title, purpose of the study, and research methods (see Appendix E for a copy of the participant information sheet). The researcher not only used the information sheets but also asked every participant sign to sign a consent forms (see Appendix F for a copy of the participant consent form). He kept those consent forms as an indication of informed consent by the participants. When collecting the pilot case evidence, the participants' real names were replaced with their job titles as the identifying information to be assured of confidentiality. With the agreement of the Central Library Director the researcher was able to reveal the pilot case site's name in his report, since there were not any particularly sensitive issues around this study topic.

4.4 Preliminary Results

Within the single-case analysis, experimenting with explanation building and logic models offered information the researcher wanted to know. Qualitative evidence generated the case background, connected the university strategy to the library's intellectual assets and provided considerable answers to research questions related to the following areas: the concept of knowledge resources in the library, motives for intangible evaluation and indicator development process. Meanwhile, the suggested set of indicators and measures would gain credibility from the quantitative evidence.

4.4.1 Case description

Collecting the pilot evidence took place in the Central Library, Center of Academic Resources (CAR) Chulalongkorn University. This university is the oldest higher education institution in Thailand established in 1917; its library is therefore the first academic library in Thailand. The Central Library now comprises six functional departments: acquisitions, cataloguing, information systems, circulation, reader services and research support services. Its mission statement reads as follows (CAR, 2007):

> As the information service center of the university community, the Central Library aims to be an intelligent asset providing information resources to all groups of users as well as using expertise in library and information science to manage university knowledge and memory [Researcher's translation].

Regarding the existing system of library performance measurement and evaluation, the Central Library has been employing the internal QA system for Service and Supporting units (SsQA) to verify whether its provision of information resources and related results of service delivery comply with the university's criteria for the educational quality standard named Chulalongkorn University Quality Assurance. The SsQA system is derived from a combination of TQM principles and Kaplan and Norton's (1996) BSC approach. As shown in Figure 4.2, this system has four essential elements the Central Library must consider in order to undertake its

formal performance evaluation or internal quality auditing effectively (Udomkichdecha, 2006; Akaraprathompong, 2007):

1. Planning an operational strategy (strategic cooperation)
2. Identifying main service missions
3. Instigating internal processes of managing library resources (e.g. financial, human and information resources)
4. Developing key performance indicators to evaluate library performance or audit service quality internally.

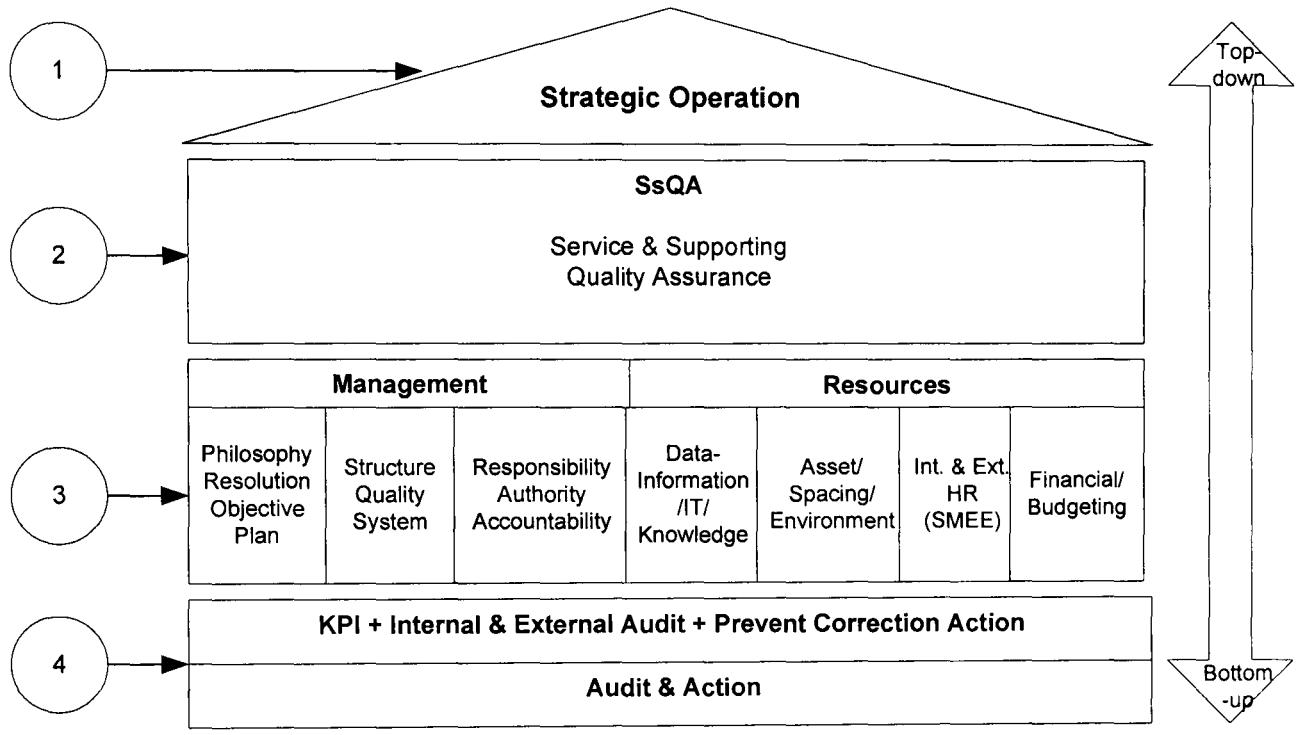

Figure 4.2 Internal quality assurance system for Service and Supporting units (Udomkichdecha, 2006)

The annual evaluation processes in the Central Library are divided into four stages. First, each department suggests quality indexes based on the CUQA standard and offers them to the CAR Executive Board for approval. Secondly, personnel will assess internal activities with the proposed indexes to submit a self-assessment report. Thirdly, external inspectors appointed by the University evaluate an account of the Library's actions as presented in the self-assessment reports. Lastly, the Central Library expresses its performance in a final report (Akaraprathompong, 2007). The university inspectors check a cycle of service provision – planning/specification of service quality, operation, control, self-audit and responsiveness – every two years.

The CAR has its own QA Taskforce. All the six departments elect their own delegates to this taskforce, who must pass a training course in internal audit, to this taskforce. Every three years a senior librarian is appointed as a Quality Management Representative. This position is the leader of the taskforce (CAR, 2007).

The interpretation of the documentary evidence showed that the IC concept could be integrated into the Central Library's SsQA system of performance evaluation. Some components of managerial resources depicted in the SsQA system were particularly compatible with structural assets, human assets and relationship assets. As shown in Figure 4.3, examples of structural assets were organizational culture, objectives, plans, structure, quality system, and information technology. Knowledge and personnel resources could be included in human assets. Internal and external networks could refer to relationship assets. However, the SsQA system did not cover library collections and services because it was designed to fit every supporting unit of the university in general. Developing new performance indicators to assess all types of potential intellectual assets might help the Central Library by complementing the information on library performance already gathered and increasing the variety of QA measures/indexes already in use.

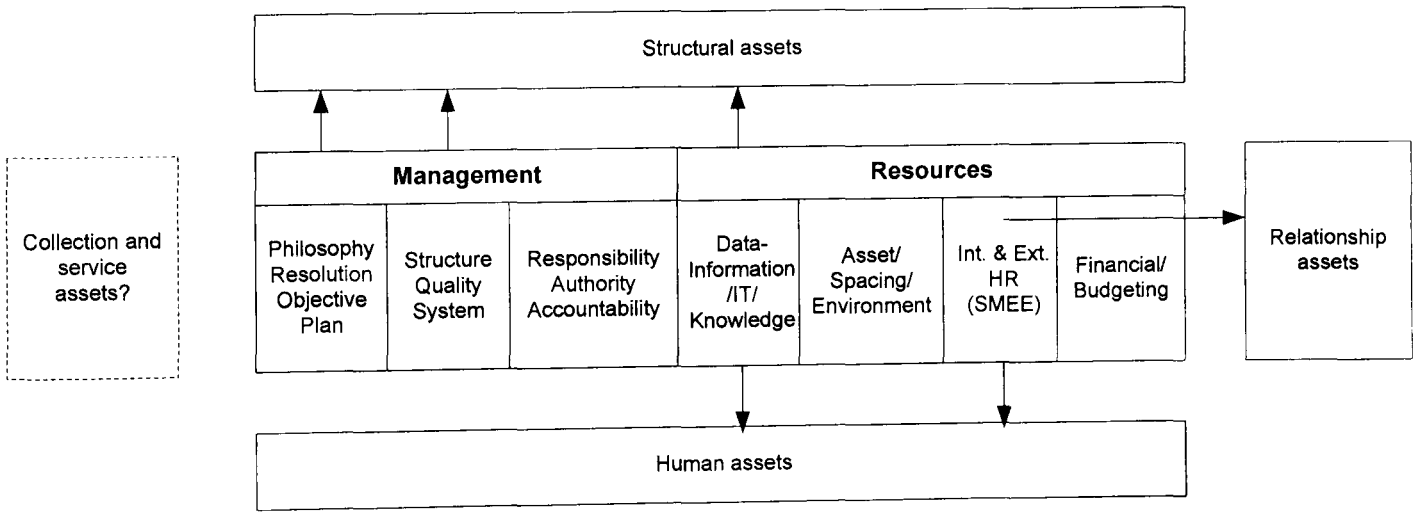

Figure 4.3 The linkage between the SsQA and intellectual assets

4.4.2 Pilot case findings

Combining qualitative interviewing with the survey data produced case findings to answer the four tentative questions of this exploratory study. The Central Library's administrators seemed to be interested in the ideas of evaluating library intangibles. The preliminary data about the exploration of intellectual assets as well as the development of intangible indicators in the pilot site are presented here in the order of the four research questions. Quotations from the semi-structured interviews, which were used to exemplify the pilot case findings, were translated by the researcher.

Question 1: What are library intellectual assets?

Every interviewee admitted the Central Library used intellectual assets on a daily basis but had not yet taken account of them in an inventory of library resources.

Human assets

From the management standpoint, the Central Library surveyed the attitudes of employees last year to know about job satisfaction. The director thought this study would help her improve conditions for workers and find means of retaining keen librarians because "The most important strategic resource is human assets because they act as consultants and the mechanism for helping users' knowledge access". The department head of cataloguing, who needed cataloguers to organise library materials, emphasised library personnel's competence, identifying this is an unseen asset where the library might recognise their expertise, skills and experiences through a mentoring programme, on-the-job training, or especially the induction of new employees. She stated: "Competent cataloguers and subject specialists, who are responsible for their own routines and practices, can be one of strategic resources that [her department can] use to achieve the CAR's mission".

Structural assets

As the QMR, the department head of reader services confirmed a quality manual contained enough information on library culture, structure and policies. Furthermore, the CUQA audit encouraged the Central Library to explicitly record work procedures, instruction, and routines in documentation. These were concrete evidence of professional knowledge as well as management information systems. She also mentioned information technology as another type of structural assets for the Library. She said, "Hardware and software [information technology] will facilitate value-added databases and efficient service delivery [an institutional repository] ...core competency in information works still depends on ... applications of information technology and infrastructure in the building".

Relational assets

The CAR director stated partnerships between the library and external stakeholders were assets critical to the Library's sustainability. For instance, the Faculty of Engineering at Chulalongkorn University collaborated with the information technology department of the Library to write software named 'Open Space' which was used to construct digital collections. The Library exploited the software not only to develop digital collections, but also to generate income from running workshops. From the professional viewpoint, the departmental head of acquisition described how she used cooperation between academic libraries to operate her scheme. She consulted friends in other libraries with first-hand experience before making a decision to buy self-issuing/returning machines. She told of her personal experience of using library cooperation and social networking as relational assets:

> When the CAR board of executives want to initiate a project relating to the department's responsibility such as acquisition of self-check machines or Radio-Frequency Identification (RFID), the department will review literature, ask other libraries having experiences for these initiatives before, and browse helpful examples from library websites to propose dealing directly with the administrators. Library cooperation and network is an important factor to help the department find appropriate solutions.

Collection and service assets

The Central Library provided many valuable information resources and quality services for its users. Such resources and services were the output of the knowledge-creating processes within the library. So they should be recognised as an additional type of library intellectual assets. This new type reflected the distinct value of the library where its provision of information resources and quality service delivery were demanded by library stakeholders. Collection and service assets were not covered by the common three categories of intellect assets: human, structural and relational assets. For instance, the departmental head of cataloguing, who was also the acting head of acquisitions, stated that her staff had been collecting research and theses produced by academics, researchers and graduate students to build the CU knowledge repository. This new database could respond to the University's research missions. For the head librarian of information technology, an expert directory gathering communities of practice from all faculties showed the Library's role in internal networking around its community. Another added-value service, which the departmental head of research support services was proud to present, was a virtual reference service. Her staff could communicate with distant users through the 'Ask A Librarian' programme. It was her department that had pioneered this information product in Thailand.

Question 2: Why does the library need to evaluate intellectual assets?

The library administrators expected to initiate intangible assessment if information on intellectual assets would help them: make some decisions to develop strategic resources in accordance with the university strategy; improve actions and activities of knowledge management in the organization; and report library value for university executives and stakeholders. Table 5.1 shows some excerpts from the semi-structured interviews that explain why the interviewees had interest in intellectual assets evaluation.

Interviewees	Reasons
Director	"Information on existing knowledge resources helps the library administrators plan to develop, increase, reduce or balance various types of collections. It also shows returns on investment to attract the University executives allocate budget to new library products and services... Intellectual assets evaluation looks like public-relations tools of image improvement. It can satisfy patrons by illustrating what the Library operates to respond to demands on information services ..."
Head of Reader Services Department	"[Information on library intangibles] may influence users' attitudes towards better image because stakeholders still look the library as conventional service units today. Reporting knowledge-based resources of the Central Library seems to be a proactive way to promote its new services and products. It also represents results/effects and current library position in the community as well as responds to patrons' requirements."
Head of Information System Department	"[Information on library intangibles] It helps users recognise the importance of library services and lead to good images and reputation. When these new services or products are well known, popular use is the follow-up to value for money. Teachers and researchers finally benefit from this resource sharing."
Head of Research Service Departments	"If librarians know [recognise the role of] existing knowledge resources within their departments, they can enhance the library's performance as well as image. Moreover, intellectual information motivates personnel to develop information works according to customers' needs."

Table 4.1 Examples of reasons for interest in intellectual assets evaluation

Question 3: How should the library develop performance indicators to evaluate its intellectual assets?

To test the possibility of using the scorecard process model, there were three core issues which the investigator had to extract from administrative documents and probe into with interviewees: key success factors, performance indicators and measures.

Key success factors

KSFs were important elements that the Library had to achieve to meet the university's expectations based on the SsQA. Four factors were as follows:

1. User satisfaction with information resources and services
2. Capability development of library personnel to create innovations in library and information work
3. Continuous improvement of service quality
4. Customer loyalty and stakeholders' reliance

Corresponding indicators

In this pilot study 'performance indicator' was defined as a statement about long-term targets and short-term priorities to help in interpreting the Library's several knowledge resources or success in learning activities. The director and senior librarians identified fourteen performance indicators that would show whether the Central Library had achieved its key success factors. Table 4.2 displays the alignment between the key success factors, proposed indicators and four areas of library performance. All areas where the Library wanted to accomplish things interacted with the four types of intellectual assets previously identified. For instance, collection and service assets can be aligned with service quality. On the other hand, human assets relate to the learning and growth area.

Proxy measures

Measures here mean figures indirectly demonstrating the growth or the decline of intellectual assets. The choice of sample measures was made after examination of existing indexes of the CUQM to avoid gathering the same items twice. Designing the measures for each indicator depended on the evaluation focus. Four aspects which the participants wanted to measure involved the system approach – input, throughput, output and outcome – including customers' feedback. From all the aspects for evaluation, a matrix of 21 possible measures was developed, as shown in Table 4.3.

Key success factors	Performance indicators	Areas of performance
User satisfaction with information resources and services	Collection and service assets - Complete collections - Correct databases - Correct, prompt and timely delivery of services - Convenient use and access	Product and service quality
Capability development of library personnel to create innovations in library and information work	Human assets - Education and training - Learning support - In-house publication - Professional role	Learning and growth
Continuous improvement of service quality	Structural assets - Improvement of working processes and procedures - Good practices	Efficiency and effectiveness
Customer loyalty and stakeholders' reliance	Relational assets - Proactive public relations - Sustainable relationship - Reputation	Stability

Table 4.2 Proposed indicators with areas of performance for evaluating library intellectual assets

Question 4: What are appropriate performance indicators for library intellectual assets?

All members' opinions in the six departments were recognised as significant in determining the practicality of the selected performance indicators to ensure they could use these indicators to improve knowledge processes and develop intellectual assets. Table 4.4 presents their perception when they were asked about the ease of understandability and the importance of the indicators. Ten respondents indicated that they understood most indicators and the way in which intangibles were being measured – from fairly easy ($Mean^1 = 2.50$, $SD = 0.97$) to very easy ($Mean^1 = 3.60$, $SD = 0.70$) – except for good practice which had an average value of fairly difficult ($Mean^1 = 2.30$, $SD = 1.06$). All the respondents took the attitude that every indicator was important to evaluate with the mean scores ranging between 2.90 ($SD = 1.19$) and 3.70 ($SD = 0.48$). Professional role in the human assets received high scores of importance ($Mean^2 = 3.70$, $SD = 0.48$). In contrast, 'good practice' in the structural assets was considered to be the least important indicator ($Mean^2 = 2.90$, $SD = 1.19$).

4.5 Reflections on the pilot study

The contribution of conducting and reporting this pilot test was twofold: a clear definition of the focus of the research project and lessons learned on the feasibility of the data collection and analysis plans. The former was to clarify and try out the initial conceptual framework before embarking on the main study. The latter highlighted the actual improvements made to the research methodology.

4.5.1 Focus of the actual inquiry

The pilot case findings proved that existing theory in the IC field could be used to lead the researcher in clarifying the conceptual framework for evaluating intangible assets in relation to both taxonomies and design criteria for measures. Prior research on IC measurements guided the research to pose "What", "Why", and "How" questions that could be used to explore intellectual performance assessment in the specific context of Thai academic libraries. Moreover, the kinds of data derived from the mixed methods approach could answer the four tentative questions of research.

The preliminary results also suggested that the preconceptions about intellectual asset evaluation could be compatible with the quality management systems that have generally operated in most Thai university libraries as mandatory performance assessment for the Ministry of Education. This exploration also revealed a causal relationship between organizational intellectual assets and library operations. The survey findings implied that identification of non-financial resources might not be difficult for Thai library and information professionals to understand. Furthermore, they accepted the importance of indicators as a tool to report and use relevant information to develop intellectual assets in the library.

Sample measures	Aspects
Complete collections	
Number of requests to purchase new books, journals, etc.	Feedback
Correct databases	
Number of complaints about errors seen in databases	Feedback
Correct, prompt and timely delivery of services	
Number of suggestions or complaints about service delivery/responsiveness to customers' questions	Feedback
Convenient use and access	
Number of suggestions or complaints about access and use (both place and website)	Feedback
Education and training	
Total education and training costs	Input
Learning support	
- Number of internal training events	Throughput
- Number of formal meetings to exchange experience	Process
- Number of new collections or augmented services	Output
In-house publication	
Number of publication such as articles and manuals	Output
Professional role	
Number of professionals appointed as guest speakers, committee members, etc. by other organizations	Outcome
Improvement of working processes and procedures	
- Number of quality audits and self-evaluation activities	Throughput
- Number of work processes reducing waste cycles/steps	Output
Good practices	
- Number of work instruction or quality procedures	Output
- Number of quality rewards	Outcome
Proactive public relations	
- Total costs of public relations	Input
- Number of extra activities, i.e. exhibitions, guide tours	Throughput
Sustainable relationship	
- Total funds in sponsorship from external organizations	Input
- Number of faculties who regularly support library works	Input
- Number of projects collaborating with others	Output
Reputation	
- Number of visits to the library	Outcome
- Number of universities sending their students to the library for internships	Outcome

Table 4.3 Examples of measures used for each performance indicator

Performance indicators	Understandability (n = 10)		Importance (n =10)	
	Mean[1]	*SD*	*Mean*[2]	*SD*
Collection and service assets				
Complete collections	3.20	1.03	3.20	0.79
Correct databases	3.40	0.70	3.60	0.70
Correct, prompt and timely delivery of services	3.40	0.97	3.40	0.97
Convenient use and access	3.20	0.92	3.00	0.94
Human assets				
Education and training	3.60	0.70	3.40	0.70
Learning support	2.50	0.97	3.60	0.97
In-house publication	3.10	0.99	3.10	0.57
Professional role	3.60	0.52	3.70	0.48
Structural assets				
Improvement of work processes and procedures	2.90	0.99	3.30	0.68
Good practice	2.30	1.06	2.90	1.19
Relational assets				
Proactive public relations	3.10	0.99	3.40	0.70
Sustainable relationship	2.90	0.99	3.40	0.70
Reputation	3.20	0.79	3.40	0.52

Note. [1]Mean of the level of understandability of how these indicator are measured (1 = Very difficult, 2 = Fairly difficult, 3 = Fairly easy, 4 = Very easy). [2]Mean of the level of importance of performance indicators (1 = Least important, 2 = Slightly important, 3 = Very Important, 4 = Most important).

Table 4.4 The level of understandability and importance of proposed performance indicators

The sequential investigation of real case studies undertaken in similar situations, i.e. the academic library sector in Thailand, was needed to look beyond initial impressions arising from this pilot study. Undertaking the multi-site case study in the next phase of the research journey would generate more robust evidence of the soundness of the tested framework on intangible indicator development. Meanwhile, the researcher expected to gain cross-case results which could contribute to conceptual explanations underpinning the applicability of library intangible assessment in theory and practice.

4.5.2 Lessons learned on methodological issues

Turning to the proposed field procedures, the pilot study supported the investigator in building a final version of the research design, improving the case study method, and modifying techniques for collecting and analysing data.

Research design

Using the case study approach and combining three sources of evidence — documentation, interviews and a survey — in this pilot study informed the researcher that many components of the research design planned during this preliminary stage could be practically replicated in the main study such as the research questions, conceptual framework, and multiple-methods of data collection and analysis. These components were also significant for making the decisions about how, where, and when to do the real fieldwork of the multiple-case study. In other words, this well-designed pilot study influenced the technical considerations and the research approach of the actual investigation discussed in Chapter 3.

Case study method

The pilot study confirmed the researcher's decision to use the case study method to collect data in Thai academic library settings. However, he learned the limitation of conducting a single-case investigation that influenced the number of cases to be studied. The pilot work was limited to a small sample (six informants and ten survey participants) in one library. A single-case study might fit the purpose of exploration but it was not suitable for explanation. "Several case studies should usually be used in postgraduate research because they allow cross-case analysis to be used for richer theory building" (Perry, 1998: 792). The actual study needed a multiple-case design for generalising the initial set of key performance indicators to replicate or extend the emergent theory. Accordingly, case selection criteria were set up to find case libraries for the multiple-case inquiry (see Chapter 3, Section 3.2).

Data collection techniques

The researcher gained experience in doing the trial fieldwork and accessing the research location where its organizational setting was similar to the real case sites.

Document analysis

The pilot case library had administrative documents available, such as QA materials, self-assessment reports, standard operating procedures, etc. The researcher employed these documents to illustrate the relation between the library's evaluation practices and the concept of IC reporting. Because the documents were for internal use only, the researcher needed permission from the library director to use them for analysis. This made it clear that such an ethical issue would probably apply in gaining access to documentary evidence for the actual case studies.

Semi-structured interviews

The pilot interviews were essential for the researcher to practise the effective planning, management and sharing control in the qualitative interview situation. As Teijlingen and Hundley (2001) noted that:

> Qualitative data collection and analysis is often progressive, in that a second or subsequent interview in a series should be 'better' than the previous one as the interviewer may have gained insights from previous interviews which are used to improve interview schedules and specific questions.

The experience of interviewing during the pilot study helped the researcher to anticipate many practical issues around the preparation for the real interviews. These issues included the choice of the interview location, making time arrangements for conducting the interviews, and the use of audio-recoding software. The pilot also allowed him to familiarise himself with the interview approach. For example, he learned how to set the people being interviewed at ease; when to ask closed questions or probing questions; and how to handle the interview data to prepare them

for further analysis. This experience made him feel and sound confident in conducting the interviews of the main study.

Respondent selection for the small-scale survey

Initially, random sampling of the survey population was chosen to gather data from every librarian and specialist in the pilot site, irrespective of whether they had previous experience of taking part in assessment activities. However, one departmental head of librarians in the pilot site stated that:

> It didn't mean that every professional would get the picture of performance indicators. Few people had rarely related to assessment activities although the library had been looking into its performance through quality management. Respondents, who could fill in this questionnaire, should have first-hand experience of quality assurance.

Thus, choosing participants at random was changed to purposive sampling by screening potential respondents for the quantitative phase of data collection of the main study. The inquirer decided to gather survey data from line managers such as division heads or senior librarians instead. These target groups seem to understand the overall situation of library evaluation. This seemed a much better strategy than asking all staff when some of them had rarely been exposed to assessment activities in academic libraries.

Adjusting the survey instrument

The small-scale survey was used in the pilot study to confirm that the set of performance indicators developed from the qualitative data (content analysis and semi-structured interviews) were understandable to the potential indicator users. Furthermore, the survey data demonstrated the relative importance of each suggested indicator to the pilot library's strategic objectives. The researcher had decided that a self-administered questionnaire survey would be a suitable option for this purpose because it was an easy way to get honest answers from prospective respondents. However, he later realised that several intangible indicators contained in the questionnaire were written with jargon such as 'good practices' or 'sustainable

relationship'. Some respondents were probably unfamiliar with these terms. A drawback of using the self-administered questionnaire was that the researcher and the respondents were not interacting. If these respondents had problems with their questionnaires, the researcher could not help them understand ambiguous survey questions. Such ambiguities, therefore, might be not explained or amended properly. As a result, there he made a slight change in the way that the survey instrument was used in the main study. This change aimed to avoid the self-administered questionnaire's weakness. In the actual fieldwork, the researcher decided to use the investigator-administered questionnaires, which were filled out in his presence instead. The questionnaires would be handed to respondents in groups and returned immediately. It was expected that the choice of this data collection mode would reduce some confusion about complicated words that appeared in the questionnaires, by allowing the investigator to clarify questions for the respondents, and then make certain that these respondents had no misunderstanding of the suggested performance indicators' definitions.

Data analysis and reporting

The pilot study was essential as a trial run for analytical techniques. The researcher practised analysing both the qualitative and quantitative data: he examined the textual data to create a case description or "develop a descriptive framework for organizing the case study" (Yin, 2003b: 114); he learned to combine the multi-sources of evidence; and he tried to frame such data through the preconceptions about intellectual assets evaluation and the IC measurement perspective.

One difficulty of the above tasks was that both qualitative and quantitative data analysis was primarily dependent upon the choices, decisions and interpretations of the researcher. To cope with this difficulty, it was necessary to develop explicitly a conceptual framework or *a priori* model from pre-existing theories (e.g. business performance measurement, library evaluation, and the BSC) in sensitising him to orienting the specific theoretical constructs that needed to be examined during the main study such as the identification and categorisation of library intellectual assets, motives for interest in intangible assessment, and criteria reflecting intellectual performance for Thai academic libraries.

Furthermore, the pilot work had an impact on the researcher's case study composition. Presenting the preliminary finding in the form of the pilot case report offered a practice writing situation, which alerted him to the challenges of trying to put the data collected on paper, and specifically the challenge of trying to write and illustrate conclusions from the interview scripts in a coherent and analytical way. This writing practice also highlighted the significance of organizing topics, sub-topics, and other components of the content to be reported in the compositional outline which was pre-structured by the conceptual framework. The researcher concluded that a tightly structured case report would prevent him from being drowned in the rich data and help him to present the case facts clearly, logically and accurately. Figure 4.4 depicts a structured case representation to be employed to organize the actual case studies' findings.

1. Case description
    - Organizational structure
    - Steering model of library evaluation
        - Quality assurance system
        - Evaluation elements of service quality
        - Mandatory measures
2. Case findings from the qualitative phase
    - Identification of library intellectual assets
        - Human assets
        - Structural assets
        - Relationship assets
        - Collection and service assets
    - Motives for interest in intellectual assets evaluation
    - Approach to developing performance indicators
        - Measurement viewpoints and evaluation criteria
        - Key success factors
        - Intangible indicators
        - Sample measures
3. Case findings from the quantitative phase
    - Level of understandability of performance indicators
    - Level of importance of performance indicators

Figure 4.4 The representation of the actual case reports

4.6 Conceptual framework for the main study

Knowledge gained from the researcher's practical experience of conducting the pilot case inquiry guided him through the development of the conceptual framework for the main phase of his investigation. Such experience involved formulating the initial conceptual base for the study (Chapter 2, Section 2.6), testing his preconceptions about intellectual assets evaluation (Chapter 4, Section 4.2), and collecting the preliminary results within the working environment of the pilot site (Chapter 4, Section 4.4). The appropriate conceptual framework for the main study thus evolved during the course of the pilot study. As shown in Figure 4.5, this framework set out four sequential areas to be studied in the actual inquiry — from the identification of library intellectual assets to the design of intellectual performance indicators. By carefully examining the data from the pilot study, the knowledge-based output of library and information work (e.g. unique collections of information materials, added-value services and new products) emerged as another category of intellectual assets that might be related to the identity of library organizations. The researcher therefore thought it was important to include 'collection and service assets' as an additional category of library intellectual assets in the conceptual framework.

In addition, it should make the indicator development process visible by visually presenting the following three main elements: KSFs, qualitative statements as performance indicators, and quantitative measures (see Figure 4.6). This process would be helpful in identifying a set of potential indicators that suit the real research setting.

Summary

The preliminary data of the pilot study presented here had implications for and provided further justification of the research design, methods and tools applied to the ensuing conduct of the multi-site case investigation of the main study. Even though this exploratory test was a single-case design involving one university library with a small group of participants, it provided the investigator with an opportunity to test his tentative concept model and research questions as well as preparing him for gathering, analyzing and reporting the case findings in the actual research sites. More importantly, the researcher gradually developed his research skills enabling him to

make progress in the whole research project. He learned lessons from the use of multiple data sources in trial that pointed towards the correct interpretation of documentary, interviewing, and survey data together with the modification of the survey instrument.

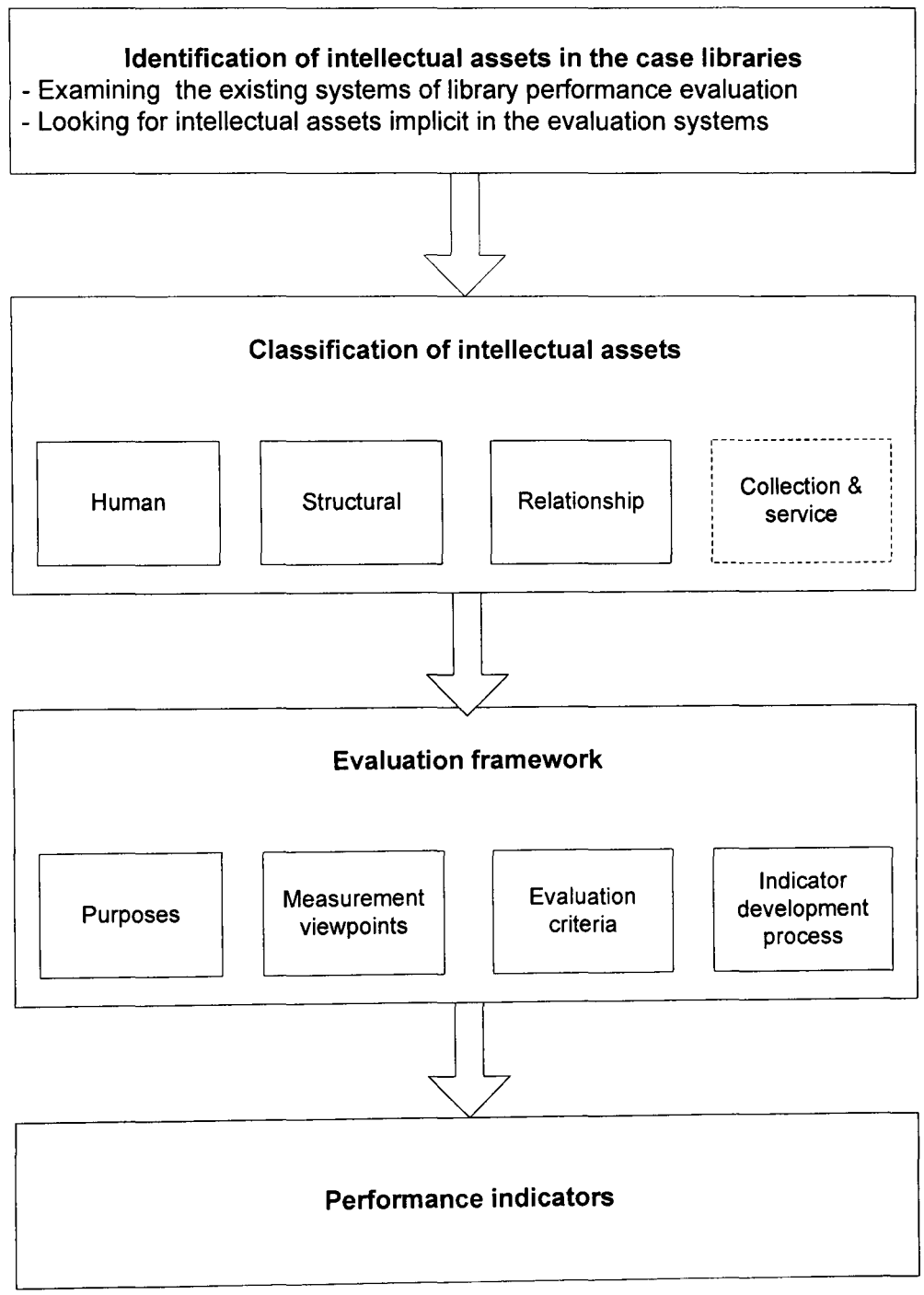

Figure 4.5 Conceptual framework for the investigation

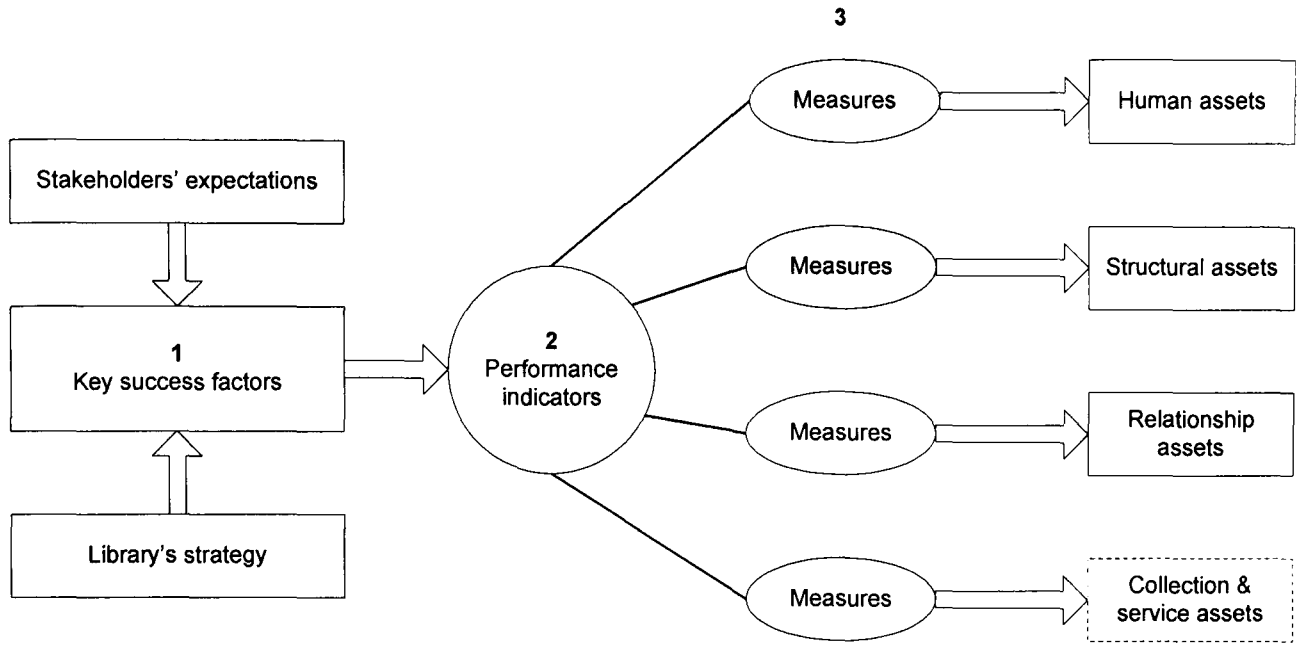

Figure 4.6 Indicator development process

The researcher embarked upon the main study after finishing the pilot inquiry. He did the actual fieldwork in three academic libraries to collect the empirical evidence by adopting the case study methodology involved in mixed-methods of data collection and analysis. The next chapter brings the reader to the within-case analysis that covers all the findings from the three separate studies. These findings appear in the form of individual case reports, presented in a consistent structure informed by the findings of the pilot study.

CHAPTER 5
WITHIN-CASE ANALYSIS

This chapter presents the descriptions and findings from the case studies conducted at three university libraries in Bangkok, Thailand. The data were collected through document reviews, semi-structured interviews with library managers and group-administered questionnaires to library and information professionals as potential users of performance indicators. Analysis of within-case data was based on the conceptual model introduced in Chapter 2 and 4. Because the analysed data for the three cases were gathered by using similarly-patterned instruments of data collection (see Appendices A, B and C), they are presented in the form of individual case reports following the same outline. First, each case report describes the contextual issues of performance measurement – the strategy, organizational structure and the steering model of evaluation of libraries where the case studies were carried out. Second, they present the findings from documentary evidence and interviews with the key informants to identify and classify the organizational intellectual assets of the case libraries, to discover motives for interest in intangible evaluation and to determine their measurement viewpoints and evaluation criteria for designing a draft set of performance indicators. The qualitative findings led the researcher to generate draft indicators together with some samples of surrogate measures specific to each case library. Third, the case study reports reveal the results of user acceptance tests for the proposed indicators and sample measures, conducted by using a small-scale survey technique. Validation of the items for the questionnaires and profiles of the survey respondents are also presented.

5.1 Case 1: Kasetsart University Library

The Office of the University Library, Kasetsart University (KU) was established in 1943 to deliver library and information services to faculties, institutes and research centres in the university community. KU is one of the Thai public universities specialising in agricultural sciences. Consequently, its library acts as three

coordinating centres for agricultural information of the National Information System: the National Centre of the International Information System for Agricultural Sciences and Technology, the International Buffalo Information Centre (IBIC) and the Agricultural Research Information System (AGRIS).

5.1.1 Case description

Strategy

The case library's mission is to "acquire and collect information on all disciplines. It aims at being a centre for academic excellence of the University. Its efficient staff use modern technology in administrative management to render various services" (Kasetsart University Library, 2008b: 4). The KU Library's objectives for the period 2006-2010 are to:

- Develop managerial systems to enhance the effectiveness of library operations.
- Improve library personnel's competence, loyalty, morale and motivation for better working.
- Develop the Library into a modern learning centre that has advanced technology, new service approaches and attractive buildings.
- Play an important role in the University by supporting teaching, study and research activities to increase overall effectiveness.
- Become a source that supplies or prepares a variety of content for digital information-seekers in cyberspace.
- Retain the nation's leading centre on agricultural information services through the efficient development of collections and business operations improvement.
- Work in close collaboration with other institutions to get benefit from joint projects based on the Library's targets (Kasetsart University Library, 2008a: 2).

Organizational structure

The Office of the University Library is divided into five main divisions: Information Resource Management, User Services, Educational Technology, Agricultural Information and Information Technology. Each division had its own responsibilities based on library functions and types of information resources. It also has the Secretariat Unit which is responsible for office and administrative support (see Figure 5.1).

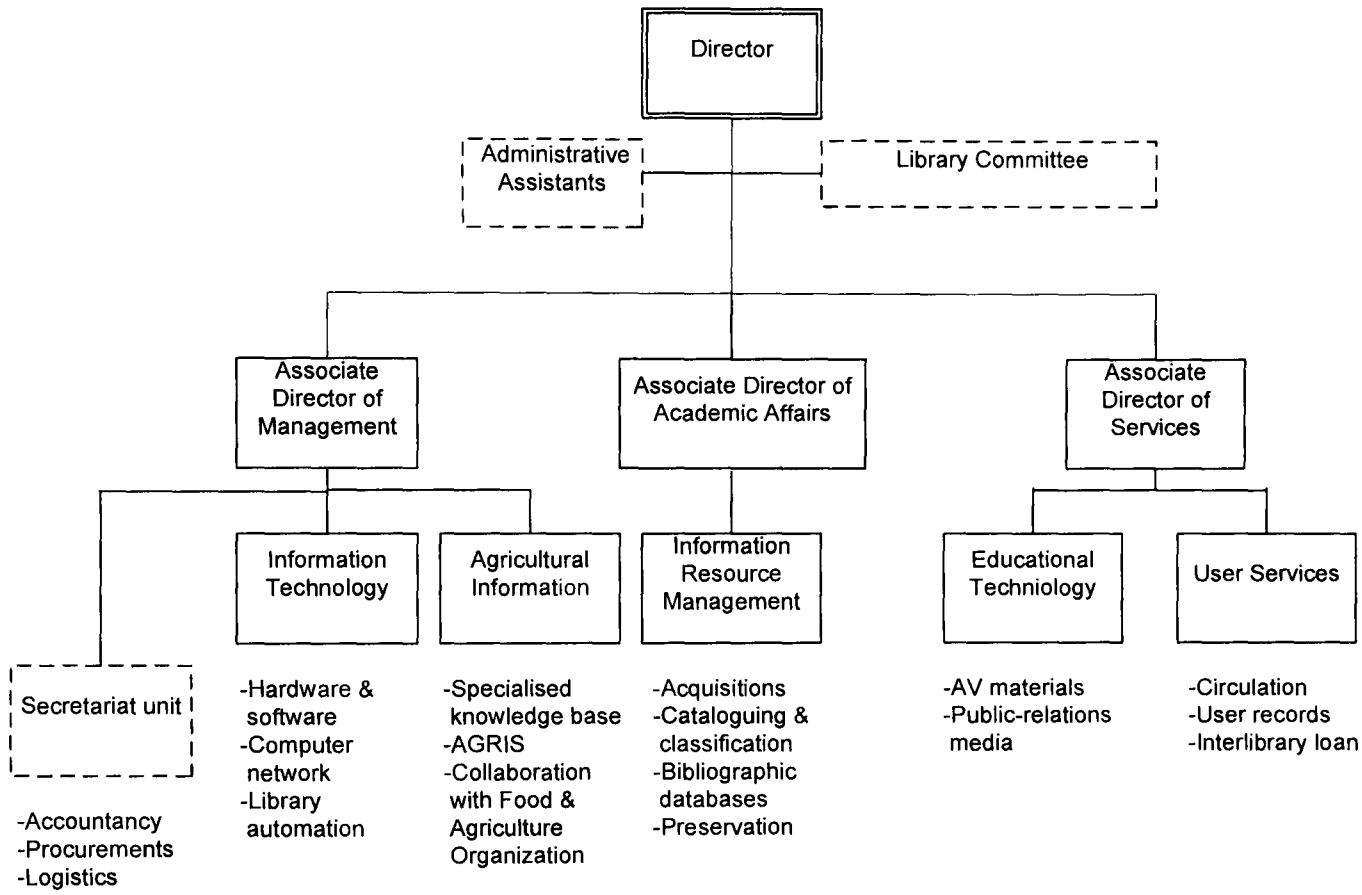

Figure 5.1 The KU Library's organization chart (Kasetsart University Library, 2008a: 7)

The director is in charge of the whole library. She has three associate directors helping her manage basic services, practitioners' research and execution of short-term plans respectively. Two administrative assistants were also appointed to track initiatives in information technology and added value services. At operational level every divisional head's duty is to control routine jobs. The Library Committee, which comprises all administrators from the five divisions and one support unit, instigates management responsibilities such as strategic planning, decision making and implementation of service quality audits.

Steering model of library evaluation

Official evaluation of library performance began in 2002 when the University adopted a QA system to control work processes, audit operations and assess higher education quality. The QA Office of the University set up guidelines on quality management, suggested QA measures, and established QA mechanisms to review the efficiency and effectiveness of subsidiary organizations every year. This system is named the Quality Assurance system of Kasetsart University (QAKU). The Library produced its own quality manual based on the QAKU guidelines. The contents of this manual consist of the Library's QA system, measured elements of service quality, mandatory QA measures and evaluation criteria.

QA system

This case library uses the general system model to evaluate how well its operations perform in terms of context, inputs, processes, output and outcome. In this model, the organizational context, such as a strategic plan, policies and action plans for quality control, affects every aspect of managing staff, money, technology, and materials in the KU Library. The inputs are the resources required to supply, develop, produce and provide information resources or services. The processes are the various ways that the library personnel transform inputs into output. The output is the quantity of collections and services derived from processes. Finally, the outcome is the satisfaction of and feedback from users about information resources they obtained. Their complaints are considered to refine the context, inputs and processes. Figure 5.2 displays the sequence of this QA system.

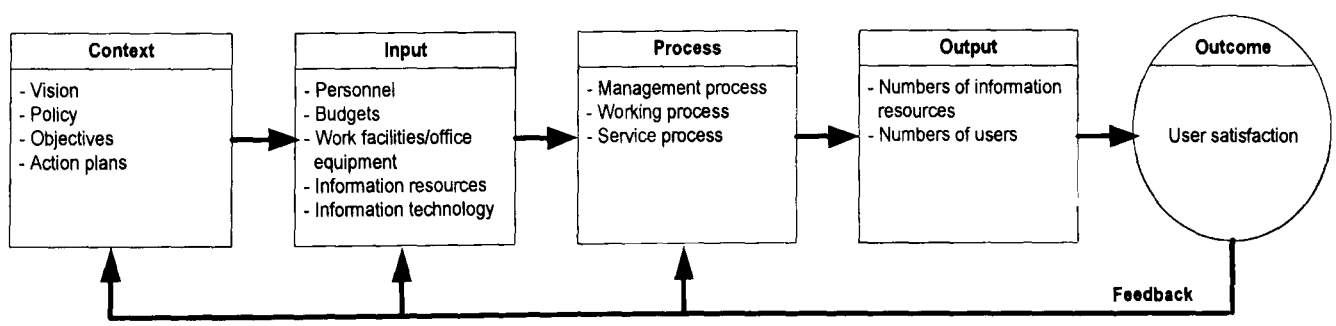

Figure 5.2 KU Library's system model for assuring service quality (Kasetsart University Library, 2007)

Evaluation elements of service quality

The University stipulates that the case library must carry out an internal audit to evaluate six QA elements:

1. Strategy and operational plans
2. Responsibilities for supporting the University's mission and Thai society
3. Administration
4. Finance and budgeting
5. Internal mechanism for assuring service quality
6. Continuous improvement and development of services and work processes

Mandatory measures of quality assurance

In 2007 the University assigned 35 measures for monitoring all its academic support units' annual performance, but the KU Library decided to remove nine research-oriented metrics which were not concerned with its mission, for example research grants per professional staff and percentage of research done in the workplace. Table 5.1 summarises the 26 QA measures classified by the six evaluation elements.

Evaluation criteria

The QA Office of the University appoints a team of trained auditors to evaluate how well the Library performs in quality management practices based on the six QA elements. The auditors visit the Library once a year to examine its QA documents such as a self-assessment report, operational procedures and work instructions. They also talk to some library staff about problems in the workplace and meet with some users experiencing satisfaction from library services. After the visit, the quality of library performance is judged by the evaluation criteria drawn from the Plan-Do-Check-Act cycle for continuous improvement. The audit team evaluates the success levels the Library reached by the Library for each QA element by giving:

- One point if the library strategy consists of action plans and operational objectives to ensure that the auditee goes in the right direction for its strategy (Plan).
- Two points when library operations have proved a complete success in implementing its action plans (Do).

Evaluation elements	QA measures	Types of measures
1. Strategy and operational plans	1.1 Number of action plans/projects evaluated after the completion	Output
	1.2 Define strategy, generate action plans and create KPIs to measure success in the execution of each plan	Process
	1.3 Percentage of success based on proposed KPIs	Output
	1.4 Current stage of communicating strategy to staff	Output
2. Responsibilities for supporting the University and Thai society	2.1 Percentage of library and information professionals	Input
	2.2 Current stage of service provision based on user requirements	Output
	2.3 Percentage of activities or projects reacting to users' needs at national level, per employee	Output
	2.4 Average hours that staff spend providing services to the public, per week per employee	Input
	2.5 In-cash and in-kind expense per employee: academic services for the public	Input
	2.6 Number of activities/projects on cultural heritage	Output
3. Administration	3.1 Run on good governance and leadership principles	Process
	3.2 Check programmes of human resources development and retain competent staff	Process
	3.3 Current stage ofparticipative management	Output
	3.4 Percentage of staff who had awards	Output
	3.5 Current stage of communicating each KPIs and institutional goals to individuals	Output
	3.6 Percentage of good-level results derived from user satisfaction surveys	Output
	3.7 Build a job assignment system	Process
	3.8 Do job analysis to redesign work flow	Process
	3.9 Training costs per employee	Input
	3.10 Percentage of staff who took part in training activities	Input
	3.11 Ratio of all employees to all workstations	Input
4. Finance and budgeting	4.1 Create a system and mechanism for allocating financial resources, analysing cost-benefits and controlling budget	Process
	4.2 Percentage of grant given by external organizations, per actual expense	Input
	4.3 Percentage of service activities that were analysed for cost per unit and reported to administrators	Process
5. Internal mechanism for assuring service quality	Current stage of implementing the QA system towards a culture of assessment	Process
6. Continuous improvement and development of services and work processes	Current stage of organizational development and improvement towards the learning organization	Process

Table 5.1 Measures of quality assurance used in the KU Library (Kasetsart University Library, 2007; Office of Quality Assurance Kasetsart University, 2007)

- Three points for monitoring mistakes in work to find possible solutions and prevent repeat problems (Check).
- Four points if the Library had evidence of using management information wisely to modify practical methods for continuous improvement of service quality (Act).

After the quality audits, each external examiner's ratings are summed and divided to calculate the average scores for library performance on service quality. These mean scores are classified by the six QA elements and then recorded in annual quality audit reports.

5.1.2 Case findings from the qualitative phase

The case evidence was derived from the QA document review and semi-structured interviews with the library director and three associate directors. Qualitative data were analysed to identify organizational intellectual assets, classify them into the four predefined categories described in the conceptual model for this research, explore motives for intangible evaluation and develop a draft set of performance indicator.

Identification of library intellectual assets

The University executives demand that all support units, including the KU Library, have to strengthen their operations, core competence and capacity for the development of a world-class university. Academic cooperation, work system improvement and staff's competence development are three examples of managing organizational performance to achieve the agenda (Kasetsart University Library, 2008b).

To be proactive about the institutional agenda, the Library's strategic objectives specify that managerial systems, characteristics of staff, their practical knowledge base, value-added collections and services, and collaboration with other institutions are critical to the quality of library services (Kasetsart University Library, 2007). These five objectives pertain to the intangible aspects of organizational performance.

As a result, the Library's strategy is the starting point for identifying intellectual assets hidden behind the library operations.

The researcher compared the 26 QA measures used in the KU Library's formal model of evaluation with the IC concept to confirm that there were strategic resources in this case setting. Table 5.2 shows the contents of the organizational knowledge which the Library might gain from its service quality measurement.

Quality elements	What is being measured	Content of knowledge
1. Strategy and operational plans	- Reviews of action plan - Evaluations of library projects - Communicating strategy with people in the organization	- Management responsibility - Organization culture
2. Support for teaching and learning	- Workforce expertise - Service provision based on user requirements - Collections related to users' needs - Throughput for preparing information resources and providing services - Investments in outreach projects - Projects on cultural heritage preservation	- Library personnel's skills and know-how - Customers' relationships - Core products and services - Routines and practices - The Library's contributions to the University community and Thai society
3. Administration and management	- Good governance and leadership - Retaining competent staff - Participative management - Library reputation/image - User satisfaction - Job assignment - Work process improvement - Training - Information work facilities	- Management leadership - Human resource development - Stakeholders' relationships - Customers' relationships - Routines and practices
4. Internal quality assurance system	- Internal quality audits	- Learning process - Stakeholders' relationships
5. Continuous improvement and organizational development	- Total quality management in progress	- Management responsibility - Management leadership - Learning process

Table 5.2 Intellectual assets obtained by measuring service quality in the KU Library

Classification of library intellectual assets

In addition to searching for strategic resources in the strategy, the library administrators' practical experience was needed to determine the most important intangibles in a real situation. Their suggestions were categorised into four bundles: human, structural, relationship, and collection and service assets.

Human assets

Every key informant assumed the knowledge, abilities and experiences of library personnel were important for the Library to deliver quality services. The Director asserted that "even though we formulate a perfect library strategy, it cannot be executed without competent library workers". Some crucial characteristics of library staff identified by the library administrators were:

- service mindset
- mental agility
- commitment to the parent organization's goals
- expertise in particular subject matter
- well-rounded workers who can do various jobs in rotation
- having a team spirit while implementing library projects
- up-to-date skills, e.g. management skills, foreign languages and computer literacy

Structural assets

Major sources of explicit knowledge comprised the minutes of knowledge sharing meetings, well-documented lessons for practitioners in working groups and evaluation records relating to quality control such as standard procedures and work instructions. Moreover, a team of systems analysts was designing a management information system to integrate some facts and figures into a single database. "This initiative will help us manipulate meaningful information on library performance when we want to make some decisions in a committee meeting", the Associate Director of Management added as she referred to the knowledge base.

Relationship assets

The Director justified maintaining good relationships between the Library and its key stakeholders. "KU Library is not an independent organization... We need to take care with our users that they are still satisfied with information resources; respond to the University's policies for securing financial support; and consider the pros and cons before joining any cooperation", she explained.

However, all interviewees agreed that users' feedback was external knowledge which could indicate the current state of library collections and services. The Associate Director of Services claimed "I always make decisions to improve existing services or deliver new services by using information mainly derived from user surveys.... I think this is customer relationship management in library style."

Collection and service assets

Quality products and services were at the heart of this classification. The four administrators listed some example of collection and service assets that included:

- Frequently used services
- Users' praise at service points
- Information resources frequently requested
- Digital collections, e.g. KU electronic books and institutional repositories
- In-house databases, e.g. the Thai agricultural thesaurus and Thai buffalo database

Motives for interest in intellectual assets evaluation

The motivations for intangible assessment were to complement internal quality audits as an additional tool of strategic evaluation, to track KM initiatives in progress, to showcase the effects of knowledge development activities, and to illustrate another hidden aspect of the library's worth in annual reports. Table 5.3 shows the four administrators' expectations for intellectual assets evaluation.

Interviewees	Reasons why they wanted to evaluate intellectual assets
Director	"Intangible investments such as staff development and KM projects are regarded as long-term investments. It seems interesting to have an approach of assessment to measure these knowledge-based actions."
Associate Director of Academic Affairs	"Our several divisions try to articulate what they learn from the KM projects in the form of the minutes. These minutes can help the Library Board measure the success of [KM] projects to prepare action plans for the next financial year."
Associate Director of Services	"We should adopt an approach to reveal how well we make progress with these [KM] projects, what collective knowledge we apply to solve operational problems, and how our knowledge concerns stakeholders."
Associate Director of Management	"Annual reports are seen as an important means of communication. The Library can disclose its intellectual performance in the annual reports so that general audiences can read them conveniently."

Table 5.3 Purposes of introducing intangible evaluation in the KU Library

Approach to developing performance indicators

This part presents a possible approach for assessing knowledge assets and the indicator development process. The approach has two aspects which are measurement viewpoints and an evaluation criterion appropriate for the case library. A new set of performance indicators – key success factors, indicators and sample measures – are described next.

Measurement viewpoints and evaluation criteria

The Director recommended that collecting information on intellectual performance should be combined with internal quality audits because "most staff are gradually becoming familiar with this self-assessment now [in 2008]. It is a good tool to check how well the Library performs based on our own policies or goal setting". Meanwhile, the Associate Director of Management aimed to refine the quality audits that "only help the Library 'plan' and 'do' operational tasks". She wanted to step forwards to strategic management control and believed that "[Kaplan and Norton's] Balanced Scorecard may be one of the suitable methods to 'check' and 'act' strategically". Thus new measurements should be tied to a holistic perspective from three groups: the library personnel, the university executives and the users/customers.

For an evaluation criterion, it should be simple to draw the three groups of audiences' attention to library intellectual assets. The Associate Director of Services commented that "Information on strategic resources may be prepared for a knowledge inventory until readers can consider what they want to know immediately such as interesting results over the last few years, trends or progress".

Key success factors

The four interviews with library managers revealed further insights into the Library's strategic objectives to identify KSFs for the intangible performance of this case organization. Four categories of library intellectual assets also underpinned these KSFs. To succeed in becoming one of the leading service centres in the University, the Library needed the following KSFs:

- Competent and ambitious workers
- Enduring collaborations with other institutions
- Managing and directing the Library systematically
- Quality of collections and efficiency of services

Corresponding indicators

The suggested indicators were developed as statements about levels of performance involving knowledge resources. Table 5.4 displays the link between the four key success factors and the six qualitative indicators arranged by the classification of intellectual assets.

Proxy measures

The researcher chose a sample of proxy measures from the Library's QA measures and statistics published in the recent annual report. As shown in Table 5.5, indications of surrogates for actual knowledge assets were designed to be consistent with the types of QAKU measures in use: input, process and output measures.

Key success factors	Performance indicators	Classification of intellectual assets
Competent and ambitious workers	- Develop personal competencies and skills that are suitable for modernised work in a learning centre - Build up staff loyalty, motivation and the team's morale	Human assets
Managing and directing the Library systematically	- Enable a learning environment through managerial systems	Structural assets
Enduring collaborations with other institutions	- Promote sustainable cooperation by dealing with other organizations in a win-win situation	Relationship assets
Quality of collections and efficiency of services	- Place a high value on core collections in response to readers' needs - Place a high value on core services in response to users' needs	Collection and service assets

Table 5.4 Performance indicators of intellectual assets proposed in the KU Library

5.1.3 Case findings from the quantitative phase

Following the results of the qualitative phase, this subsection presents the results of the small-scale survey to indicate whether the indicators of intellectual performance were understandable to the prospective users and important for the Library from the line managers' points of view.

Because the four associate directors (the interviewees in the qualitative phase of this research process) were directly responsible for strategic evaluation of the case library, they were chosen as experts to review the survey's contents which were based on what they had suggested during the semi-structured interviews. The contents of items in the questionnaire covered all the indicators and examples of proxy measures.

Sample measures for intellectual assets	Types of measures
Competencies and skills	
- Personal development and training costs	Input
- Percentage of staff taking part in training courses	Input
- Number of projects on personal development and training	Process
Loyalty, motivation and the team's morale	
- Investment in IT for library personnel	Input
- Library staff satisfaction surveys	Process
- Library staff's overall level of workplace satisfaction	Output
- Number of support staff leaving	Output
- Average amount of sick leave/absence per employee	Output
Managerial systems enabling a learning environment	
- Investment in premises and office equipment	Input
- Number of employees trained to be internal quality auditors	Input
- Appraisal of leadership and management responsibilities	Process
- Library board meetings	Process
- Working group meetings	Process
- Knowledge sharing activities	Process
- Dissemination of good practices	Process
- Number of practitioner research projects	Output
- Number of quality assurance documents	Output
Sustainable cooperation	
- Total costs of public service implementation	Input
- Amounts of endowment given by outside organizations	Input
- Investment in public relations	Input
- Number of community partnership programmes	Output
- Number of joint projects with research and educational institutions	Output
- Percentage of professional staff appointed as speakers, co-advisors, committee members, etc.	Output
- Professional visits to the library	Output
- Students having a summer internship at the Library	Output
High value in core collections	
- Total costs of new information resources requested by users	Input
- Library material usage surveys	Process
- Information resource inventories	Output
- Information resources checked out	Output
- Number of visitors logging on to electronic resources	Output
- Number of visitors to library websites	Output
- Number of new collections/information products	Output
High value in core services	
- Request counts at service points	Input
- User satisfaction surveys and focus groups	Process
- Percentage of customers being satisfied with services	Output
- Proportion of positive feedback about services	Output
- Number of added value/new services	Output

Table 5.5 The KU Library's examples of measures used for each performance indicator

After assessing this questionnaire, the Associate Director of Management recommended that the researcher should add a financial measure for office automation investments to Performance Indicator 3, 'Managerial systems enabling a learning environment'. Her reason for supplementing the third indicator with this measure was to express an annual budget for premises and technological infrastructure developments to build structural assets. She remarked:

> We are particularly proud of the Library's intranet called 'KULIB e-Office'. It comprises a human resource database, an activity calendar, an electronic records management system, storage and retrieval of electronic documents and a knowledge sharing web board. It sounds great if the Library will notify its key stakeholders that we spend money making our practical knowledge explicit.

In the case study at the KU Library, the prospective users of performance indicators were five divisional heads: Information Resource Management, User Services, Educational Technology, Agricultural Information and Information Technology. These line managers normally took part in a range of service evaluation activities. They trained as peer auditors to understand elements of existing quality measurement, communicate their understanding of QA measures to staff, and gather statistics about the divisions' operations as part of preparing a self-assessment report for the whole library. As the survey respondents, they had sufficient experience to judge whether a draft set of performance indicators really was practical for evaluating knowledge resources. The investigator gave a short presentation on the results of the qualitative probe to these respondents before asking them to fill in the questionnaire. Table 5.6 presents the characteristics of the survey participants.

Level of understandability of performance indicators

Six performance indicators with sample measures were scored on a four-point Likert scale (4=Very easy; 1=Very difficult) to reveal the degree of understandability of these indicators. As shown in Table 5.7, the five divisional heads' responses indicate that they easily understood every indicator and the way in which intellectual assets would be measured with the mean scores ranging from 2.80 (SD = 1.09) to 3.80 (SD = 0.45).

Respondent	Gender	Position	Division	Years with organization	Years in performance evaluation
1	Female	Librarian	User Services	10+	4+
2	Female	Librarian	Information Resource Management	10+	4+
3	Female	Librarian	Educational Technology	10+	3-4
4	Female	Subject specialist	Agricultural Information	10+	1-2
5	Female	Subject specialist	Information Technology	6-10	1-2

Table 5.6 Respondent profiles for the KU Library

The results for the performance indicators for core collections, core services, and the mindset of library staff were 'very easy' to understand. The mean scores for these indicators ranged between 3.80 and 3.60 (*SD*s = 0.45 and 0.55, respectively). However, the indicators for managerial systems, sustainable cooperation and competency and skill development had an average value of just 'fairly easy'. The mean scores for these three indicators were 2.80, 3.20 and 3.40 (*SD*s = 1.09, 0.84, and 0.55, respectively).

Level of importance of performance indicators

The respondents indicated that all performance indicators were important to assess – from very important ($Mean^2$ = 3.40, *SD* = 0.89) to most important to evaluate ($Mean^2$ = 3.80, *SD* = 0.45). The mindset of library staff and core services received the highest ranking, whereas sustainable cooperation received the lowest score. In addition, three remaining indicators were ranked at 3.60 (*SD* = 0.55), which included managerial systems, competency and skill development and core collections (see Table5.7).

Performance indicators	Understandability (n = 5)		Importance (n =5)	
	Mean[1]	*SD*	*Mean*[2]	*SD*
- Develop personal competencies and skills that are suitable for modernised work in a learning centre	3.40	0.55	3.60	0.55
- Build up staff loyalty, motivation and the team's morale	3.60	0.55	3.80	0.45
- Enable a learning environment through managerial systems	2.80	1.09	3.60	0.55
- Promote sustainable cooperation by dealing with other organizations in a win-win situation	3.20	0.84	3.40	0.89
- Put a high value on core collections in response to readers' needs	3.80	0.45	3.60	0.55
- Place a high value on core services in response to users' needs	3.60	0.55	3.80	0.45

Note. [1]Mean for the level of understandability of how these indicator are measured (1 = Very difficult, 2 = Fairly difficult, 3 = Fairly easy, 4 = Very easy). [2]Mean of the level of importance of performance indicators (1 = Least important

Table 5.7 The level of understandability and importance of performance indicators proposed for the KU Library

5.2 Case 2: The Central Library, Srinakharinwirot University

When the Bangkok College of Teacher Training grew into Srinakharinwirot University (SWU) in 1954, its small library was founded simultaneously as a support division under the Office of the Rector. This library was developed into the Central Library one year later. Between 1955 and 1962 many schemes funded by the United States Agency for International Development (USAID) made the Library update its operations. For example, USAID sent a few academics to train the Library's staff members in standard practices of information work. Several library professionals of the Central Library had an opportunity to get scholarships to the Library School of Indiana University. Since the seven-year establishment of modern approaches to library service delivery, the Central Library has had a good relationship with the community it serves by providing instructional media as well as library facilities for 12 faculties, seven research centres and the Graduate School to sustain the University's national reputation for preparing students for the teaching profession.

5.2.1 Case description

Strategy

The SWU Library defines its mission as "To offer high level support for university activities of teaching, study and research by preparing various types of information resources that suit users' needs and encouraging students to have skills for lifelong learning" (Srinakharinwirot University Central Library, 2008: 2).

On the basis of the mission above, the Library aims to attain five objectives for library operations by:

- Supplying sufficient educational materials, in line with the university curriculum
- Delivering efficient, up-to-date and just-in-time services that satisfy users' expectations
- Using information technology effectively to connect electronic resources to library network clients
- Developing the Central Library to be a self-access learning centre
- Encouraging library practitioners to develop their competence and expertise in information work and accede to users' requests (Srinakharinwirot University Central Library, 2008: 2).

Organizational structure

In 2003, its use of library automation in several functional areas of information work encouraged the Central Library to create a new design for its structure that would work best for the entire library. So the Library Committee separated particular responsibilities for maintaining hardware, software and computer networks from basic operations by setting up the Information Technology division. As shown in Figure 5.3, there are seven divisions and two branch libraries in this revised arrangement of the hierarchical structure (Srinakharinwirot University Central Library, 2008):

1. Secretarial Division
2. Library Resource Development Division
3. Library Database and Classification Division

4. Circulation Division
5. User Promotion Division
6. Educational Technology Division
7. Information Technology Division
8. Ongkharak Campus Library
9. Medical Library

Regarding administrative positions in the SWU Library, the library director has the Library Committee acting as a group of counsellors to help her execute the operational strategy, policies and plans. The committee members consist of two associate directors, one administrative assistant for quality assurance, seven divisional heads and two head librarians of the branch libraries.

Steering model of library evaluation

The Library has to meet the requirements and standards of operations management published in 'Srinakharinwirot University's Handbook for Assuring the Quality of Higher Education 2007-2010'. This handbook has four main parts relating to library evaluation. The first part gives an overview of the University's Quality Assurance System. The second part contains the elements of quality management for non-teaching subsidiaries. The third part provides the performance measures which are compulsory for the University regulation of quality control. The last part explains evaluation criteria for internal audits.

QA system

The University's QA system is adapted from the requirements for internal quality management of the International Organization for Standardisation Standard, ISO 9001: 2000. This system obliges the Central Library to control, audit and assess its service quality by:

- Planning how to evaluate the quality of library operations and services
- Implementing library performance reviews based on the evaluation plan
- Judging whether the Library conforms to its quality standards through self-study reports, documented procedures and recorded data

- Using the results of library evaluation to improve information work, products and services continuously
- Contributing the results of library evaluation to the University's self-assessment reports to prepare for external audits arranged by the Office for National Education Standards and Quality Assessment (Quality Assurance Office of Srinakharinwirot University, 2008).

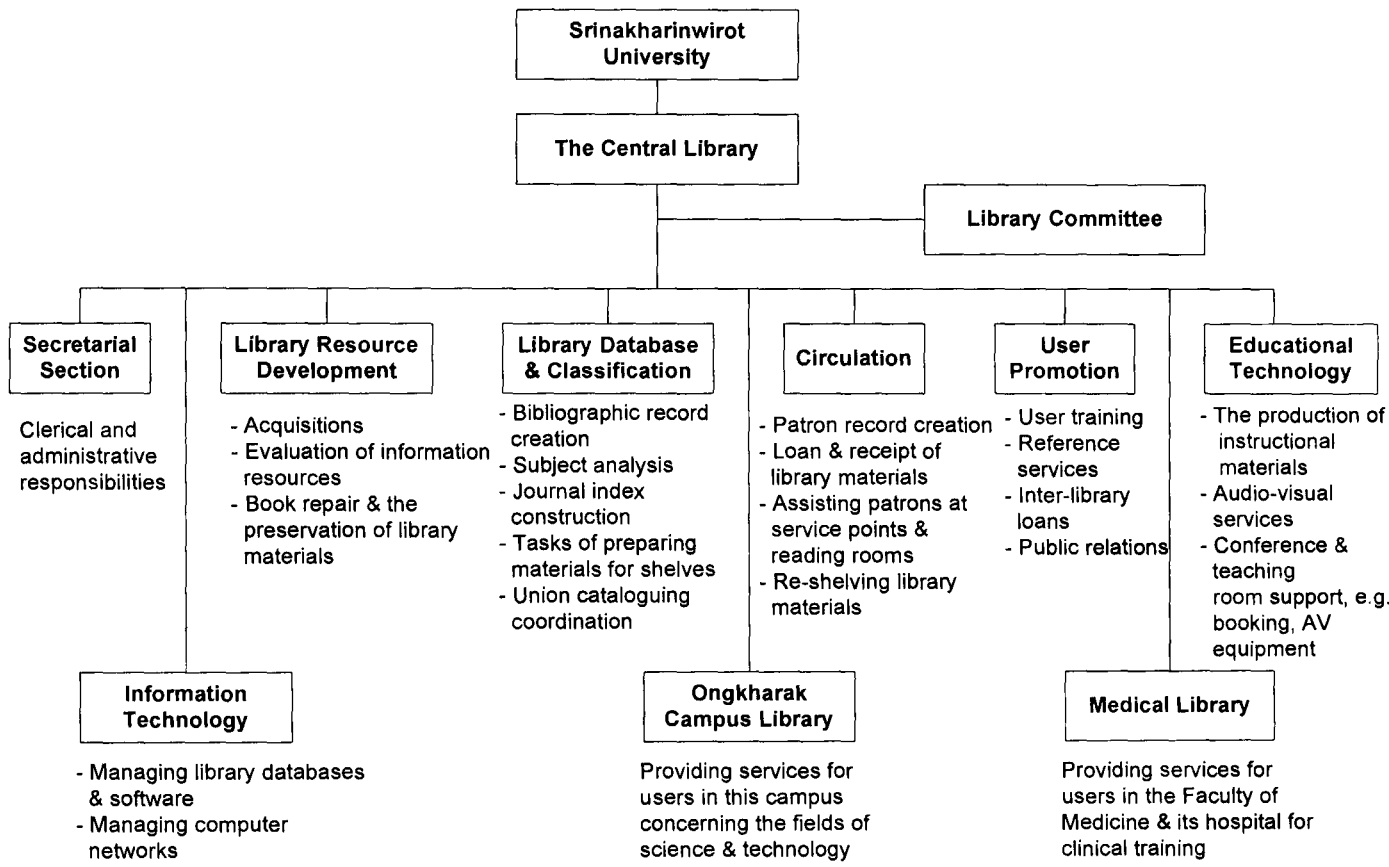

Figure 5.3 The SWU Library's organization chart (Srinakharinwirot University Central Library, 2008: 8)

Figure 5.4 illustrates how the internal audits conducted by the dependent organizations like the Central Library are linked to the entire quality assessment of the University. First, the Library measures key components of the information supply chain such as library resources, internally-related practices and volumes of acquired collections. Next, it undertakes self-evaluation by gathering statistics about library use and feedback from user surveys to understand how the service provision satisfies patrons. Then, it prepares annual self-study reports to reflect on the library system from an internal perspective and reveal library usage from the experience of users. Finally, it submits the annual reports to the University for preparing QA documents at the top management level. The Library is notified of feedback after its

parent organization completes the external quality assessment overseen by the Office for National Education Standards and Quality Assessment.

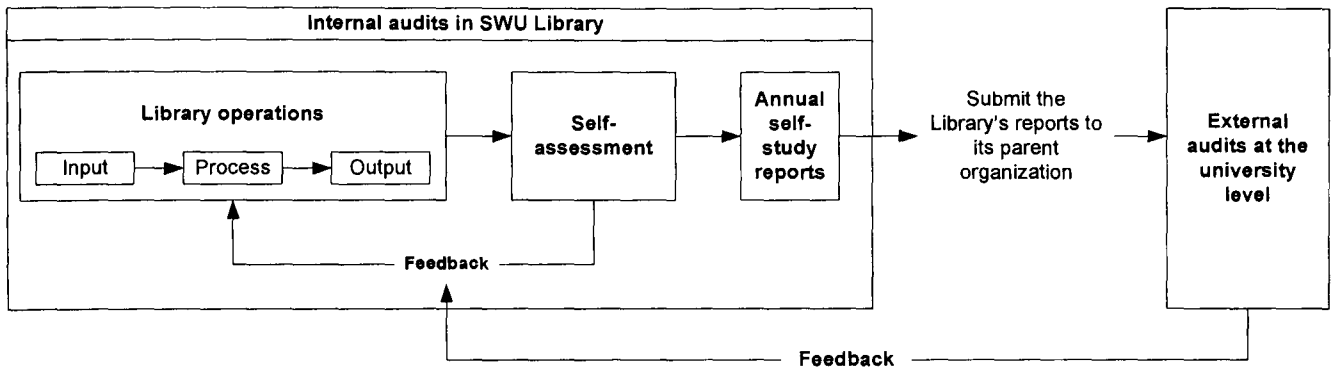

Figure 5.4 The SWU Library's system model for assuring service quality (Quality Assurance Office of Srinakharinwirot University, 2008: 13)

Evaluation elements of service quality

As one of the non-teaching units, the requirements of the QA Approach for SWU Library are embodied in six elements:

1. Proposed goals, main objectives and operational plans
2. Primary purposes in support for teaching, learning and research activities in the University
3. Preservation of art and culture
4. Management responsibility
5. Finance and budgeting
6. Internal quality assurance mechanisms (Srinakharinwirot University Central Library, 2006).

Mandatory measures of quality assurance

In 2007, the SWU Library had a total of 30 measures for monitoring its performance according to the six elements of service quality, of which 25 were specified as compulsory by the University, whereas five measures were created by the Library itself. Three of the five measures related to information services in the case site, as follows:

- Percentage of users participating in training courses in information skills
- Access counts for the library website
- Number of new proactive services

For the two remaining measures chosen by the Library, one was a financial measure showing the average cost of collection development per student. Another measure highlighted the average stock of library resources per student. Both were contained in the fifth QA element, finance and budgeting. Table 5.8 shows the full set of QA measures.

Evaluation criteria

Every academic year the Quality Assurance Office of the University sends a panel of trained auditors to visit the Library and examine its relevant documentation, particularly self-assessment reports. After considering performance data collected by the Library according to the QA measures, this panel has to evaluate the overall performance of library operations by rating the level of achievement for the six quality elements.

The auditors express their overall scores on a scale of one to three (poor to good) for each quality element. In addition to the evaluation, the university panel is able to form conclusions about the strengths and weaknesses of library management from an external perspective. It also suggests solutions to problems faced by the SWU Library, as well as pointing out the possible direction of organizational development.

5.2.2 Case findings from the qualitative phase

The following sections present the qualitative findings from the analysis of documentary evidence and the four semi-structured interviews with the library administrators.

Evaluation elements	QA measures	Types of measures
1. Proposed goals, main objectives and operational plans	1.1 Have a process of strategic planning, operational planning and a set of KPIs for measuring the success of each plan	Process
	1.2 Percentage of the attainment of each plan	Output
2. Primary purposes in support of teaching, learning and research activities in the University	2.1 Have a system and a mechanism for developing library operations and services	Process
	2.2 The ratio of library personnel to academic staff	Input
	2.3 The ratio of library personnel to full-time equivalent student enrolment	Input
	2.4 Percentage of user satisfaction ratings	Output
	2.5 Percentage of users participating in training courses in information skills*	Output
	2.6 Access counts for the library website*	Output
	2.7 Number of new services or proactive activities provided by staff members*	Process
3. Preservation of art and culture	Have a system and a mechanism for offering community outreach programmes within the Library	Process
4. Management responsibility	4.1 Transparency in the Library Committee	Process
	4.2 Library administrators have leadership qualities	Process
	4.3 Evidence of library development towards the learning organization	Process
	4.4 Have a system and a mechanism for managing human resources to recruit and develop competent staff	Process
	4.5 Have a management information system for decision support	Input
	4.6 The success rate for giving stakeholders a chance to participate in library development schemes	Output
	4.7 Apply the concept of risk management to the process of library management	Process
	4.8 The success rate for communicating KPIs to individuals in the Library	Output
	4.9 Percentage of library workers taking part in additional training to further their careers	Input
	4.10 The success rate for reducing excessive procedures in operations to boost the speed of service delivery	Output
	4.11 The success rate for following the University's policy on energy saving	Output
	4.12 The success rate for a Five S programme (Sort, Set in order, Shine, Standardise, Sustain) to establish an efficient working environment	Output

Table 5.8 Measures of quality assurance used in the SWU Library (Quality Assurance Office of Srinakharinwirot University, 2008)

Evaluation elements	QA measures	Types of measures
5. Finance and budgeting	5.1 Have a system and a mechanism for effectively allocating budgets, analyzing expenditure and auditing financial data	Process
	5.2 Share library resources with others organizations	Process
	5.3 Total costs of community outreach programmes per employee	Input
	5.4 Percentage of total net worth per operating expense	Input
	5.5 The average cost of collection development per student*	Input
	5.6 The average stock of library resources per student *	Input
6. Internal quality assurance mechanisms	6.1 Have internal QA mechanisms in alignment with the University's QA system	Process
	6.2 The overall evaluation scores of internal quality audits	Output

Note. The measures with asterisks were developed by SWU Library itself.

Table 5.8 Measures of quality assurance used in the SWU Library (continued)

Identification of library intellectual assets

The researcher employed the language of the quality elements and measures used in the University's QA handbook to make all key informants realise the intellectual assets possessed by the SWU Library. A review of the QA documentation revealed that the case library might obtain various types of collective knowledge related to operational management, work processes, information resources and services and user experience while they were undertaking internal quality audits. Table 5.9 compares the six quality elements measured in the existing QA system to the core contents of collective knowledge, which can be linked to library intellectual assets.

Classification of library intellectual assets

The library director, the two associate directors and the administrative assistant for quality assurance clarified intangible resources which were essential to the achievement of the Central Library's strategic objectives. Their required intangibles were classified into four categories: human, structural, relationship, and collection and service assets.

Quality elements	What is being measured	Contents of collective knowledge
1. Proposed goals, main objectives and operational plans	Progress of the Library in alignment with its strategy and action plans	Understanding of overall performance for planning the strategy and identifying needed actions in the future
2. Primary purposes in support of teaching, learning and research activities in the University	- Staff member growth - Process control - Control of information products - Control of library services - Satisfaction and complaints from users	- A trend in human resources - Routines and practices - Portfolios of core products - Portfolios of core services - The experience of users
3. Preservation of art and culture	Contributions for non-users within the entire Thai community	The public image of the Library
4. Management responsibility	- Management leadership - Staff satisfaction - Staff training - Control of a working environment to motivate staff	- The outcome of management at all levels - The relations between managers and staff - Learning processes - The current work climate
5. Finance and budgeting	Internal financial control	- Value for money in library operations and services
6. Internal quality assurance mechanisms	Operational reviews	- Collaborative learning in the self-assessment team - QA documents and records as the practical knowledge base of the Library

Table 5.9 Organizational knowledge obtained from internal quality audits in the SWU Library

Human assets

The interviewees' stance on human assets was that their subordinates should tend to be more open minded about changing circumstances in the workplace, possess skills in their key responsibilities and show their commitment to the library strategy for quality services. For example, the Director expected that "The library practitioners must have the vision by training themselves to be more proactive about what users want to create new services". The Associate Director of User Promotion and Research emphasised computer and English language skills: "Our professional staff cannot avoid using information technology during routine tasks and most foreign collections we buy are English", she said. Meanwhile, the Associate Director of Academic Affairs and Planning and the QA Assistant agreed that group participation

was one of the crucial factors in the execution of the library strategy as well as being crucial to the success of many projects on service improvement set by the Library Committee.

Structural assets

Evaluating library operations with the University's QA system compelled the SWU Library to produce its own QA documentation, such as handbooks, self-assessment reports and work procedures. These documents seemed to constitute empirical evidence on structural assets of the Library because they were written experience of tracking quality control in the information supply process. The QA Assistant added:

> The final reports of quality audits written by the university auditors can be included in our [the Library's] organizational knowledge. They identify our strengths and weaknesses which we may overlook and they make suggestions from the outsiders' points of view. If we seriously document lessons learned from the quality audits, these lessons will help us develop where we make good progress and improve where we make slow progress.

Relationship assets

When asked what the Library should do to demonstrate the importance of its services and resources for the stakeholders, the Associate Director of User Promotion and Research stated:

> My first priority is to have a good relationship with the board of university executives, e.g. deputy rectors, deans…It is a good idea to bring these executives, who approve our annual budgets, to visit the Library and see the real collections because most of them always perceive the library performance in board rooms only

Another intangible mentioned by the Director was the library image. She pointed out that financial support from the parent institution and positive feedback from

users would increase if her professional staff tried using a range of marketing communications to promote information resources and services showing that the Library was turning into a customer-oriented organization.

Collection and service assets

There were many knowledge assets involving collections and services of the case library. The following are examples of collection and service assets which the four key informants indicated to the researcher:

- Core course materials
- New search tools on the Library's website
- An electronic archive of selected dissertations and theses
- New or value-added services inspired by current users' complaints
- The collections and services received good ratings from user satisfaction surveys

Motives for intellectual assets evaluation

The concept of knowledge resources was new to the library administrators so they wanted to initiate an approach to intangible evaluation which could give them adequate clues to these unfamiliar resources. Moreover, they believed that an attempt at measuring organizational intellectual assets might be a useful adjunct to a representation of quality operations and services in the Central Library. Table 5.10 displays the four participants' opinions about interests in intellectual assets evaluation.

Approach to developing performance indicators

This part looks at four facets to the indicator development process: a possible approach for evaluating library intangibles, critical factors for the success of the SWU Library's strategy, and draft indicators of intellectual performance and surrogate measures for collective knowledge.

Interviewees	Reasons why they wanted to evaluate intellectual assets
Director	"Intangibles such as proactive services, value added collections and staff commitment to organizational change are very important to the whole organization... In our current evaluation of library services, it's hard to make the library personnel become aware of these intangibles if we don't have any new indicators for assessing them."
Associate Director of Academic Affairs and Planning	"Every support unit uses the same list of mandatory QA measures. If we have new performance indicators to augment our QA measures, we may show our distinctive quality that causes us to be in front when compared with other subsidiaries in the university community."
Associate Director of User Promotion and Research	"Many university executives are talking about knowledge management. It will be all right if we supplement our self-assessment reports with new information relating to our knowledge management projects. Increasingly, these pieces of information will attract the executives to the importance of library collections and services."
Quality Assurance Assistant	"It sounds interesting to try an appropriate method of intangible evaluation from the commercial sector if it helps us collect documentary evidence from every division of the Library's organizational structure to confirm that we have some such organizational knowledge."

Table 5.10 Purposes in introducing intangible evaluation in the SWU Library

Measurement viewpoints and evaluation criteria

Perceiving that intellectual assets were one of the Central Library's resources, the Director preferred to combine intellectual assets evaluation with the internal quality audits. She stated "All library resources are evaluated internally to make sure that they conform to the quality control standards and any new resources [intellectual assets] are no exception". The Associate Director of Academic Affairs and Planning added that new performance indicators for intangibles should be designed to harmonize with the current QA measures. Consolidation of the newly proposed indicators and the mandatory measures should make the individuals responsible for the preparation of self-assessment reports think their workloads had not increased when they collect the information on knowledge resources.

When asked about criteria for assessing intellectual assets, the QA Assistant wanted to initiate the intangible evaluation as part of existing knowledge management schemes by using the evaluation criteria specified by the University. She thought that the case library might use the input-process-output model of the existing QA system to guide intellectual assets evaluation. For instance, the Central

Library could disclose education and training costs (input), count the number of meetings arranged for staff to exchange tacit knowledge (process) and report new services or improvements on library operations coming from exploiting collective knowledge (output).

Key success factors

Among the five objectives in the Library's strategy, four factors related to intellectual performance were identified by the researcher as the key factors crucial to the success of these objectives:

- Library staff training and development
- Library services that meet users' needs
- An understanding of the community the Library serves
- Effective use of information systems and technology in library work

Corresponding indicators

Identifying these key success factors facilitated the design of interim indicators for the Central Library's intellectual assets. Seven performance indicators in the form of statements were recommended by the members of the library administration. Table 5.11 shows a list of qualitative indicators which are compatible with the four key success factors and the classification of library intellectual assets.

Proxy measures

The researcher adjusted the Library's QA measures, the statistics that appeared in the annual reports and relevant information published in the self-assessment reports to become proxy measures of intangible assets. These measures were grouped by the three types of measures — input, process and output — because the library managers who were interviewed during the site visit were accustomed to this approach, known through the formal model of library evaluation (see Table 5.12).

Key success factors	Performance indicators	Classification of intellectual assets
Library staff training and development	- Encourage library personnel to regularly develop their job skills and capabilities - Support exchange of personal knowledge among library workers - Give library and information professionals a chance to demonstrate their competencies outside the workplace	Human assets
Library services that meet users' needs	- Allocate enough qualified staff to deal with users promptly on the service counters - Improve the quality of learning space for users in the library premises	Collection and service assets
An understanding of the community the Library serves	- Give priority to user satisfaction - Initiate culture preservation projects as a part of social responsibility	Relationship assets
Effective use of information systems and technology in library work	- There are efficient processes and procedures for managing library operations - Use practical knowledge recorded in QA documentation of the Library to create better supply of information products and services - Apply information technology in harness with information access improvement and service quality enhancement	Structural assets

Table 5.11 Performance indicators for intellectual assets proposed at the SWU Library

5.2.3 Case findings from the quantitative phase

The subsequent survey was undertaken to gain acceptance among the end users at the divisional level that the draft performance indicators were understandable and it was important for the Central Library to evaluate its intellectual assets.

The researcher invited the QA Assistant to refine the draft statements about library strategic performance and quantifiable samples of organizational knowledge. When considering these drafts, she suggested putting in some measures that gave an indication of SWU Library's community services or cultural preservation activities. Her reason was that one of the University's missions was to preserve national art and culture: "Our university executives and sponsors may be satisfied if they know their library services go further with projects on preserving cultural heritage which support the Thai community as a whole".

Sample measures for intellectual assets	Types of measures
Development of job skills and capabilities	
- Total education and training costs	Input
- Grants given to practitioners to do research in the workplace	Input
- The total number of staff participating in training courses per year	Output
- Number of work-based research projects	Output
Exchange of personal knowledge	
- Number of meetings arranged for preparing self-assessments	Process
- Number of meetings arranged for producing standard procedures and work instructions	Process
- Library committee meetings	Process
Demonstration of professional competencies outside the Library	
- Number of professional staff participating in the working groups of the Thai Library Association	Output
- Number of visitors from other libraries/institutions	Output
Provision of prompt services	
- Number of suggestions or complaints about responsiveness to users' requests	Output
- Number of user-facing services improved to reduce unnecessary steps in service delivery and eliminate a waste of time	Output
Library as place	
Number of suggestions or complaints from users about library design, convenience of using facilities, safety etc.	Output
User satisfaction	
- Number of satisfaction surveys and focus groups	Process
- Percentage of users being satisfied with library collections and services	Output
Social responsibility	
- Total costs of outreach activity implementation per year	Input
- Number of outreach activities for non-users	Output
Efficient work processes and procedures	
- Work analysis reports	Output
- The external auditors' admiration for efficient work processes and procedures	Output
Practical knowledge recorded on QA documentation	
- Number of new QA documents	Output
- Number of in-house publications written by library practitioners	Output
Information technology applications	
- Total purchasing and maintenance costs for hardware, software and network equipment	Input
- Number of workstations sorted by the divisions within the Library	Input
- Number of suggestions or complaints from practitioners about hardware, software and intranet	Output

Table 5.12 The SWU Library's examples of measures used for each performance indicator

The target users for the newly-developed indicators were the members of the Library Committee who had a duty to prepare library statistics for internal quality audits. The QA Assistant helped make an appointment with them to distribute the survey tool (see Appendix C) at a meeting of this committee. The respondents were asked to express their opinions on the list of intangible indicators. There were nine survey participants taking part in the stage of quantitative data collection. Table 5.13 shows their characteristics.

Respondents	Gender	Positions	Divisions	Years with organization	Years in performance evaluation
1	Female	Divisional head	Information Technology	10+	4+
2	Female	Library secretary	Secretariat	10+	4+
3	Female	Head librarian	Branch Library	10+	4+
4	Female	Divisional head	Library Resource Development	10+	4+
5	Female	Divisional head	Circulation	10+	3-4
6	Female	Divisional head	Library Database and Classification	10+	1-2
7	Female	Divisional head	User Promotion	10+	4+
8	Male	Divisional head	Educational Technology	10+	4+
9	Male	Senior specialist in AV materials	Circulation	10+	4+

Table 5.13 Respondent profiles for the SWU Library

Level of understandability of performance indicators

The participants were first asked to rate the ease of understanding of ten performance indicators relevant to library intellectual assets. As can be seen from Table 5.14, most indicators were considered 'fairly easy' to understand with the average scores ranging from 2.89 (*SD* = 0.60) to 3.44 (*SDs* = 0.53 and 0.60), and the exchange of personal knowledge had the lowest mean. The development of job skills and capabilities obtained the highest mean of 3.56 (*SD* = 0.53) as 'very easy' to understand.

Level of importance of performance indicators

When asked about the importance of the intangible indicators, the respondents rated taking care with the user's satisfaction highest, with a mean of 3.78 (*SD* = 0.44). This was followed by the provision of prompt services (*Mean*[2] = 3.67, *SD* = 1.00) and the lowest score was for social responsibility (*Mean*[2] = 2.67, *SD* = 0.87). As can also be seen from Table 5.14, there were no indicators thought to be 'slightly important' or 'least important.'

Performance indicators	**Understandability** (*n* = 9)		**Importance** (*n* = 9)	
	Mean[1]	*SD*	*Mean*[2]	*SD*
Human assets				
- Encourage library personnel to regularly develop their job skills and capabilities	3.56	0.53	3.56	0.53
- Support exchange of personal knowledge among library workers	2.89	0.60	3.11	0.33
- Give library and information professionals a chance to demonstrate their competencies outside the workplace	3.44	0.53	3.56	0.53
Collection and service assets				
- Allocate enough qualified staff to deal with users promptly on the service counters	3.33	0.93	3.67	1.00
- Improve the quality of learning space for users in the library premises	3.33	0.50	3.56	0.53
Relationship assets				
- Give priority to user satisfaction	3.44	0.60	3.78	0.44
- Initiate culture preservation projects as a part of social responsibility	3.11	0.71	2.67	0.87
Structural assets				
- There are efficient processes and procedures for managing library operations	3.22	0.83	3.44	0.73
- Use practical knowledge recorded in QA documentation of the Library to create better supply of information products and services	3.22	0.83	3.11	0.93
- Apply information technology in harness with information access improvement and service quality enhancement	3.11	0.93	3.22	0.83

Note. [1]Mean of the level of understandability of how these indicator are measured (1 = Very difficult, 2 = Fairly difficult, 3 = Fairly easy, 4 = Very easy). [2]Mean of the level of importance of performance indicators (1 = Least important, 2 = Slightly important, 3 = Very Important, 4 = Most important).

Table 5.14 The level of understandability and importance of performance indicators proposed for the SWU Library

5.3 Case 3: Thammasat University Libraries Office

When the Thai revolution changed Thailand from an absolute monarchy to a democracy in 1932, law and politics graduates were urgently needed to work as government officials at the ministries founded on principles of Western democracies. Two years later, Thammasat University (TU) was established to educate students about law, politics, sociology and public administration. It is the second oldest university in the country. Nowadays, it has a national reputation for teaching and research activities in many fields of social sciences, liberal arts and science and technology.

The library services have been set up simultaneously with the enlargement of the University. There are many member libraries — three branch libraries, nine faculty libraries and an educational media service centre — for different types of users on four campuses. To centralise these separate subsidiaries, the TU Libraries Office was established in 1963 as their headquarters. This head office is located in the main library on the Bangkok campus. With regard to the number of libraries under its central control, the whole system of the TU Libraries Office is one of the largest academic library systems in Thailand.

5.3.1 Case description

Strategy

According to its operational strategy, the TU Libraries Office describes its mission statement as aiming to:

- Develop, organize, preserve and secure its collections;
- Support and provide accessible content for teaching and research to the university community;
- Provide convenient and effective access to modern knowledge in a variety of formats; and
- Offer formal and informal instruction to promote information literacy (Thammasat University Libraries Office, 2007a: 1).

More specifically it addresses seven objectives to be achieved by the year 2010 as follows:

1. To identify more closely our users needs and respond to them positively;
2. To improve access to the Libraries' collections and the University's publications in electronic format;
3. To facilitate staff development, training and advancement;
4. To develop and implement an IT strategy for the Libraries as a component of the University, both to provide readers with access to a wide range of information sources and services and to support library management;
5. To develop and implement performance indicators in order to monitor the Libraries' effectiveness and efficiency in achieving its objectives;
6. To review, in the context of the University library services as a whole, the management structure of the Libraries;
7. To collaborate regionally, nationally and internationally with other libraries and consortia to acquire and share collections and resources with the scholarly community (Thammasat University Libraries Office, 2007a: 2).

Organizational structure

The hierarchical layout of the TU Libraries Office is split into three functional groups: organizational administration and development, central technical services and user services. The first two functional groups pool their divisions in order to centrally perform tasks in operations management, acquisition, cataloguing and classification at the head office. Conversely, the duties of service provision are decentralised to each subordinate library/information centre (see Figure 5.5).

A panel of internal academics and outside experts is appointed by the university executives as the Library Board to advise the library director on managerial decisions. The administrative assistant is assigned the task of checking the libraries' progress with self-financing and externally funded projects. The Director also has a coordinating committee for executing strategic plans and implementing operational programmes. The committee members consist of three associate directors, five divisional heads, all head librarians from the subsidiary libraries and a head secretary.

Steering model of library evaluation

The TU Libraries Office evaluates service delivery processes in line with the parent organization's requirements for the QA system in higher education. These requirements are made on the basis of the ISO 9000. The library operations fall in line with the quality standard for the group of academic support units.

The TU Libraries Office often revises its own QA manual to ensure that all planned actions and varied programmes of information services operation will fulfil the requirements for quality control procedures given by the QA Committee of Thammasat University. This manual is intended for everyone in the organization, including a team of auditors. Its contents comprise the Libraries' QA system, QA elements, performance measures and evaluation criteria.

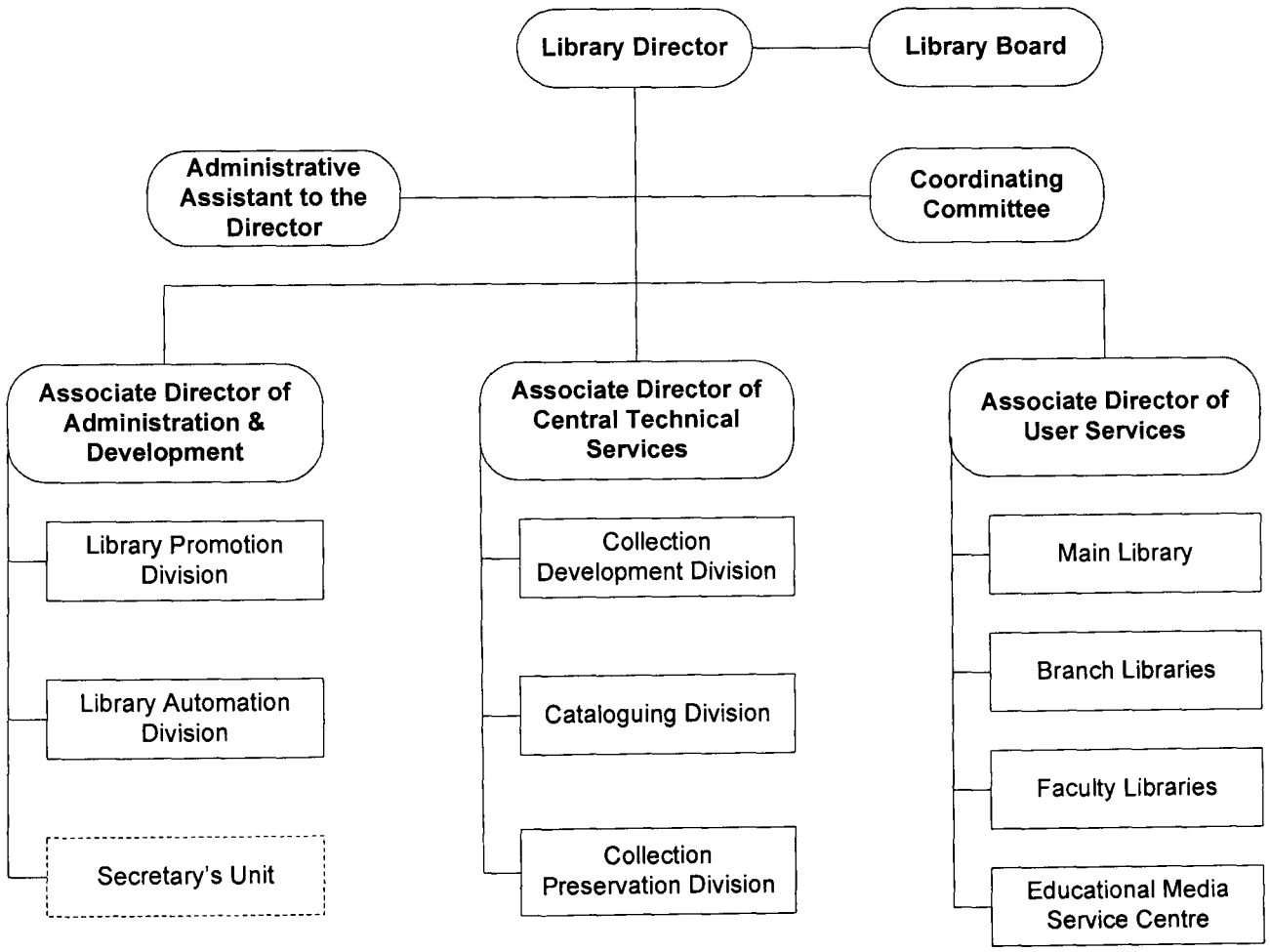

Figure 5.5 The TU Libraries Office's organization chart (Thammasat University Libraries Office, 2007b: 6)

QA system

The QA system of the TU Libraries Office has been arranged according to the basic concepts of quality management to satisfy the university executives, library users and general public. It makes certain that all member libraries of the Office have quality operations and provide a range of educational resources and quality services of benefit to these stakeholders. With the system model, the measurement of quality in library and information work is arrayed in four main components: input, process, output and outcome.

Service delivery from this case library starts by planning the direction for library operations, communicating the direction with leadership abilities and allocating funds for operational tasks. The strategy, leadership and finance are primarily examples of input resources. Next, maintaining the work flow in the core processes of each division depends on library practitioners' time spent on preparing information services, including their efforts to follow quality control procedures. Then, library output will be measured by counting the information products and services offered by the TU Libraries Office and tracking how its services are being used. Finally, user satisfaction provides a useful outcome measure for the quality of information resources and services offered by the case library. Feedback from measuring output and outcome can determine whether the library needs to make some improvements to both its inputs and processes (see Figure 5.6).

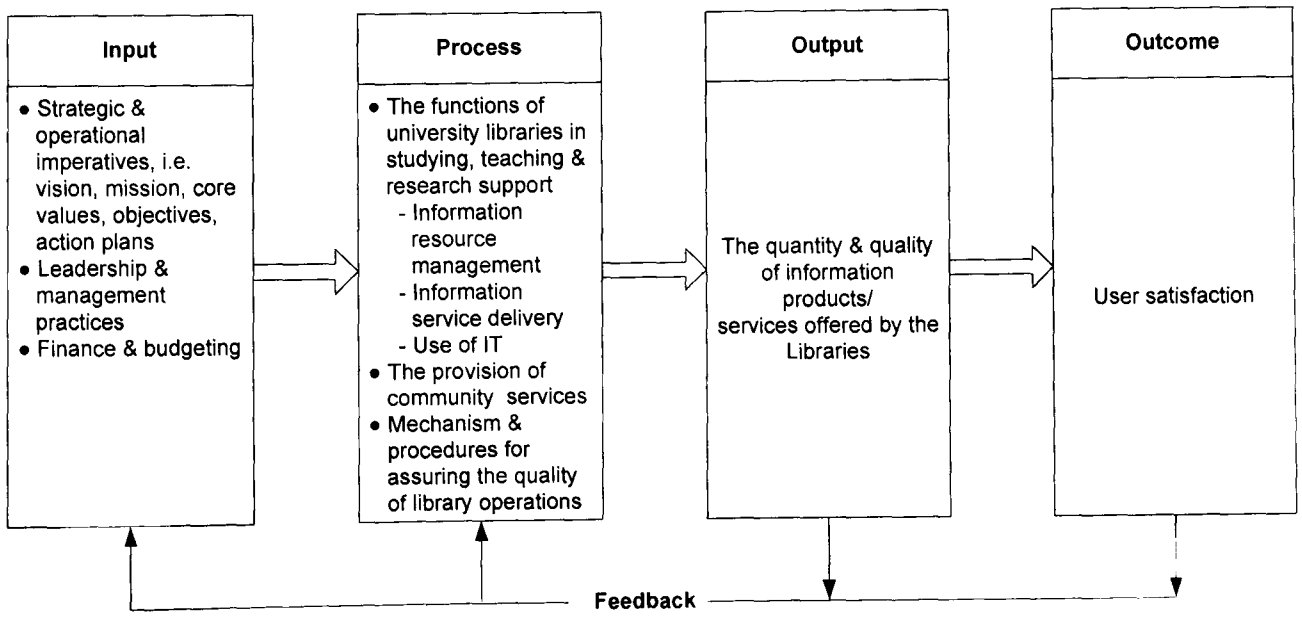

Figure 5.6 The TU Libraries Office's system model for assuring service quality (Thammasat University Libraries Office, 2007a: 8)

Evaluation elements of service quality

Like other service units in the university community, the parent institution's QA Committee appraises library performance based on five standard elements of service quality (Academic Affairs Department of Thammasat University, 2007):

1. Policy and planning
2. Managerial responsibilities
   - Organizational development
   - Human resources
   - Financial management
3. Main purposes in service delivery
4. Organizational information systems
5. Mechanism for internal quality assurance

Mandatory measures of quality assurance

There were 18 performance measures specified by the University for which the TU Libraries Office had to collect operating data between 2006 and 2007. Table 5.15 provides the set of performance measures used to monitor quality in the library's operations and its provision of information resources.

Evaluation criteria

A team of auditors assigned by the University's QA Committee visits the TU Libraries Office to examine the necessary documentation, talks to a representative sample of library stakeholders, and observes the quality control activities in the workplace. While carrying out quality audits, these examiners judge the achievement of QA schemes in library services relating to the five standard elements: policy and planning, managerial responsibilities, main purposes in service delivery, organizational information systems and mechanism for internal QA. They have to rate their satisfaction based on a five-point scale (poor to excellent) for each element and their scores are then calculated to find out the average ratings for library performance.

Evaluation elements	QA measures	Types of measures
1.Policy and planning	1.1 Have policies and operational plans, including ways of measuring goal success	Process
	1.2 Percentage of goal success after implementing the policies and plans	Output
2.Managerial responsibilities		
Organizational development	2.1 Level of satisfaction with management practices organised by the Coordinating Committee	Output
	2.2 Use the results of internal quality audits and external reviews to develop into a learning organization	Process
	2.3 Plan a strategy aligned with its governing body's strategy	Process
	2.4 Share library resources with other organizations	Process
Human resources	2.5 Budget for staff development per total full-time library staff	Input
	2.6 Percentage of library staff who received training and continuing education per total full-time staff	Output
Financial management	2.7 Gross fixed assets per total full-time staff	Input
	2.8 Operating costs per total full-time staff	Input
	2.9 Percentage of total net worth per operating costs	Input
	2.10 Total staff salaries per operating costs	Input
3.Main purposes in service delivery	The average level of customer satisfaction*	Outcome
4.Organizational information systems	4.1 The frequency of updates on the library's website	Process
	4.2 The success rate for IT plan implementation	Output
	4.3 Have potential for database construction of operation management and educational support	Process
5.Mechanism for internal quality assurance (QA)	5.1 Have the system and procedure of internal QA that enhances the library's continuous development	Process
	5.2 Effectiveness level of internal QA	Output

Note. The asterisked measure was developed by the TU Libraries Office itself.

Table 5.15 Measures of quality assurance used in the TU Libraries Office (Academic Affairs Department of Thammasat University, 2007)

5.3.2 Case findings from the qualitative phase

This section presents the findings of document reviews and focused interviews with the key informants of the TU Libraries Office which emerged from this case study. The within-case analysis gives evidence on the identification and classification of intellectual assets, motivation for the commencement of intangible evaluation and the design of new performance indicators.

Identification of library intellectual assets

The Coordinating Committee of this case library applied Kaplan and Norton's (2004) BSC Strategy Map to create a picture of the library's strategy which communicated its strategic themes to the staff members. Its strategy map comprised the vision, mission, organizational priorities, long-term outcomes, BSC perspectives — external stakeholders, learning and growth, finance and internal processes — and KPIs for monitoring the desired results (see Figures 5.7).

This strategy map referred to the strategic outcomes and KPIs relating to organizational intellectual assets. Table 5.16 shows the intellectual assets indicated in each BSC perspective of the TU Libraries Office.

Balanced Scorecard perspectives	**Desired outcomes and KPIs relating to intellectual assets**
External stakeholders	New library services/programs, client satisfaction, user retention, strength of service delivery, user-driven collections and services
Learning and growth	Staff satisfaction, staff wellbeing, best practices, knowledge management processes, effective teams, recognition of achievement
Finance	Increase in library funds by collaborating with new partnerships and reducing inefficient work processes
Internal operation	Competency development of staff, staff capabilities, value-added information resources, emerging technologies

Table 5.16 Identifying intellectual assets with the TU Libraries Office's strategy map

VISION	**A DYNAMIC ORGANIZATION EXCELLENT SERVICES**			
MISSION	- Provide convenient and effective access to modern knowledge in a variety of formats. - Support and provide accessible content to the community.		- Develop, organize, preserve and secure its collections. - Offer formal and informal instruction to promote information literacy.	
Our Strategic Priorities	User-Oriented Library	Values-Based Society	Sustainability	Enhanced enterprise
Desired Outcomes	User-Driven Collections & Services	Staff Wellbeing	Efficient & Effective Processes	Maximize Value of Emerging Technologies
	Create Efficient Information Literacy Programs	Effective Teams	Low Cost Inputs	Strengthen Capability of Our Staff
	Strengthen Service Delivery Processes	Strengthen Knowledge Management Processes	Expand Cooperative Partnerships	First Class Facilities
	Maintain High Standard Services to All Kinds of User	Recognition of Achievement	Environmental Impact Awareness	Deliver Significant Digital & Printed Content
Balanced Scorecard	External Stakeholder	Learning & Growth	Financial	Internal
2009 Key Performance Indicators	*# New Information Literacy programs* *% Clients Satisfied With Library Services*	*% Staff Satisfied With Jobs* *# Best Practice Processes*	*% Decrease in Energy Consumption* *# New Partnerships*	*# Digital Files Created and Delivered* *% Staff With Competency Development Plans*

Figure 5.7 The TU Libraries Office's strategy map (Thammasat University Libraries Office, 2008)

Classification of library intellectual assets

In addition to identifying knowledge resources with the strategy map, the four library administrators of Case 3 were asked to embody the intangible aspects of organizational performance. Their opinions on the examples of intellectual assets in the case site were classified by their contents: human, structural, relationship and collection and service assets.

Human assets

According to the Director, "We know that the effectiveness of our services and the efficiency of the library operations depend on our human resources' competence ... that is why we kicked off strategic workforce planning last year [2007]". The Associate Director of Administration and Development noted: "We hope our skills training programmes will get involved with the competence development needed by individual staff in the next few years".

Structural assets

Every key informant accepted that several KM projects helped the case library collect a body of practical knowledge; for instance, success stories in service delivery and lessons learned from solving problems at the divisional level. The Associate Director of Central Technical Services told the researcher:

> TU Libraries Office implemented two KM projects in 2005. One was an improvement in book delivery methods among our member libraries. Another was to undertake an inventory of information resources. Both projects give us the best practices in technical services ... We record and upload them on our website ...Now some university libraries adopt our best practices as a prototype for setting out KM activities.

Relationship assets

The Associate Director of User Services pointed out relationship assets existing in the case institution. She believed that enough interaction between the library workers and users was a contributing factor in the achievement of quality services. This interaction caused the TU Libraries Office to understand their users' expectations, seek useful tactics to reduce service quality gaps and improve their image. "My service staff are always encouraged to conduct user surveys, organize focus groups and respond to user complaints. My particular end in mind is to have a good relationship with our users", she said.

Collection and service assets

From a practical point of view, the collection and service assets for TU Libraries Office might include:

- The provision of information resources required by the target users
- Top-ranking services gained from user satisfaction surveys
- New services inspired by KM initiatives
- Digitisation projects for collections, e.g. the University's research repository, electronic theses and digitised archives

Motives for intellectual assets evaluation

The three associate directors in this case study had similar views on the commencement of intellectual assets evaluation although KM initiatives had not been widely integrated into most parts of information work. They thought that their organization should have tools for intangible assessment to measure the knowledge development process and demonstrate the advantage of KM projects. Meanwhile, the director wanted to develop measures of intangibles with the BSC framework to reveal the hidden value of library operations and services. Some selected quotations from all interviewees are shown in Table 5.17.

Interviewee	Reasons why they wanted to evaluate intellectual assets
Director	"... I think the existing QA measures used in the Office produce the management data that reflects the overall performance of the University rather than the specific results of the library operations... We want a particular type of measures chosen from the BSC approach to prove the value of our library and information work contributing to the University's academic excellence."
Associate Director of Administration and Development	"As I am responsible for KM coordination, I think the KM activities are not cost consuming when compared with other annual projects. So, any financial data may not be adequate as a single type of indicator for measuring the achievement of the KM initiatives. New measures are needed to evaluate them effectively."
Associate Director of Central Technical Services	"Implementing KM activities is all right, but it has its limitations – for example, it is hard to know where we plan to be and where we are now. We have never monitored and controlled our [the Office's] intellectual performance to identify what we get from our KM projects because they are still ongoing and most of them are very informal."
Associate Director of User Services	"Measuring the success of KM projects is a good means of marketing communication because it can illustrate how creative our library workers are. It also improves appreciation of what the TU Libraries do for stakeholders to confirm that we are changing towards a dynamic organization providing excellent services for the research-oriented university."

Table 5.17 Purposes in introducing intangible evaluation in the TU Libraries Office

Approach to developing performance indicators

The following sub-headings describe the potential approach for evaluating organizational knowledge, KSFs, performance indicators and surrogate measures of intellectual assets.

Measurement viewpoints and evaluation criteria

The strategy map of the TU Libraries Office implied that the appropriate framework for evaluating its strategic performance was Kaplan and Norton's (2004) BSC approach. Consequently, it was likely to reapply this strategy-focused approach of BSC for designing new performance indicators linking library intangibles to the three components of the library strategy: the mission statement, strategic priorities and desire outcomes.

The Director indicated her measurement viewpoint that "We have already developed our key performance indicators in view of strategic performance measurement ... Estimating the percentage of clients satisfied with services and counting best practice documents are good examples of my claim". When asked for their opinions about evaluation criteria, the key informants suggested that the TU Libraries Office should start evaluating organizational intellectual assets by developing KM metrics or indicators additional to their list of QA performance measures. The Associate Director of Administration and Development suggested that criteria for evaluating intellectual performance should be simple. "... Just report what we did [about KM] last year, mention how well we did it and check what we should do next to develop collective knowledge that supports our pursuit of service quality. I think that is enough for us ...", she explained.

Key success factors

The KSFs for intellectual performance were located in the four strategic priorities of the case institution's strategy map. These success factors enabled the TU Libraries Office to develop, improve and retain its intellectual assets. They were:

- User-oriented provision of collections and services
- Human resources linked to value-based management
- Enhanced enterprise in managing library operations
- Sustainability partnership

Corresponding indicators

In the context of the four key success factors, the strategic direction determined what categories of library intellectual assets could be employed to create value for the case site's stakeholders. From here the performance indicators were formulated to evaluate each strategic resource. They can be found in Table 5.18.

Key success factors	Performance indicators	Classification of intellectual assets
Human resources linked to value-based management	- Enhance staff's expertise in library and information work - Foster loyalty and increase teamwork skills in staff members	Human assets
Enhanced enterprise in managing library operations	- Implement KM activities to promote knowledge sharing through daily work - Having success in disseminating collective knowledge to library staff and sharing them with other organizations	Structural assets
Sustainability partnership	- Promote library programmes/events to increase client awareness and secure adequate funding	Relationship assets
User-oriented provision of collections and services	- Provide library collections and services that users need - Increase user satisfaction by improving the service delivery process	Collection and service assets

Table 5.18 Performance indicators of intellectual assets proposed at the TU Libraries Office

Proxy measures

The investigator selected some surrogate measures on the basis of the TU Libraries Office's QA system to express organizational performance relating to intellectual assets. These measures encompassed financial and non-financial measures, as illustrated in Table 5.19.

5.3.3 Case findings from the quantitative phase

After the qualitative phase of data collection and analysis, the set of performance indicators suggested by the library administrators was incorporated in the survey questionnaire to obtain feedback from all members of TU Libraries Office's steering committee.

The designed survey tool was first administered to the four key informants who participated in the semi-structured interviews, to test its content validity by using the technique of expert reviews. During the review process, no experts made any comments about items appearing in the questionnaires or suggested additional proxy measures for each category of the TU Libraries Office's intellectual assets.

Sample measures for intellectual assets	Types of measures
Staff's expertise	
- Percentage of library staff who received training/study leave	Input
- Number of job appraisals	Process
- Total education and training costs	Input
- Number of library professionals appointed as examiners, co-advisors, invited lecturers, etc.	Output
- Number of research projects conducted by library staff	Output
- Number of academic publications produced by library staff	Output
- Number of librarianship students having their summer internship at the library	Output
Loyalty and teamwork skills	
- Staff's level of satisfaction in the workplace	Output
- Proportion of staff resigning from the library	Output
- Number of absences from work per staff	Output
- Number of complaints made by library staff	Output
- The success rate for team-based projects at the year's end	Output
Knowledge sharing activities	
- Number of knowledge sharing activities arranged by the library, e.g. meetings, seminars, forums and study groups.	Process
- Participants' level of satisfaction with knowledge sharing activities	Output
- Average number of meetings to prepare for internal quality audits	Process
The dissemination of collective knowledge	
- Number of new quality management documents, e.g. standard operating procedures, work instructions, quality records	Output
- Number of best practices disseminated at the year's end	Output
- Number of downloads for the library's best practices	Output
- Number of visits to the library's KM web pages	Output
The promotion and marketing of library programmes	
- Annual expenditure on library use promotion/marketing	Input
- Number of public relations activities per year	Output
- Number of projects carried out in cooperation with external organizations	Output
- Number of visits to the library and its website	Output
Collections and services that users need	
- Proportion of users requesting the library to purchase educational materials	Input
- Users' level of satisfaction with collections and services	Output
- Number of new library collections/added value services	Output
User satisfaction derived from an improvement in service supply	
- Percentage of complaints received from users about their contact with counter service, timely delivery, service staff's reaction, etc.	Output
- Number of initiatives for improvement of service delivery processes by reducing time, space and workload	Output

Table 5.19 The TU Libraries Office's examples of measures used for each performance indicator

The validated questionnaires were distributed to 15 members of the TU Libraries Office's steering committee at a meeting. These members had experience of considering the QA measures currently used in the case site. Therefore, their acceptance should ensure that the list of proposed operational indicators and surrogate measures for institutional knowledge would be practical for monitoring the library's intellectual performance on the basis of its objectives and KSFs. Table 5.20 shows the characteristics of the 15 survey respondents.

Respondent	Gender	Position	Division	Years with organization	Years in performance evaluation
1	Female	Divisional head	Library Materials Preservation	10+	4+
2	Female	Head librarian	Branch Library	10+	3-4
3	Female	Divisional head	Information Technology	10+	1-2
4	Female	Head librarian	Branch Library	10+	4+
5	Male	Divisional head	Educational Media Service Centre	10+	1-2
6	Female	Head librarian	Branch Library	10+	4+
7	Female	Head librarian	Branch Library	10+	3-4
8	Female	Divisional head	Collection Development	10+	4+
9	Female	Divisional head	Cataloguing and Book Processing	10+	4+
10	Female	Divisional head	Classification and Indexing	10+	1-2
11	Female	Head librarian	Branch Library	6-10	0
12	Female	Head librarian	Branch Library	10+	4+
13	Female	Senior officer	Secretariat Unit	10+	3-4
14	Female	Senior secretary	Secretariat Unit	10+	3-4
15	Female	Senior librarian	Library Development	10+	4+

Table 5.20 Respondent profiles for the TU Libraries Office

Level of understandability of performance indicators

The survey responses to the draft set of performance indicators showed that all indicators were fairly easy to understand with the mean scores ranging between 3.00 (*SD* = 1.00) to 3.40 (*SDs* = 0.83 and 0.99). Two indicators in the category 'human assets' — enhancing staff's expertise and fostering a team spirit — had the highest

mean ratings. One indicator in the category 'collection and service assets' — improving the service delivery process — was scored as the lowest mean rating (see Table 5.21).

Performance indicators	Understandability (n = 15)		Importance (n = 15)	
	Mean[1]	*SD*	*Mean*[2]	*SD*
Human assets				
- Enhance staff's expertise in library and information work	3.40	0.83	3.80	0.41
- Foster loyalty and increase teamwork skills in staff members	3.40	0.99	4.00	0
Structural assets				
- Implement KM activities to promote knowledge sharing through daily work	3.33	0.72	3.67	0.48
- Having success in distributing bodies of collective knowledge to library staff and sharing them with other organizations	3.27	0.70	3.87	0.35
Relationship assets				
- Promote library programmes/events to increase client awareness and secure adequate funding	3.13	0.99	3.73	0.59
Collection and service assets				
- Provide library collections and services that users need	3.20	0.86	3.80	0.41
- Increase user satisfaction by improving the service delivery process	3.00	1.00	3.80	0.41

Note. [1]Mean of the level of understandability of how these indicator are measured (1 = Very difficult, 2 = Fairly difficult, 3 = Fairly easy, 4 = Very easy). [2]Mean of the level of importance of performance indicators (1 = Least important, 2 = Slightly important, 3 = Very Important, 4 = Most important).

Table 5.21 The level of understandability and importance of performance indicators proposed for the TU Libraries Office

Level of importance of performance indicators

As seen in Table 5.21, the results from respondents determining the importance of the suggested indicators showed that all items in each category of library intellectual assets seemed to be very important indicators with the mean scores ranging from 3.67 (SD = 0.48) to 4.00 (SD = 0). Fostering a team spirit received the highest mean rating again. Meanwhile, implementing KM activities had the lowest mean rating on the scale of importance.

Summary

This chapter provides an in-depth look into the strategies, organizational structures and steering models of library evaluation of the KU Library, the SWU Library and the TU Libraries Office to prove their decisive role in developing performance indicators of intellectual assets and KM activities within the three individual case studies. Each case report describes the identification and classification of intellectual assets, the incentives to introduce intangible evaluation in the case sites, the desired approaches for assessing intellectual assets and the suggested sets of performance indicators together with the potential users' attitudes to these indicators.

The findings of the within-case analysis presented here offer the unique patterns of each case in the context of Thai academic libraries from both the library administrators' perspectives and the senior practitioners' attitudes to the designed performance indicators. It is necessary for the researcher to interpret the line of supporting evidence, explain the similarities and differences across the cases, formulate theoretical propositions by comparing the typical replications with the relevant literature and answer the research questions originally posed in this multiple-case enquiry. The results of this cross-case analysis appear in the next chapter together with a discussion of underlying insights into intellectual performance evaluation gained from the group studied.

CHAPTER 6
CROSS-CASE ANALYSIS AND DISCUSSION

This chapter examines the within-case findings for similarities and differences across the three academic libraries: the Office of KU Library, the SWU Central Library and the Office of TU Libraries. The chapter has six sections. It starts with a comparison of each case's organizational context. The next four sections are the heart of the cross-case analysis. They present the comparative results of four themes contained in the research questions:

- Core intellectual assets of the three case libraries
- Motives for interest in intellectual assets evaluation
- Approaches to developing performance indicators of intellectual assets
- Practicality of the performance indicators.

The last section is a synthesis of all the evidence emerging from the cross-case analysis. It then gives analytical explanations compared to the relevant literature that lead to building the theoretical propositions from the cases and modifying the conceptual framework in Chapter 7.

6.1 Contextual considerations

The background on the case libraries' strategies, governance structures and steering models of library evaluation underlies the process of developing performance indicators for their intellectual assets. Table 6.1 provides a summary and comparison of the organizational context explored in the KU Library, the SWU Central Library and the TU Libraries Office.

The organizational contexts of the three case libraries		KU	SWU	TU
Strategy	Mission contents			
	• Contributions to institutional goals (teaching, study and research)	✓	✓	✓
	• Information resources and services	✓	✓	✓
	• Interventions on lifelong learning /information literacy		✓	✓
	• Library staff, technology and administration	✓		
	• User focus		✓	
	• Information access			✓
	Objectives contents			
	• Supply electronic resources and provide users with remote access to them	✓	✓	✓
	• Develop and train library staff	✓	✓	✓
	• Improve library premises/facilities	✓	✓	
	• Manage the library's operations and evaluate its performance	✓		✓
	• Sustain relationships with other organizations	✓		✓
	• Know users and respond to their needs		✓	✓
	• Ensure that library collections meet the university's curricula		✓	
Organizational structure	Bureaucratic hierarchy	✓	✓	✓
	Sharing authority of the library director through a standing advisory committee	✓	✓	✓
Steering model of library evaluation	Use the QA system and standards required by the parent organization	✓	✓	✓
	Evaluation elements of service quality			
	• Strategic and operational planning	✓	✓	✓
	• The effectiveness of learning support services	✓	✓	✓
	• Administration/management responsibilities	✓	✓	✓
	• Finance and budgeting	✓	✓	✓
	• The mechanism for auditing internal QA	✓	✓	✓
	• Continuous improvement and organizational development	✓		✓
	• Preservation of art and culture		✓	
	• Organizational information systems			✓
	Number of QA measures	35	30	18
	Evaluation criteria			
	• Measuring the library's QA progress based on the PDCA cycle	✓	✓	✓
	• The overall library performance determined by the examiners' judgments	✓	✓	✓

Table 6.1 Comparative overview of the three case libraries' organizational context

Strategy

The strategies from the three libraries were analysed to group their missions and objectives according to content. Analysing the mission statements revealed that the two most common roles defined are:

- The academic libraries' roles in their higher education institutions in learning and research support; and
- The provision of information resources and library services for users in the university community.

Another interesting content element is the library and information professionals' key value of lifelong information literacy teaching. Both the SWU Central Library and the TU Libraries Office express this statement of intent in their missions. For the strategic objectives of all the cases, the two major categories in their objectives are electronic collection management and staff development. Other contents of the objectives, however, vary in the specific tasks each case library intends to achieve, such as the redevelopment of library space, retaining cooperation between organizations and understanding user needs.

Organizational structure

Because the three libraries are governed by public universities, their organizational structures are quite similar. The bureaucratic characteristics of their work arrangements rely on:

- University rules and regulations
- Standardised procedures for library workers
- Hierarchy of authority including delegation
- Coordination by seniors at the higher level

Each of the cases have centralised decision making; nevertheless, they always implement many action plans using team-based projects. They have been encouraging group cooperation by creating teams whose members come from the different divisions to complete their annual projects. The academic libraries studied also have a standing advisory committee in their organizational structures to enhance

staff participation in library administration. The library committee is comprised of the director, the associate directors, the division heads, the heads of branch libraries (except the KU Library), and the representatives of senior staff (the TU Libraries Office only).

Steering model of library evaluation

Every university in Thailand is obliged to respond to the standards for QA in higher education specified by the Office for National Educational Standards and Quality Assessment. The KU Library, the SWU Central Library and the TU Libraries Office formally evaluate their performance as well as their quality management practices in just the same way that their parent institutions do. In other words, the QA frameworks for auditing internal quality in the three academic libraries — their QA system, evaluation elements of service quality, QA measures and evaluation criteria — are an integral part of QA institutional reviews. The influence of their parent organizations on the implementation of the library performance evaluation is very strong in the three case studies.

QA system

The three case libraries' information supply or service delivery chains are described as a subsystem of the universities' performance in the institutional context of QA assessment. This subsystem is based on the input-process-output-outcome model. It is the common model currently practised by the KU Library, the SWU Central Library and the TU Libraries Office. Examples of inputs, processes, outputs and outcome of the library subsystems are as follows:

- Inputs — annual budget, workforce, office equipment, leadership, plans, etc.
- Processes — management processes, work processes for producing information products, procedures for delivering services, etc.
- Outputs — the quantity and quality of library collections and services
- Outcome — user satisfaction

Nevertheless, the KU Library has a slight difference in its inputs. It separates the intangible inputs (e.g. strategies, plans and leadership) from the tangible inputs (e.g. finance and workforce), then it categorises these intangible inputs as the managerial context which precedes the tangible inputs.

Evaluation elements of service quality

It is the duty of the three case libraries to undertake internal quality audits for checking the inputs, processes, outputs and outcome of their operations in accordance with the parent institutions' QA standards for learning support units. The standards describe the evaluation elements of service quality against which the KU Library, the SWU Central Library and the TU Libraries Office have to be evaluated by audit teams of the universities. Most of these required elements are similar across the three cases; for instance, the accomplishment of library strategies, the allocation of financial resources and the mechanism for auditing internal QA. However, the SWU Central Library is requested to keep a detailed account of its cultural preservation activities, and meanwhile the TU Libraries Office is expected to review progress on developing its managerial systems and processes.

Mandatory QA measures

All the case libraries collect evidence of their performance using QA measures to prepare self-assessment reports. The number of QA measures required for evaluating each element of service quality ranges from 18 to 35 measures. There are two main sources for adopting performance measures. The first source is to employ the compulsory measures defined by the universities' QA units. For another source the QA units allow the three academic libraries to select additional measures that provide particular information about the fitness for purpose and the effectiveness of library operations/services. For instance, the SWU Central Library adds access counts for the library website as one of its three supplementary measures and the extra measure added to the TU Libraries Office's QA checklist is the average level of customer satisfaction, but there are no additional measures to be seen in the KU Library's list of QA measures.

Like the components of the QA system, the mandatory measures used by the three academic libraries are divided into four types: input, process, output and outcome measures. Input measures are useful for when the library policy makers want to know financial data, numerical facts and library statistics about resources which are allocated to the libraries' operations. Data gathered through process measures point out the cost in time the library staff spend on information work and the effort expended on specific tasks. Output measures reveal the success of the three case libraries in improving their efficiency of operations, increasing their productivity in the provision of information resources and enhancing their quality of their service delivery. Classified by the types of measures, the QA measures commonly found among the cases are concerned with the following aspects:

Input measures:

- Calculations of library expenditure
- The size of professional staff

Process measures:

- Throughput related to library projects, practices, activities, etc.
- Collective performance from the library administrators related to managerial jobs

Output measures:

- Quantifiable achievements of managing the library overall, staff, projects, etc.
- The current use of collections and services by users
- The current use of internal audit practices in the workplace

The KU Library and the SWU Library do not claim that they have outcome measures. Only the TU Libraries Office claims that it treats the results of user satisfaction surveys as outcome measures because they can partially justify the value of library services from their users' perspective.

Evaluation criteria

The evaluation procedures and criteria for conducting internal quality audits in each case library are very similar in that they are imposed by university management. As one of the support service providers in the university community, their parent institutions demand library accountability and require their libraries to complete self-study reports in which they have to prove whether their operations and provision of information resources and services are very satisfactory, acceptable or unsatisfactory.

The KU Library, the SWU Central Library and the TU Libraries Office have been conforming to the same procedure for undertaking internal QA audits. There are four steps the three case libraries have to go through in this procedure:

- Producing self-evaluation reports with internal documentation and records of library performance available for institutional scrutiny;
- Welcoming university auditors who visit the libraries to gather direct evidence for substantiating the self-evaluation reports;
- Receiving the internal quality audits' findings, e.g. commendations for good practices in information work, suggestions about how to improve some services complained about by users and a judgment about how well the libraries are performing; and
- Responding to the audit findings by planning necessary follow-up actions for improvement.

The teams of university examiners are trained in the use of the PDCA cycle to evaluate continuously the service quality of all the case libraries. For instance, the audit team will visit the KU Library to determine whether or not the library is using the findings of the previous audit to improve weak services (plan), add value to these weak services (do), carry out user surveys to assess the outcome of the value-added services (check), and modify the services according to the survey results (act).

When enquiring whether all the cases fulfil expectations for service quality, the examiners' judgements come from evaluation criteria that rely on the same technique of satisfaction rating. Each university's rating scales vary in the range of scale points (from below to high standard). The SWU Central Library uses only a three-point

scale, whereas the number of scale points used by the KU Library and the TU Libraries Office are four and five respectively.

6.2 Core intellectual assets of the case libraries

The QA systems are the steering models of library evaluation in the KU Library, SWU Central Library and TU Libraries Office. They have been set up to measure, report and assess overall library performance in the three cases in accordance with the quality elements imposed by the universities. The steering models were therefore employed to explore some evaluation elements and existing performance measures which might be relevant to assessments of intangible aspects of the libraries, such as their success in the main purposes of information service provision, the accomplishment of strategic and operational plans, and their progress in library administration and operations management.

In the cases of the KU Library and SWU Central Library, the use of their QA systems for knowledge mapping facilitated recognition by the key informants in the two cases that intellectual assets existed in their current library evaluation, but were hidden behind the measured QA elements. The less tangible things measured in each quality element were mapped to identify the collective knowledge that both case libraries might gain from their service quality measurements. The researcher used this mapping process in linking their QA elements to the possible content of their collective knowledge. For example, evaluations of library projects in the KU Library provided knowledge of management responsibility which could be connected with structural assets (see Table 5.2) and user satisfaction surveys provided the SWU Central Library with knowledge of user experiences related to relationship assets (see Table 5.9).

The TU Libraries Office not only applied the QA system at the divisional level, but also deployed the BSC strategy map based on the work of Kaplan and Norton (2004) as an additional management tool for measuring the strategic priorities of the entire library. The BSC strategy map is one of the most well known performance management tools widely adopted in various Thai organizations. The TU Libraries Office developed its strategy map in order to visualise the linkages between the

desired long-term outcomes and the intangible assets required to support the achievement of its strategic priorities. This strategy map depicted the TU Libraries Office's linkages within the four balanced perspectives: external stakeholders, learning and growth, financial, and internal processes of library operations. Each perspective had two key performance indicators or scorecards to assess the library's strategic readiness in relation to the intangible assets. For instance, a percentage of the staff satisfied with their jobs was an indication of the library's human asset readiness for the learning and growth perspective (see Figure 5.7).

Besides the possible intellectual assets found in the steering models of library evaluation, some typical examples of library intellectual assets which are essential for quality service delivery could be specified in detail only after the interviews with the three cases' library administrators. These examples are the key intellectual assets emerging from each case study. They are classified into four categories: human, structural, relationship, and collection and service assets (see Table 6.2).

Various types of human assets mentioned in the KU Library and SWU Central Library are primarily concerned with both personal qualities and interpersonal skills; for instance, individuals' abilities, personal experience and group cooperation contributed to the success of the whole library. The TU Libraries Office placed an emphasis on people's actions to develop human assets, namely human resource development activities, such as professional training, internal courses and workshops.

Based on the findings of the three case studies, the interviewees' awareness of structural assets focuses on explicit knowledge contained in written form. The content of explicit knowledge covers many library-related issues, for example, quality improvement, KM initiatives, core operations and valuable resources. Structural assets are shared in the form of QA documentation, knowledge repositories, official documents published after knowledge sharing meetings and so on.

Assets	KU	SWU	TU
Human	- Service mindset - Mental agility - Expertise - Skills - Team spirit - Commitment to library goals	- Adaptability - Skills - Group participation/ teamwork - Commitment to library strategy	- Education and training - Competence development
Structural	- Minutes of knowledge sharing meetings - Reports of working groups - Quality control records - Management information system	- QA documentation, e.g. handbooks, self-assessment reports and work procedures	- Output from KM projects, e.g. best practices, success stories and lessons learned
Relationship	- Relationships with key stakeholders - Users' feedback	- Relationships with university executives - Public image of the library - Marketing communications	- Interaction between library workers and users
Collection and service	- Frequently used services - Users' praise at service points - Information resources frequently requested - Digital collections - In-house databases	- Core course materials - New search tools - Electronic archives - New/value-added services - Collections and services that satisfy users	- Information resources requested by target users - Top-ranking services - New services - Digital collections

Table 6.2 Comparison of core intellectual assets across the three case studies

Relationship assets in all cases are based on knowledge about relations between the case libraries and their stakeholders such as their parent organizations, other funding bodies, cross-library partnerships, users and the community at large. The SWU Central Library also referred to the capability to deal with its stakeholders for communicating as well as promoting the library's values, quality services and information resources, and achievements in library operations.

All the case libraries have created value in their services and information resources for their key stakeholders. As a result, they combined human, structural and relationship assets to produce collection and service assets. Examples of this newly-added category are new collections, quality services, and innovations in library and information work.

6.3 Motives for interest in intellectual assets evaluation

All library administrators of the KU Library, the SWU Central Library and the TU Libraries Office realized that intellectual assets were important to library performance, but there had been no formal evaluations of intellectual assets in the three libraries. Table 6.3 shows the cross-case findings derived from an examination of the reasons behind all the cases' interest in intellectual assets evaluation. The library administrators believed that if this evaluation was implemented in the case library settings, it would be beneficial to attaining KM projects, complementing their current internal audits, inventing performance measures and reporting information on intangibles to stakeholders.

Motives	KU	SWU	TU
Better understand intellectual assets required to provide quality service		✓	
Help monitor progress on KM projects	✓	✓	✓
Help measure the success of KM projects	✓		✓
Can be used as an extra auditing tool for internal quality assurance	✓	✓	
Design measures specific to library operations/services		✓	✓
Supplement self-assessment reports and annual reports	✓	✓	✓
Give additional information on intangibles for public relations	✓	✓	✓

Table 6.3 Comparison of motives for interest in intellectual assets evaluation

Many key informants in the three case studies thought that the motivation for intellectual assets evaluation was to measure the KM processes that underlay and contributed to the creation of intellectual assets. As an early adopter of KM, the SWU Central Library's top priority was to find a useful tool which helped most library staff to be aware of knowledge resources critical to the quality of its service provision. Building an inventory of these resources could also help the library committee decide which KM initiatives should be undertaken first in order of importance. In contrast, the KU Library and the TU Libraries Office had begun some KM projects a few years earlier, such as a collection of best practices and arrangements for knowledge-sharing meetings; thus their interest in intangible evaluation was to determine the outcome of these KM projects in their entire libraries.

Next, the KU Library and the SWU Central Library hoped to use intellectual assets evaluation for enriching the advance of their formal evaluation. The concept of intangible evaluation was perceived to be an additional method of assessing what the libraries did to make their existing procedures for auditing service quality more rigorous. Internal quality audits and intangible evaluation could complement each other. The former focused on library performance measurement at operational level, while the latter concentrated on knowledge resources, knowledge creation processes and the long-term effects of these resources with reference to the library strategies.

The SWU Central Library and the TU Libraries Office had another motivation behind their interest in intellectual assets evaluation. This innovative management tool could enable them to design new performance measures reflecting the libraries' identity as well as being different from other learning support units in the university community. The two cases tended to assume that more specific measures would appear more impressive to their parent organizations' audit teams.

For reporting purposes, all the case libraries wanted to gather information about KM applications for information work in academic libraries for two reasons: internal and external reporting. In terms of internal reporting, the information on intangibles could be published as a supplement to self-assessment reports to allow the library administrators and division heads to exploit it for improving processes of collective knowledge creation and developing the intellectual performance of the case libraries in the same way that they used other library statistics for planning and decision making. By communicating this information on library intellectual assets to external stakeholders, this additional information contained in their annual reports might be used to convince the parent institutions' audit teams that the libraries were paying attention to the area of KM practices, which had gained increasing popularity in the context of Thai university administration, and had made much progress in this area. Several interviewees across the three cases also wished to inform stakeholders how KM activities resulted in continuous improvement in service delivery, so that users built their confidence in the quality of library operations and services. Such external reporting could take place by summarizing some attractive information on intangibles and then disseminating it through various types of communication such as library websites, newsletters and leaflets.

6.4 Approaches to developing performance indicators of intellectual assets

This section extracts the cross-case results relevant to the research question about approaches which may be feasible for designing performance indicators for the case libraries' intellectual assets and activities. The results include measurement viewpoints, evaluation criteria and indicator development processes which are elaborated in the following sub-sections.

Measurement viewpoints

In all the cases the QA standards for internal audits or self-assessments that were providing the universities' executives with information on internal management of the academic libraries influenced every key informant's opinions about measuring intangible assets important to their libraries. The library directors and associate directors especially expected to collect, measure, and report useful information on intellectual assets as part of the same system used for gathering and disclosing evidence of service quality in self-assessment reports. In other words, they wanted to integrate new performance indicators of intellectual assets into their existing lists of QA measures.

The above-mentioned points of view implied that indications of library intangibles should come from the formal model of internal quality audits which focused on the inputs, processes and outputs of library operations and services. It was an internal perspective on library management accounting. As a result, the proposed indicators for intellectual performance should be a mixture of input and output measures together with some measures for evaluating the collective KM processes. This preferred form of measurement demonstrated that most library administrators in the three case studies would keep an account of knowledge resources as part of measuring quality management practices. For instance, the four interviewees from the TU Libraries Office and the SWU Central Library's Associate Director of Academic Affairs and Planning clearly stated that they were likely to treat any future measures related to KM as if they were QA measures for library and information work.

Evaluation criteria

Intangible evaluation was a novel idea in the KU Library, the SWU Central Library and the TU Libraries Office. They had no predetermining evaluation criteria by which their intellectual assets and KM activities could be judged. In their first judgments about intellectual performance, all three case libraries assumed that simplicity of evaluation would facilitate widespread introduction of KM-related data collection and motivate staff to take part in intangible evaluation that could be operated on a voluntary basis.

While the KU Library and the SWU Central Library did not make the selection of evaluation criteria explicit, the TU Libraries Office had been employing objective-based criteria to evaluate the effectiveness of strategic performance according to its 2009 strategy map. The coordinating committee of the TU Libraries Office had done some work on trying to choose eight key performance indicators relating to library intangibles, for instance the percentage of staff being satisfied with their jobs, the number of best practice processes and the number of new information literacy programmes. This endeavour showed that it was possible to select the criteria that one would use to evaluate knowledge assets created through intellectual activities by establishing specific, measurable and time-targeted objectives. The quantity of collective knowledge and eventual outcomes of KM projects might be compared with the expected performance at the end of the fiscal year.

Indicator development process

The development of performance indicators for the three case studies was guided by the scorecard process model described in Chapter 2. This design process consisted of three main steps: defining key success factors, identifying performance indicators and choosing measures (quantifiable inputs, processes and outputs) associated with library intellectual assets.

Key success factors

KSFs help determine the intellectual performance and assets required to implement the library strategies successfully. The strategic objectives of the KU Library, the SWU Central Library and the TU Libraries Office were examined by the researcher to identify possible KSFs that might be related to the intangible directives in all three cases. Table 6.4 shows that every case put great emphasis on human, social and marketing factors. On the other hand, their KSFs in connection with structural assets differed markedly. Both the KU Library and TU Libraries Office stressed the importance of managerial factors, whereas the SWU Central Library referred to usage of information systems as a key technological factor in the success of library strategy implementation.

Aspects of intangible evaluation

The investigator analyzed the KSFs across the three case libraries to explore the data needed to answer the specific research question: What aspects of library performance evaluation should the indicators focus on? Table 6.4 suggests that the case libraries' complete set of KSFs covered four aspects of evaluation although there were some variations in both the types of intellectual assets and specific examples found in each case.

- Efficiency: using limited resource inputs to acquire, produce or develop intellectual assets crucial to the success of library and information work;
- Effectiveness: assessing whether KM activities necessary to collect, organize or exploit intellectual assets will achieve their goals;
- Sustainability: the effect of intellectual assets on gaining consistent support from various groups of stakeholders as well as maintaining adequate public and private funding for library operations; and
- Quality: employing the libraries' existing intangibles to foster innovation, improve weaknesses in information resource supply, and provide high-quality services that suit the current and future needs of users.

Asset types	Factors	Case libraries			Evaluation aspects
		KU	SWU	TU	
Human	Human	Competent and ambitious workers	Library staff training and development	Human resources linked to value-based management	Efficiency and effectiveness
Structural	Managerial	Managing and directing the library systematically		Enhanced enterprise in managing library operations	Efficiency and effectiveness
	Technological		Effective use of information systems and technology in library work		
Relationship	Social	Enduring collaborations with other institutions	An understanding the community the Library serves	Sustainable partnership	Sustainability
Collection and service	Marketing	Quality of collections and efficiency of services	Library services that meet users' needs	User-oriented provision of collections and services	Quality

Table 6.4 Cross comparison of key success factors and evaluation aspects related to the case libraries' intellectual assets

Corresponding performance indicators

Due to the intangible nature of KSFs, the library administrators in all cases agreed that an easy way to design a list of performance indicators for their intangible success factors was to articulate an expected level of intellectual performance in the form of statements about intangibles. Each statement was mainly composed of action verbs and key activities that the libraries wanted to attain according to their performance expectations or strategic goals. The number of possible indicators suggested at the KU Library, the SWU Central Library and the TU Libraries Office ranged from six to ten indicators. As shown in Table 6.5, the most common component of intellectual performance which the three case libraries wanted to monitor was staff development activities related to human assets. There were also a few indicators proposed by all the cases to track their progress on the knowledge processes of creating relationship assets such as user relationships, library

cooperation, and marketing and public relations. Meanwhile, only the SWU Central Library seemed to put slightly more importance on initiatives related to structural assets. Up to three indicators were chosen by its administrators for monitoring this performance aspect.

Measurable surrogates for library intellectual assets

The above performance indicators needed specific measures to serve as evidence of the case libraries' intellectual assets and activities. Surrogate or proxy measures had to be identified as it was difficult to find direct measures for determining the four abstract areas of intangible evaluation — efficiency, effectiveness, sustainability and quality. The samples of surrogate measures for library intellectual assets were derived from three sources of data: a review of the literature on IC metrics, the choice of the mandatory measures for assuring service quality currently used in the case libraries which might be related to their intellectual assets, and consultations with the key internal experts. Since the input-process-output model of quality measurement underlay the selection of existing measures in all cases, the sample measures of intellectual assets were identified in line with this model. They were classified into three types: input, process and output measures. Most were non-financial measures. The primary measures advocated by the three case libraries included:

Input measures

- Total costs of staff development, education and training
- Investments in knowledge-based infrastructure, e.g. information technology, office automation and database systems

Process measures

- Number of team meetings arranged to enable an exchange of practical knowledge, e.g. preparations for internal audits and QA documentation
- Frequency of carrying out staff satisfaction surveys
- Frequency of carrying out user satisfaction surveys and focus groups

Assets	Cases	Performance indicators
Human	KU	- Develop personal competencies and skills that are suitable for modernized work in a learning centre - Build up staff loyalty, motivation and the team's morale
	SWU	- Encourage library personnel to regularly develop their job skills and capabilities - Support exchange of personal knowledge among library workers - Give library and information professionals a chance to demonstrate their competencies outside the workplace
	TU	- Enhance staff expertise in library and information work - Foster loyalty and increase teamwork skills in staff members
Structural	KU	- Enable a learning environment through managerial systems
	SWU	- There are efficient processes and procedures for managing library operations - Use practical knowledge recorded in QA documentation of the library to create better supply of information products and services - Apply information technology in harness with information access improvement and service quality enhancement
	TU	- Implement KM activities to promote knowledge sharing through daily work - Having success in disseminating collective knowledge to library staff and sharing it with other organizations
Relationship	KU	- Promote sustainable cooperation by dealing with other organizations in a win-win situation
	SWU	- Give priority to user satisfaction - Initiate culture preservation projects as a part of social responsibility
	TU	- Promote library programmes/events to increase client awareness and secure adequate funding
Collection and service	KU	- Put a high value on core collections in response to readers' needs - Place a high value on core services in response to users' needs
	SWU	- Deal with users promptly on the service counters - Improve the quality of learning space for users in the library premises
	TU	- Provide library collections and services that users need - Increase user satisfaction by improving the service delivery process

Table 6.5 Performance indicators recommended for evaluating the three case libraries' intellectual assets

Output measures

- Staff's level of satisfaction in the workplace
- Number of new quality management documents, e.g. operational procedures, work instructions, quality records and best practices
- Number of visits to the library and its website
- Number of suggestions or complaints from users about library collections and services

6.5 Practicality of the performance indicators

This section presents a cross-case comparison of the survey data to find the performance indicators suitable for evaluating the three case libraries' intellectual assets. The decision about whether the proposed indicators would be practical to implement rested with the potential users of indicators. Practicality of the indicators from a user perspective has two characteristics. First, the proposed indicators should be easy to understand. Second, they should be important to the case libraries for gathering the data to report information on intangibles. The levels of understandability and importance of the cases' selected performance indicators for the three case libraries were sorted according to the mean scores with standard deviations (SDs) calculated from the responses for each indicator (see Table 6.6).

Based on the mean ratings for the level of understandability, none of the performance indicators were difficult for the potential users to understand. The indicators related to human assets were rated with the highest mean scores in the SWU Library and TU Libraries Office. They were 'development of job skills and capabilities' and 'staff's expertise'. The indicator of 'staff loyalty, motivation and the team's morale' was similarly one of the three indicators most understandable to the survey respondents in the KU Library, even though it was not ranked first. The low SDs obtained for most of these understandable indicators show that there was consistency in the survey responses within each case library. The performance indicators that had low mean scores were ranked differently depending on the case libraries. Interestingly, the indicators pertaining to relationship assets were found in the bottom two of each case's ratings. They were 'sustainable cooperation', 'social responsibility' and 'promotion and marketing of library programmes'. The SDs of these three indicators were slightly higher than other indications of intellectual performance, showing that there was less consensus on their understandability levels.

Table 6.6 also shows the mean and SD scores of the performance indicators when ranked in order of importance. These importance scores show that the respondents' perceptions of the importance of the suggested indicators varied across the three cases. Since the SDs for most indicators were small, this normal distribution revealed that there was considerable agreement over the preferred indicators rated by the respondents in every case site. Two indicators of human assets (staff loyalty,

KU ($N = 5$)			**SWU** ($N = 9$)			**TU** ($N = 15$)		
Understandability of the performance indicators								
Very easy[1]	*Mean*	*SD*	Very easy[2]	*Mean*	*SD*	Fairly easy[3]	*Mean*	*SD*
- Core collections	3.80	0.45	- Development of job skills and capabilities	3.56	0.53	- Staff expertise	3.40	0.83
- Core services	3.60	0.55	Fairly easy[2]			- Loyalty and teamwork skills	3.40	0.99
- Staff loyalty, motivation and the team's morale	3.60	0.55	- User satisfaction	3.44	0.60	- Knowledge sharing activities	3.33	0.72
			- Demonstration of professional competencies	3.44	0.53	- Dissemination of collective knowledge	3.27	0.70
Fairly easy[1]			- Provision of prompt services	3.33	0.93			
- Personal competencies and skills	3.40	0.55	- Quality of learning space	3.33	0.50	- Collections and services that users need	3.20	0.86
			- Efficient work processes and procedures	3.22	0.83			
- Sustainable cooperation	3.20	0.84	- Practical knowledge recorded in quality assurance documents	3.22	0.83	- Promotion and marketing of library programmes	3.13	0.99
- Managerial systems	2.80	1.09						
			- Information technology applications	3.11	0.93	- Service delivery process improved to increase user satisfaction	3.00	1.00
			- Social responsibility	3.11	0.71			
			- Exchange of personal knowledge	2.89	0.60			
Importance of the performance indicators								
Most important[1]	*Mean*	*SD*	Most important[2]	*Mean*	*SD*	Most important[3]	*Mean*	*SD*
- Staff loyalty, motivation and the team's morale	3.80	0.45	- User satisfaction	3.78	0.44	- Loyalty and teamwork skills	4.00	0
			- Provision of prompt services	3.67	1.00	- Dissemination of collective knowledge	3.87	0.35
- Core services	3.80	0.45	- Development of job skills and capabilities	3.56	0.53			
- Core collections	3.60	0.55	- Demonstration of professional competencies	3.56	0.53	- Staff's expertise	3.80	0.41
- Personal competencies and skills	3.60	0.55	- Quality of learning space	3.56	0.53	- Collections and services that users need	3.80	0.41
			Very important[2]					
- Managerial systems	3.60	0.55	- Efficient work processes and procedures	3.44	0.73	- Service delivery process improved to increase user satisfaction	3.80	0.41
Very important[1]			- Information technology applications	3.22	0.83			
- Sustainable cooperation	3.40	0.89	- Practical knowledge recorded in QA documents	3.11	0.93	- Promotion and marketing of library programmes	3.73	0.59
			- Exchange of personal knowledge	3.11	0.33			
			- Social responsibility	2.67	0.87	- Knowledge sharing activities	3.67	0.48

Note. [1]$n = 5$, [2]$n = 9$, [3]$n = 15$. The mean values were rated by the respondents of each case library

Table 6.6 The three case libraries' performance indicators in ranked order

motivation and the team's morale) and collection and service assets (core services) had the highest ratings of the indicators at the KU Library. In the case of the SWU Central Library, the indicator with the highest total mean score was 'user satisfaction', which was concerned with relationship assets. The indicator of 'staff loyalty and teamwork skills' for evaluating human assets was ranked first in the TU Libraries Office. It reached the grand maximum mean score of 4.00. Observed as a whole, however, the performance indicators related to relationship assets had the lowest mean ratings when compared with the other indicators for each case library.

6.6 Discussion

The purpose of this section is to explain the major findings reported in Section 6.2-6.5 by relating them to prior theories, concepts and the research reviewed in Chapter 2. All explanations for the study results are discussed in order to answer the following research questions:

1. Which are the most important intellectual assets for Thai academic libraries?
2. Why do Thai library administrators want to evaluate library intellectual assets?
3. How do the libraries choose performance indicators as proxies to demonstrate their intellectual assets?
4. What are suitable performance indicators for evaluating the library intellectual assets?

6.6.1 The most important intellectual assets for Thai academic libraries

All organizations, including libraries, possess a quantity of intangibles as well as organizational knowledge about users, work processes, and information products and services (Gandhi, 2004). This fundamental premise is backed up with the empirical evidence found in the three case study libraries. It is, however, only certain kinds of organizational knowledge that were perceived by the library administrators as strategic resources required for achieving the libraries' strategic objectives.

Identification of library intellectual assets

Staff skills, best practices in information work, users' feedback and new services are examples of the primary kinds of organizational knowledge identified in this study. Dakers (1998) carried out a voluntary staff skills survey for the Consultancy Services of the British Library. She found that staff skills seem to be the first area of knowledge which library managers should start auditing to appropriately manage human resources within a library. Meanwhile, action research on introducing intellectual capital management in the South African information service unit by Van Deventer (2002) identified other forms of organizational knowledge besides staff skills; for example, best practices, users' feedback and new services. Therefore the findings of the present study parallel those of the two previous studies involving the identification of academic libraries' organizational knowledge.

Not only did the case libraries' interviewees refer to items containing organizational knowledge, they also thought about a wide range of activities the libraries had been performing to develop, improve, maintain and exploit their organizational knowledge. This corresponds with Sanchez et al.'s (2000) findings, which suggested identifying a firm's intangibles is not only concerned with the determination of intangible items related to its strategic objectives, but also what the firm has to do in order to produce and increase the level of those items. Such activities in the library context may be called 'intellectual activities' (Corrall, 1998), 'intellectual performance' (Van Deventer and Snyman, 2004), or 'KM processes' (Townley, 2001; Gandhi, 2004; White, 2004). Examples of the intellectual activities found in the present study are investments in staff development and training, knowledge-sharing activities, continuous improvement in library services, and user satisfaction surveys. According to Van Deventer and Snyman (2004), intellectual activities can be associated with the management activities of a library such as human resource management, operations management and customer relationship management.

Classification of library intellectual assets

Many important intellectual assets and performance explored in this multi-site case study are compatible with the broad IC taxonomy generally used in national guidelines and business literature on reporting companies' IC which classifies IC into three categories: human capital, structural capital and relational capital (OECD, 2006).

In previous work the formal classification of IC in academic libraries has been restricted to the three categories of the IC taxonomy (Van Deventer, 2002; Pierce and Snyder, 2003; Iivonen and Huotari, 2007). However, the overall results of the current study indicated that it is necessary for academic libraries to add the 'collection and service assets' category to the classification of library intellectual assets. This additional category contributes to the further understanding of library services and information resources as intellectual assets possessed by libraries which the broad IC taxonomy does not embrace.

Collection and service assets is the fourth category reflecting the identity of academic libraries, whose mission is to provide library services and information resources to users in support of teaching, learning and research in higher education institutions (Brophy and Coulling, 1996). Also, they are directly relevant to the working practices of staff members at all levels of the library organizations and can be experienced by library stakeholders.

6.6.2 Motives for interest in intellectual assets evaluation

Clear understanding of the reasons for evaluating the intangible aspects of organizations is critical to the selection of methods and tools for assessing intangibles (Marr and Chatzkel, 2004). There were two overriding reasons for interest in intangible assessment in the KU Library, SWU Central Library and TU Libraries Office. First, most library administrators from all the cases wanted to apply approaches of intellectual assets evaluation as a KM technique for monitoring the effectiveness of KM processes, activities or projects implemented within the libraries. Secondly, they wanted to produce supplementary reports on intellectual assets and performance for communicating the library's value to stakeholders.

Measuring the success of knowledge management projects with intangible evaluation

Regarding the first motivation behind the desire to evaluate library intellectual assets, KM is the only management tool that the three case libraries were consciously putting into practice even though there are many management ideas, tools and approaches each case library could adopt in developing its collective knowledge, such as the learning organization, core competencies and innovation management. The KU Library improved access to collective knowledge by cultivating a network of cross-divisional colleagues to have a friendly exchange of views, experiences and solutions to problems within the workplace. The SWU Central Library increased the number of group assignments or projects to enhance a cooperative working environment and encourage team learning, as well as to support the transfer of individual knowledge. The TU Libraries Office initiated some knowledge repository projects by collecting, organizing and disseminating its professional staff's best practices. In the three case libraries there is thus a strong sense in which interest in intellectual asset evaluation is associated with the desire to track the progress of such KM processes, activities or projects towards the achievement of the libraries' strategic objectives.

The Thai academic libraries' KM-related motives do not differ considerably from those of KM initiatives carried out in many library settings. For example, Jantz (2001) described the development of the common knowledge database (CKDB) for capturing shared expertise in reference work of ten librarians in the New Brunswick Campus Libraries of Rutgers University. After assessing the progress of the CKDB, he concluded that effective KM requires a complementary combination of a team-based effort, ongoing KM processes and integrating knowledge repositories into information professionals' daily routine. Intellectual assets evaluation, which Jantz (2001) called 'auditing the content of the CKDB', is one of the ongoing KM processes that are central to successful KM initiatives in academic libraries. Auditing the content of the libraries' intellectual assets makes certain that they possess only up-to-date knowledge resources useful to their information services personnel. The motives for introducing intellectual assets evaluation in the belief that it can bring many benefits to KM projects of libraries are similar to the findings of a previous empirical study on public sector organizations' interest in developing KM and IC

statements. Mouritsen et al. (2004a) sent questionnaires to 26 public institutions taking part in an IC statements project in Denmark. The results showed that 80 percent of all the public institutions had worked with IC statements to help them implement KM schemes systematically.

The above line of thought also corresponds with Marr et al.'s (2002) research on assessing strategic knowledge assets and the Danish Ministry of Science, Technology and Innovation's (2003) new guideline for IC statements, which both support the notion that intellectual assets evaluation forms the predominant part of KM processes and activities of organizations. As Thorleifsdottir and Claessen (2006) claim, if organizations undertake intangible assessment to report knowledge-based resources, through information on intangibles they can build a better KM system which is dynamic and well-structured for enhancing their capabilities to use knowledge resources, increase efficiency and boost creativity.

Communicating the library's value with intangible evaluation

Another motive for introducing intellectual assets evaluation in the three case libraries is the need to use additional information from data collection on library intangibles for communicating the value of their operations, services and resources to various groups of stakeholders. Although they have the QA systems as their formal models of library evaluation, these models only focus on tangible evidence of service quality and user satisfaction. The QA systems are not specifically designed for reporting on the intangible dimensions of library and information services, for instance, strategic resources, their effectiveness in relation to the libraries' objectives, and contributions to the universities' strategic goals. As Abels et al. (2004) and White (2007b) point out tangible assessment does not offer comprehensive evidence to demonstrate hidden resources, intellectual performance and the impact of libraries.

In common with several library administrators, the administrative assistant for QA in the SWU Central Library noted that "The QA mandatory measures provide library management data that the university executives want to know, consisting mainly of annual expenditures and library use ... Actually, they [the executives] only have partial knowledge of the facts they should know about the library." All the case

libraries are therefore willing to consider other special tools of performance measurement that enable effective communication to internal and external stakeholders. According to Pors (2008), libraries tend to adopt new management concepts and tools which are oriented towards staff competence development and working condition improvement such as IC accountancy, evaluation of the working environment and the BSC. The introduction of these human-oriented tools makes the libraries more visible, relevant, and innovative in the community they serve.

In practice only the TU Libraries Office had already implemented a strategy map together with key performance indicators, as scorecard measures based on Kaplan and Norton's (2004) BSC Strategy Map framework, in the hope of improving internal and external reporting on strategic performance. The reporting purpose of this implementation follows the prior BSC practices in many academic libraries (Cribb and Hogan, 2003; Franklin, 2003; Self, 2003).

The benefits expected from introducing the broad concepts of intellectual assets evaluation in the KU Library, SWU Central Library and TU Libraries Office centre around KM measurement and BSC use. The discussed findings confirm that we cannot separate motives for evaluating knowledge resources from motives for monitoring knowledge-related activities (Wiig, 1997). Meanwhile, the link between information on intellectual assets and scorecard reports should be seen as a means of demonstrating organizations' successful performance (Koenig, 1998; Kaplan and Norton, 2004).

After understanding the reasons for interest in intellectual assets evaluation of the three case libraries, the next subsection discusses the key themes of performance indicator development.

6.6.3 The development of key success factors, performance indicators and measures

The performance indicators for evaluating intellectual assets in this research were developed in combination with the internal QA audit standards, and Kaplan and Norton's (1996) BSC method. The former helps libraries select the indicators that accord with their parent organizations' requirements for service quality. The latter

entails designing indicators that align with the library strategies. Nonetheless, the use of the BSC method is a new challenge facing academic libraries because they need to design scorecards all by themselves (Matthews, 2008). Many library and information professionals have not been very good at choosing in-house indicators that connect library activities with organizational strategies (Ford, 2002).

Measurement viewpoints

It should be noted that the measurement viewpoints about intangible evaluation recognised by the case libraries were internally focused. They addressed only inputs (investments in intellectual assets development), processes (intellectual activities), and outputs (a number of surrogates for intellectual assets created through the intellectual activities). This internal focus is generally consistent with the MERITUM and Danish guidelines on IC reporting that have relied on scorecard methods (MERITUM, 2002; Danish Ministry of Science Technology and Innovation, 2003).

Evaluation criteria

From a library point of view, common criteria for evaluating library operations include three dimensions: efficiency, effectiveness and quality. The results here also found that stability is another evaluation dimension crucial to the long-term success of Thai academic libraries where the bureaucratic culture and hierarchical structure of higher education is still influential. According to Kaarst-Brown et al. (2004) and Pors (2008), the stability in library organizations possessing hierarchically-oriented culture means that they have efficient operations, smooth control of daily tasks and secured financial support from parent organizations.

Key success factors

Specific performance indicators of library intellectual assets could be derived from the KSFs determined for evaluating the intellectual assets and activities in the KU Library, SWU Central Library and TU Libraries Office. This study revealed the following KSFs that were viewed as relevant to the intellectual performance of the three case libraries: human, managerial, technological, social and marketing factors.

These generic KSFs follow a quite similar pattern to the areas of the critical success factors identified by existing published work on library assessment and scorecards. For example, Town (2005) reported that competent library staff (human), sufficient organisational resources (managerial), effective multi-dimensional partnerships (social) and sustained pedagogic quality (marketing) were the success factor areas critical to 61 British institutions participating in the SCONUL Advisory Committee on Information Literacy's workshop sessions to define a performance measurement framework for information literacy programs. Matthews (2008) proposed several factors required to succeed in a library's BSC strategy map which are in line with the KSFs found in the present study. His success factors embrace staff competence and training (human), management, technology, customer service (social) and marketing.

Developing performance indicators and measures with the scorecard approach

The performance indicators and sample measures were developed through the measurement viewpoints together with the four evaluation aspects and aligned with the KSFs presented above. These new evaluation tools of intellectual performance may be adaptable for assessment of library intellectual assets and activities in other settings, even though they are specific to the Thai academic library sector.

The development of performance indicators for evaluating intellectual assets is basically a top-down process (Bontis et al., 1999). This so-called process model is a simplified form of the scorecard method (Rylander et al., 2000; Shulver et al., 2000). Thus it can be classed in the same group as other scorecard methods such as Kaplan and Norton's (1996)(1996) BSC, Edvisson and Malone's (1997) Skandia Navigator, and Sveiby's (1997) IAM. It starts by analysing strategic plans to identify what is strategically important to an organization and ends with the design of measures to assess surrogates for collective knowledge and monitor intellectual performance (Roos et al., 1997; Bontis et al., 1999; Marr et al., 2002).

The results of the present study show that using the simplified process model with a strategic perspective enabled the case libraries to define indicators and sample measures related to library intellectual assets that were compatible with their existing tools of library performance evaluation, both the QA measures (in the cases of the KU Library and SWU Central Libraries) and BSC metrics (in the case of the TU

Libraries Office). Consequently, it appears that one of the most appropriate approaches to performance indicator development for library intellectual assets in academic libraries is based on scorecard methods that focus on the achievement of their strategic objectives, rather than estimation of the economic value of their intangibles. This finding is in agreement with the findings of White (2004) and Van Deventer (2002) who concluded that the concepts of scorecard methods, particularly the BSC and IAM, seem to suit the needs of libraries where an intensive interest in measuring their intellectual assets occurs.

6.6.4 Suitable performance indicators for evaluating library intellectual assets

Various authors have recommended general characteristics of performance indicators which are suitable for organizations. For instance, proposed indicators of performance should be simple to understand and use, relevant to strategic objectives of the organizations, clearly defined, comparable and so on (Audit Commission, 2000). Understandability and importance were the two characteristics chosen to ensure that the list of performance indicators proposed in the present study suited the indicator users from the KU Library, SWU Central Library and TU Libraries Office where the use of performance measurement is growing.

The understandability of the performance indicators

From the three small-scale surveys conducted, apparently every performance indicator together with its surrogate measures designed for evaluating the human, structural, relationship, and collection and service assets of each case library were understandable to the majority of the potential indicator users, although the concept of intellectual assets evaluation was new to the three case libraries. The qualitative indicators of the degree to which library intellectual assets and activities were successful were comprehensible to most survey respondents with more than three years of experience in library evaluation.

It was common practice in the KU Library, SWU Central Library and TU Libraries Office to collect data about library performance based on what the parent organizations wanted to see, undertake self-audits, prepare regular reports of progress and receive a visit from QA auditors. This practice is an integral part of what Lakos and Phipps (2004) call a 'culture of assessment'. The survey respondents within the three case studies worked at university libraries where a culture of assessment had been created by encouraging staff to pay attention to the results they produced and how those results concerned library stakeholders. The dominant QA systems implemented at all the case libraries enabled their divisional heads, head librarians and senior professionals to become familiar with the use of the QA mandatory measures for gauging how well the libraries performed in accordance with the universities' QA standards. Meanwhile, the BSC at the TU Libraries Office made its line managers become accustomed to the use of key performance indicators for assessing its measurable progress towards being a dynamic organization providing excellent services. The experience of working with the QA measures or BSC metrics affected most potential indicator users' confidence and expertise in the area of library performance measurement and then led to their good understanding of the new performance indicators. Harer and Cole (2005) refer to the fact that library professionals' previous knowledge of performance measurement implementation is essential for assigning a comprehensible list of new performance measures for academic libraries.

Another likely reason why none of the proposed indicators were difficult to understand is that all the indicators of intellectual assets together with the sample measures were defined with words and phrases that appeared in the library strategies, steering models of library evaluation and existing performance measures. They also embraced some of the terms relating to library intellectual assets that were mentioned frequently in the semi-structured interviews with the 12 library administrators of the three case sites. Examples of the generic performance terms used in the new indicators were user satisfaction surveys (relationship assets), quality service improvement (collection and service assets), knowledge sharing activities (structural assets) and staff development (human assets). The majority of the indicator users had already became familiar with these generic terms. Thus, they recognised the meaning of the intangible indicators very easily. In this present study

the first stage of developing the indicators was to relate the terms widely spoken in the libraries such as the language about quality management and the BSC with the terms and categories of intellectual assets. This important stage is stressed in a number of guidelines on intellectual assets evaluation (MERITUM, 2002; Roberts, 2003; Thorleifsdottir and Claessen, 2006). Bukowitz and Williams (2000) argue that a link between the language of KM/IC and the terms widely used in an organization can generate a shared understanding of IC management for communicating to its staff. The shared understanding has potential to decrease some confusion over what KM/IC means and what they should be called in an organizational setting.

When we take a look at the overall ratings for the understandability level of the performance indicators presented in Table 6.6, this analysis indicates that the survey respondents' considered judgements about the level of understandability depend on their responsibilities and roles. In line with literature on strategic management for library and information services (Corrall, 2000; Bryson, 2006), the respondents in the case libraries, like the line managers in other organizations, have to guide their subordinates to ensure the quality of routine tasks within their work units. It is their responsibility to delegate job assignments based on the staff members' abilities, to solve problems of staff- or work-related issues, and to operate annual job appraisals. The line managers play an important role in staff development by providing active feedback and encouragement, identifying the subordinates' training and development needs, and supporting the subordinates to learn new professional skills. The only stakeholder group that they spend a lot of time interacting with is the group of library users. They are trained to be more customer-oriented to enhance customer satisfaction based on the quality management framework. There is not much contact between the line managers and other stakeholder groups such as university executives, research communities, and so on. We can conclude from the line managers' roles and responsibilities that the line managers in academic libraries are aware of staff development and training as a key area for developing human assets at the operational level, whereas having so few opportunities to build a relationship with stakeholders outside their work units limits their ability to recognise a wider interpretation of relationship assets that offers long-term benefits to their libraries.

The above conclusion explains why ratings by the line managers in the three case studies of the proposed performance indicators for evaluating human assets (e.g. skills, competencies, personal knowledge and teamwork) had high mean scores for their ease of understanding and why, on the other hand, the items with low mean scores for understandability were mainly the indicators designed for assessing long-term relationship assets (e.g. sustainable collaboration, social responsibility, and marketing and public relations).

The importance of the performance indicators

With respect to the importance ratings for the intellectual performance indicators, it is evident from the comparative analysis that all the indicators developed in the three case studies, including their sample measures, were seen as important for evaluating library intellectual assets and activities (see Table 6.6). The perception of the importance of the indicators for the KU Library, SWU Central Library and TU Libraries Office does not take place in a vacuum. It occurs because the indicator development process based on the BSC approach connects the library strategies, objectives and key success factors to form the performance indicators of the library intellectual assets and activities. When the indicators are directly tied to the strategic intent, they become more relevant to the three case libraries' requirements. As Franceschini et al. (2007: 8-9) affirmed: "Indicators and strategies are tightly and inevitably linked to each other. A strategy without indicators is useless; indicators without a strategy are meaningless". Creating measures or indicators of performance by aligning them with libraries' strategic plans, objectives and actions is evidenced in many journal articles on library scorecards (Ceynowa, 2000; Poll, 2001; Ford, 2002; Cribb and Hogan, 2003).

The next issue discussed is the importance scores of the performance indicators as perceived by all survey respondents. This study found that the top three indicators receiving high scores of importance were 'staff loyalty, motivation and teamwork skills', 'core services' and 'user satisfaction'. However, it should be noted that the indicators for evaluating core services and user satisfaction are very common in academic libraries adopting the principles of quality management in their formal systems of library performance measurement. Implementation of quality

management programmes in university libraries certainly emphasises customer orientation, which in turn requires tangible performance measures for assessing the quality of library services and customer satisfaction (Harer and Cole, 2005).

Interestingly, the indicators for evaluating intangible aspects of library staff development (i.e. staff loyalty, motivation and teamwork skills) are perceived to be among the most important indicators with the highest ratings. The survey respondents' perceptions of human resource management at the operational level and the cultural type of Thai academic libraries are two central arguments which can support this finding.

The survey respondents in the present study were the senior librarians or specialists who have been entrusted with managing their subordinates in the libraries' divisions. Their subordinates consist of professional staff and support staff. Of the two groups of library staff, the former is only a small group when compared to the number of the latter. The support staff in each division may include library assistants, clerical workers, manual and administrative staff and so on (Rowley, 1997). From an operational management perspective, the divisions in the libraries are labour-intensive operations faced with challenges to increase productivity, improve efficiency of information provision, speed service delivery time to users, and assure service quality. These challenges cannot be met by isolated development of the professional staff on an individual basis (practical knowledge, expertise, skills, etc.), but instead they depend critically on means of training all staff members in interpersonal skills (Stueart and Moran, 2007).

Another argument is concerned with the organizational culture of Thai academic libraries operating as bureaucracies. The performance indicators for evaluating staff loyalty, motivation and teamwork skills are grounded in the cultural type of hierarchical orientation. Thai university libraries, like other large bureaucratic organizations, are very hierarchical organizations in which professional, non-professional and managerial personnel's job specifications are clearly defined. The library personnel must follow the rules and regulations, standards and procedures written down as official documents (Pinchot and Pinchot, 1996). According to Kaarst-Brown et al. (2004) and Pors (2008), this hierarchical culture has predominant characteristics which focus on the strong supervision of library managers and the conformity of library staff. It does not offer adequate opportunities

for encouraging staff to develop individual creativity and innovation in information work (Townley, 1995).

Altogether, the suitable performance indicators discussed in the subsection 6.6.4 are related to the general context of the academic libraries. They reveal the detailed insights into the acceptance by the potential users of the intangible indicators under the influence of their personal experiences, management levels in the workplace, and the organizational cultures of the libraries.

Summary

This chapter has presented the findings from the cross-case analysis to show the there are similarities and differences across the three case libraries. The cross-case analysis was divided into five sections according to the research themes: the case library context, identification of intangibles, interest in intangible evaluation, a possible approach to developing the lists of performance indicators, and the most understandable and important indicators for evaluating library intellectual assets and activities. The last section of the chapter discussed the main findings in comparison with the results from previous related research studies. The discussion section has thus allowed the analytical explanations drawn from the multiple-case study evidence to be transferred to existing theories, concepts, and research on library performance assessment. Transferring these analytical explanations from the current research to the broader context of the relevant literature prepared the researcher to prepare for building the theoretical prepositions corresponding to the research questions. These theoretical prepositions, the modified conceptual framework, conclusions and recommendations are presented in the next chapter.

CHAPTER 7
CONCLUSIONS AND RECOMMENDATIONS

This last chapter summarises the research findings discussed in Chapter 6 by providing overall conclusions in relation to the four research questions posed in Chapter 1, presenting some lessons learnt from the current study, and making recommendations that associate the case evidence with intellectual assets evaluation in theory and practice.

The chapter is divided into five sections. First, there is a summary of the design and conduct of this multiple-case study. The second section presents an overview of the main findings together with the theoretical propositions that concern the answers to the research questions. The third section proposes some revisions to the conceptual framework previously outlined in Chapter 4, Section 4.6. Section four articulates major contributions of the research to the body of knowledge about library intellectual assets, applications of the methodology utilised in this multiple-case study and implications for people who have a stake in academic library assessment. In the fifth section, the chapter ends with the limitations of this study and suggestions for further research.

7.1 Summary of the project

This research project sought to understand how IC theory can be used in clarifying strategic resources of academic libraries and applying techniques of IC measurement which are well established in the private sector in a novel pattern of library performance evaluation. Few empirical studies in the library and information service field have taken account of IC measurement concepts introduced in particular types of academic libraries, even though there are a large number of published papers that have discussed how to evaluate the intangible side of academic libraries' operations and services, using methods such as quality of service measurement, impact/outcomes assessment, and the BSC for monitoring library strategic performance.

The review of literature on BSC implementation, IC applications, and KM practices from the LIS discipline revealed that the evaluation of library intellectual assets and activities (e.g. library staff's expertise, work procedures and instructions stored in databases, knowledge about library users, and varied programmes of sharing personal knowledge in the workplace) offers many sustainable competitive advantages to libraries. Library managers and policy makers can utilise valuable information obtained from their intangible evaluation to formulate strategic plans associated with knowledge development, assess KM projects, manage knowledge creation processes, and communicate the intangible value of library operations and information services to key stakeholders (Koenig, 1997; Pierce and Snyder, 2003; White, 2004; White, 2007b).

However, three noticeable gaps were found in the existing literature on library evaluation of intellectual assets and activities. One, there was little research exploring a comprehensive classification of intellectual assets and activities in academic libraries. Two, most prior work was concerned with how to assess library strategic performance or knowledge resources through evaluation methods pioneered by IC/KM experts, but often forgot to inquire what intellectual assets and activities were strategically important in academic library settings, and also why the libraries wanted to evaluate their intangibles. Three, there were few empirical studies or practical case studies that reflected the first-hand experiences of academic libraries where the process of developing intellectual performance indicators was introduced in real-life situations.

The current study intended to look for the answers to reduce all the above gaps. It specified four research objectives to: (1) identify the core intellectual assets which bring future benefits to academic libraries, (2) understand the reasons why library administrators need intangible assessment, (3) explore an appropriate process of indicator development for evaluating library intangibles, and (4) develop suitable indicators of library intellectual performance. In accordance with these four objectives, the conceptual framework generated during the pilot phase was used to guide the research design and data collection methods for the main study of this research project (see Chapter 4, Figure 4.5).

Reporting information on organizational intellectual assets obtained by using performance indicators is seen as originating from the internal perspective of each organization's strategic performance measurement system. This makes various organizations select different intangible indicators in different situations that depend on their long-term strategies (Bontis et al., 1999; Bontis, 2001). The evaluation of intellectual assets and activities is therefore context-specific. It is unlikely that a single set of performance indicators can be designed so as to be applicable to all types of organizations (Marr et al., 2002). The researcher decided to use the multiple-case study design to examine actual processes of developing performance indicators for intellectual assets evaluation with regard to the specificity of possible factors associated with this research topic. Additionally, the research design of this thesis might provide insights into contextual complexities surrounding existing performance measurement systems. University libraries in Bangkok, Thailand were chosen as specific cases to be studied by following three criteria for selecting case sites: the size, readiness, and interest in intangible assessment ideas of potential library participants (see Chapter 3, Section 3.2). The Thai university libraries then were considered as exemplars of academic libraries apparently wanting to gain experience in intangible indicator development.

The multi-site case study was carried out successively at three large university libraries. They were the KU Library, the SWU Central Library, and the TU Libraries Office. The researcher combined qualitative and quantitative methods of data collection to construct valid case findings. Each case site's initial list of performance indicators emerged from an analysis of administrative documents (e.g. strategic plans, annual reports, and QA documentation) and semi-structured interviews with the administrators involved in library evaluation practices. The content validity of the initial indicators was checked by library reviewers who had experience of preparing the case libraries' self-assessment reports. Following these reviews, all the indicators developed in the qualitative phase were incorporated in questionnaires to test their acceptance by indicator users in the quantitative phase of the research design. The end results of each case study were described in the form of individual case reports.

The final stage of the multiple-case study design was to analyse all the within-case evidence through the use of Yin's (2003b) replication logic. Cross-case analysis helped the researcher compare similar patterns or replications of indicator development processes among the three case libraries. Such comparison was also significant in interpreting the underlying dimensions of the academic libraries' intellectual performance assessment. Thus the replication logic brought to the study the means of building the explanations, theoretical propositions, and modified conceptual framework, respectively. The next section highlights the important findings from the cross-case analysis which pertain to the research questions.

7.2 Summary of the key findings

This section summarises the main points of the research results from the three case studies undertaken in the KU Library, the SWU Central Library and the TU Libraries Office. These key findings are substantially relevant to the central research question posed in the study: "How do Thai university libraries, as typical representatives of academic libraries, develop performance indicators to evaluate their organizational intellectual assets?" They are presented in four subsections according to the four research objectives outlined in Chapter 1, thereby proclaiming that each following objective has been achieved:

- Identifying the organizational knowledge and intangibles of Thai academic libraries;
- Understanding the reasons why Thai library administrators need intangible assessment;
- Exploring an appropriate process of indicator development; and
- Developing performance indicators that are suitable for evaluating intellectual assets in the context of Thai academic libraries.

7.2.1 Organizational knowledge and intangibles of Thai academic libraries

The findings of this study revealed that every case library possessed knowledge-based items and performed KM-related practices which are vital to deriving future benefits from the libraries, even if most library practitioners had not yet labelled these items and practices with the technical terms used in the IC field. The researcher applied the resource-based view on the sustained competitive advantage of a firm (Barney, 1991; Meso and Smith, 2000) to the identification of the libraries' intellectual assets and activities. Meanwhile, the IC perspective in strategic management theory (Marr, 2005; Roos, 2005) was applied to the classification of the content represented in these library intellectual assets and activities.

The intellectual assets and activities commonly described in the case libraries' strategic plans as well as being mentioned by the library administrators during the interviews are depicted in Figure 7.1. They were classified into four categories: human assets, structural assets, relationship assets, and collection and service assets. The first three categories are consistent with the general IC taxonomy of the European guidelines for the management and disclosure of information on intangibles (MERITUM, 2002). The additional category of library intellectual assets found in this thesis is collection and service assets.

In the context of the present study, the case evidence highlighted that the libraries use personal knowledge and skills (human assets), their collective knowledge of library management and practices (structural assets), and their knowledge about users' needs and satisfactions (relationship assets) to provide dynamic information resources and deliver quality services. In other words, a convergence of the human assets, structural assets and relationship assets produces innovations in information work as well as determining the quality of library services. This indicates that such library collections and services play a significant role as knowledge assets in the same way as companies' intellectual property (e.g. copyrights, design rights, trademarks and service marks) which is regarded as another form of knowledge assets in the commercial sector (Corrall, 1998; Al-Ali, 2003). Therefore, adding good information products and services as another category of knowledge-based resources can better reflect the true worth of each academic library where the reason

for its establishment is to provide library services and collections to users in higher education institutions (Brophy, 2005).

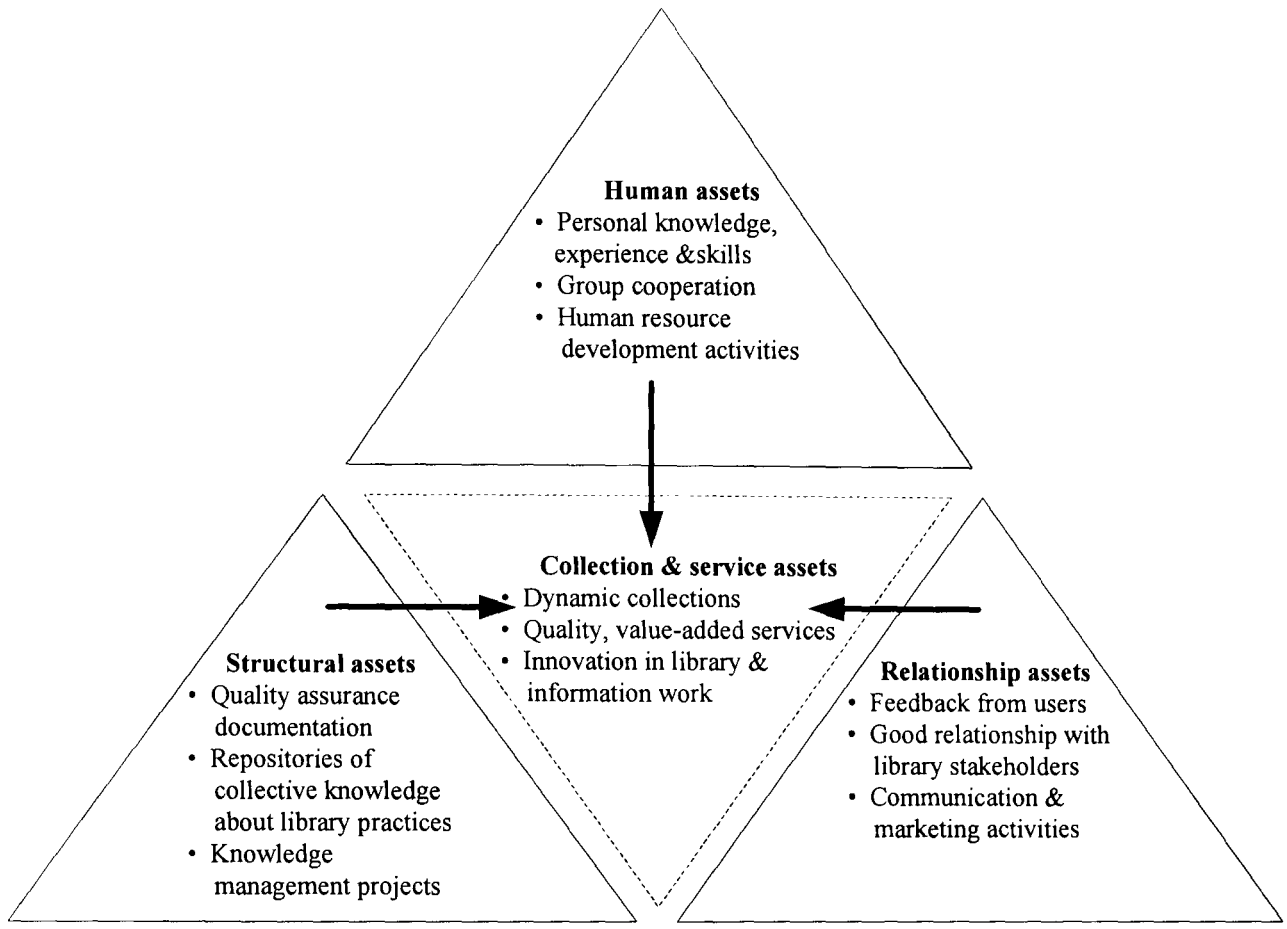

Figure 7.1 Categories of intellectual assets and activities applicable to Thai academic libraries (derived from this research)

Based on these findings, two concluding propositions about the identification and classification of intellectual assets within the academic library context can be stated as follows:

Proposition 1

Organizational intellectual assets of an academic library include not only its knowledge-based items or surrogates used as evidence of practical knowledge, but also its performance in creating, acquiring and exploiting these intellectual assets.

Proposition 2

The library intellectual assets fall into four categories: human assets, structural assets, relationship assets, and collection and service assets. The latter is an

additional category referring to the output assets of the other three categories which are combined to create value through library collections and services for users.

7.2.2 Motives for an interest in the performance indicator development for evaluating intellectual assets

Two main motives behind the interest in developing performance indicators for intellectual assets were evidenced by the case study interviews. First, most interviewees hoped to have indications of intellectual performance from measuring the success of KM-related projects in their libraries such as an increase in interdepartmental activities to build a culture of knowledge sharing among the professional staff, and the acquisition and organization of best practices to create knowledge repositories. The case study libraries, in common with other academic libraries where KM projects had already begun, certainly had an interest in introducing intangible assessment that would help them monitor and track the progress of their KM projects as KM applications for information work appear to be equated with the capture of intellectual assets in libraries (Gandhi, 2004). KM measurement embraces a diverse range of elements that can be measured in the KM initiatives of organizations. It is comprised mainly of measuring knowledge-creating activities, knowledge assets, their impact on organizational processes and their impact on business objectives (Chua and Goh, 2008). On this basis, measuring KM initiatives means that library intellectual assets are assessed as well.

Another reason given by the interviewees was that they desired to provide information on intellectual assets as a supplement to the self-assessment reports or annual reports of their libraries. This supplement was intended to demonstrate that the libraries' intellectual assets embodied in their operations, information resources and quality services have strategic value for different groups of library stakeholders. The disclosure of information on intellectual assets and activities was considered as an extra communication device for gaining continuous support from funding bodies and users. From a practical perspective, this finding indicates that library managers have expectations for external reporting on the intangible aspects of library organizations relevant to human assets, structural assets, relationship assets, and collection and service assets in the same way that they expect to gain advantages

from using other marketing tools to promote the library, its good work, and its contributions to the community it serves.

These findings lead to the following propositions about internal and external motives for initial interest in evaluating how well an academic library perform in the development of its intellectual assets:

Proposition 3

In an academic library where KM projects have already been initiated, it is likely that library managers will be interested in introducing intellectual assets evaluation to monitor and track the progress of the KM projects.

Propositions 4

A need to improve reports on the actual and potential benefits of an academic library influences library managers to develop performance indicators of intellectual assets for informing stakeholders about the intangible value of library operations and services.

7.2.3 An appropriate process of indicator development

This research addressed two necessary prerequisites — measurement viewpoints and evaluation criteria — for developing intangible indicators in the case libraries. The former guided the researcher in deciding how each intellectual asset together with its surrogates should be measured in accordance with the libraries' existing systems of performance measurement, namely the QA framework for higher education institutions in Thailand. The latter built on fundamental criteria currently imposed by the libraries' parent organizations to gauge the accomplishment of library operations and services.

The results of this multiple-case study showed that all the case libraries viewed the evaluation of library intangibles as a systematic model. Measured performance in connection with intellectual assets and activities focused internally on the inputs, processes, and outputs of library operations. The examination of evaluation practices in the three case sites also yielded broad criteria for assessing intellectual

performance that were divided into four dimensions: efficiency, effectiveness, quality, and stability.

With regard to the choice of an appropriate process for developing intangible indicators, the simplified scorecard approach taken by the present study seemed to suit the above evaluation criteria, which emphasised the attainment of the libraries' goals and objectives or fit-for-purpose evaluation. The top-down process based on this scorecard approach proved to be practical for actually designing performance indicators within this research context. It was arranged in three steps. The first step was to identify the key factors crucial to the long-term success of the case libraries within an IC frame of reference. The KSFs generated from this study included human, managerial, technological, social and marketing factors. Next, these KSFs were translated into qualitative statements indicating the libraries' expected intellectual performance at the strategic level. The last step was to select proxy measures for each performance indicator. These measures were grounded in operational statistics that might be easily collected or available in the existing systems of library evaluation. They were a helpful way to quantify progress in increasing human, structural, relationship, and collection and service assets.

To conclude these findings, three propositions about the suitable process of developing intangible indicators are offered below:

Proposition 5

The development of intangible indicators starts with a consideration of five key factors relating to library intellectual assets that must be in place for the strategic success of an academic library. They are people, management practices, technological infrastructure, social networks, and marketing orientation.

Proposition 6

Efficiency, effectiveness, quality, and stability are four focal dimensions of evaluation criteria for assessing an academic library's intellectual performance.

Proposition 7

The inputs, processes and outputs of an academic library's effort to create value for library stakeholder can be viewed as measurable surrogates for intellectual assets.

7.2.4 Key performance indicators for evaluating intellectual assets in the context of Thai academic libraries

In developing more meaningful indicators of intellectual performance, the potential users of the indicators had to agree on a possible list of indicators that were comprehensible to them as well as being considered important to their libraries. Three indicator-rating surveys followed up on the qualitative results of the individual case studies to test users' acceptance in terms of the understandability and importance of the suggested indicators. As each case library had its own set of indicators, the indicator ratings given by the respondents varied with each case study (see Chapter 5, Sections 5.1.3, 5.2.3 and 5.3.3).

A comparison of the survey results across the case libraries showed that all the performance indicators proposed in this study were understandable to most respondents. There were no indicators considered least or slightly important for the libraries (see Chapter 6, Section 6.5). When the researcher sorted every indicator by its mean scores (shown in Chapter 6, Table 6.6), it was apparent that the indicators in the category of human assets relating to library practitioners' knowledge, competencies, and teamwork skills had high mean scores for ease of understanding while those in the category of relationship assets had low mean scores (for instance, the indications of library performance in sustainable collaboration, marketing and public relations). Furthermore, this research found that the indicators for human assets (e.g. staff loyalty, motivation and teamwork skills), along with core services and user satisfaction, were considered to be of high importance on the basis of the scoring of the listed indicators for the libraries. This implies that head librarians/internal department heads as users of the indicators at operations management level tend to accept a set of intellectual performance indicators derived from a strategic view of knowledge-based resources, but are especially interested in some key indicators developed for evaluating human assets, as well as in indicators for collection and service assets.

Table 8.1 summarises the intangible indicators which were similarly identified among the three case studies in a short list of eight statements about how an academic library is supposed to perform with relation to its human, structural, relationship, and collection and service assets. On the basis of the cross-case

evidence, these statements can serve as a sample of key indicators for assessing intellectual performance in Thai academic libraries.

Categories of library intellectual assets	Key performance indicators
1. Human assets	- Develop staff who have practical knowledge, expertise, competencies and skills required for their positions in a library - Support teamwork and knowledge sharing among library staff - Ensure that the library has a working environment encouraging staff loyalty, motivation and satisfaction
2. Structural assets	- Implement KM activities/processes to create collective knowledge of library and information work - Apply information technology in a practical way to facilitate KM activities/processes
3. Relationship assets	Be customer focused to understand library users' needs, respond to their demands and satisfy them
4. Collection and service assets	- Provide value-added information resources and quality services based on user expectations - Innovate new collections, services, processes and other developments to meet users' changing needs

Table 7.1 A sample of key performance indicators of intellectual assets applicable to Thai academic libraries (derived from this research)

The main points from the research findings presented above can be concluded in the form of two propositions about the intangible indicators that are suitable for academic libraries:

Proposition 8

Developing a new set of intellectual performance indicators through a common language currently used for academic library evaluation (e.g. quality assurance standards for library services) makes the intangible indicators understandable for indicator users at the operational level.

Proposition 9

From a practical point of view, academic library managers at operational level tend to focus more on performance indicators developed for evaluating both human assets and collection and service assets rather than on indicators in the categories of structural assets and relationship assets.

7.3 Revised conceptual framework

The tentative model of concepts from Chapter 4 (Figure 4.5) was revised as a result of the actual findings and theoretical propositions. This revision was seen to be necessary because the tentative model, which was influenced by experience in the pilot study, only outlined the broad concepts organised around the research questions. It did not inform the particular details for identification and classification of library intellectual assets, an appropriate method of designing intangible evaluation, and indicators of intellectual performance. The researcher updated the conceptual framework with the newly found practical aspects and additional considerations for designing intangible indicators (see Figure 7.2). This revised framework can be used as a systematic conception of performance indicator development for evaluating intellectual assets and activities in other academic libraries where their managerial contexts are similar to the three participating libraries of this research project. The framework suggests a five-stage process for developing performance indicators of intellectual assets in academic libraries, as presented below.

7.3.1 Identification of library intellectual assets

The introduction of intellectual assets evaluation as a management tool of strategic performance measurement in the academic library sector should be integrated into the evaluation approaches currently imposed by the libraries' parent organizations such as internal QA in library operations and information services, and the BSC. For example, the starting point for identifying the knowledge-related/intangible aspects of library resources and activities available in the workplace is to examine the quality elements prescribed in QA standards which are concerned with intellectual assets and performance (e.g. staff development, internal quality audit practices, and QA documents) if library managers are using internal QA. For a library where the BSC has already been employed to monitor its long-term performance, the four BSC perspectives (finance, customers, internal processes, and learning and growth) provide a point of reference for locating its knowledge resources or particular KM jobs/tasks.

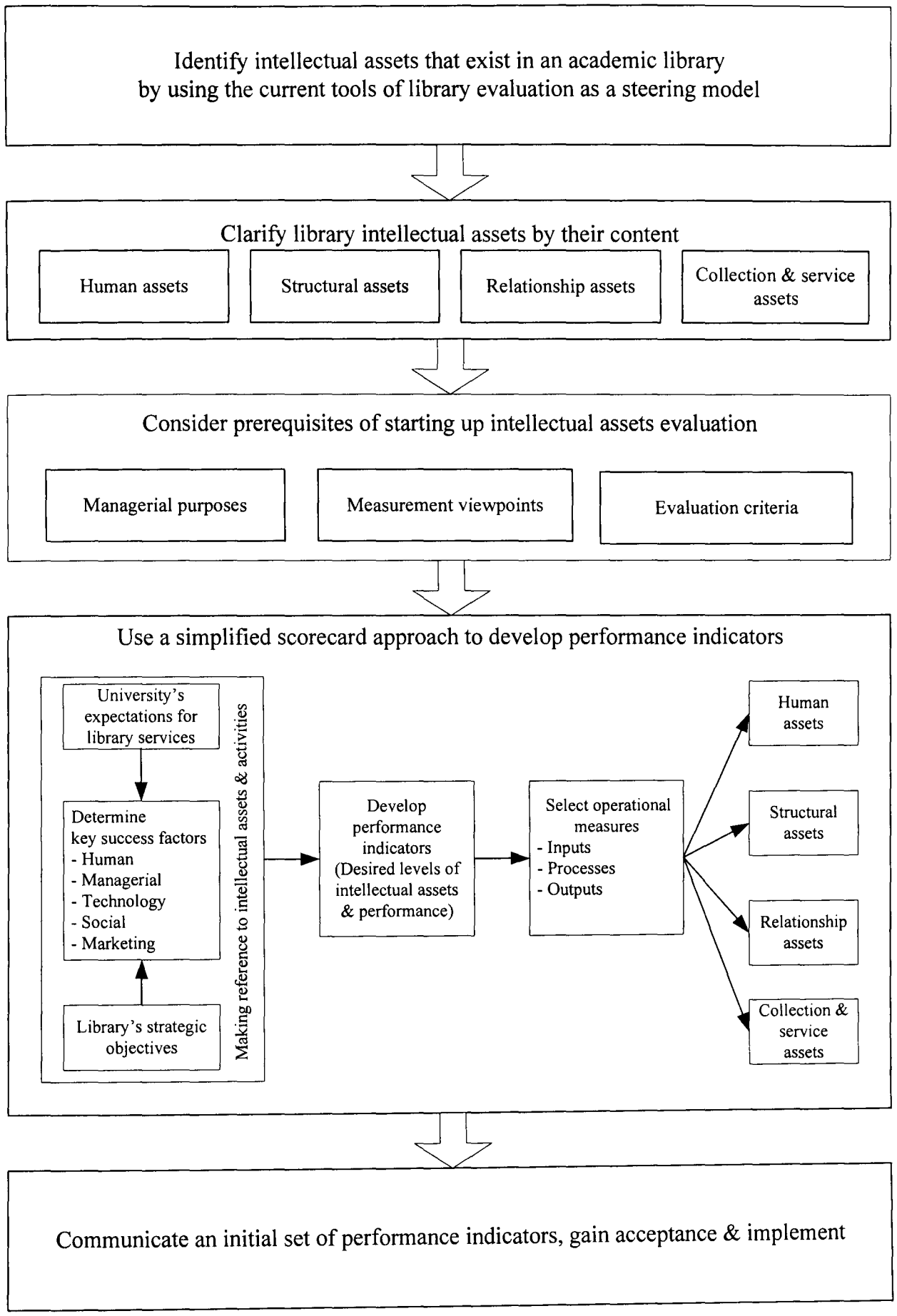

Figure 7.2 Revised conceptual framework

7.3.2 Classification of library intellectual assets

While the term 'intellectual assets' may limit our thoughts to 'things' which one owns (Hall, 1992) or 'different forms of knowledge containers' (Orna, 2005), the present study clearly demonstrates that this term should serve as a broad notion of what brings long-term success to libraries. Thus the word 'assets' is used as a means of enabling library managers to recognise the importance of knowledge/intangibles and then begin taking into account such strategic resources along with other tangible assets of the libraries. It is interesting to note that library intellectual assets should include not only representations or surrogates for valuable knowledge/intangibles, but also every activity undertaken for creating, sharing, and managing the operations knowledge of library and information work. Taking an IC perspective helps us to classify the representations of the intangibles as well as the intellectual activities that are being measured in the formal evaluation of library services (i.e. QA elements or BSC perspectives) into four categories. The names given to the four categories reflect the contents embedded in them. They are about library staff's personal knowledge and skills (human assets), operations management processes captured for information systems (structural assets), users and stakeholders outside the library (relationship assets), and value-added information provision and quality service delivery (collection and service assets).

7.3.3 Making decisions on managerial purposes, evaluation viewpoints and evaluation criteria for assessing library intellectual assets

In the initial conceptual model, this stage was part of the process of developing performance indicators. The researcher, however, took the lessons learned from facilitating the design of intangible indicators within each case library that the stage of identifying the reasons for evaluating library intangibles, the evaluation viewpoints and evaluation criteria should be well established at the outset. So this stage is shown in the revised framework as separated from the indicator development process. Library managers who are interested in intangible assessment should have a clear idea about why they want to develop performance indicators for reporting information on intellectual assets and activities of the library. When they think

seriously about the real purposes behind their interest, it is quite easy for them to balance the internal and external viewpoints from different groups of stakeholders who may use information on library intangibles. In addition, they can easily choose some criteria such as quality and effectiveness that are appropriate for judging how well the library is performing to enhance its strategic resources.

7.3.4 Developing an initial set of performance indicators with a simplified scorecard approach

The fourth stage of the modified framework focuses on the process of developing performance indicators. Methods for evaluating library intellectual assets and activities must be simple to apply as well as being compatible with common practices in library evaluation, such as quality audits and BSC implementation, because many libraries are new to ideas for monitoring the intangible aspects of library operations and resources within an IC frame of reference. This framework suggests the scorecard method which is influenced by the simplified process model of Roos et al. (1997) and Bontis et al. (1999) as one of the suitable methods for designing intangible indicators. It is useful in the organizational context that the financial valuation of intellectual assets is not central to the library's purposes of intangible assessment. It can be seen from this simplified process of indicator development that the selection of intangible indicators starts at the top level of the library by focusing the library administrators' attention on the long-term intangible objectives relevant to the library's strategic objectives. It has three linear steps for the design process in detail: determining key success factors relating to intellectual assets and activities; identifying qualitative indications of desired intellectual performance; and choosing measures as evidence of library intellectual assets or surrogates for intangibles. The revised design process presented here is clearer than the initial process previously presented in Chapter 4 (Figure 4.6).

7.3.5 Communicating and testing an initial set of indicators for user acceptance

To put the suggested indicators into practice, the introduction of intangible assessment in the library is highly dependent on acceptance of the indicators by their potential users who may be directly responsible for the preparation of information on library intangibles: for instance, divisional heads, head librarians and senior professionals. Hence, user acceptance testing is added to the revised framework to make certain that these users understand and perceive the importance of the suggested indicators.

The modified conceptual framework for developing intangible indicators for an academic library setting covers, as mentioned above, all aspects of designing performance indicators for intellectual assets and activities — from the identification stage to the indicator users' perceptions in terms of the understandability and importance of the indicators. It is hoped that the five stages included in this modified framework will help libraries obtain new indicators of their intellectual performance on trial which can ultimately supplement the existing performance measurement systems in these libraries.

7.4 Contributions and implications of the research

The current research project generated findings that make some original contributions to knowledge, suggest applications of the case study methodology to the field of library evaluation, and have practical implications for developing performance indicators of intellectual assets in the academic library sector. The following subsections discuss the detailed contributions and implications of this thesis.

7.4.1 Original contributions to knowledge

This thesis seeks to fill the gaps in knowledge about intellectual assets evaluation of academic libraries. Such gaps include little research into intangible assessment applied to academic libraries, few attempts at identifying and categorising the kinds of intellectual assets/activities in the libraries' real-life contexts, and inadequate understanding of purposes in introducing the evaluation of library intangibles. Regarding these gaps, the research topic and outcome of this thesis have made original contributions to knowledge in the following ways.

An in-depth study of intangible indicator development investigated fully in academic libraries

There is considerable interest in the design of performance indicators for evaluating intangible aspects of academic libraries, but most previous studies were tied to the four BSC perspectives: financial performance, customers, internal processes, and learning and growth (Poll, 2001; Cribb and Hogan, 2003; Self, 2003). These BSC studies covered a broad range of developing indicators or measures for reporting a comprehensive picture of library strategic performance but they were not intentionally conducted to delve into the libraries' indications of intellectual assets and activities with direct reference to the ideas of IC measurement. Meanwhile, other published papers on the application of IC measurement to academic libraries are descriptive (cf. Koenig, 1997; Pierce and Snyder, 2003; Van Deventer and Snyman, 2004; White, 2007b). They offer little empirical data to support explanation of how this IC application works within the actual organizational cultures of the libraries.

The present study was a pioneering work in bringing a strategic view of IC measurement originated in the business sector to bear on the evaluation of library operations and services within the context of Thai academic libraries. It fully investigated all kinds of the case libraries' intellectual assets, the motives for their interest in introducing intangible assessment, a suitable method of designing intangible indicators for evaluating the intellectual assets, and a set of indicators common to the case libraries. The performance indicators as well as the conceptual framework presented in this thesis are potentially useful not only for the library and

information service sector in Thailand, but also for different types of libraries in other countries.

An improvement on the identification and classification of library intellectual assets

IC measurement experts have proposed such a variety of IC frameworks and classifications for companies that there is no need to develop any new IC reporting models in the private sector. However, many management scholars in this field have needed the contributions of academics from other disciplines to investigate how different professions working in various kinds of organizations and sectors use the traditional IC taxonomies to define their intellectual assets (Marr and Chatzkel, 2004). The current research attempts to make a contribution to this need by identifying and classifying library intellectual assets from a context-specific perspective. It is one of a very small number of studies providing empirical evidence of three general categories of intellectual assets — human assets, structural assets, and relationship assets — in library settings.

Even though expansion into new categories of intellectual assets does not currently appear to be prevalent in the library literature on intangible assessment (see, for example, Van Deventer and Snyman, 2004; Iivonen and Huotari, 2007; White, 2007b), the current research discovered that most key informants in all the case study libraries perceived quality services and innovations in library work as their intellectual assets. The researcher therefore proposed adding 'collection and service assets' to the classification of library intellectual assets. This additional category reflects the academic library sector's mission-related resources which library professionals need to evaluate besides the three general IC categories. The libraries are not academic departments or research centres whose human assets, structural assets and relationship assets directly impact on the knowledge production processes of the whole university and then must be monitored extensively (Leitner, 2002; Sanchez et al., 2009). They exist to provide information products and services to the library users (Brophy and Coulling, 1996). They have a value for the universities through the good products and services experienced by their users (Saracevic and Kantor, 1997). Thus such good products and services, namely

collection and service assets, should be taken into account as the accomplishment of the libraries' mission. This additional category of library intellectual assets is primarily concerned with succeeding in their performance on information provision and service delivery.

This study has taken a step in the direction of identifying and categorising the libraries' good collections and services into the traditional IC classification. The additional category improves the conceptual scope of intellectual assets evaluation for libraries. The researcher acknowledges that the inclusion of collection and service assets drawn from the three case study libraries' research findings is at a low level of generalization. However, the main value of their inclusion lies in a possible theoretical avenue which will allow further empirical testing to take place in large samples of other academic and research libraries (including, for example, national libraries).

New connections between existing evaluations of library services and intellectual assets evaluation

There are many papers on the application of IC measurement tools for assessing intellectual assets or the performance of library services and operations (see, for example, Portugal, 2000; Van Deventer, 2002; Pierce and Snyder, 2003; Hendriks and Wooler, 2006). These papers demonstrated how to use special tools for measuring intangible aspects of library organizations, such as Kaplan and Norton's (1996) BSC, Sveiby's (1997) IAM, and estimation of the ROI for information and knowledge services. Nevertheless, 'how to' demonstrations alone do not help libraries to choose appropriate tools that fit both their expectations and their current practices in the evaluation of library services and operations.

The main aim in this thesis is different. It goes beyond the previous work to focus first on the organizational contexts of the libraries. The researcher examined the libraries' strategies, administrative structures, and steering models of evaluation, together with existing performance measures which were relevant to the concepts of intellectual assets evaluation. These contextual considerations enabled us to explore new linkages between intellectual assets evaluation and the current evaluation of library operations, i.e. internal quality audits and scorecard reports of library

performance. The present study has shown that some categories or items which the libraries are measuring within their quality audits or BSC measurement practices can imply the existence of library intellectual assets: for example, knowledge and skills of professional staff, staff development activities, KM processes in the libraries, quality services, and user satisfaction.

The above connections confirm Wang's (2006) earlier observation that implementation of IC management in libraries relates to mainstream management tools like BSC and TQM. They complement each other. This study also contributes to the library literature on intangible assessment by concluding that an integration of the principles of library intangible reporting into existing models of library evaluation is more necessary than a separate utilisation of the special tools for IC measurements.

7.4.2 Methodological contributions

The present study contributes to research methodologies in the field of strategic performance measurement for library and information services. It proves that the case study design and methods chosen here, as a research strategy, can be one of the appropriate methodologies for investigating each phase of developing intangible indicators in academic library settings.

Many prior investigations, to a great degree quantitative in nature, into the development of performance measures for assessing the intangible aspects of academic library operations and services (e.g. a library's effectiveness, service quality, and culture of assessment) have selected various methods of data collection to design 'one-size-fits-all' measures (cf. Van House et al., 1990; Cullen and Calvert, 1995; Harer and Cole, 2005). They are mostly large-scale investigations which have generalised final results from large samples to large populations and standardised the measures as general templates for libraries. Use of standardised measures allows benchmarking of day-to-day work among similar types of libraries (Poll and Boekhorst, 2007).

In contrast, the evaluation of intellectual assets and activities as strategic resources and performance represents a shift from the one-size-fits-all logic of reasoning to a more contextualised system. The strategic resources and performance which give organizations long-term sustainable advantages are often context-specific (Rylander et al., 2000; Marr et al., 2003). Two institutions in the same sector may require different strategic resources. It depends on their corporate strategies. Thus, indications of strategic resources and performance which have to be linked to the strategies are also organization-specific (Bontis et al., 1999; Marr et al., 2002) and it is difficult for an organization to benchmark against other peer organizations (Roos and Roos, 1997). This explains why research on strategic performance measurement needs to start with small-scale inquiries and move later into large samples, and quantitative research designs (Marr et al., 2003). This situation arising from management research is similar to much recent research on impact/outcome assessment and the BSC metrics in academic libraries; for example, the studies of Abel et al. (2004), Markless and Streatified (2006), and Poll and Payne (2006). These researchers conducted rich, comprehensive case studies to develop performance measures which were specific to their research contexts.

The research design and methods of this thesis built on the above methodological standpoint by designing a multi-site case study, employing mixed methods of data collection to obtain findings from the individual case libraries, and selecting cross-case synthesis as an analytic technique for formulating the theoretical propositions and conceptual framework for the development of performance indicators in connection with intellectual assets evaluation. The case study methodology enabled the investigator of this study to describe and analyse the research themes in the three case libraries. Like other case studies undertaken to propose impact/outcome measures or scorecards for libraries and information services, there are three arguments in favour of the future use of the case study methodology in the evaluation of academic libraries' intangible resources and activities.

First, this methodology not only helps researchers receive new instruments for the evaluation of library performance, it can also be used to discover a variety of existing factors that influence libraries to create or choose indicators. The case study is an efficient research strategy for blending the newly-designed indicators into library organizational contexts such as administrative structures, steering models of

formal evaluations, core work processes, and culture. Collecting additional evidence on the role these organizational contexts play facilitates better preparation of libraries for success in testing, implementing, and using the intangible indicators.

Another interesting argument in support of the case study methodology is the pragmatic orientation of its data collection and analysis procedures. This methodology remains flexible enough to allow researchers to employ mixed methods of data collection, gather case findings from multiple sources of evidence, and combine qualitative and quantitative data to increase the internal validity of the concluding results (Yin, 2003b). For instance, the current research project began the fieldwork with a qualitative design in which the three case libraries' administrators had the opportunity to recommend desired indicators based on their own subjective opinions. These indicators (the qualitative data) were verified by the quantitative data when the researcher asked the potential users of indicators in all the case studies to indicate on a Likert scale of 1-4 how understandable and important they considered each of the draft indicators. Enhancing the qualitative data with the quantitative data in this research therefore provided a more finished list of performance indicators for evaluating library intellectual assets.

Finally, a strength of the case study methodology is the high level of representative cases' direct involvement or participation in the research. For instance, the units of analysis to be studied in this thesis were each Thai university library in its entirety. Data collection sources that the researcher used within the three case libraries were the internal documents, library managers, and in-house surveys. These sources of information were about all the case libraries which took part in the actual planning of the indicator development process. This direct involvement led to the design of the libraries' agreed indicators that reflected their real needs and corresponded with their own strategic plans and objectives. A limited number of such agreed indicators seemed to be more meaningful for the libraries than a total set of universal performance measures they might choose at random from large-scale investigations or existing standards.

There are both an opportunity and a caution in the case study methodology. Case study designs allow researchers and practitioners the opportunity of producing new workable indications of library intellectual performance. The caution is to conduct case studies so that the suggested indicators would be comparable to those in other

libraries (for example, by concentrating on libraries in the same sector or with a similar mission). This methodology may interest library evaluation researchers in instances when the library contexts, flexibility of data collection sources and respect for case study participants' viewpoints matter to their investigations.

7.4.3 Implications for library evaluation practice

The research findings and revised conceptual framework (see Figure 7.2) have practical implications for academic library managers who are interested in developing specific indicators for gathering performance information on intellectual assets and activities, and introducing the principles of IC reporting in the workplace. Another aspect of the implications concerns university executives imposing formal evaluation programmes and standardised measures on their libraries.

Implications for academic library managers

One of the most significant benefits at the core of the current study is to give managers at every level a better understanding of existing intellectual assets and activities which are strategically valuable for academic libraries: for instance, staff competencies, knowledge repositories, KM projects, good reputation, and quality services. The case findings of this research also indicate that the IC theory and principles of non-financial performance disclosure already known in the commercial sector can accord with two mainstream tools of library performance measurement: QA in higher education assigned to academic support units (including libraries) and library scorecards linked to the overall BSC for a university. The IC terminology tends to suit the formal evaluation languages generally used by people in academic library settings. Also, knowledge about the identification and classification of library intangibles available from this study is sufficient for academic library managers to gain real knowledge about what intellectual assets are crucial for sustainable achievement in their libraries. This knowledge will also enable them to be more aware of the potential of those hidden assets and take more interest in some ideas around intellectual assets evaluation.

Next, the current study encourages the managers to think about the rationale behind an introduction of intangible assessment practices in their libraries. An organization differs from others in its underlying reasons why critical intellectual assets and activities have to be evaluated. A top management team in the organization could select specific evaluation tools and techniques for assessing intangibles that best fit its organizational context if team members have a collective comprehension of such reasons or motives for interest in intangible assessment (Marr and Chatzkel, 2004). Consequently, library managers should resist being hurried into a decision on choosing popular approaches for evaluating intellectual assets and emphasise, instead, how important it is for them to invest in this sort of evaluation work such as doing it to monitor progress on KM projects and/or to demonstrate the intangible value of library services.

This study suggests that the library managers utilise the revised conceptual framework for developing intangible indicators together with the simplified process of inventing a draft set of indicators (see Figure 7.2), since intangible assessment practices within many libraries are still at an early stage where they may require only simple indicators to compare intellectual performance against the past. It is evident from the results across the three case libraries that both the framework and process, which have built on prior work on scorecard methods (Roos et al., 1997; Bontis et al., 1999; Kaplan and Norton, 2004), are easy to follow and carry out each step in the development of performance indicators for evaluating the intellectual assets and activities of libraries.

In addition, a recommendation made within the present study is that library managers should develop a list of performance indicators by selecting from key elements of intellectual assets which most library workers are accustomed to. For instance, the cross-case findings of this study indicate that 'staff loyalty, motivation and teamwork' (human assets), 'user satisfaction' (relationship assets), and 'core services' (collection and service assets) are three possible elements which seem suitable for libraries designing indications of intellectual performance. From a practical perspective the 'easy to evaluate' elements of intangibles help the managers ensure that the intangible indicators proposed are in harmony with the libraries' existing systems of performance measurement. Meanwhile, new indicators for these elements could easily attract the attention of library practitioners who are assigned a task of gathering performance data or statistics.

Implications for executives of higher education institutions

The research results presented in this thesis can guide university executives or policy makers responsible for future directions of academic library assessment through further options in evaluating the true value of library services and operations. A potential benefit for the top management raised by the current study is that developing indicators of library performance within an IC frame of reference provides the executives/policy makers with an opportunity to consider a library's resources as well as its performance from a strategic view. Such consideration helps a higher education institution focus on beneficial effects of library intellectual assets on its long-term success in teaching, learning, and research missions. Some European universities have been promoting the concepts of IC measurement and reporting with respect to competitive advantage, educational excellence, and accountability in higher education (see Leitner, 2002; Kok, 2007; Sanchez et al., 2009). For instance, IC indicators for libraries are compulsory at all Austrian universities (Seissl, 2006). This means that the knowledge-based resources of the library are likely to be interpreted as infrastructure for knowledge support in the universities' IC development schemes or KM initiatives (Kok, 2007). The universities, of course, can strengthen their whole basis of knowledge production, transfer and utilisation through the contributions of library services if they allow their libraries to design new indicators of intellectual assets and activities embedded in library work and align these indicators with the overall systems of institutional performance measurement.

When academic libraries develop a list of intangible indicators all by themselves, it is said that such indicators reflect what they want the parent intuitions to know about their intellectual performance. The university executives can respond to intangible assessment efforts of the libraries by adding some of these indicators to the existing instruments for the evaluation of library operations. It should be noted that changing the categorisation of such indicators from additional to mandatory is still dependent on the universities' standards of quality or scorecards for strategic performance. For this study the process of developing performance indicators for library intellectual assets evaluation relies on the scorecard approach, so the executives can be certain that the non-alignment between the libraries' indicators and those of the universities rarely happens.

7.5 Limitations and further research

Within the limitations of case study research addressed in Chapter 3, this research project demonstrates the empirical evidence to increase knowledge about the development of indicators for evaluating intellectual assets and performance in three academic libraries. It is recognised that obtaining the cross-case evidence from a particular group of research participants (library administrators) within a specific sector (Thai academic libraries) at one point in time (a three-month period of fieldwork) limited the perspectives that could be taken into account in the investigation. The limitations shown in this section, however, may suggest several areas of further research into intangible evaluation for libraries that future researchers can pursue.

First, the current study used only the interviewees and respondents who were insiders of the case sites studied. Thus the performance indicators for evaluating library intangibles were designed in-house and based on the library and information professionals' viewpoints. There were no other groups of library stakeholders participating in the selection of intellectual performance indicators. These key stakeholders could consist of university executives, faculty members, and QA auditors who have an interest in overseeing KM initiatives, projects or activities relevant to intellectual assets in academic libraries. It is worth asking what the key stakeholders really expect to know about information on library intangibles to incorporate an external perspective on KM-related assessment into the libraries' internal focus of intangible evaluation. The cumulative effect of using outsiders as participants in further inquiry would give a better understanding of external requirements for developing performance indicators of library intellectual assets. The semi-structured interview guide and survey questionnaire used in this study could be adapted for gathering data from these key stakeholders in the future.

Second, the present study focused mainly on three large-sized case libraries of public universities which have the following dominant characteristics:

- Their organizational culture is hierarchically-oriented.
- Common steering models of library evaluation have been already employed to collect operational data on library performance such as QA audits and the BSC.

- The library administrators seem interested in management tools or approaches that can be connected with the development of practical knowledge of library and information work such as KM and TQM.

Consequently, it means that case-to-case transferability of the present study's results should be tested in some contextual variables similar to the academic library sector in which this study was conducted, especially different types of academic libraries. Replication studies with the same case study protocol used in this study could be undertaken in other research settings, for instance autonomous university libraries, private university libraries and research institute libraries. The similar and contrasting results gained from the replication studies would offer an opportunity to discover further evidence for confirming the key findings of this study, modifying the theoretical propositions of intangible evaluation in academic libraries, and comparing the performance indicators for assessing the libraries' strategic resources.

A third limitation is that this study only depicted the early stages of developing an intellectual assets management system from the identification of library intellectual assets to the design of intellectual performance indicators. The scope of the present research was still rudimentary. It did not extend to the later stages that move from evaluation to management, such as the implementation of the proposed indicators, the utilisation of information on intangibles to make changes in KM practices, and the ongoing management of library intellectual assets and activities. Ideally, longitudinal case studies could be conducted in the future to investigate each stage of developing the whole system of intellectual assets management from start to finish. A longitudinal design would also bring many benefits to researchers who want to track the outcome of the usage of intellectual performance indicators within academic libraries. This outcome would provide a valuable contribution to the implementation of intellectual assets evaluation in theory and practice.

A Final Word

This final chapter provides the conclusions of the case findings drawn from both qualitative and quantitative techniques of data collection, and then links these conclusions to the four research questions which are central to this current study. Through the theoretical propositions emerging from the research context of three university libraries in Thailand, a modified conceptual framework for developing performance indicators of library intellectual assets was suggested to illustrate substantial ideas considered essential for identifying library intellectual assets, specifying the indicator development process, and choosing a list of performance indicators perceived to be understandable and important to potential users of indicators.

Based on the distinctive ways in which Thai academic libraries use performance measures, the theoretical propositions and conceptual framework for monitoring intellectual performance contribute knowledge of intangible evaluation to the field of strategic performance measurement in the library sector. Such knowledge may come in useful when library policy makers and practitioners are planning to assess intangible aspects of library operations. However, a lot more needs to be done by library researchers in order to delve into other research problems in managing library intellectual assets and activities

To conclude, this study has achieved its research aims and objectives by presenting a fresh look at evaluation of library resources and performance from an IC perspective, showing how to prepare for formulating performance indicators of intellectual assets, and highlighting some interesting indicators which libraries can adopt in their existing evaluation systems as a supplementary tool for reporting the value of library operations and services.

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APPENDICES

APPENDIX A

DOCUMENT ANALYSIS FORM

A.1 Blank form

Title:	**Topics/Keywords:**
Author(s):	**Date of Document:**
Intended Audience:	**Type of Document**:
Objectives of the publication:	
Summary:	
Mapping elements of quality management with intangible assessment	
Elements	*Intangible assessment*
For example Strategy Processes People System	For example Intellectual assets Definitions Components Classifications Evaluation framework Benefits Criteria Indicators

A.2 Example of filling in a document analysis form

Title: QA System and Mechanism	**Topics/Keywords:** QA mechanism; Quality auditing system; Quality indicators
Author(s): Division of Quality Assurance, Academic Management Office, Chulalongkorn University	**Date of Document:** 2006
Intended Audience: General audience	**Type of Document**: Guideline
Objectives of the publication: Introduce CU-QA standard both its development (2000-2003) and the next steps (2004-2008).	
Summary: Background – Creation and developmental mechanism (2000-2003) – CU-QA 84 standards – CU-QA 84 index – Internal audit/assessment system – QA system (2004-2008) – Integration of risk management and internal control systems – Development of quality standards and indicators –Appendix.	

Mapping elements of quality management with intangible assessment	
Quality assurance elements	*Intangible aspects*
Strategy The University has launched a campaign to promote value creation by setting strategies relating to IC concepts as follows: • Enhance *staff capacity* for quality improvement through training, to boost knowledge and techniques in the hope of *bettering work quality* • Launch CU-Quality Prizes/Awards campaign to give recognition and facilitate the sharing of experience, or CU-Good Practices, in Chulalongkorn community. This leads to the opening-up of a new dimension– to become an *organization of learning*. • Further develop quality standards and indicators -- the indicators should reflect the real situation (rather than simply yielding scores) so the organization can use them for self-assessment and as information to lead the organization to excellence.	Staff capacity Better work quality Organizational learning
The University established four necessary steps to flourish QA system: evaluation, development, implementation, and audit and assessment. Furthermore, it carried activities to facilitate effective QA operation.	QA system (a culture of assessment?)
ISO9001: 2000 consists of indicators such as Training and development of supporting personnel and Plan, goals, and activity setting to develop the organization toward excellence as well as the evaluation criteria based on the following levels: Level 1 Plan has been set (P = Plan) Level 2 Plan has been carried out (D = Do) Level 3 Evaluation has been conducted (C = Check) Level 4 Correction has been made after evaluation (A = Action) CU-QA 84 now is reaching beyond expectations and aiming for quality innovation.	Innovation

APPENDIX B

SEMI-STRUCTURED INTERVIEW GUIDE

B.1 The interview guide

Introduction

Thank you for participating in the case study. As explained in the information sheet enclosed with your consent form, this 45 minute-interview focuses on library intellectual assets and it has three main parts. First, I will ask you about perceptions of knowledge-based assets. Next, you will say why the library needs to measure these assets. I will finally probe further into the evaluation approach.

NB The descriptions of vision, goals and missions are derived from those of the case library. For each site, they may be similar to or different from the others.

Background information (5 minutes)

The Library's quality policy indicates the Library is an intelligent asset equipped with extensive and inclusive information resources (descriptions extracted from its vision and goals). I would like to start by asking you briefly to describe the rationale behind the above mentioned vision and goals.

- Could you explain what you mean by an intelligent asset?
- What are key success factors in the development of the Library into an intelligent asset?

Intellectual assets (10 minutes)

Research question 1: What are the organizational intellectual assets of the Library?

The Library's mission is to explore, pursue, generate, and disseminate academic and research-oriented knowledge by organising and providing competent technical services for the most benefit of society in general and of the University in particular (descriptions extracted from its missions).

I am now going to ask you about resources to support the Library progressing towards an intelligent asset of the University.

1. Except budget and infrastructure, are there other strategic resources that the Library can use to achieve the above mentioned mission?
   - Could you give me some examples?
   - How do you define these 'non financial/soft' resources?

2. What are the main differences between traditional assets and the 'non financial/soft' resources?
3. Do you give priority to the 'non financial/soft' resources when planning the library strategy?

- What intellectual assets are important to your Library?
- Why do you choose them?
- How does each type relate with others?

Motives (5 minutes)
Research question 2: Why does the Library need to evaluate organizational intellectual assets?

You accept that knowledge resources are important to the Library; hence I am interested in your motivation for evaluating them and developing them into organizational intellectual assets.

4. What are the incentives for the Library to have information on the existing knowledge resources?
   - How does information about the existing knowledge resources affect internal management, external reporting and everyday operations?
   - Who will receive benefits from this information?

5. Could you explain the reason why the Library should specify much-needed knowledge resources?
   - How does information about these needed resources affect internal management, external reporting and everyday operations?
   - Who will receive benefits from this information?

Evaluation framework (20 minutes)
Research question 3: How does the Library design a framework and methods for evaluating intellectual assets in organization?

Finally, I would like to ask you about a suitable approach for evaluating the knowledge resources.

6. Does using the university's quality management standard help you understand the Library's organizational knowledge?
   - What are the strengths and weaknesses of the standard?
   - Do you apply other management tools/techniques to the standard?
   - Could you give me practical examples of these tools relating to value creation in the Library?
   - Why do you apply them?

7. If your library must assess organizational intellectual assets in the manner of a business, what is the main purpose of intellectual evaluation? [To monitor, control, report or develop]

8. How does the Library know that its own organizational knowledge is aligned with the teaching, learning and research missions of the university?
   - What topics should the measures focus on? [BSC perspectives, level of library objectives, actions, services]
   - What aspects of organizational knowledge should be evaluated? [Input/resources, process/activities, output/results, outcome/effects]

9. What quantitative and qualitative criteria are used for evaluating intellectual assets? [Costs, growth, stability, efficiency, effectiveness, benefits]
10. How do you determine appropriate method(s) of intellectual evaluation?
    - How does the evaluation process fit with the culture of the Library?
    - Who should be responsible for evaluating and developing intellectual assets?
    - Where will knowledge information be distributed?

Ending the interview (5 minutes)

My questions end here. Do you have anything else you would like to add about the library intellectual assets, evaluation framework or performance indicators?

Thank you very much for your time and cooperation.

B.2 Excerpts from the partial transcriptions of selected passages

KU Library Director
Site: Director's office room
Date: 22 July 2008
Start: 14:00
End: 15.00

Question: Except budget and infrastructure, are there other strategic resources that your library can use to achieve its mission?

...The quality of library personnel is a crucial factor besides allocation of funds. Even though we formulate a perfect library strategy, it cannot be executed without workers having considerable mental agility, up-to-date skills, and commitment to the organization. [In the KU Library], there are knowledge sharing activities at two levels. First, library staff shares experience of working among colleagues. Unfortunately, this sort of sharing is quite informal, so they do not record anything. For the second level, annual meetings will be set up three times per year to share successful stories about technical jobs, services and information technology projects among the branch libraries. This sort of explicit knowledge is contained in the minutes or the proceedings ...

... The KU Library is not an independent organization. We cannot run our business on our own. We need to take care that our users are still satisfied with information resources and services to prove our worth; the university executives and other agricultural institutions still drum up financial support for our core processes; and we still get benefit from the academic library cooperation we have joined ...

... Here [the KU Library] our staff try to treat users as if they are customers. If I have a chance to speak to the front-line staff, I always teach them to suppose that we are selling our services to the customers. They are not people who just ask us for services they want, but the existence of the Library depends on them supporting our activities...In fact, information products and library services here are provided in a business-like manner. In the other words, we try to offer good educational resources and quality services to our users who are being treated as if they are regular customers who buy goods or a service from companies ...

Question: What are the incentives for the Library to have information on the existing knowledge resources?

...Capital investment is explicit about what we buy to increase the effectiveness of the Library. Our bottom line can traditionally disclose value for money. On the other hand, intangible investments such as staff development and knowledge management projects are regarded as long-term investments. Unlike fixed assets, it is hard to see intangible effects in a short period. It seems interesting to have an approach of assessment to these knowledge-based resources ...

Question: Does using the university's quality management standard help understand the Library's organizational knowledge?

...The challenge of intangible evaluation is to invent the ways that intellectual assets measurement can be compatible with the quality assurance system; most staff in the Library can understand new indicators; and the intangible evaluation should be a long-lasting implementation on a regular basis, rather than a fad for stimulating staff...

... In 2006 the internal audit of service quality which relied on strategies was very hard to adapt to library evaluation at an operational level. We just learned how to formulate a strategic plan. Our workers had to adjust themselves to suit the University's obligatory requirements for quality assurance. However, I am pretty sure to say that we are gradually familiar with this self-assessment now [in 2008]. It is a good tool to check how well the Library performs based on our policies or goal setting ...

Question: Do you have anything else you would like to add about the library intellectual assets, evaluation framework or performance indicators?

...Performance indicators have to be flexible or easy to adjust continually. Furthermore, clear definitions are a major factor in the success of this new assessment. Meanwhile, the library's readiness will accelerate knowledge evaluation in practice...

Associate Director of Management, KU Library
Site: Meeting room
Date: 23 July 2008
Start: 10:00
End: 11.00

Question: Except budget and infrastructure, are there other strategic resources that your library can use to achieve its mission?

... Workforce numbers may help us estimate library efficiency and productivity. Nevertheless, university executives tend to pay attention to the effectiveness of the Library. That is why we should regard workforce's good qualities. I mean that their service minds, abilities and expertise affect every aspect of service improvements in the long run. I want to compare competent staff to good inputs which we put into our key work processes

... A team of systems analysts is designing a management information system to gather some facts and figures and integrate them into a single database. This project will help us manipulate meaningful information on library performance when we want to make some decisions in a committee meeting ...

... When we talk about information resources that fit target customer requirements, we should consider their information needs and use behaviour. Different groups of users have their own different requirements. Whatever we provide and then make them satisfied, that is to create value for users...

Question: What are the incentives for the Library to have information on the existing knowledge resources?

... Although the annual reports represent some information about the Library's knowledge resources, it is difficult for our stakeholders to read them because the details of the reports have too much of a good thing. The relevant data should be represented in the form of a knowledge inventory that readers can consider interesting results, trends or progress immediately when they want ...

Question: Does using the university's quality management standard help you understand the Library's organizational knowledge?

... Actually, managing a library always deals with day-to-day problem solving – the existing system of quality assurance seems to suit it very well. You [the researcher] ask me about strategic evaluation tools used in our library. I admit that a few years ago the Library used only simple methods to form strategies such as a brainstorming session and SWOT analysis. Quite frankly, the PDCA cycle of quality management helps us only 'plan' and 'do' operational tasks. We have not had a tool for measuring the strategic level success yet. I want to step forwards strategic management control. I think the Balanced Scorecard may be one of the suitable methods to 'check' and 'act' strategically ...

Question: Do you have anything else you would like to add about the library intellectual assets, evaluation framework or performance indicators?

... Intellectual performance can improve library images from traditional services towards proactive and competitive provision of advanced products. At the first step of initiative, evaluation restriction is not good for encouraging library staff. For the Library as a whole, most indicators should illustrate library outcome and impact on customers...

APPENDIX C

RESEARCHER-ADMINISTERED QUESTIONNAIRE

(MAIN STUDY)

Instructions

Purpose of survey

Thank you for participating in the case study. This questionnaire survey intends to understand the views of librarians and specialists towards proposed performance indicators that are important and understandable to the library for evaluating its intellectual assets.

How to complete the survey

There are two parts to this instrument. In Part One you will be asked to give me your personal information. In Part Two you will express how easy to understand the indicators are and rate the importance of each indicator to the library's key success factors by ticking a box or circling a number on the questionnaire. Please answer all the questions because there are no right or wrong answers to these questions. It takes about 15 minutes to complete the questionnaire.

Confidentiality

This questionnaire is anonymous. It refers to responses for the unit of analysis as an organization not an individual person. If you have any queries about the survey, please contact the researcher, Mr Somsak Sriborisutsakul (lir05@sheffield.ac.uk) by e-mail or call at 07772186825.

Definitions of key terms

To ensure that you understand the survey contents, the following key terms are defined and arranged in the running order.

Key terms	*Definitions*
Performance indicators	Tools to help a library find its progress or success of knowledge resources and activities
Evaluation	The process of judging the value of overall performance
Organizational/collective knowledge	An item of knowledge that has strategic value for an organization. It must be recordable, recorded, and owned by the library
Key success factors	Important elements that the library has to do to succeed in the strategic direction of intellectual assets
Measures	Quantifiable representation based on evaluation criteria
Target	The reason why measures are suggested

Part I Personal Information

Please give the answer which best describes you.

1. Gender ☐ Female ☐ Male

2. Position .....

3. Your department/division .....

4. Years of experience ☐ Under 1 year ☐ 1-5 years
☐ 6-10 year ☐ Over 10 years

Part II Understanding and importance of Performance Indicators

Instructions: The following items reveal key success factors, a list of performance indicators and sample measures for evaluating organizational intellectual assets in your library organization. They were developed by interviewing the administrators of the library. All the indicators are necessary for the library staff to gather information on how the library succeeds in its long-term targets and short-term priorities relating to collective knowledge such as organizational learning, competency development and user relationships.

After you have read the suggested performance indicators, you are asked to judge the ease of understanding and the importance of these indicators. In other words, you answer two main questions that are:

1. How easy are these indicators and measures to understand? Please indicate your opinion by rating the scale from 1-4.

1 = Very difficult
2 = Fairly difficult
3 = Fairly easy
4 = Very easy

2. How important are these indicators and measures to the library's key success factors? Please rate them by assigning a number from 1-4.

1 = Least important
2 = Slightly important
3 = Very Important
4 = Most important

NB The response alternatives below (i.e. contents of key success factors, qualitative indicators, and sample measures) are derived from the results of each qualitative phase of data collection undertaken in the individual case studies. Such contents vary from case to case and numbers of the alternatives depend on those of the indicators developed from the three case studies.

Key success factor 1: .....

Proposed performance indicators	*Sample measures*	*Level of understanding*				*Level of importance*			
		Difficult			Easy	Least			Most
		1	2	3	4	1	2	3	4
		1	2	3	4	1	2	3	4
		1	2	3	4	1	2	3	4
		1	2	3	4	1	2	3	4

Key success factor 2: .....

Proposed performance indicators	*Sample measures*	*Level of understanding*				*Level of importance*			
		Difficult			Easy	Least			Most
		1	2	3	4	1	2	3	4
		1	2	3	4	1	2	3	4
		1	2	3	4	1	2	3	4
		1	2	3	4	1	2	3	4

Key success factor 3: .....

Proposed performance indicators	*Sample measures*	*Level of understanding*				*Level of importance*			
		Difficult			Easy	Least			Most
		1	2	3	4	1	2	3	4
		1	2	3	4	1	2	3	4

Key success factor 4: .....

Proposed performance indicators	*Sample measures*	*Level of understanding*				*Level of importance*			
		Difficult			Easy	Least			Most
		1	2	3	4	1	2	3	4
		1	2	3	4	1	2	3	4
		1	2	3	4	1	2	3	4

My questions end here.
Thank you very much for taking the time to complete this survey.

APPENDIX D

SELF-ADMINISTERD QUESTIONNAIRE

(PILOT STUDY)

D.1 Questionnaire

Purpose of survey

Thank you for participating in the pilot study. This questionnaire survey intends to understand the views of librarians and specialists towards proposed performance indicators that are important and understandable to the Central Library for evaluating its intellectual assets.

How to complete the survey

There are three main parts to this instrument. In Part One you will be asked to fill in your personal information. Part Two asks you to rate the importance of each indicator for the Library's key success factors. In the last part, you will express how easy to understand the indicators are.

Almost all the questions only ask you to tick a box or circle a number. Please answer all the questions because there are no right or wrong answers to these questions. It takes about 20 minutes to complete the questionnaire.

Confidentiality

This questionnaire is anonymous. Although there is a number at the top of this page, it refers to responses for the unit of analysis as an organization not an individual person. If you have any questions about the survey, please contact the researcher, Mr Somsak Sriborisutsakul (lir05@sheffield.ac.uk) by e-mail or call at 07772186825.

Definitions of key terms

To ensure that all respondents have the same understanding of survey contents, the following key terms are defined and arranged in the running order.

Key terms	*Definitions*
Performance indicators	Tools to help a library find its progress or success of knowledge resources and activities
Evaluation	The process of judging the value of overall performance
Organizational intellectual assets	An item of knowledge that has strategic value for an organization. It must be recordable, recorded, and owned by the library
Key success factors	Important elements that the library has to do to succeed in the strategic direction of intellectual assets
Human assets (HA)	Expertise concerned with library personnel to strengthen capabilities and drive innovations in information services.
Structural assets (SA)	Codified knowledge that can be found in processes and procedures
Relational assets (RA)	Resources linked to the external partnerships such as stakeholders, communities and publishers.
Measures	Quantifiable representation based on evaluation criteria
Target	The reason why measures are suggested

Part I Personal Information

Instructions: Tick only one box for each question.

Give the answer which best describes you.

1. Gender ☐ Female ☐ Male

2. Position ☐ Librarian ☐ Subject specialist ☐ Systems analyst
☐ Other (please specify) .....

3. Department ☐ Acquisitions ☐ Cataloguing ☐ Information system
☐ Circulation ☐ Reader services ☐ Research support services

4. Years of experience ☐ Under 1 year ☐ 1-5 years
☐ 6-10 year ☐ Over 10 years

Part II Importance of Performance Indicators

Instructions: This is a list of performance indicators developed by interviewing the library administrators and departmental heads of librarians to evaluate organizational intellectual assets.

How important are these indicators to the library's key success factors? Please rate them by circling one of the numbers from 1-4.

1 = Least important
2 = Slightly important
3 = Very Important
4 = Most important

Proposed indicators	**Level of importance**			
Key success factors xxxxx	Least			Most
HA1 xxxxx	1	2	3	4
HA2 xxxxx	1	2	3	4
SA1 xxxxx	1	2	3	4
SA2 xxxxx	1	2	3	4
RA1 xxxxx	1	2	3	4
RA2 xxxxx	1	2	3	4
Key success factors xxxxx				
HA3 xxxxx	1	2	3	4
HA4 xxxxx	1	2	3	4
SA3 xxxxx	1	2	3	4
SA4 xxxxx	1	2	3	4
RA3 xxxxx	1	2	3	4
Key success factors xxxxx				
HA5 xxxxx	1	2	3	4
SA5 xxxxx	1	2	3	4
RA5 xxxxx	1	2	3	4

Part III Understanding of Performance Indicators

Instructions: The following items reveal definitions, measures, targets, evaluation methods, and data sources. They are necessary for practitioners to gather information on knowledge resources and activities.

How easy are the detailed descriptions to understand? Please use the scale printed below each performance indicators to indicate your opinion by circling one of the numbers from 1-4.

1 = Very difficult
2 = Fairly difficult
3 = Fairly easy
4 = Very easy

HA1 xxxxx				
Measures	Targets	Evaluation methods		Data sources
xxxxx	xxxxx	xxxxx		xxxxx
Very difficult	1	2	3	4 Very easy

HA2 xxxxx				
Measures	Targets	Evaluation methods		Data sources
xxxxx	xxxxx	xxxxx		xxxxx
Very difficult	1	2	3	4 Very easy

HA3 xxxxx				
Measures	Targets	Evaluation methods		Data sources
xxxxx	xxxxx	xxxxx		xxxxx
Very difficult	1	2	3	4 Very easy

Thank you very much for taking the time to complete this survey.

Please return your questionnaire by the internal mailing system.

D.2 Expert review form

Date of review _____ **Ref. No.** ☐☐

After considering the draft instrument, please give us your feedback by ticking the appropriate boxes and/or specifying how we should improve the self-administered questionnaire for an actual survey.

Review issues	**Problems found in the questionnaire**	**Comments and recommendations**
General Instructions Purpose of study How to complete Confidentiality Definitions of key terms Send-back instruction	☐ Inaccurate instructions ☐ Too many instructions ☐Complicated instructions ☐ Instructions do not fit context ☐ Awkward wording ☐ Missing words to set up the response task ☐ ..... ☐ ..... ☐	
Part I Instructions Question	☐ Unclear response task ☐ Poor question order ☐ Unclear question ☐ Undefined, vague terms ☐ ..... ☐ ..... ☐ ..... ☐	
Part II Instructions Question	☐ Unclear response task ☐ Poor question order ☐ Unclear question ☐ Undefined, vague terms ☐ ..... ☐ ..... ☐	
Part III Instructions Question	☐ Unclear response task ☐ Poor question order ☐ Unclear question ☐ Undefined, vague terms ☐ ..... ☐ ..... ☐	
Layout and style	☐ Difficult to read ☐ Too many pages ☐ ..... ☐ ..... ☐	

Thank you very much for your help.

The researcher will collect your form in person.

APPENDIX E

INFORMATION SHEETS

E.1 Information sheet for the library directors

1. Research Project Title:

"Developing performance indicators to evaluate organizational intellectual assets of Thai academic libraries"

Your library is invited to participate in the above research project, which is being conducted by Professor Sheila Corrall (supervisor) and Mr Somsak Sriborisutsakul (research student) of the Department of Information Studies at The University of Sheffield, UK. Please read the following information and decide whether your organisation wishes to take part.

2. What is the project's purpose?

Intellectual assets such as human skills, reputation, and best practices are one of the valuable resources in academic libraries in the same manner as other capital assets. Several libraries therefore identify particular statements about organizational knowledge in their strategies. It is important to recognise categories and evaluation methods for the intellectual assets so that the library can manage them. The aim of this study is to develop performance indicators focusing on library operations and to report its status of knowledge resources. The fieldwork for this research project will be completed within a three-month timescale (June 2008 to August 2008).

3. Why have I been chosen?

The case study will be used as a research strategy in this project because each library has its own intangible objectives. A case site must have a policy referring to organizational intellectual assets and performance measurement. Your library has been chosen because it meets this criterion.

4. Do I have to take part?

Your participation in this study is completely voluntary and you could withdraw your library from the project at any time without negative effects.

5. What will happen to me if I take part?

If collecting data is allowed in the library, your staff would be asked to contribute to one of two phases. First, the investigator would seek access to organizational documents and interviews with you as a director, with an associate director, and with departmental heads of libraries for 45 minutes per person to build a set of indicators. With permission, the interview would be tape-recorded, so that an accurate record of what interviewees say can be made. When the tape has been transcribed, participants would be provided with a copy of the transcript so that they can make certain that the

information is correct or suggest revisions. Secondly, later amended librarians and specialists would complete a questionnaire asking what the important and understandable indicators are. The results of the second stage will support the findings in the qualitative data of the first stage.

6. What are the possible benefits of taking part?

This study may help your library to find out new indicators of intellectual asset evaluation and to consider using them under the existing system of quality assurance. Furthermore, your prototype may be adopted by other Thai libraries to develop performance management in the future.

7. Will my taking part in this project be kept confidential?

The confidentiality of all responses is the most significant point in the proposed research. Any identity and personal information will be kept strictly confidential and will be destroyed when the study is completed.

8. What will happen to the results of the research project?

The results will be referred to by organizational unit not by individuals and will be published in the student's doctoral thesis.

9. Who has ethically reviewed the project?

The project has been approved by the Departmental of Information Studies in accordance with the University of Sheffield's Ethics Review Procedures in March 2007.

10. Contact for further information

For answers to questions pertaining to any concerns, please contact the project supervisor, Prof Sheila Corrall (s.m.corrall@sheffield.ac.uk) or researcher, Mr Somsak Sriborisutsakul (lir05ss@sheffield.ac.uk) by email or send a letter to the following address:

The University of Sheffield

Department of Information Studies

Regent Court 211, Portobello Street

Sheffield S1 4DP UK

If your library would like to take part, please show that you have read and understood this information sheet by keeping one copy, signing the accompanying consent form and returning a copy for the supervisor by e-mail. After obtaining your permission, the researcher will then contact you to arrange a convenient time with you to conduct the case study.

Thank you very much for your participation in this project.

E.2 Information sheet for the interviewees

1. Research Project Title:

"Developing performance indicators to evaluate organizational intellectual assets of Thai academic libraries"

You are invited to participate in the above research project, which is being conducted by Professor Sheila Corrall (supervisor) and Mr Somsak Sriborisutsakul (research student) of the Department of Information Studies at The University of Sheffield, UK. Please read the following information and decide whether you wish to take part.

2. What is the project's purpose?

Intellectual assets such as human skills, reputation, and best practices are one of the valuable resources in academic libraries in the same manner as other capital assets. Several libraries therefore identify particular statements about organizational knowledge in their strategies. It is important to recognise categories and evaluation methods for the intellectual assets so that the library can manage them. The aim of this study is to develop performance indicators focusing on library operations and to report its status of knowledge resources. The fieldwork for research project will be completed within a three-month timescale (June 2008 to August 2008).

3. Why have I been chosen?

The case study will be used as a research strategy in this project because each library has its own intangible objectives. A case site must have a policy referring to organizational intellectual assets and performance measurement. Your library has been chosen because it meets this criterion. Perception and evaluation of knowledge-based assets are rather complex and differ from person to person. For this reason, it is proposed to interview representatives of library stakeholders (a director, an associate director, and departmental heads of libraries) in order to reflect the real needs of the organization to assess intellectual performance effectively. You have been chosen as you fall into one of the categories of staff mentioned.

4. Do I have to take part?

Your participation in this study is completely voluntary. You could withdraw at any step or withdraw any unprocessed data you have supplied, and you are free to do so without negative effects.

5. What will happen to me if I take part?

If you agree to take part, you would be asked to contribute to semi-structured interviews as the first phase of mixed methods. The investigator would ask you questions about the existing system of performance evaluation as well as library intellectual assets for approximately 45 minutes to build a set of innovative indicators. With permission, the interview would be tape-recorded so that an accurate record of what interviewees say can be made. When the tape has been

transcribed, participants would be provided with a copy of the transcript so that they can make certain that the information is correct or request revisions. After analysing the initial qualitative findings, these will be used to form the survey questionnaire for phase two to survey attitudes to the offered indicators from all librarians and specialists in the library.

6. What are the possible benefits of taking part?

This study may help your library to find out new indicators of intellectual asset evaluation and to consider using them under the existing system of quality assurance. Furthermore, your prototype may be adopted by other Thai libraries to develop performance management in the future.

7. Will my taking part in this project be kept confidential?

The confidentiality of your responses is the most significant point in the proposed research. Your identity and personal information will be kept strictly confidential and will be destroyed when the study is completed.

8. What will happen to the results of the research project?

The results will be referred to by organizational unit not by individuals and will be published in the student's doctoral thesis.

9. Who has ethically reviewed the project?

The project has been approved by the Department of Information Studies in accordance with the University of Sheffield's Ethics Review Procedures in March 2007.

10. Contact for further information

For answers to questions pertaining to any concerns, please contact the project supervisor, Prof Sheila Corrall (s.m.corrall@sheffield.ac.uk) or researcher, Mr Somsak Sriborisutsakul (lir05ss@sheffield.ac.uk) by email or send a letter to the following address:

The University of Sheffield

Department of Information Studies

Regent Court 211, Portobello Street

Sheffield S1 4DP UK

If you would like to participate, please show that you have read and understood this information sheet by keeping one copy, signing the accompanying consent form, and returning another copy for the supervisor to the researcher. The researcher will then contact you to arrange a convenient time to conduct the case study.

Thank you very much for your participation in this project.

E.3 Information sheet for the survey respondents

1. Research Project Title:

"Developing performance indicators to evaluate organizational intellectual assets of Thai academic libraries"

You are invited to participate in the above research project, which is being conducted by Professor Sheila Corrall (supervisor) and Mr Somsak Sriborisutsakul (research student) of the Department of Information Studies at The University of Sheffield, UK. Please read the following information and decide whether you wish to take part.

2. What is the project's purpose?

Intellectual assets such as human skills, reputation, and best practices are one of the valuable resources in academic libraries in the same manner as other capital assets. Several libraries therefore identify particular statements about organizational knowledge in their strategies. It is important to recognise categories and evaluation methods for the intellectual assets so that the library can manage them. The aim of this study is to develop performance indicators focusing on library operations and to report its status of knowledge resources. The fieldwork for research project will be completed within a three-month timescale (June 2008 to August 2008).

3. Why have I been chosen?

The case study will be used as a research strategy in this project because each library has its own intangible objectives. A case site must have a policy referring to organizational intellectual assets and performance measurement. Your library has been chosen because it meets this criterion. Librarians or specialists, as users of performance indicators, need to accept the significance of each measure and recognise its structure. We are asking all librarians and specialists to complete a questionnaire asking what the important and understandable indicators are because they deal directly with the functions and activities within the library. You have been chosen because you fall within this category of staff. Your views will help to determine the balance between required targets and practicable ways to evaluate intellectual assets.

4. Do I have to take part?

Your participation in this study is completely voluntary. You could withdraw at any step or withdraw any unprocessed data you have supplied, and you are free to do so without negative effects.

5. What will happen to me if I take part?

If you agree to take part, you would be asked to contribute to a questionnaire survey as the second phase of a mixed method study. The survey would ask questions to establish your understanding and assessment of importance of each performance indicator developed by interviewing library administrators (a director, an associate

director, and departmental heads of libraries) in phase one. The questionnaire should take approximately 15 minutes to complete.

6. What are the possible benefits of taking part?

This study may help your library to find out new indicators of intellectual asset evaluation and to consider using them under the existing system of quality assurance. Furthermore, your prototype may be adopted by other Thai libraries to develop performance management in the future.

7. Will my taking part in this project be kept confidential?

The confidentiality of your responses is the most significant point in the proposed research. Your identity and personal information will be kept strictly confidential and will be destroyed when the study is completed.

8. What will happen to the results of the research project?

The results will be referred to by organizational unit not by individuals and will be published in the student's doctoral thesis.

9. Who has ethically reviewed the project?

The project has been approved by the Departmental of Information Studies in accordance with the University of Sheffield's Ethics Review Procedures in March 2007.

10. Contact for further information

For answers to questions pertaining to any concerns, please contact the project supervisor, Prof Sheila Corrall (s.m.corrall@sheffield.ac.uk) or researcher, Mr Somsak Sriborisutsakul (lir05ss@sheffield.ac.uk) by email or send a letter to the following address:

The University of Sheffield

Department of Information Studies

Regent Court 211, Portobello Street

Sheffield S1 4DP UK

If you would like to participate, please show that you have read and understood this information sheet by keeping one copy, signing the accompanying consent form, and returning another copy for the supervisor to the researcher. The researcher will then contact you to arrange a convenient time with you to conduct the case study.

Thank you very much for your participation in this project.

APPENDIX F

PARTICIPANT CONSENT FORM

Title of Project: Developing performance indicators to evaluate organizational intellectual assets of Thai academic libraries

Name of Researchers: Professor Sheila Corrall (Supervisor)
Mr Somsak Sriborisutsakul (Research student)

Participant Identification Number for this project:

I confirm that I have read and understand the information sheet dated: 31 January 2008 for the above project and have had the opportunity to ask questions. I understand that my participation is voluntary and that I can withdraw at any time without giving any reason. I understand that my responses will be confidential and give permission for the researcher to gain access library documents.

I agree to take part in the study. My signature below also indicates that I have received a copy of this consent form.

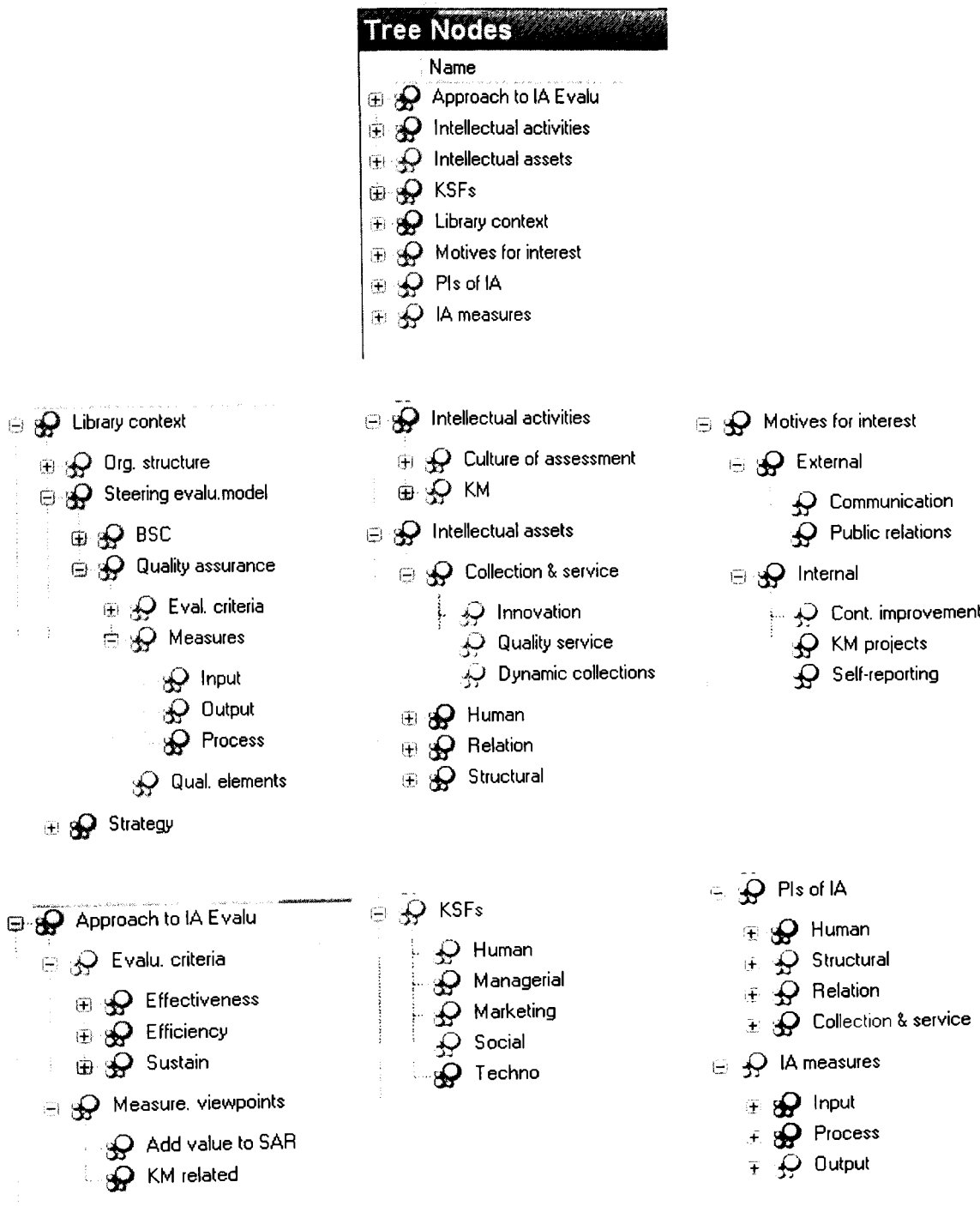
Name of Participant	Date	Signature
Researcher	Date	Signature

Copy for the participant.

NB Please scan this replied form and send it to lir05ss@sheffield.ac.uk or somsak.sr@chula.ac.th

APPENDIX G

EXAMPLE OF CONCEPT-DRIVEN CODING



APPENDIX H

DISSEMINATION OF RESEARCH

In the course of his doctoral work, the author of this thesis disseminated information about his research project by producing two conference papers.

Sriborisutsakul, S. & Corrall S. (2008). "*Performance indicators for evaluating the university library's intellectual assets: a pilot case study in Thailand.*" Proceedings of 2nd SLib Knowledge Communities Conference: Rising to the Performance Challenges, Kuala Lumpur, Malaysia, 18-20 February 2008, organised by PETRONAS Petroleum Resource Centre in collaboration with Librarians Association of Malaysia (with oral presentation).

Corrall, S. & Sriborisutsakul, S. (2010). "*Evaluating intellectual assets in university libraries: a multi-site case study from Thailand*". In: Chu, S., Ritter, W. & Hawamdeh, S. (eds.) Managing Knowledge for Global and Collaborative Innovations. Series on Innovation and Knowledge Management Vol. 8 of the 6th International Conference on Knowledge Management. 3-4 December 2009. Hong Kong, China. pp.341-361. Singapore: World Scientific. (Won Best Student Paper Award).