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University
of Glasgow

**Stakeholders' Perspectives of Institutional Repositories
in National Research Universities in Thailand**

Wachiraporn Klungthanaboon

1100557K

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Abstract

Unrestricted accessible scholarly resources are increasingly considered essential to knowledge creation and socio-economic development. In order to facilitate this, university libraries at National Research Universities (NRUs) in Thailand have established institutional repositories (IRs). The development of the Open Access publishing movement also provides opportunities and challenges to NRUs' IRs and scholarly community. Like others, the IR projects in Thailand have experienced low awareness and content contribution from stakeholders. Accordingly, this study aims to optimize the established IR projects in NRUs in Thailand by exploring the stakeholders' research publishing behaviour, and the perception, participation, and utilisation of IRs. This study advances the understanding of IRs in NRUs in Thailand from the perspectives of multiple stakeholder groups.

This inductive qualitative study employs Constructivist Grounded Theory as a research methodology. Theoretical sampling, convenient sampling, and purposive sampling were used to recruit key participants in Thai scholarly communication at three NRUs. An in-depth semi-structured interview method was used to collect data and Charmaz's Grounded Theory Method of Open coding and Focused coding was used to analyse it.

The analysis resulted in the generation of the 4Cs (/foresee/) Model for the Development of University-based IRs. It composes of "Communication" "Collaboration", "Copyright understanding", "Control" and "Local academic culture". This innovative model provides an explanatory framework identifying the factors for the availability and accessibility of full-text digital research publications in Thai university-based IRs. Moreover, the 3Rs - Rethinking, Redefining, and Re-collaborating- are recommended as key activities to be considered when confronting the difficulties in the development of IRs. In addition, this study also proposes the "2PSC model for operational excellence - Policies, Procedure, Services, and Competencies" as a practical and effective mechanism for managing IRs. Further, the study offers theoretical, methodological, and empirical contributions to the understanding of IRs in NRUs in Thailand from the perspectives of multiple stakeholder groups.

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Preface

This thesis is about identifying and establishing the factors which will influence the improvement of university-based institutional repositories in Thailand. The usual method for writing a thesis of this kind is to have a chapter detailing the current relevant literature, and to apply a particular methodology to the theories presented by that literature and the results derived from studies, and come up with something (possibly not) entirely new. This thesis is different.

In this thesis I will use Grounded Theory as a research methodology to collect data and analyse the results from my interviews along with other data, to propose an improved institutional repository model for use in Thai National Research Universities.

Nevertheless, all research needs an intellectual and cultural context, so I will still present a chapter in which I review the contemporary debates about open access, copyright, scholarly publishing, and so on, but, as a condition of the proper use of grounded theory, I will attempt to remain neutral with regard to the derivation and presentation of my own model.

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“Have I not commanded you? Be strong and courageous. Do not be afraid; do not be discouraged, for the Lord your God will be with you wherever you go.”

Joshua 1:9

Author's declaration

I declare that, except where explicit reference is made to the contribution of others, that this dissertation is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution.

Signature

Printed name Wachiraporn Klungthanaboon

Chapter 1 Introduction

This research explores stakeholders' perspectives towards university-based institutional repositories (IRs)¹ in National Research Universities (NRUs) in Thailand. It attempts to describe the current state of IRs in research-led universities in Thailand based on several groups of stakeholders' perspectives, so as to understand their perceptions and perspectives on providing access to institutional research publications and to identify factors to optimize university-based IRs. To understand the research setting of this study, this chapter is divided into four sections. The chapter describes the problem statement, the current research on IRs, and the relationship between IRs and research universities. In addition, research objectives, research questions, research methodology and expected outcomes are explained. Finally the thesis structure is provided with a brief overview.

1.1 Statement of problem

Research contributes significantly to the development of economies and societies. Universities are amongst the most significant research units as research producers and users. Their faculties, researchers, and students also play an important role in scholarly communication. The ways to create, publish, disseminate, and access academic assets have dramatically changed in the digital environment. However, publicising research findings in peer-reviewed journals with high impact factors remains the form accepted by most academics across the world (Anderson, 2004b).

Scholarly communication in the digital age demands new strategies to enhance the availability and accessibility of high-quality scholarly information resources. Moreover, academics recognize the importance of the accessibility of research outputs, the authors' rights, and copyright. From about 2001, scholarly communities began to propose the concept of "Open Access (OA)", advocating the availability and accessibility of research publications for free use and reuse without any restriction (Open Society Institute, 2002). The Budapest Open Access Initiative (Open Society Institute, 2002) suggested two strategies to make

¹ Throughout this thesis, the acronym "IR" stands for "Institutional Repository", not information retrieval.

scholarly resources free to use and reuse without any restriction: OA journal publishing (Gold OA) and self-archiving (Green OA).

Open Access (OA) has introduced several changes to many parties in the scholarly community in order to assure the sharing of scholarly works without any financial and copyright restrictions. Many research funders and universities advocate OA by developing a mandate policy and opening their funded research publications for all via OA publishing and IRs (National Institutes of Health, 2008; Universities UK/Research Information Network, 2009). Academic publishers must also change their business models to correspond with the research funders' OA policies and their business sustainability by offering both a subscription model (the readers, directly or indirectly are responsible for paying to access papers) and an "Author Publication Charge (APC)" model (the authors pay for making their publications open access) (Anderson, 2004b). For academics, in general they agreed with the concept and benefits of OA in principle but were unaware of IRs and benefits in practice (Appleton et al., 2012). Importantly, libraries are also affected by the OA movement as information collectors and providers (Oppenheim, 2008). As libraries perceive the benefit of the Green OA strategy, they have utilized IRs at their host institutions (Bailey, Jr et al., 2006). It seems that libraries must develop new knowledge and related skills and change their role in order to collaborate with stakeholders such as executives, funders, publishers, and faculty members in the digital environment (Bankier, Foster, & Wiley, 2009; Dorner & Revell, 2012).

Institutional Repositories (IRs), one possible OA strategy, seem to be increasingly implemented in a number of universities in order to reduce the problems of shrinking library budgets, increasing serials subscription costs, an unsatisfactory current publishing paradigm, and scattered institutional intellectual assets (Anderson, 2004a; Crow, 2002; Cullen & Chawner, 2010). An Institutional Repository is defined as "*digital collections that capture and preserve the intellectual output of a single or multi-university community*" (Crow, 2002). IRs contain digital academic assets from a wide range of disciplines and many different types, such as research outputs, research data, learning materials, image collections and other sorts of content (Hockx-Yu, 2006). Consequently, an IR can enhance the free accessibility of digital scholarly works generated by institutional community members (Chang, 2003). Additionally, an IR can work as

an administrative tool to visualize institutional and individual research performances (Abrizah, 2009; Bailey, Jr, 2006; Kim, 2011; Paul, 2012) and a preservation tool of institutional research outputs (Brown & Abbas, 2010),

Seemingly stakeholders in scholarly society agree with OA, but not everyone can perceive the benefits and value of IRs. The voices of stakeholders influence the management of IR projects because *“an IR is not just a library project; it involves the entire campus community”* (Campbell-meier, 2011, p. 171). Some research has attempted to explore the awareness and attitudes of stakeholders (Abrizah, 2009; Cullen & Chawner, 2010) whereas other research revealed that IR awareness may not influence the adoption and participation in IR projects (Xia, 2013).

An increasing amount of literature is devoted to identifying influential factors that motivate and impede the involvement of stakeholders in IR projects. Different disciplines (Creaser et al., 2010; Xia & Sun, 2007b; Xia, 2007), mandated policies (Andrew, 2003; Oppenheim, 2008), and benefits, contextual, and cost factors (Kim, 2007) may accelerate content contribution. However, several challenges affecting IR projects have been reported: cultural change (Bailey, Jr et al., 2006; Foster & Gibbons, 2005; Ware, 2004), including the promotion and tenure system (Cullen & Chawner, 2010); extra time and effort (Appleton et al., 2012); low awareness (Abrizah, 2009; Appleton et al., 2012; Creaser et al., 2010; Cullen & Chawner, 2010; Kim, 2008; Kim, 2011; Swan & Brown, 2005); and intellectual property rights and copyright concerns (Bailey, Jr et al., 2006; Kim, 2007; Oppenheim, 2008).

Understanding copyright ownership and ownership of research outputs is variously perceived by stakeholders in the scholarly community. In many countries including the UK, universities can own an invention made by their employees in the course of their employment (Her Majesty's Stationery Office (HMSO), 1977, 1988). The university copyright policy and employment contract are the important reference source for copyright management. However, scholarly publications are not owned only by universities.

Academics often perceive that they own the copyright of their academic works even if they do not (Gadd, Oppenheim, & Proberts, 2003a; Swan & Brown, 2005).

Some may be reluctant to get involved in copyright management especially copyright transfer agreements (Rowlands, Nicholas, & Huntington, 2004). However, as scholars, they seemingly pay more attention to moral rights than any monetary benefits (Friend, 2004). Publishers have copyright agreements in place in order to protect themselves from copyright infringement (Gadd, Oppenheim, & Proberts, 2003c). Libraries take advantages of library privileges to provide access to copyrighted information resources for educational purposes (Norman, 1999).

However, the OA movement has brought challenges for sharing, accessing, and using digital copyrighted information resources. Academics have started to negotiate with publishers about access and use rights. Academics must retain their rights in published works for public access, but this comes at a price (Tanner, 2007). Potential copyright management models have been introduced 1) Author retains the copyright, 2) Author employs Creative Commons licences, and 3) Author transfers the rights to journal publishers (Hoorn & van der Graaf, 2006). Therefore, depositing scholarly works into IRs for free use and reuse raises some concerns and questions for all stakeholder groups, especially libraries which are in charge of acquiring, managing, and disseminating institutional research outputs.

Like other countries, universities in Thailand are the largest producers of academic research outputs and employers of research personnel. In 2009, the project “National Research University Initiative” was launched by the Ministry of Education in order to 1) help the national research university reach an international standard and 2) to promote Thailand as a central hub of education, research and development and academic convention in the region. In Thailand Research Expo 2010, on “Research vision in Thailand for next 20 years (2010-2029)”, from 24 public universities, nine outstanding research universities with great research potential were designated as the national research universities (NRUs), namely Chulalongkorn University, Kasetsart University, KhonKhan University, Chiang Mai University, Thammasat University, Mahidol University, Prince of Songkla University, Suranaree University of Technology, and King Mongkut’s University of Technology Thonburi (Office of the Higher Education Commission, 2011).

Most NRUs have gradually implemented IRs largely initiated through their academic libraries. The IRs could not fully attract voluntary contributions from the owners of published works and support from key stakeholders such as university executives, academic journal publishers, and university presses. Seemingly IRs are collaborative projects, therefore, how stakeholders conceptualize IRs affects all decisions and usage and determines the success or failure of these projects. However, there have been no empirical studies based on a holistic view of university-based IRs in Thailand, leaving this particular research area unexplored.

To summarize, the existing literature on IRs reveals that little research has been conducted in Thailand, although previous theories may explain the general circumstance. A number of previous research initiatives has employed existing theories to study IRs in different contexts and has tested theories; however, this research is different. It comes up with “What is the state of IRs in Thailand?” “What is going on?” Then the researcher considered employing a Grounded Theory as a methodology to investigate this area.

Although studies of IRs have examined awareness, perception, and factors which motivate participation in IR projects, there has not been any study of the perception of several stakeholder groups on IRs, especially in Thailand. As such, this study provides additional insight into the current state of IRs management in the Thai scholarly community. To be specific, this research is designed with the objective of providing an enriched understanding of the current state of university-based IRs in NRUs in Thailand and to identify factors influencing the enhancement of NRUs’ IRs. Prior to looking into the current state of university-based IRs, it is worth investigating the research publishing behaviour of Thai academics. Moreover, the perspectives of stakeholders on the availability and accessibility of institutional scholarly publications through the channel of IRs are worth exploring. This empirical research can shed some light on and fill in some gaps in the research area of academic digital assets management, OA and IRs in developing countries more generally, not just in Thailand.

1.2 Aims, research questions and expected contributions

The ultimate objective of this research is to optimize the participation of stakeholders in, and utilization of established IRs in NRUs in Thailand. To understand the current state of IRs in national research-led universities and to be able to propose potential approaches to improve IR management, the researcher formulated the following research questions:

- 1) How do different groups of stakeholders engage with scholarly research publishing?
- 2) How do different groups of stakeholders in national research universities in Thailand conceptualize institutional repositories?
- 3) To what extent do the stakeholders in national research universities participate in and utilize their institutional repositories?
- 4) What affects the decision making of self-archiving and participation in university-based institutional repositories?

To answer these questions, this thesis adopted a Grounded Theory approach. As a Grounded Theory study, some may argue that it is not necessary to formulate specific research questions before collecting data (Glaser, 1992b). However, Strauss & Corbin (1994) and Charmaz (2006) disagree with this. Instead of obstructing data collection and causing bias, having research questions can guide researchers to know what aspects will be investigated. This research reflects this debate by considering the proposed research questions as a tentative guideline. They do not fix the research ideas in exposing grounded data.

The expected research outcomes are the holistic understanding of, and the perceptions of key stakeholders of IRs in NRUs and their roles in research output management. A proposed model for improving the management of university-based IRs is based on the gathered data. This may serve as a guideline for other higher educational institutions, research centres, and other organisations wishing to establish IRs. Finally, this study offers some suggestions for academic libraries to increase the awareness and contribution of university members to

their IRs. The contributions to professional knowledge and practice are presented in Chapter Nine.

1.3 Overview of research methodology

This research employs Grounded Theory as a research methodology. Grounded Theory (GT) was originated by Barney G. Glaser and Anselm L. Strauss with the objective of constructing theory from data through an induction process (Glaser & Strauss, 1967). The GT methodology was gradually refined by Strauss (1987a, 1987b), Strauss and Corbin (1998), and then Charmaz (2006). Therefore, it could be summarized that there are three major schools of GT: 1) Glaserian, 2) Straussian, and 3) Charmaz. Charmaz Grounded Theory or Constructivist Grounded Theory was employed in this research as a methodology. This GT School believes that grounded data becomes meaningful because the researchers reflect their views and interpret the collected data (Charmaz, 2001). However, all three GT schools share these distinctive features of GT research: simultaneous data collection and analysis, particular coding strategies, sampling, and constructing theory based on collected data (Charmaz, 2004). Controversial issues about employing this qualitative methodology are identified in Chapter Five followed by common pitfalls and quality concerns.

Three NRUs in Thailand with established IRs and university presses were selected as research sites; namely Chulalongkorn University, Thammasat University, and Mahidol University. Key stakeholders on campus and off campus in this study can be divided into five groups: academics across disciplines, university presses, local academic journal publishers, National Research Council of Thailand, Thailand National Research Repository project committee, library directors, and academic lawyer. Theoretical sampling, convenience sampling, and selective sampling were used as strategies to determine the research sample. Considering the research sample size, the research samples in grounded theory research are for theory construction, instead of being representative of the populations. Therefore, the specific sample size is not regarded as an important step. Theory saturation guides the researcher to stop collecting data when no research subject can provide any new data for theory development. In total, 58 key informants participated in this study voluntarily.

To collect in-depth information from stakeholders, a semi-structured interview was employed. The semi-structured and in-depth interview offers flexible and dynamic questioning from the different perspectives of the participants. The interviewees can freely develop and elaborate their ideas because the researcher is flexible in topic or question order. Open-ended questions are used in the interviews. Questions are flexible and changeable based on the previous interview in order to assemble data from new dimensions.

The potential subjects were contacted by phone, e-mails, and letters to request their participation. They each received formal letters requesting their permission. Before starting the interviews, the interviewees were asked to read and sign consent forms. The interviews were audio recorded with the participants' permission. The recorded interviews were transcribed and stored for further data analysis. The anonymity of interviewees, where applicable, is respected when presenting and discussing results.

Open coding and focused coding strategies by Charmaz (2001) are used to code the interview transcripts. The researcher used NVivo10 software for qualitative data analysis as a tool to sort and organize the transcripts and in facilitating coding and analysing data. After revisiting, refining, and restructuring codes and categories, an explanatory theory "4Cs model for the development of university-based institutional repositories in Thailand" was constructed. More details on this proposed model can be found in Chapter Eight. The results are described and discussed in Chapter Seven.

1.4 Thesis structure

In this chapter, a short overview of the problem statement is described together with the researcher's experience and interest in order to indicate the reasons why it is important to conduct this research. The aims and objectives of this research are identified. This chapter also includes the scope of the research, research design, and anticipated outcomes.

Chapter Two presents a review of relevant literature on scholarly communication, open access, and institutional repositories. Open Access, an ideal concept of free scholarship driven by the scholarly community, has brought

changes to scholarly communication with the assistance of advanced technologies. Even though this research focuses on university-based IRs, a Green Open Access strategy, it is worth reviewing literature on these relevant topics. A reading of this literature sheds light on the specific rationales and associated practices that enhances understanding of IRs in educational institutions.

Having established the open access movement leading to the debate about collection development and the participation of stakeholders, copyright issues in the open access environment will be explored in Chapter Three. Copyright and intellectual property rights laws relating to scholarly publications, information provision, and Open Access in a broad area are discussed in this chapter.

Chapter Four, the final literature review chapter, reviews the increasing growth of the implementation of university-based IRs in Thailand and the literature of direct relevance to Thailand. Additionally this chapter explains scholarly publishing in the Thai scholarly community, the National Research Universities (NRUs) project, and open-access-like movement in Thailand in order to provide a research context.

Together, these three chapters on the background literature contribute to an understanding of Open Access, especially IRs and the necessity of improvement of institutional repositories in Thailand national research universities. This highlights where the gaps are in existing research.

Chapter Five presents the research methodology and method employed in conducting this research, particularly Constructivist Grounded Theory Method by Kathy Charmaz. The rationale of adopting this methodology is justified. Then the research design and processes of data collection is described and explained. Open coding and Focus coding by Charmaz (2001) are used to treat and analyze the collected data. Moreover, research limitations are identified.

Chapter Six reports the findings that emerged from the interviews with several stakeholder groups. The findings can be divided and presented into five sections: 1) Thai scholars and research practices, 2) The perceived concepts of the institutional repository, 3) The current state of the stakeholders' participation in the institutional repositories and their utilization, 4) Barriers to improved

institutional repositories, and 5) The expectations of institutional repositories in Thailand.

Chapter Seven discusses key research findings by corroborating with previous literature. The discussion chapter presents the linkage between key findings and previous research guided by research questions.

Chapter Eight presents a model that emerged of factors influencing the development of university-based institutional repositories in research-intense universities in Thailand which is called “The 4Cs (Foresee) Model for the Development of University-based Institutional Repositories in Thailand”.

The final chapter, Chapter Nine, contains a summary of research project and contributions to knowledge and practice in Library and Information Science in general and particularly in university-based institutional repositories. The implications for future research are also provided, along with reflection.

1.5 Conclusion

This chapter identifies the significance of this unexplored research idea. In the next chapter, a set of literature relevant to scholarly communication, open access, and IRs are reviewed in order to establish understanding of the research topic and to identify a research gap which this study attempts to fill.

Chapter 2 Scholarly Communication, Open Access, and Institutional Repository

This chapter introduces and reviews literature related to scholarly communication, Open Access (OA), and institutional repositories (IRs) to establish what has been achieved, especially self-archiving or the use of IRs as a basis for understanding the circumstance in which this research is situated. Understanding emerging from reviewing literature will not limit the data collection and analysis as mentioned in the Preface. This chapter is divided into three main sections:

1) An overview of scholarly communications and scholarly publishing - this section will explain changes in scholarly communications and scholarly publishing affected by technological advances,

2) The concept of OA and its impacts on scholarly communities - this section will explain the definitions and OA strategies. Moreover, the reasons why OA emerged are identified, and

3) An introduction to IRs, focusing on various definitions, components, collection development, and their impact on the scholarly community. Additionally, the benefits of IRs, challenges and concerns are also included.

2.1 Scholarly communications and scholarly publishing

Technological advances, especially the Internet and networked-based technologies, have transformed scholarship. An increasing number of scholarly works are available digitally online. Electronic publishing and electronic databases have emerged and are used to provide impact factors. However, publishing research findings in peer-reviewed literature remains the predominant model for scholarly communication (Anderson, 2004b). Scholars share their research output among their peers through publishing in the most prestigious journals - high impact factor peer-reviewed journals. The peer-review system is considered as an indicator of a work's quality and affects academic career progression. The impact factor of journals, created by Eugene Garfield, is one of the most important factors in publishing decisions.

Additionally, the impact factor of journals influences promotion in academic career and grant capture (Bailey, Jr, 2007).

The academic journal is regarded as a communication tool and an indicator of academic worth for individuals and the host organizations. Since the seventeenth century, academics have exchanged information and research findings through an emerging number of scholarly journals. Publishing in academic journals achieved a significant role in judging scholarly performance in the nineteenth century. Correia & Teixeira (2005, p.350) summarized the significant functions of peer-reviewed journals:

- *Author evaluation. Providing a means for judging the competence and effectiveness of authors.*
- *Author recognition. Publication in refereed journals, raising an author's profile, improving chances of funding for future research contracts, tenure or promotion.*
- *Validation of knowledge and quality control. Occurring through the process of peer review of submitted papers.*
- *Historical record. Maintaining the record of progress of science through the years.*
- *Archival. Providing a repository for the body of knowledge about a particular field.*

The career progression of scholars depends on research and development. Scholars must read, use, and cite academic works (Bailey, Jr, 2007). However, access to journal articles today is restricted by the high cost of subscription fees that challenge library budgets (Anderson, 2004b). This is a traditional model of scholarly communication. It is gradually changing to a new model known as "Open Access".

2.2 Open Access movement

The Budapest Open Access Initiative (BOAI) Conference in 2001 encouraged researchers in all disciplines to make research publications available on the Internet for use and reuse without any restriction (Open Society Institute, 2002).

According to the BOAI (Open Society Institute, 2002), the concept of “Open Access” was explained in this way:

...its free availability on the public Internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the Internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited...

In 2003, “The Bethesda Statement on Open Access Publishing” refined the term “Open Access” to emphasize the rights of work owners and users and to clarify how copyrights and licenses operate in OA publishing. Additionally, the long-term archiving of scholarly research output was introduced in this Bethesda Statement (Bethesda Statement, 2003).

The author(s) and copyright holder(s) grant(s) to all users a free, irrevocable, worldwide, perpetual right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship, as well as the right to make small numbers of printed copies for their personal use.

A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in a suitable standard electronic format is deposited immediately upon initial publication in at least one online repository that is supported by an academic institution, scholarly society, government agency, or other well-established organization that seeks to enable open access, unrestricted distribution, interoperability, and long-term archiving (for the biomedical sciences, PubMed Central is such a repository).

Moreover, this Bethesda Statement (2003) proposed the right to make derivative works. As such, OA resources are free access and can be re-used or reproduced without requiring permission.

In the same year, another significant statement on OA the “Berlin Declaration on Open Access to Knowledge” (2003) defined OA as:

The author(s) and right holder(s) of such contributions grant(s) to all users a free, irrevocable, worldwide, right of access to, and a license

to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship (commonly standards, will continue to provide the mechanism for enforcement of proper attribution and responsible use of the published work, as they do now), as well as the right to make small numbers of printed copies for their personal use.

A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in an appropriate standard electronic format is deposited (and thus published) in at least one online repository using suitable technical standards (such as the Open Archive definitions) that is supported and maintained by an academic institution, scholarly society, government agency, or other well established organization that seeks to enable open access, unrestricted distribution, inter-operability, and long-term archiving.

It could be summarized with the definition by Peter Suber, an OA advocate, which is more concise and clearer. Suber (2013) explained that “OA removes price barriers (subscriptions, licensing fees, pay-per-view fees) and permission barriers (most copyright and licensing restrictions).” These 3Bs OA definitions provide basic information on OA. However, through the development of the OA movement, several scholars have defined this term in a more complicated fashion, especially in term of “free access” (Anderson, 2004b; Bailey, Jr, 2007; MacCallum, 2007).

The key characteristics of OA resources are scholarly works which are freely available online, whether they are refereed (Anderson, 2004b) or not (Bailey, Jr, 2006). However, it is ambiguous that free downloadable documents are OA compliment or free-copyrighted documents. Bailey, Jr. (2006) suggested that users need to conduct an investigation of the copyright status of the freely available and accessible digital documents, because free accessibility does not mean the documents are non-copyrighted. Similar to Bailey, Jr. (2006), in term of right to use, OA is more about knowledge sharing and fair use under lawful purposes (Anderson, 2004b). MacCallum (2007) indicated that the difference between “open access” and “free access” is unrestricted derivative use of content referring to the OA definition in the Bethesda Statement. For MacCallum (2007), free access without the right to reuse and reproduction is not Open Access. She further emphasized that “*Open access is a term that should only be used when the licence permits both free access and unrestricted derivative use (and give appropriate attribution.)*” (MacCallum, 2007, p.2097). However,

MacCallum's (2007) view might refer to OA publishing rather than self-archiving. Moreover, it could be said publishers claim this definition for sustaining their business and holding on to their role in the OA movement. This perspective of free access and open access totally differs from the original intention of "free online scholarship" (Harnad, 2003; Morrison & Suber, 2002).

Prior to the term "Open Access" being coined in 2001, "Free Online Scholarship"² was used to mean the attempt to provide free scientific and scholarly literature for use through online networks without any conditions of re-use and re-distribution (Morrison & Suber, 2002). Suber (2001) defined the scope of "Free" in this movement as "(1) free of charge for the reader, (2) free of unnecessary licensing restrictions, and (3) free from filters and censors". Harnad (2003) also asserted "*all the free-access literature is also open-access*". According to Stephen Harnad, "*Open access means free online access to refereed research whereas others use the term Open Access by including rights such as republication and 'mash-up' rights*" (Poynder, 2010). To differentiate the term "free access" and "open access" is seemingly more important to publishers than academics or running self-archiving services. However, it is worth noting here in a review of the development of concepts and practices.

2.2.1 Drivers for Open Access

Several developments in society have led gradually to the adoption of the idea of Open Access for scholarly communication. Lor (2007) identifies three main drivers behind the OA movement: 1) Economic problems - serials subscription fees are increasing whereas library budgets are falling, 2) Moral crisis - this includes the inability of scholars to access research papers and the unequal relationship between publishers and authors and libraries, and 3) The advent of the Internet which provides the power to control and enhance access to information.

Anderson (2004b) has argued the most important driver is advanced technologies. The availability and affordability of the Internet and networked

² Peter Suber has advocated the online availability of scholarly literature for the public without any charge. He founded *The Free Online Scholarship Newsletter* in March 28, 2001 and then it was changed to the *SPARC Open Access Newsletter* since July 4, 2003.

technologies provides opportunities for scholars to share their findings without help from commercial publishers and the time-consuming publishing process (Oppenheim, 2008). Another major driver for OA comes from taxpayers. Taxpayers increasingly recognize their rights for free access to public-funded research publications (Anderson, 2004b). This demands that the research outputs of public-funded research projects should be made freely available to all (Oppenheim, 2008).

Finally, higher serial subscription fees with restricted library budgets are significant drivers for OA (Anderson, 2004b). Scholars themselves need to consult other scholarly publications, especially scholarly journals, for both research and their intellectual development. To meet their needs libraries subscribe to both print and online journals. However, serial subscription fees are dramatically increasing whereas library budgets are shrinking. Many approaches are employed such as Big Deal purchase, consortium arrangements, and so on (Boissy & Schatz, 2011).

Consequently, OA has become an alternative to conventional scholarly communication (Bernius, 2010). OA is expected to advance knowledge sharing and creation easily and publicly (Bailey, Jr, 2007).

2.2.2 Strategies for Open Access

The strategies to achieve OA can be divided into two approaches suggested by the Budapest Open Access Initiative (Open Society Institute, 2002).

1) Self-archiving (Green Road)

Self-archiving or Green Road means the authors deposit their digital academic work from preprints to postprints on the Internet for free public access to increase the visibility of research results and to maximize the impact of research (Open Access Initiative (BOAI)., 2012). Institutions, especially libraries, support their community members in depositing their academic works by providing storage space (Anderson, 2004b).

Bailey, Jr. (2005) identified three ways to accomplish self-archiving - - 1) author websites, 2) disciplinary archives, or 3) institutional repositories:

- Author websites - the personal websites can be simple or sophisticated with linked files in any file formats such as HTML, PDF, and others. Digital scholarly files can be searched with major search engine if the authors document them carefully and the searchers know the exact keywords to look for (Bailey, Jr et al., 2006). However, self-archiving may not be effective due to instability and as author's life-style change and their career progresses there is no guarantee that their output will be permanently available. (Bailey Jr., 2005).

- Disciplinary archives or subject-based repositories - these are usually managed by learned societies, higher educational institutions, or specific disciplinary groups (Babu, Kumar, Shewale, & Singh, 2012). Scholars in the same or relevant fields share their e-prints and other digital scholarly works by deposit in domain-specific repositories such as arXiv, CogPrints, or RePec (Babu et al., 2012). Some fields and disciplines are quite active in depositing e-prints in the subject-based repositories while others are not. Disciplinary differences can therefore impact on the effectiveness of this OA strategy (Bailey Jr., 2005).

- Institutional repositories - unlike disciplinary archives, IRs host digital documents produced by members within a single institution (Bailey Jr., 2005). For this approach, researchers are encouraged to deposit their research publications either by mandatory or voluntary policies.

2) Open access journal (Gold Road)

Laakso et al. (2011, p.e20961) defined an OA journal as *"...scholarly, peer reviewed journals in which all content is available freely on the web from day one, either exclusively online or parallel with a subscription print version, and which can be accessed by anyone with Internet access."* OA journals can be categorized by the degree of journal content availability into three groups (Björk et al., 2010):

- Direct OA - the journals can be accessed without any limitation after publishing.

- Delayed OA - the journals allow only the subscribers to access the recent issue, but the journal articles will be publicly and freely accessible after a 12-month embargo period.
- Hybrid OA - the journals provide two approaches to the availability of archives which are subscription-based for only the subscribers and author-pays for public access.

Two business models supporting OA publication are the subsidy model and author-pays model. The subsidy model is the way in which OA publishing gains financial, staff, and technical support from research institutions. The author-pays model for OA publication requires authors to pay the publishing costs so that readers can access content without paying any fee (Mounier, 2011). This author-pays model seems to be most popularly accepted by research institutions and research funders. In the UK, Research Councils UK (RCUK) and the Wellcome Foundation announced the OA policies to make funded research papers available via OA journals under CC-BY licences (Universities UK/Research Information Network, 2009). In 2013, the RCUK launched the policy determining that from 1st April 2013, RCUK- funded research publications will be made open access via the 'Gold' route through OA block grants (Research Council UK, 2013). According to the *Review of the Implementation of the RCUK Policy on Open Access*, the average APC including VAT costs £1,600 per paper (Research Council UK, 2015).

However, some OA publishers assist researchers in developing countries by waiving author-pays fees in exchange for a special fee (Bailey, Jr, 2007; Oppenheim, 2008; Wood, 2008). This business model advocates the free accessibility of journal articles. However, it is doubtful whether the author-pay business model can save costs for research institutions and can in any way diminish library expenses on serial subscription fees (Joint, 2009). This issue is continuously monitored by the RCUK so as to enhance the OA publishing market more effective (Research Council UK, 2015).

Although OA publishing provides great opportunities for scholarly communities, some misconceptions about OA publishing have delayed OA publishing participation of academics. Boissy & Schatz (2011, pp. 482-483) identified and corrected potential misconceptions of OA publishing:

- *Wasn't this really vanity publishing where a researcher could show up with an article and a check and get his or her work published? (No, OA journals are peer reviewed just like other scholarly journals.)*
- *Would OA publishing drive out smaller scholarly publications that could not compete with this model? (This may have been the tipping point for some journals ceasing publication, but a great many societal publishers have converted to the OA model as one that is more sustainable economically.)*
- *Won't publishing in untested OA journals hurt the reputation of authors who submit their work there? (No, OA journals enjoy impact factors on par with well-regarded subscription-based journals.)*

Quality issue is another concern in OA publishing for two main reasons; firstly, OA journals are novel in scholarly communication, and secondly, as the publishers employ author-pays business models, it might be thought that editors will not reject manuscripts of poor quality so as to sustain their business (Oppenheim, 2008). The study of Swan and Brown (2005) also reveals that the researchers perceived OA journals as having low reliability and impact. This misconception about the substandard peer review of OA publishing is reported widely among researchers as a reason not to publish their works in OA journals (Swan & Brown, 2005).

2.3 Impact of Open Access

2.3.1 Impact of Open Access on publishers

The OA environment has already had a significant impact on journal publishers, especially on subscription revenue and business models. To comply with the OA policies of research funders across the globe, most leading journal publishers have had to reconsider their business model and reposition themselves to survive in this new scholarly communication environment by advocating and adopting OA to some extent.

“Author-pays” or “Author Publication Charge” has been introduced to scholarly communities as a new business model so as to promote OA and to sustain publishers’ business. Revenue sources are being shifted from library budgets for

serial subscription to research budgets by universities and research funders to meet publication fees (Anderson, 2004b).

In addition to their business models, publishers have had to keep up with changes in copyright laws and amend licenses to comply with OA policies. The publishers are required to provide clarity for self-archiving rights and more detail about the use of Creative Commons licences (Vlachaki & Urquhart, 2010). For example, Elsevier, Springer, and Wiley support “green” OA and allow the authors to self-archive their published articles in IRs.

2.3.2 Impact of Open Access on research funders

Taxpayers are aware of their rights to access the findings of taxpayer-funded research without any payment or restriction imposed by commercial publishers (Suber, 2003). Additionally, governments recognize the impact of OA on government-funded research policy and are promoting the idea of “public funding, public knowledge, public access” (Arthur, 2004). Consequently, research funders have increasingly been asked to open up access to research findings funded by the taxpayer through self-archiving and OA journals.

Research funders and universities have increasingly established OA repositories to provide open access to academic works. According to OpenDOAR (The Directory of Open Access Repositories), 2,730 digital repositories³ have so far been established worldwide, although the level of access varies between repositories (see Figure 2-1).

³ This statistical number of OA repositories worldwide is accessed on 3rd January 2015.

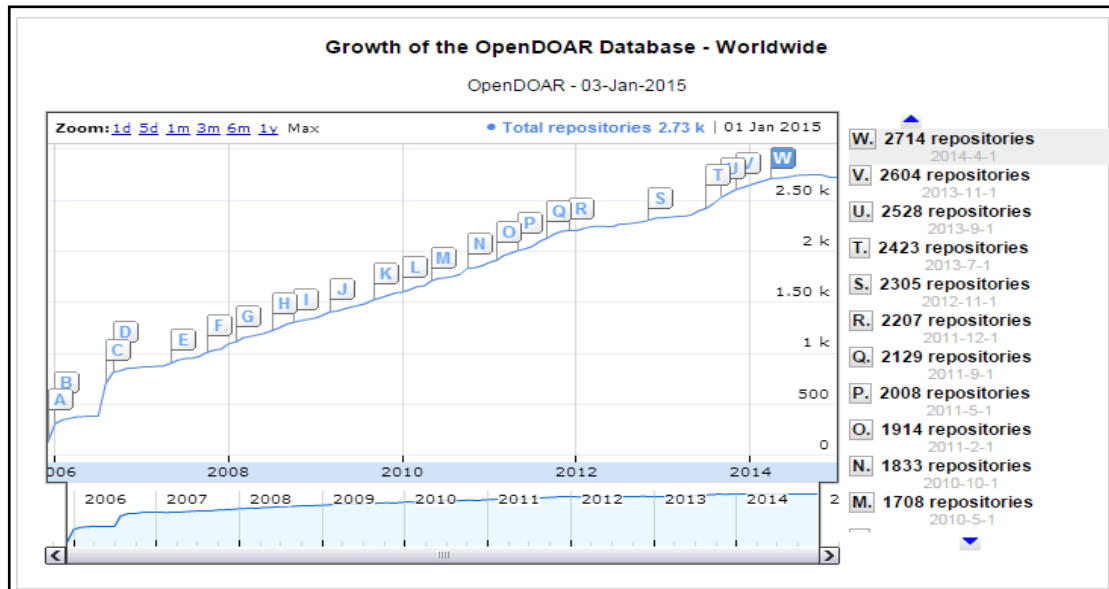


Figure 2-1 The growth of Open Access repositories worldwide from the OpenDOAR database

In addition to IRs with the attempt to collocate institutional research publications for open access, subject-based repositories have implemented for knowledge sharing among colleagues in particular fields (Babu et al., 2012). According to the study of subject-based repositories registered in the OpenDOAR and the Registry of Open Access Repositories (ROAR) by (Björk, 2014), 56 subject-based repositories have been implemented since 1991 across the globe, mostly hosted in the United States followed with Germany and the United Kingdom.

However, the increasing number of institutional and subject-based repositories does not necessarily equate with success or the effectiveness of self-depositing. To fill the gap mandatory OA policies are put in place to force researchers to comply and increase collection development. Research funders in many countries have agreed to issue a mandated policy for their grant holders requiring them to make their research publications freely available by depositing them in IRs. For example, in 2007 the National Institutes of Health (NIH) in the USA adopted a mandatory policy instead of a voluntary approach for the collection of research papers based on funding from NIH in their repository with the expectation that researchers would increasingly participate in OA publication (National Institutes of Health, 2008). Another example is the United

Kingdom's Wellcome Trust which in 2005 announced that their funded research results were to be deposited in an IR within six months of publication.

Top-down OA policy may be resisted by university members who jealously guard their academic freedom. This may result in disagreement and low participation. Therefore, acknowledging importance of engagement of university members as a key to implementation of OA, the University of Kansas involved the faculty governance structure in formulating the University's mandatory policy (Emmett, Stratton, Peterson, Church-Duran, & Haricombe, 2011). As a result, such faculty-initiated policy is feasible for the university members and gains greater participation. Clear and explicit policies on self-archiving and OA publishing by research funders should make it explicit that findings must be made publicly available (Renfro, 2011).

To meet the cost of the author-pays model of OA publishing, it is recommended that research institutions in the UK establish dedicated central funds to meet the publication fees and that they communicate clearly with their researchers OA publishing policy (Universities UK/Research Information Network, 2009). For example, the Wellcome Trust (in 2005), RCUK (in 2006), and Research Information Network (RIN) (in 2006) issued statements supporting OA research publication and the financial provision for publication fees to research grant recipients (Universities UK/Research Information Network, 2009). However, this will probably oblige HEIs to allocate additional budgets to support the author-pays publishing model.

2.3.3 Impact of Open Access on academics

Researchers act as the producers and consumers of academic works in the scholarly environment. It can then be said that OA has had a fundamental impact on the way researchers work. The participation of researchers is therefore a key factor in the success or failure of the OA movement (Covey, 2010). Most researchers agree with the principles of OA publishing and IRs in general (Appleton et al., 2012). OA journals are an alternative channel for researchers to publish their research results. OA journals are of benefit to researchers in terms of the ease of dissemination and increase the potential of citation - a key

measure in assessing impact (Dallmeier-tiessen et al., 2011). However there are several barriers impeding the OA movement in practice.

The unfamiliarity of self-archiving among scholars from different disciplines tends to increase low awareness and thus deposits with IRs. According to a survey by Creaser et al. (2010) on the awareness and attitudes of European researchers towards OA repositories, disciplinary differences have affected the understanding of OA repositories and the motivations for depositing articles. Xia (2007) indicates that scholars in some disciplines become familiar with self-archiving as they share their research outcomes through subject-based repositories which were established before the concept of IRs emerged, such as arXiv (Physics) and RePec (Economics). Additionally, Xia (2007) asserts that scholars in Social Sciences and Humanities probably have fewer opportunities to experience the advantages of online information sharing. This is corroborated by Creaser et al.'s (2010) findings which reported researchers in Social Sciences, Humanities, and Arts were unsure the definition and scope of OA. Some researchers are reluctant to self-archive their work because of anxiety about plagiarism and confusion over copyright (Kim, 2007). Moreover, concerns about accessibility, altruism, and trust are significant factors affecting the researchers' willingness to contribute content (Kim, 2011). The time taken in depositing is another factor influencing participation (Appleton et al., 2012). However, IRs do attract the attention of researchers because they provide for the long-term preservation of outputs (Kim, 2011). Arguably, the value of OA for researchers is not recognized as much as it should be because of the low levels of content contribution. As a result researchers are obliged or even forced to deposit their research publications in OA repositories by mandated policy or regulated liaison systems with libraries. Self-archiving the research findings to subject-based repositories depends on the research interest of scholars, whereas the contribution to IRs is based on mandated policies for the contribution of content (Andrew, 2003; Björk, 2014).

As regards OA publishing, new business model for OA publishing asks the researchers to pay for publishing their scholarly work in OA journals. The article-processing charges are almost certainly expensive. This may result in low uptake and poor participation by researchers in publishing their work in OA journals without funding from their institutions. Furthermore, apart from the cost of OA

publishing, there are concerns as already mentioned about the quality of the peer-review process, and about copyright; however, these concerns vary according to academic discipline (Appleton et al., 2012). In conclusion, researchers should study carefully funders' policies on the publication of research results, particularly OA policy, and the requirements, and the choice of OA journals (Universities UK/Research Information Network, 2009).

2.3.4 Impact of Open Access on libraries and librarians

Libraries, especially academic libraries, seem likely to be the first group of OA advocates to populate IRs (Mullen, 2010). In 2003, the International Federation of Library Associations (IFLA) Statement on Open Access to Scholarly Literature and Research Documentation affirmed the OA advocacy of the international library community (IFLA Governing Board, 2003). IFLA (IFLA Governing Board, 2011) defined "Open Access" as

...a concept, a movement and a business model whose goal is to provide free access and re-use of scientific knowledge in the form of research articles, monographs, data and related materials. Open access does this by shifting today's prevalent business models of after-publication payment by subscribers to a funding model that does not charge readers or their institutions for access.

A number of academic libraries have been responsible for the implementation, promotion, and maintenance of IRs and other OA strategies for their academic users (Jain, 2011; Palmer, Dill, & Christie, 2009). However, not every academic librarian embraces the OA movement. According to a national survey by Palmer, Dill, & Christie (2009), most academic librarians in the USA have a positive attitude to open access and a willingness to work with OA projects, but oddly are reluctant to do so at the management level. It can, perhaps, be assumed that a discrepancy between attitude and action still exists.

Inevitably the OA environment requires academic libraries and librarians to change their roles and skills. Suber (2006) suggests the practical steps for librarians to take to promote OA to university communities: 1) a liaison-librarian program assisting the researchers with the deposit process, 2) library functioning as a publisher, 3) advocating the benefits of OA, including OA journals, in the

library catalogue, and 4) being members of learned societies that have adopted OA.

In the OA movement, the relationship between libraries and journal publishers has changed from vendor-customer to partnership. The collaboration between libraries and journal publishers has resulted in the project SHERPA/RoMEO (<http://www.sherpa.ac.uk/romeo/>) to promote the advantage of self-depositing. This site describes the copyright and self-archiving policies of publishers which can provide a guideline for IR managers and librarians to avoid copyright infringement.

In addition to knowledge of OA and OA publishing, librarians are required to keep up with copyright legislation which has implications for collection development and scholarly communication. Reference librarians, especially, are expected to assist researchers with OA questions and concerns. Besides, communications skills, the collaboration with research units and departments, and skills in metadata management and preservation are some suggested key skills for librarians to adopt in the OA world (Harris, 2012). Witt (2008) argues that it is not surprising that libraries are the most appropriate agents to host IRs, because of their expertise in information management and preservation in the analogue environment as well as practical working experiences of digital collection management.

2.4 Institutional Repository

The previous section reviews relevant literature on the concept of OA and OA publishing in order to provide a general context. This section and other following sections in this chapter principally focus on IRs in the broad circumstance especially the management of IR projects. The university-based IRs in the context of Thailand which is the research phenomenon will be reviewed in Chapter Four.

2.4.1 Definition and characteristics

An IR is one OA strategy with various definitions. Lynch (2003) defined IR broadly as *“a set of services that a university offers to the members of its community*

for the management and dissemination of digital materials created by the institution and its community members.” Blythe & Chachra (2005, p.76) viewed IRs in terms of the functions and benefits: “critical to developing, managing, and leveraging enterprise-wide digital content and bringing greater value to institutional output .”

According to a survey by Bailey, Jr et al.(2006, p.13), an IR is “...a permanent, institution-wide repository of diverse, locally produced digital works (e.g., article preprints and postprints, data sets, electronic theses and dissertations, learning objects, and technical reports) that is available for public use and supports metadata harvesting...” - excluding subject-based and personal websites.

However, these definitions are not easily understood by users. Whitehead (2005, pp.123-124) gives a more straightforward explanation of IRs as: “Any repository is a database, having some features: institutional focus, holding research outputs, web visibility, full text availability, metadata, and sustainability.” Besides, Crow (2002) identifies four key characteristics of content in IRs which are 1) institutionally defined, 2) scholarly content, 3) cumulative and perpetual, and 4) interoperability and open access.

2.4.2 Stakeholders of institutional repositories

IRs were mostly developed by teams drawn especially from libraries. However, as with the OA movement, it is essential that the viewpoint of stakeholders associated with the IR development should be incorporated at all stages of a project. That is because “an IR is not just a library project; it involves the entire campus community” (Campbell-Meier 2011, p.171). Stakeholders in a university-based IRs can be categorized into four main groups:

- Libraries and librarians

Libraries seemingly are the first group of stakeholders to embrace the OA movement, especially through the IR implementation. The survey by Bailey, Jr et al. (2006) showed that the library has been a significant force in IR implementation and planning. Another key new role for libraries in the IR

context is the preservation function. Institutional intellectual assets will be housed in IRs for present and future generations of users. Therefore a digital curation policy necessarily has to be put in place. According to Oppenheim (2008), libraries are important agencies in ensuring the long-term accessibility of scholarly publications instead of relying on publishers' goodwill.

However, librarians have to develop knowledge and skills of the OA environment. Librarians have to adopt a more proactive role in collaborating with faculty members, researchers, and postgraduates in educating them about the OA movement, promoting IRs, and recruiting research output (Bankier et al., 2009; Dorner & Revell, 2012). Additionally, librarians will not only have to provide information resources for research and development but also assist faculty members with digital publishing (Crow, 2002). Recommended knowledge and skills for IR managers are communication, management, technical aspects, intellectual property rights, and collection development and metadata (Casella & Morando, 2012). Moreover, repository staff should develop knowledge of overall repository management (strategic and financial management, advocacy and communication, staff and project management, expert advice to the institution), technical skills (knowledge and experience of software platforms and the main repository software and its lifecycle of deployment, testing upgrading and development), and administrative skills (adding records, checking metadata, and copyrights) (Wickham, 2010). Although analogous to traditional library skills, there is much that is unfamiliar.

- Faculty members and students

Academic authors publish their findings for professional recognition, the advancement of their subject and career development, rather than compensation. However, disciplinary differences determine academic authors' scholarly publishing activities, knowledge sharing, and their perceptions of OA and self-archiving. Foster & Gibbons (2005) studied the research practices of faculty in different disciplines at the University of Rochester, USA, in order to examine how an IR might support the traditional way of doing research and in what ways the library enhances the content contribution to the IR. This research revealed that faculty members want to conduct research and share research findings with others, but some were overwhelmed by clerical responsibilities.

Everyone used digital tools for writing, organizing, storing, and manipulating their work. The project developed two strategies for enhanced IR contribution - 1) avoid jargon and use familiar terms to promote IR and 2) develop “Research Page” and “Research Tool” for DSpace, one of the main IR platforms.

The attitudes of researchers toward OA repositories depend on the standing point of an author or a reader. *The PEER Behavioural Research: Authors and User vis-à-vis Journals and Repositories* conducted by Fry et al. (2011) and the disciplinary-focused analysis based on this PEER Behavioural research by (Spezi, Fry, Creaser, Proberts, & White, 2013) revealed that researchers in general have increasingly deposited their research outputs into institutional repositories more than subject-based repositories. However, it is interesting that as the reader, researchers likely went to Google search or Google Scholar rather than OA repositories for updated scholarly publications. However, researchers in Physics were more likely to use subject-based repositories in their disciplines (Creaser, 2010; Fry et al., 2011; Spezi et al., 2013). The practice of self-archiving among faculties varies from discipline to discipline and depends on conventional information exchange among scholars. Scholars in some disciplines in Science and Technologies have experienced self-archiving through subject-based repositories, whereas scholars in Social Sciences and Humanities probably have little experience of self-archiving (Abrizah, 2009; Xia, 2007). The unfamiliarity of self-archiving among scholars leads to low awareness and as a result fewer contributions to IRs. However, there is no evidence to prove that having experiences of self-archiving in subject-based repositories correlates with institutional IR participation (Xia & Sun, 2007b).

Self-archiving by academic authors may depend on many factors. Kim (2008, p.23) developed a model of faculty self-archiving behaviour based on the socio-technical network model and social exchange theory (see Figure 2-2). This model shows that altruism and a self-archiving culture were the most influential factors in the participants’ self-archiving behaviour.

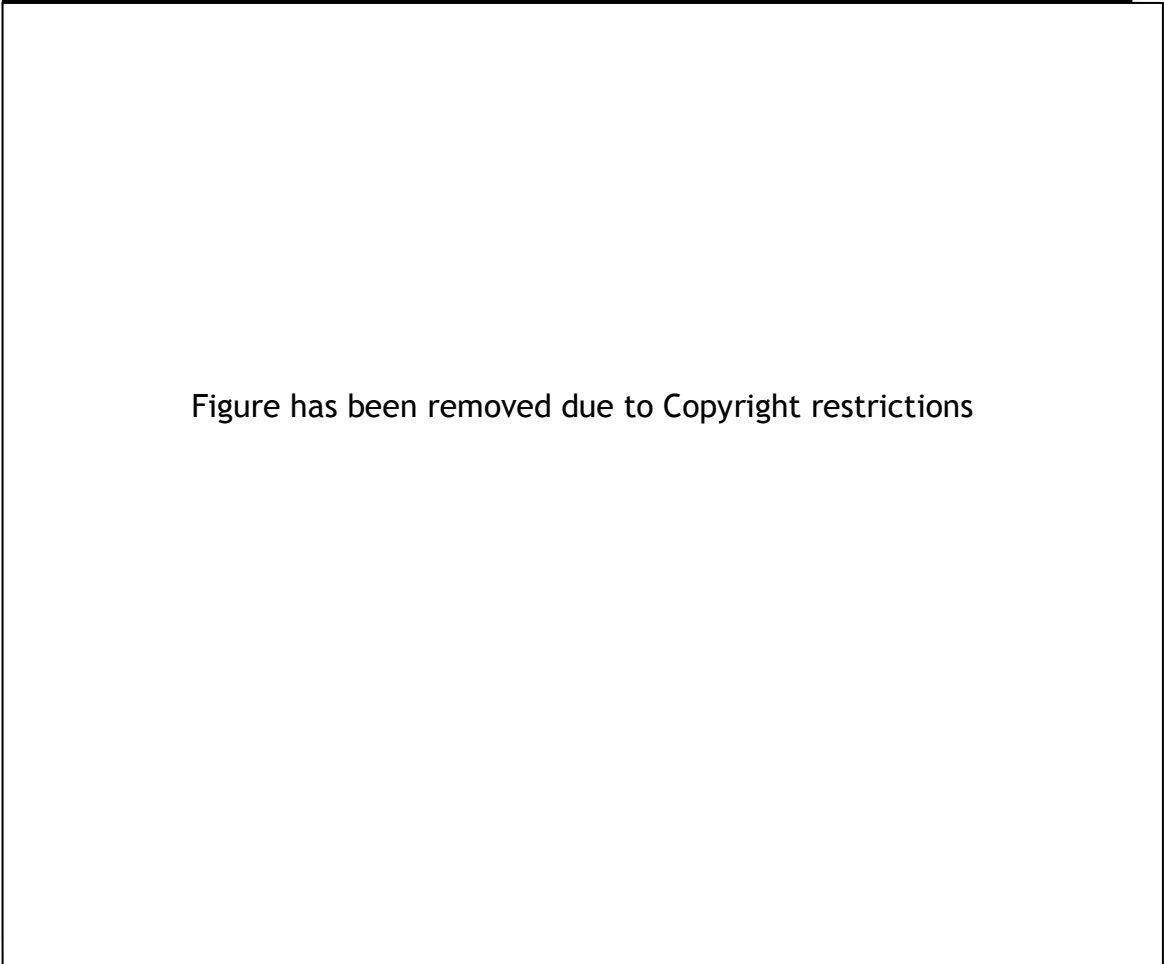


Figure has been removed due to Copyright restrictions

Figure 2-2 Model of factors affecting self-archiving behaviour

Cullen & Chawner (2009) studied the attitude of academics towards IRs in New Zealand. The academics in New Zealand were motivated to deposit their research outputs in IRs because their works gained increased exposure. The academics expressed concerns about quality assurance and prestige of an IR, risk of copyright infringement, intellectual property rights, and potential for plagiarism.

- Research funders

Research funders have driven the development and growth of IRs by issuing OA policies to support OA and self-archiving. The OA policies require funded researchers to deposit their research publications in IRs (Oppenheim, 2008). However, IRs provide benefits to research funders by broadening access to government-funded research outputs.

- Publishers

IRs introduce new challenges for publishers. Commercial publishers, learned society publishers, and university publishers have had to reconsider their business models, as already discussed, and introduced new policies as well as revised copyright agreements in order to comply with the new scholarly communication environment. Publishers have had to collaborate with libraries much more than ever before, not only to sustain their market, but also to serve their scholarly communities (Oppenheim, 2008).

2.4.3 Collection and collection development

IRs can house digital content created by institutional members. The content in IRs can be multimedia objects, datasets, electronic theses and dissertations, portfolios, publications, administrative content, and archive-specific materials. According to Lynch (2003), the collection in any IR is very broad because it

...contains the intellectual works of faculty and students - - both research and teaching materials - - and also documentation of the activities of the institution itself in the form of records of events and performance and of the ongoing intellectual life of the institution. It will also house experimental and observational data captured by members of the institution that support their scholarly activities.

However, Jones (2007, pp. 4-5) argues that an IR should cover only research output created by institutional members, as then it will convey easy-understandable meaning to the stakeholders. Whitehead (2005) also agrees with Jones (2007, pp. 4-5) that the main content in IRs should be digital research output of various types including theses, peer-reviewed journal articles, books, book chapters, and unpublished research reports.

Types of information resources which academics prefer to deposit are refereed and published articles, conference presentations, un-refereed articles and data sets (Abrizah, 2009). Specifically, “...online pre-prints, post-prints, non-copyrighted papers, articles where the author holds the copyright or gets copyright permission from the publisher, and other material not under copyright elsewhere. The material could involve any digitized format, such as books, images, audio, and DVD files...” (Anderson, 2004a, p. 99) It indicates

that IR content covers published articles and other research work and teaching materials in various formats. Although there are an increasing number of born-digital institutional intellectual assets housed in IRs, printed resources are also accepted and digitized for inclusion in IRs (Buehler & Trauernicht, 2007).

However, electronic theses and dissertations (ETDs) seem to be the most common type of scholarly publication housed in university-based IRs (Bailey, Jr et al., 2006; Buehler & Trauernicht, 2007). These collections should be housed in IRs and publicly accessible online with the agreement of relevant stakeholders such as the successful candidate, Graduate School or supervisors prior to making them available online (Brown & Abbas, 2010). Many universities have started populating IR content with ETDs because they present less-complicated copyright management issues, and they make the depositing process simple and straightforward (Buehler & Trauernicht, 2007). Moreover university libraries can import content from their existing ETDs databases (Chen & Hsiang, 2009). Consequently, it provides immediate worldwide recognition for authors at the outset of their careers and for the institutions (Buehler & Trauernicht, 2007). With technological advance, mandatory electronic submission instead of, or as well as, the deposit of bound analogue equivalents has gradually become a requirement for the completion of postgraduate degrees, so that ETDs can be made accessible online internationally (Buehler & Trauernicht, 2007).

IR projects employ two major collection acquisition policies: mandatory and voluntary policies. Most IR projects started populating IR content by encouraging institutional members through a variety of approaches. For example, subject specialist advocacy, IR presentations, and depositing assistance are mentioned mostly as recruitment strategies by ARL library members (Bailey, Jr et al., 2006). However, it seems that voluntary policies may not raise much awareness and therefore attract few contributions from faculty members. Kim (2007) proposed three main factors in attracting contributions to IRs, namely benefit, contextual, and cost factors which we might characterise as value added.

In addition to voluntary policies, mandatory policies by research funders and universities have compelled academics to deposit their research materials in IRs (Carlson, Ramsey, & Kotterman, 2010). Even though mandates increase the rate of IR content contribution, it places faculty members under considerable

pressure and meets with resistance (Palmer, Tefteau, & Newton, 2008b). However, mandated policies seem to be preferred by decision makers in HEIs, as it avoids having to persuade staff to comply.

Ideally OA is freely unrestricted accessibility to scholarly collections. However, most ARL members reported their repository content is only available to specific user groups (Bailey, Jr et al., 2006). Copyright issue, cultural concerns and pending patents were cited as reasons for restricting access (Bailey, Jr et al., 2006)

2.5 Benefits of institutional repositories

IR implementation provides a number of benefits to many groups of stakeholders in scholarly communities. According to Crow (2002 cited in Brown & Abbas 2010, p.185), generally the benefits of IRs can be categorized as follows (Figure 2-3)




Figure has been removed due to Copyright restrictions.

Figure 2-3 Benefits of an institutional repository

In addition, the IRs have an important role in scholarly communication. It is questionable whether the IRs will replace peer-review journals or not. According to Pinfield (2007), four possible future models of scholarly communication: 1. Journals remain the primary means of scholarly communication and repositories are not significant; 2. Journals and repositories coexist - with no changes to current business models; 3. Journals and repositories coexist - with new business

models; and 4. Repositories displace journals as the primary means of scholarly communication.

From the viewpoints of IR implementers, IRs provide several opportunities for the management of institutional scholarship: the increasing visibility, widespread dissemination, free accessibility, digital preservation, a central location of institutional intellectual assets, and knowledge on copyright, OA, and scholarly communication (Bailey, Jr et al., 2006).

Additionally, four main reasons encourage universities to establish IRs from the perspective of repository managers: 1) IRs are viewed as a management tool to gather scattered institutional research outputs in one place for ease of research and accessibility and to advertise the academic prestige of institutions and their researchers, 2) features of IRs can enhance dealing with various publication types, different versions and relationships, 3) IRs can be a showcase for the academic and research impact of institutions and academics and also increase the visibility and citation of deposited scholarly publications, and 4) requirements from external parties such as research councils and funding agencies accelerate IR implementation in universities (Rumsey, 2006). Interestingly, administrative interest was reported as the most frequently mentioned motivating factor for IR development in many universities in the USA (Campbell-meier, 2011).

The role of IRs is perceived by researchers as a new alternative communication channel and a dissemination tool, rather than replacing traditional ones (Fry et al., 2011). According to the research of Kim (2007) on the motivation of faculty members to contribute content to IRs, benefits can be categorized from two perspectives - extrinsic and intrinsic. Extrinsic benefits are accessibility, research visibility, trustworthiness of documents, recognition of individuals and institutions, and academic rewards. Intrinsic benefits relate to knowledge sharing and knowledge management systems across the institution.

However, IR benefits are difficultly divided by groups of stakeholders, because the benefits are interconnected. As a result, this research categorizes and discusses IR benefits by themes: knowledge development, academic recognition, administrative tool, and preservation of institutional outputs.

2.5.1 Knowledge development and sharing

IRs can be viewed as knowledge sharing spaces. It is a convenient approach collocating institutional research publications in one place for in-house institutional members and the general public (Anderson, 2004a). With IRs, scholarly works are located in one place for unrestricted access, which makes it more convenient to share and access literature without any barriers. Besides, IRs ensure the community members have access to key resources for further research and knowledge development (Suber, 2013). In other words they know what colleagues are doing or perhaps not doing.

Moreover, IRs enhance the wider dissemination and increase freely accessible scholarship. Scholarly publications in IRs can be retrieved and accessed freely on the Internet (Anderson, 2004a). This means that more people can access and use research publications for developing knowledge without any restriction. It is claimed that IRs increase research usage, citation and impact (Appleton et al., 2012). Paul (2012, p.196) highlighted the benefits of IRs in term of knowledge dissemination as:

...IR is a rich reservoir of institutional academic intellectual output. ...It is believed that academic output available in an IR is read more widely through the Intranet. Depositing academic work in an IR might help authors to disseminate their academic output much more quickly than publication in any other form.

However, according to Paul (2012), academic authors share their papers in IRs before they are published. That is why the possibility of plagiarism is of concern to researchers. IRs are also beneficial to teaching and learning in an e-Learning environment. Faculty and students can use and repurpose digitally available research publications in IRs if such resources are associated with a course management system (Crow, 2002). Consequently, IRs enhance and facilitate knowledge creation, dissemination, and sharing. Invention and innovation can be stimulated by open research publications in IRs (Mokyr, 2002 cited in Babu et al. 2012, p. 395).

2.5.2 Academic recognition

IRs are beneficial to institutions and academic authors by increasing the visibility of institutional profiles and academic profiles. Motivations for IR implementation vary among institutions. The survey by Bailey, Jr et al. (2006, p.14) found three principal reasons for implementers and planners of ARL member libraries “...to increase global visibility of, preserve, and provide free access to the institution’s scholarship”. IRs can work as a showcase for institutions and academics to display research strengths as a marketing tool (Swan & Brown, 2005). Similar to Abrizah’s findings (2009), IRs in Malaysia are developed because they enhance the availability and visibility of research output to the global scholarly communities. From the institutional viewpoint, IRs serve as meaningful and tangible indicators of the quality and prestige of the institution (Paul, 2012). This IR value comes from the collocation, the interoperability, and the preservation of institutional intellectual assets (Blythe & Chachra, 2005). The prestige of institutions and academics can be increased by IRs and academics; however, from the perspective of librarians, decision makers probably are not aware of such benefits and therefore do not contribute to IR projects at the implementation stage and in sustaining established projects (Cassella, 2010).

2.5.3 Administrative tool

IRs can serve as an administrative tool for institutions and funding agencies. Institutions can employ IRs as a tool to assess the academic performance of their researchers. A tenure and promotion system can in part be tied in with records from IRs. Additionally, research funders use reports based on IRs to assess and allocate research funds to applicants. At a national level, data from IRs can reflect the statistics of research-related information and influence national and institutional research strategic plans.

2.5.4 Preservation of institutional outputs

Carlson et al. (2010) and Swan & Brown (2005) argue that IRs can be regarded as a secure storage for research publications and unpublished research data. Intellectual output of the institutional members are collocated, interconnected, archived, and preserved within IRs for long term accessibility (Brown & Abbas,

2010). This will provide value to both the institutions and the individual themselves (Blythe & Chachra, 2005).

2.6 Challenges of the development of institutional repositories

Several existing theories explain challenges and difficulties of adopting changes or innovations. Even though this study aims to generate its own theory to explain the university-based IR development in Thailand, it is still worth exploring how existing theories explain the reaction of community towards changes. However, these theories are not used as theoretical framework, but they may be useful to discuss with the generated model later. Firstly this section reviews some key existing theories in the way associated with OA especially the IR management. Later, challenges of the IR management and improvement are reviewed.

There is a vast literature on the development of IR software, enriched applications for IR systems, and user-friendly interface. However, the purpose of this thesis is not to investigate the philosophy of technology and technological development, but will highlight the IR development from the socio-technological standpoint. It seems that developing IRs and subject-based repositories without a mandate policy may bring more challenges to the project committee. Especially subject-based repositories do not have policy support and publishers' OA agreement. Björk (2014) indicates that word-of-mouth within the community and reaching the community needs enhance the success of subject-based repositories without administrative support and ambiguous legal conditions for self-archiving. Therefore managing IRs or subject repositories in the context of bottom-up management may share some common challenges which are reviewed accordingly.

The OA strategies, offering several benefits to academics, are adopted by some academics and by others not all. This can be called Open Access Divide. The term "Open Access Divide" was coined by Xia (2013, p. 113) to mean "*...the split between those academics who support free sharing of scientific data and intellectual output including scholarly publications and instructional materials and those academics who do not.*" This represents obviously an existing gap between an ideal OA concept and practices in the real world. Xia (2013)

indicated the differences are influenced by norms, disciplines, academic status, and regional cultures.

Whilst there is a divide in attitudes to OA, many researchers have attempted to fill the gaps by investigating the reasons why the low awareness and adoption of IR initiatives have occurred and identifying influencing factors (Abrizah, 2009; Appleton et al., 2012; Creaser et al., 2010; Cullen & Chawner, 2010; Kim, 2008; Kim, 2011; Swan & Brown, 2005). The deposition process may consume time and effort, bringing extra workloads to busy researchers who feel their time could be better spent doing research (Singeh, Abrizah, & Karim, 2013). Like researchers in other parts of the world, the faculty in Malaysia had low awareness of IRs but they are willing to participate in the IR (Singeh et al., 2013).

Like other innovative projects, IR projects experience difficulty in gaining the attention and adoption from stakeholders. The theory “Diffusion of Innovations”, introduced by Everett M. Rogers (2003) in 1962, can explain the behaviour patterns of innovation adoption across cultures, innovations, and people. Rogers (2003, p. 11) defined that “*Diffusion is the process by which (1) an innovation (2) is communicated through certain channels (3) over time (4) among the members of a social system.*” The four key components determining the effective adoption of innovations are innovation, communication channels, time, and a social system.

Rogers (2003, p. 16) emphasized that “*innovations that are perceived by individuals as having greater relative advantage, compatibility, trialability, and observability and less complexity will be adopted more rapidly than other innovations.*” Further these characteristics of innovations should be shared with others through mass media and interpersonal communication in order to receive a common understanding. This may provide evaluative information on innovations and may give rise to favourable or unfavourable attitudes. The next component is ‘Time’ over the project lifecycle. Finally, the social systems, which can be social structure, norms, opinion leaders, and change agents, influence the diffusion of innovations.

This theory has been applied to several disciplines, not limited in technology and across cultures and people. It can be argued that this theory may be too

generalized and requires further research digging into the particular innovations and characteristics. However, some studies in IRs have adopted this as a theoretical framework (Pinfield et al., 2014; Stanton & Liew, 2011; Xia, 2012). Stanton and Liew (2011) explored the perceptions of doctoral students towards OA theses in New Zealand. They employed this theory and Social Exchange Theory to model students' awareness and use of OA resources to understand attitudes towards the perceived costs or benefits of sharing e-Theses via IRs. Xia (2012) deployed this diffusionist theory to explore the distribution of OA practices and it revealed that cultural context is the major factor determining the OA adoption. Xia (2012, p. 72) indicated that "*open access can only be effectively established after it meets local standard.*" It could imply that contextual factors have a significant role in the increase in adopting OA practices or self-archiving. Therefore, it is necessary to investigate factors which motivate and delay the adoption of IRs in particular contexts in order to expand the diffusion and to enhance the effectiveness of established projects. Apart from that, Pinfield et al. (2014) considered this framework as a useful approach to understand the adoption of IRs at individual, organizational, local and global levels based on the data from the OpenDOAR project from 2005 to 2012. Major factors affecting the diffusion of IRs are IT infrastructure, cultural issues, policy initiatives, promoting, and usage mandates (Pinfield et al., 2014).

Social Exchange Theory (SET) is another theory explaining the engagement of individuals in social exchange or knowledge sharing, especially organizational behaviour. This conceptual paradigm can be traced back to the 1920s and has been adopted by many disciplines such as anthropology, social psychology, and sociology (Cropanzano & Mitchell, 2005). Hall (2003 cited in Kim, 2008, p. 13) explained that "*social exchange theory was relevant for research on scholarly communication because it represented a social process where actors shared knowledge and had social relationships via research communities*". This framework has four elements: 1) actors, 2) resources, 3) structure of exchange, and 4) process of exchange. This theory explains that individuals interact or share social goods with others based on an expectation of a return, rewards, or other incentives. This theory is also applicable to studies in the area of OA and IRs. Stanton & Liew (2011) added that in the context of IRs academic authors tend to participate in the deposition process if they perceive the benefits to be

gained from doing this, such as wider readership, research impact, enhanced status, and career reputation. This is similar to Rogers (2003) who highlights that the more relative advantages of innovations can be perceived by the stakeholders, the more innovations can be diffused. Therefore, the advocacy approaches and communication strategies may increase the stakeholders' perceptions of IRs and might increase adoption.

Another general framework explaining the interaction between people and technologies is "Socio-Technical Networks (STN)" by Kling, McKim, & King, (2003). Eight components are identified for STN: (1) identify system interactors; (2) identify core interactor groups; (3) identify incentive structure; (4) identify excluded actors and undesired interactions; (5) identify existing communication systems; (6) identify resource flows; (7) identify architectural choice points; and (8) map socio-technical features to architectural choice points. However, Kim (2008) stated that this framework can be suitable for understanding IR management but it cannot provide any guidance for investing incentives. Consequently Kim (2008) deployed this STN and SET to study motivational factors influencing the faculty's self-archiving practices. Her study revealed that barriers to self-archiving are altruism, self-archiving culture, intrinsic benefits, disciplinary norms, and copyright concerns.

In addition, considering each activity in the OA life cycle may provide a new approach to perceive and investigate challenges and solutions. Xia (2013) proposed a conceptual framework focusing on the OA activities. The OA activities can be viewed as consecutive phrases: awareness, attitude, action, and allusion with continuous advocacy and supports from key agents (Xia, 2013). The "Action" covers all OA participating activities such as self-archiving and publishing in OA journals. The "Awareness" enhances the activities and it can be improved by effective and continuous "Advocacy". In addition to increased awareness, the "Advocacy" activities can increase the positive "Attitudes" towards the OA initiatives. Moreover, the "Agents" can be policymakers at diverse levels, funders, leading academics, and librarians. This group of key advocates can influence others' attitudes toward the IR undertaking. These six components can work as both enablers and barriers to successful project management.

The example of proactive practices for Agents, especially libraries is suggested by Armstrong (2014). He added that libraries should rethink their research support in order to connect with faculty and assist them in research dissemination. Management models for IRs reviewed by Armstrong (2014) are 1) A service framework composed of flexible policies, procedures suitable for community members, user language and the impacts of research dissemination; 2) Mediated deposit or “do it for them” approach assists the faculty to manage copyright, format manuscripts, create metadata, and submit work. Enough staff and flexible technological infrastructure are important to manage mediated deposit; and 3) Mass customization relying on “short product development cycles” and a “highly skilled worker”.

In addition, Palmer, Teffeu, & Newton (2008a) suggested three main factors determining the success of IRs: 1) Problem-solving strategies - these strategies concern users’ information needs and behaviours and innovative research supports; 2) Collaboration strategies - collaboration within the library and university as well as external collaboration are considered as key strategies to accelerate the IR projects; and 3) IP management strategies - the project committee should have intellectual property experts. Further, systematic processes for copyright clearance should be developed. The engagement with publishers can facilitate rights negotiations.

Apart from that, considering the IRs with the project lifecycle provides a valuable view on potential challenges and barriers to repository development. Based on the project lifecycle, challenges can be merged into these stages: 1) identification and deposit of content; 2) access and use of services; and 3) preservation of content and sustainability of service (Armbruster & Romary, 2010). To conclude, several higher education institutions implementing IRs face common challenges and barriers to accelerate the growth of IR projects.

2.6.1 Cultural change

Cultural issues are often the biggest challenge to the successful implementation of IR projects rather than technical issues (Foster & Gibbons, 2005; Pinfield et al., 2014; Ware, 2004; Xia, 2012). Online Computer Library Centre (OCLC) indicated that:

The most significant challenge facing academic libraries undertaking these institutional repository projects is not technical...The major challenge is cultural. Too few initiatives include all the stakeholders - faculty, library staff, IR staff and instructional designers - and there is no common view of what an institutional repository is, what it contains and what its governance structure should be (OCLC, 2003 cited in Genoni 2004, p.300).

IRs introduce many practical changes to academic authors especially research practices, scholarly publishing, and promotion and tenure systems. In addition, disciplinary cultures and norms also shape researchers' attitudes and self-archiving behaviours (Spezi et al., 2013). Institutions should promote understanding of IRs to their institutional researchers. Otherwise, academic authors may not participate in any OA activities, especially IR content contribution. Consequently, cultural issues are probably solved by clear communication among IR stakeholders (Paul, 2012).

Even if OA is well promoted and employed in a scholarly society, researchers still fail to participate due to the traditional mode of promotion and the tenure system in the United States (Cullen & Chawner, 2010). Xia (2013) suggested that to minimize the gap the faculty promotion assessment and tenure system should be changed. This issue demands that stakeholders should reconsider the whole picture of scholarly communication and requires the scholarly community to respond to the OA environment.

Apart from that, disciplinary difference influences the motivation to participate in self-archiving. Faculty members in Science-based disciplines and having previous self-archiving experiences tend to contribute their scholarly literature to the IR projects (Abrizah, 2009; Kim, 2008; Xia, 2007). It is challenging to convince other non-experienced faculty members to deposit their works into the IRs.

To build a common understanding of IRs and their benefits among institutional members is another challenge. The stakeholders may not understand what an IR or OA is and why it matters to them. The researchers did not recognize the benefits of IRs because the jargon terms do not represent the important benefits or do not convey the easy relative benefits of IR (Foster & Gibbons, 2005). Then Foster and Gibbons (2005) proposed that libraries need to approach institutional

members by using the same language as users do and make it simple. Consequently, it brings out a lack of motivation to self-archive; concerns surrounding intellectual property, copyright and plagiarism; and negative attitudes toward open access publication and archiving as legitimate modes of academic communication (Foster & Gibbons, 2005). Apart from this group, the policymakers and funders are the key leaders. Therefore written policies should be in place for guiding and stimulating other stakeholder groups to participate in IRs.

2.6.2 Copyright concern

Copyright management is a provocative issue associated with OA because

Protecting rights is in the interest of both parties: publishers want to prevent their digital content from being used, duplicated and distributed without permission or compensation, whilst authors of scholarly works want to ensure their moral right to be identified as the creator is upheld (Oppenheim 2008, p. 582).

Traditionally, the copyrights of journal articles are transferred from the authors to journal publishers after signing a Copyright Transfer Agreement outlining the author's limited rights on publication (Barwick, 2007). However, Müller-Langer & Watt (2010) proposed that academic works should be free of copyright. The consent from copyright holders such as applying the Creative Commons licenses can accommodate OA without reforming, abolishing, and infringing copyright law (Suber, 2013).

Publishers' policies are an important factor in the growth of IR projects, especially the contribution and availability of content. Academics would like to retain their rights over their work; however, they perceive publishers as prohibiting self-archiving (Abrizah, 2009). This no-copyright regime ensures that the authors retain copyright and can provide public access to their academic work. However, publishers have gradually come to advocate OA especially self-archiving by refining their copyright transfer policies (Carter, Snyder, & Imre, 2007). This might be because the publishers have had to change their business model in accordance with research funders' OA policies. However, checking the publishers' OA policies was reported by academics as the most difficult step of

the repository deposit process which may delay the content contribution (Fry et al., 2011; Spezi et al., 2013)

Academics themselves may not be aware of their copyright and intellectual property rights. The findings of Carter, Snyder & Imre (2007) showed that half of participating library faculty members selected journals to publish their work without considering the publishers' copyright policies. In addition, academics have various perceptions of copyright. According to the study by Brown & Abbas (2010), some researchers shared PDFs of their publications on their websites for their peers, even if they fear copyright infringement or neglect checking the copyright agreements. However, some might not care about copyright whereas some prefer to send PDFs on request instead of providing PDFs on their websites.

This diverse understanding and perception of copyright could cause two possible behaviours affecting content contribution: firstly, the researchers hesitate to deposit their works with OA repositories and the other is that they probably breach the copyright laws unintentionally. However, Covey (2010) indicated that *“Lack of sanctions could encourage copyright infringement, decreasing respect for copyright law and demonstrating that existing policy and law do not serve researcher interests”*. Nevertheless, the copyright problem remains a major obstacle to the growth and success of IRs (Babu et al., 2012; Barwick, 2007; Chen & Hsiang, 2009; Palmer et al., 2008b; Singeh, Abrizah, & Karim, 2013)

Potential solutions to copyright management have been developed by several institutions in order to increase the amount of deposited research outputs in IRs and to maximize their values. Setting clear policy on copyright management is one of the effective solutions. Barwick (2007) stresses that an institutional statement of copyright should be drafted and be in place to encourage institutional members to control their authors' rights. Besides, the National Taiwan University (NTU) borrows “Separation of Copyright” by Hsiang and Hung to recruit and manage the NTUR collections (Chen & Hsiang, 2009). Hsiang & Hung (2005) explained that even if copyright is usually transferred to the publishers, the authors and their institutions still have some rights. They added considering these three rights, institutions can increase the collections in their IRs and protect them from infringing copyrights - 1) self-archiving right - some copyright agreements allow the authors and their institutions to self-archive

their academic work. Reading agreements carefully may help; 2) full-text indexing right - institutions can key in the descriptive information of academic works and link to the full text. This will make that item searchable and visible; however, the users access to the full text or not will depend on and 3) access rights.

In addition, educating postgraduate students and researchers on basic copyright information is recommended in the development of IRs. As the copyright understanding and perception among scholarly communities are varied, it is recommended that basic copyright information such as ownership, fair use, or permission should be clearly explained (Nyambi & Maynard, 2012). Additionally the statement on the author's rights and moral rights should be clearly explained by the publishers so that authors can understand and interpret this statement appropriately as well as reserve their rights if necessary (Friend, 2004)

2.7 Conclusion

This chapter provides an extensive review of literature related to OA, OA publishing, and IRs. However, it is essential to note that the primary purpose of this chapter is to provide an overview of the development of scholarly communication and scholarly publishing, especially changes driven by the Internet and free online scholarship. It is impossible to discuss IRs without providing the context of OA in general. According to the reviewed literature, it has been found that many IR projects across the globe have confronted similar problems especially low awareness and participation; although the mandate policies have been announced.

The improvement of IR management and services seemingly depend on both external and internal factors. However, having a better understanding of the current state of the stakeholders' IR attitudes, awareness, and participation enhances identifying the major influencing factors and potential strategies for advancing IR management and improvement. Accordingly, in order to optimize IR projects based in Thailand, it is better to understand local standards and behaviours in context. Chapter Four will review literature focusing on the university-based IRs in Thailand.

Copyright concern is another important challenge in the provision of digital scholarly resources. Referring to the previous section, copyright concern has been reported by many researchers. This leads the researcher to investigate information on copyright laws and practices in knowledge sharing in the digital environment. This issue will be explored and discussed in the following chapter.

Chapter 3 Copyright Laws and Scholarly Publications

Copyright in the Open Access (OA) environment has been greatly debated in scholarly communities. The OA concept demands that the stakeholders in scholarly societies, especially academic authors, publishers, universities, and libraries, reconsider rights in their own academic works so as to balance copyright ownership against the accessibility of work. This chapter attempts to provide an overview of copyright law and intellectual property rights relating to scholarly publications at an international level. Moreover, it illustrates the impact of copyright issues on the OA movement in a broad area.

3.1 Copyright and scholarly publications

Scholarly publications, which are literary, dramatic, musical or artistic works, are automatically protected under copyright law without the need of registration or any formal process. The copyright owner(s) is (are) the creator(s) of the work. The Berne Convention, Article 9(1) explains copyright as “[a]uthors of literary and artistic works protected by this Convention shall have the exclusive right of authorizing the reproduction of these works, in any manner or form.”

Copyright law protects and provides a bundle of exclusive rights in their works for the creators or authors. With permission or licence, anyone who does not hold rights is allowed to use copyrighted work for their own purpose, providing they do not alter it and they acknowledge the source. The UK Copyright, Designs, and Patents Act 1988 (Her Majesty’s Stationery Office (HMSO), 1988) states that copyright expires 70 years after the year of the author’s death or 70 years from when it was first made available to the public if the author is unknown. In the case of joint authorship, the copyright period is extended to cover 70 years after the last known author dies.

Copyright is different from the “ownership” of a work. It does not mean that anyone who owns a work will automatically hold the copyright of that work. However, the owner of copyright can assign the copyright of the whole or in part

and for a limited time or the entire term of copyright protection to others in writing with agreement under law (Zorich, 1998).

Copyright balances rights between an economic return on the creators' efforts and a free knowledge exchange to encourage more creative production (Zorich, 1998). The right to make profits from copyrighted work is an incentive to create more works. When it comes to exploitation there is always a tension in terms of copyright infringement between rights holders and information users. However, moral rights are preferred and well acknowledged among scholars even if the copyright is transferred to publishers (Hoorn & van der Graaf, 2006).

However, the various interpretations of copyright laws and ownership among stakeholders in the scholarly community have an impact on the management and use of scholarly resources. The next section will discuss the ownership of copyright by different groups of stakeholders. This attempts to explain how each group perceives its rights in a scholarly work.

3.2 Copyright ownership by universities

Universities are important producers of academic research. Intellectual property in universities can be categorized as copyright, patent, and trademark. The issues of copyright ownership can be resolved by copyright law, contracts of employment, and grant contracts. According to the UK Copyright Designs and Patents Act of 1988, the copyright ownership by universities can be

11.2(2) Where a literary, dramatic, musical or artistic work is made by an employee in the course of his employment, his employer is the first owner of any copyright in the work subject to any agreement to the contrary (Her Majesty's Stationery Office (HMSO), 1988).

Similarly the Patents Act 1977 (Her Majesty's Stationery Office (HMSO), 1977) has a provision on the ownership by universities:

39.-(1)...an invention made by an employee shall, as between him and his employer, be taken to belong to his employer for the purposes of this Act and all other purpose if -

(a) it was made in the course of the normal duties of the employee or in the course of duties falling outside his normal duties, but

specifically assigned to him, and the circumstances in either case were such that an invention might reasonably be expected to result from the carrying out of his duties.

Universities often have their own copyright policy statements for their academic staff. Rights in research materials (research publications) are waived by a number of HEIs across the globe with three main justifications: a part of “academic freedom”, no financial gain, and increasing extra workloads and resources (Gadd et al., 2003a). Universities in the UK, USA, and Holland, for example, have rights in teaching and learning publications, but have to request rights in academic publications (Mossink, 1999). In addition to university copyright policy, the academic’s employment contract is another source for exploring copyright ownership of academic works in the universities.

The Zwolle Principles were formulated as a result of two conferences on “Copyright and Universities” in Zwolle, the Netherlands in June 2001. The principle was to describe the understandings of copyright ownership and rights in research publications among all the stakeholders - faculty authors, universities, publishers, and libraries - in order to assist in the management of copyright (“Zwolle Principles,” 2003):

1. *Achievement of this objective requires the optimal management of copyright in scholarly works to secure clear allocation of rights that balance the interests of all stakeholders.*
2. *Optimal management may be achieved through thoughtful development and implementation of policies, contracts, and other tools, as well as processes and educational programs, (collectively “Copyright Management”) that articulate the allocation of rights and responsibilities with respect to scholarly works.*
3. *Appropriate Copyright Management and the interests of various stakeholders will vary according to numerous factors, including the nature of the work; for example, computer programs, journal articles, databases and multimedia instructional works may require different treatment.*
4. *In the development of Copyright Management, the primary focus should be on the allocation to various stakeholders of specific rights.*
5. *Copyright Management should strive to respect the interests of all stakeholders involved in the use and management of scholarly works; those interests may at times diverge, but will in many cases coincide.*

6. *All stakeholders in the management of the copyright in scholarly works have an interest in attaining the highest standards of quality, maximizing current and future access, and ensuring preservation; stakeholders should work together on an international basis to best achieve these common goals and to develop a mutually supportive community of interest.*

7. *All stakeholders should actively promote an understanding of the important implications of copyright management of scholarly work and encourage engagement with the development and implementation of Copyright Management tools to achieve the overarching objective.*

University scholarship should be widely available to the public. However, not every academic publication is owned by universities. Consequently copyright management should be carefully considered. The AAU/ARL (1994 cited in Gadd et al., 2003a, pp. 253-254) developed four approaches “for improving the management of copyrights created at research universities”:

- 1) *Enhancing current practices - encouraging authors to retain rights for teaching and research purposes.*
- 2) *Faculty ownership of copyrights - authors retain all copyright and licence the publisher the necessary rights to publish; the author also manages all other permission requests from third-parties.*
- 3) *Joint faculty/university ownership of copyrights - copyright is shared by faculty member and university in much the same way as patents rights are currently shared.*
- 4) *Joint faculty/consortium ownership of copyrights - copyright is shared by the faculty member and a consortium of universities.*

University libraries, which play an important role as intermediates between copyright owners and users, have faced challenges in the management and the distribution of intellectual property. However, the regulations (SI1989: 1212), known as the “library regulations” or “library privileges”, provide exclusive rights for libraries (Norman, 1999, p. 16):

- 1) *Any UK library can act as an intermediary, and make and supply copies in response to research or private study requests from individuals via other libraries.*

- 2) *Profit-based libraries or archives are prescribed to copy for other libraries under SS.41, 42 and 43 but may not receive copies for their own stock.*
- 3) *Non-profit-based libraries outside the UK are prescribed for receiving copies made for them by a UK library under SS.41 and 42.*
- 4) *Any UK library, including a profit-based service, can copy on behalf of individuals under fair dealing [S.29].*

In the digital environment, libraries encounter new approaches to acquiring information resources for service from owning the rights to signing licences regulated by contract law (Pedley, 2000, p. 64). However, the management of copyrighted work at universities must comply with many regulations which prevent copyright infringement and protect authors' moral rights.

3.3 Copyright ownership by academics

Academics perceive their ownership of copyrighted academic works variously. Swan & Brown (2005) revealed that the majority of academics think they own their copyright, 17 percent of academics said their institutions were the copyright owners in their works, and a few academics had no idea. The RoMEO survey confirmed that most academics thought they owned the copyright in their works whereas one-third of academics did not know who held the copyrights of academic works (Gadd et al., 2003a). However, (Friend, 2004) and (Gadd et al., 2003a) argue that moral rights are more important for academics than any economic rights. Some studies reveal that the majority of academics are reluctant to check publishing agreements with journal publishers. The 46 percent of authors in the study of Rowlands, Nicholas, & Huntington (2004) reported that they "took no interest" in copyright especially copyright transfer agreements.

Multi-authored research publications are another important issue for the management of intellectual property in an OA environment. There are two cases of managing joint authorship (Gadd et al., 2003c). Firstly, the authors are from the same institution. They must agree to publish their works in OA journals and deposit them in any digital repository. The second case arises if the published works are created by the authors from more than one institution.

Before publishing research findings in academic journals, Tanner (2007) suggests that the authors should consider the copyright options when choosing and interacting with journal publishers by carefully reading the copyright agreement furnished by the publishers and checking the author's addenda prepared by national and international organizations such as Science Commons and SPARC. This may assist authors in retaining their rights and increase access to scholarly publications freely or at a reasonable price. In addition to copyright clearance with publishers, authors need to clear rights with third-parties in order to publish papers and to self-archive published papers (Gadd, Oppenheim, & Proberts, 2003b).

3.4 Copyright ownership by publishers

To disseminate research findings in scholarly community, academic publishers have played an important role. Then academic publishers have to deal with copyright issues in order to produce and disseminate copyrighted scholarly publications written by a number of authors and to prevent other academics to infringe their copyrights (Taylor, 2007). According to UK copyright law, publishers own copyright only resides in the typographical arrangement of a work. They must ask authors for copyright assignment. The copyright statements issued by publishers vary from exhaustive clauses to a simple sentence (Gadd et al., 2003a, p. 262):

"I/we hereby assign to [Publisher Name], full copyright in all formats and media in the said contribution".

Or

Journal Contributor assigns to the Publisher all right, title and interest, including copyright and all rights under copyright, throughout the world, in and to the Article, including without limitation the exclusive right to publish, perform, display, reproduce, distribute and sell the Article and to create derivative works, in all forms or media now known or hereafter developed, including without limitation print, electronic and on-line media, in all languages throughout the world, and the right to license or authorize others to do all of the foregoing. To the extent that any right now or in the future existing is not specifically granted to Publisher by the terms of this Agreement, such right shall be deemed to have been granted here under.

The length of licence clauses probably depends on how and what rights the publishers need for conducting their business (Gadd et al., 2003c). Gadd et al. (2003c) surveyed the reasons why publishers require copyright assignment and found out that “to protect from copyright infringement” was reported as the most popular explanation.

The relationship of universities, academics, and publishers regarding copyright ownership could be presented in four models (Gadd et al., 2003a, p. 269):

1. Publisher ownership of copyright

This model has been long-lasting in our scholarly communication. Universities waive rights of academic works to academics. However, academics assign copyright to publishers so as to publish their research findings in their journals. Then universities have to subscribe to the journals in order to access university-funded research articles. This model seems inequitable and may create a barrier against self-archiving.

2. Academic ownership of copyright

In this model, academics play an important role in managing copyright ownership. They need to understand about copyright and the rights under relevant laws in order to assign, licence, or retain their rights to academic publications. However, this model leaves some questions for the universities: why do they have to wait for academics’ licence to archive research publication despite waiving the rights to academics?

3. University ownership of copyright

To diminish the complexity of copyright management, the model “university ownership of copyright” has been proposed by the Universities UK/Standing Conference of Principals (UUK/SCOP) Group for managing intellectual property rights in e-learning materials. According to this model, universities retain copyright of scholarly publications created by university members and then licence rights to academics to licence publishers the right to publish in their journals. This seems to be a better solution to the complexity of copyright

management and advocates of OA, especially for self-archiving. However it does raise questions about academic freedom.

4. Joint university and academic ownership of copyright

The model “joint university and academic ownership of copyright” has more recently been recommended on the basis of the findings of *RoMEO Studies 1: The Impact of Copyright Ownership on academic author self-archiving* (Gadd et al., 2003a). The findings revealed that academics would like to retain copyright ownership and this model may satisfy this desire as universities and academics become copyright owners. When publishing research findings, universities and academics will licence the right of distribution to publishers.

Even if academics assign copyright to publishers, the authors still have usage rights. According to *RoMEO Studies 4: an Analysis of Journal Publishers’ Copyright Agreements* (Gadd et al., 2003c), 90 percent of copyright agreements ask for copyright transfer and 28.5 percent of copyright agreements had no provision for subsequent usage rights. However, some agreements allow authors to use their work with publishers’ permission. Gadd, Oppenheim, and Proberts (2003c) consider this as less than sincere usage rights.

3.5 Copyright and Open Access movement

The proliferation of information and communication technology, especially the Internet, has driven considerable changes in scholarly communication and the ownership of academic works. In traditional scholarly communication, exploitation rights are transferred fully to the publishers with the author’s-signed copyright transfer agreement. The reuse of and access to published works can be limited to particular groups of people with the publisher’s permission (Hoorn & van der Graaf, 2006). However, it is argued knowledge should be freely accessible. Accordingly the concept of OA has emerged with the attempt to make access to academic publications costless and freely available on the Internet. This leads inevitably to a reconsideration of copyright in academic publications.

Providing open access to scholarly publications in compliance with publishers' policies and copyright law, especially rights in the digital environment, is considered as the most difficult challenge. Hoorn and van der Graaf (2006) identify new emerging copyright models in the OA environment: 1) Author retains the copyright; 2) Author employs Creative Commons licences; 3) Author transfers the exploitation rights to the journal publisher. This reflects the desire of academics to negotiate with publishers for balanced rights.

Tanner (2007) explains that digital technology dramatically changes the scholarly communication and business models. This change throws up concerns about ownership and intellectual property rights. Tanner (2007) further emphasizes that the authors must protect and retain rights in their own works for personal use and public access at a reasonable price. However, Shavell (2009) argues strongly in favour of eliminating copyright from academic works altogether.

Friend (2004) suggests the applications of the Zwolle Principles to OA repositories and journals.

8.1 Good rights management procedures are as important for open access content as they are for purchased content. The purpose of the procedures is not to hinder the legitimate use of the open access content but to protect the legitimate interests of stakeholders.

8.2 Licences and clear copyright and other rights statements are the key tools in the implementation of the Zwolle Principles in relation to open access content.

However, publisher policies and institutional policies may be the best guide for stakeholders to manage copyright in the OA movement.

3.6 Conclusion

Copyright legislations are made public, however, the understanding and interpretation of the copyright laws by scholarly society varies between individuals and institutions. It seems that the copyright issue works as a barrier in making research publications freely accessible. The universities as research producers, educational institutions, and sources of knowledge have faced many challenges regarding copyright in scholarly society. Especially in the digital environment, information can be created and disseminated very quickly. This

draws greater attention of the universities in rethinking their practices on copyright management, their institutional research publications and knowledge exchange. However, the practices vary in different contexts.

This research investigates the current state of IRs in the National Research Universities (NRUs) in Thailand and the perceptions and attitudes of IR stakeholders in Thailand. The following chapter will explain the research setting which are NRUs in Thailand. It will provide an overview of scholarly communities and the OA movement in Thailand, and describe the NRUs project.

Chapter 4 Institutional Repositories and Open Access (?) in Thailand

This chapter aims to provide background information on Open Access (OA) in Thailand, especially institutional repositories (IRs) in National Research Universities (NRUs) through a review of relevant literature in order to understand the research setting. The chapter begins with a description of the role of universities in knowledge production and the “National Research Universities” project. Next, publishing behaviours of Thai academics are examined to answer the question how Thai academics share their research findings among other academics in the same fields and to the public. Finally, the OA movement in Thailand is explored in order to understand some OA-like projects and to provide some detailed description of university-based IRs. The chapter concludes by presenting gaps discovered in previous studies and by showing how research questions were constructed as guides for providing a more comprehensive explanation of university-based IRs in Thailand from the perspectives of various stakeholder groups.

4.1 Universities and the role in research

The university system in Thailand has been in existence since 1917. Chulalongkorn University, regarded as Thailand’s first university, was formed by the combination of the Royal Pages’ School with the Civil Service College. Then in 1934, Thammasat University was established to expand the educational opportunity for more people, especially in the moral and political sciences. In response to the National Economic and Social Development Plan, the establishment of universities in the provinces across the country increased during the 1960s and 1970s. Open universities were created to provide distance education. This resulted in the rapid expansion of universities across the country and in an increasing number of learners in the higher education system.

The higher education system in Thailand was reformed in 1999. The National Education Act B.E. 2542 (1999) brought about several structural changes: the consolidation of the Ministry of Education and the Ministry of Higher Education, the right to receive basic education by the State for at least 12 years, the freedom to provide educational services, the recognition of formal, non-formal,

and casual education, and the quality assurance requirements. Besides, more autonomy was given to universities, institutes and colleges.

At present, there are 171 public and private higher education institutions under the jurisdiction of the Office of Higher Education Commission, the Ministry of Education (see Table 4-1). According to the Second 15-year Long Range Plan on Higher Education of Thailand (2008-2022) by Office of the Higher Education Commission, the Ministry of Education (2008), the higher education institutions in Thailand can be categorized into four ranges by teaching-focused approaches: 1) Research universities with graduate schools, 2) Universities with fields of specialization, 3) Teaching universities with undergraduate-level emphasis, and 4) Community colleges.

Table 4-1 Categories of higher education institutions in Thailand

Types of Higher Education Institutions	Number (N=171)
Public universities	80
• Autonomous universities	15
• Universities	65
Private higher education institutions	71
• Universities	40
• Institutions	9
• Colleges	22
Community colleges	20

The increased number of higher education institutions calls for quality assurance. The teaching style in many universities has changed from didactic teaching to learning by inquiry, problem-based learning, student-centred learning, and research-based learning. Courses in any universities are screened and approved by the Ministry of University Affairs (MUA)⁴ to assure adequate resources and preparedness. The MUA (or Office of Higher Education Commission (OHEC) at the present) and other professional councils have assured quality standards for curricula and teaching.

⁴ According to the Ministry of Education Government Organization Act B.E. 2546 (2003), the Ministry of University Affairs was changed to Office of Higher Education Commission under the jurisdiction of the Ministry of Education.

Apart from excellence in teaching and learning, Thai universities also have other responsibilities in the conduct of research, providing academic services, and preserving and promotion of arts and culture. Research affairs are seemingly the most important responsibility of the universities. Social development, research-focused education, institutional and individual academic recognition, and promotion and tenure systems have driven Thai universities to reconsider their research strategies and policies. It has become obvious that research is one of the core roles and responsibilities of universities and faculty members.

The Ministry of Education has formulated the national strategic plans for higher education institutions which address the universities' roles in research affairs. For example, the goal of the Second 15-year Long Range Plan on Higher Education of Thailand (2008-2022)(Office of the Higher Education Commission, 2008) is the high quality of Thai higher education system. One aspect of the quality improvement is national research excellence. To achieve international standards, Thai universities are encouraged to be key players in national development with strong research bases. That is because *“Excellence in university research is synonymous with national research excellence”* (Office of the Higher Education Commission, 2008, p. 7). To enhance the research capability in Thai universities, the project “National Research Universities (NRUs)” was launched to prioritize financial support for the improvement of research output, research personnel, and research dissemination.

In 2009, the Minister of Education (Mr. Jurin Laksanawisit) initiated the projects “National Research University Initiative (NRUs)” and “Research Promotion in Higher Education” under the jurisdiction of the Office of the Higher Education Commission (OHEC) in order to promote Thailand as a centre of education, research and development in South East Asia. This project has been expected to increase the quality of Thai Higher Education and to achieve international competitiveness (Office of the Higher Education Commission, 2011). These projects are in accordance with the second 15-year long-term plan for higher education (2008 - 2022).

To lift Thai universities to reach global standards, some research universities were selected as pioneers. The project urged NRUs to pursue research and development activities vigorously. The selection criteria are based on

international standards (Times Higher Education - QS and Scopus databases), the research potential, clear strategic planning, follow-up and evaluation procedures, and credible budget allocation. Then in 2011 the first set of NRUs included nine public universities meeting the qualification requirements, namely: Chiang Mai University, Chulalongkorn University, Kasetsart University, King Mongkut's University of Technology Thonburi, Khon Kaen University, Mahidol University, Prince of Songkla University, Suranaree University of Technology, and Thammasat University (Office of the Higher Education Commission, 2011).

As selected NRUs, these universities have been granted additional financial support from the Government during 2010 - 2012 in order to develop research infrastructure and to increase researcher development. It is expected that NRUs can produce greater research output contributing to social, industrial, and economic development as well as the country's competitiveness. However, the approval of the nine NRUs by the OHEC has been questionable. Concerns have been raised about the reliability and accuracy of the selection criteria and their research performance by executives of unapproved universities and research funding agencies (Sombatsompop et al., 2010). In addition, the criteria were based on international ranking systems which depend on the number of published papers in online databases, which mostly are in international academic journals with higher impact factors. However, in some disciplines such as Education, Thai faculty members have published in local journals more than international journals (Poopan, 2011). The question arises whether papers published in local peer-reviewed journals and in other online databases should be included in the criteria.

Sombatsompop et al. (2010) evaluated the research performance of 24 public universities under the Thailand National Research University (Thailand-NRU) initiative by using the Web of Science (WoS) database. The findings revealed that the top six universities that had the highest average number of published articles and citations during the three evaluation years were Mahidol University, Chulalongkorn University, Chiang Mai University, Prince of Songkla University, Kasetsart University and Khon Kaen University. However, universities with a lower number of published articles appeared to perform better in terms of average citation/article and citation received/cited article.

This research confirmed that the top nine universities based on their research performances corresponded very well to those approved by the OHEC under the 2009 Thailand-NRUs Initiative only in terms of research productivity and impact. However, it draws some attention to the dependence on commercial online databases. There may be bias towards publications in international journals and only in one database. There is a lack of data on publications in local journals and other databases. There is no comprehensive repository of Thai research reports and journal papers.

The roles of universities in Thailand have included research and development since 1959. After the first National Economic and Social Development Plan was launched in 1961, the importance of research and development in the country was increasingly recognized. However, the management of research output is also significant for further knowledge development. With the establishment of the National Research Council of Thailand (NRCT), National Policy and Strategies on Research have been hammered out to determine the direction of research in Thailand to serve the country's development. Currently, NRCT (2012) has issued National Policy and Strategies on Research No.8 (B.E. 2555-2559 / 2012-2016). One of the five main research strategies in this current policy aims to reform the national research system for the improved management of knowledge, research output, innovation, resources, and national intellectual heritage for commercial and public use with appropriate and public-accessible strategies. However, at the university level research publishing behaviours and research output are numerous and various. A research management system is also needed to balance scholarly production and distribution.

4.2 Universities and research publishing in Thailand

Scholarly publishing in Thailand started because of the demand for textbook and lecture materials in Thai. Sinlarat (2000) explained the growth in the number of established higher education institutions across the country since 1967 led to demand for Thai textbooks and research-based teaching. Consequently, in 1974 the Ministry of University Affairs announced new regulations on the promotion of higher academic positions which required instructors to research and publish their work. This led to the establishment of university presses, more scholarly resources, and an enhanced teaching and learning environment.

Postgraduate students and the faculty/researchers are key research producers in the Thai scholarly community. Research output conducted by these university community members can be divided into two main categories: postgraduate research and faculty research.

Thai universities with Graduate Schools have provided master degree programs and doctoral degree programs in several subjects. To produce research personnel, these universities set research publishing as one of the graduation requirements. In most universities, postgraduate students are required to submit theses in printed and digital formats to Graduate Schools. However, the number of printed theses, the detailed online submission process, and copyright agreement vary from one university to another. For example, according to the Chulalongkorn University's Regulation on Graduate Education B.E. 2551 (2008) (Chulalongkorn University, 2008), copyright of theses and independent studies are owned by the University. Apart from submitting theses, postgraduate students at the University must publish research papers: 1) students on master degree programs must publish their work in journals or academic publications or present at conferences with their full papers appearing in conference proceedings, and 2) PhD students in Life Sciences and Physical Sciences must publish in international journals whereas ones in Social Science and Humanities must publish papers in national peer-reviewed journals which are widely accepted in their fields or in international journals.

Another example is Mahidol University. There is no equivalent copyright statement about theses conducted by Mahidol University students. However, the Mahidol University's Regulation on Graduate Education B.E. 2556 (2013) (Mahidol University, 2013), Regulation on Thesis Publishing as a Graduation Requirement for Master Degrees B.E. 2557 (2014) (Mahidol University, 2014b), and Regulation on Thesis Publishing as Graduation Requirement for doctoral degrees B.E. 2557 (2014) (Mahidol University, 2014a) include detailed statements on thesis submission and publishing papers. For example, master degree students must publish their work in well-accepted journals with a peer-review process or present at conferences with published proceedings. Moreover, the Graduate School, Mahidol University has a warning statement on avoiding OA journals in the Beall's List of Predatory and Open-Access Publishers (<http://scholarlyoa.com>). For local academic journals, the Graduate School

recommends that postgraduate students publish their findings in journals certified by the Thai-Journal Citation Index (TCI).

Graduate School at each university may have their own arrangements for depositing theses. For example, students at Chulalongkorn University are required to submit theses online through the CU e-Theses system with one-two printed copy, whereas students at Mahidol University must submit two printed theses and one digital file. The students must submit the acceptance letter from the publishers as evidence. After graduation, Graduate Schools deposit printed theses in main university libraries. The bibliographic data and digital files are transferred to the libraries. However, some libraries can download information directly, whereas some must create metadata again. For published articles or any publications of theses, Graduate Schools may have their own bibliographic databases for internal use only.

In addition to student research publications, the faculty and researchers at the universities are an important group of research producers. Many contributory factors drive university researchers to publish their work. Apart from gaining academic recognition in the field and personal factors, research grant agreements, academic performance assessments and the academic position promotion system have driven faculty members to disseminate their research findings via informal channels, publication, and data sharing (Björk, 2007).

1. Requirements of research grant agreements

Conducting research has received great attention and financial support from several institutions at national and institutional levels and from the public and private sectors. The research grants were allocated to university members and government departments. To receive funds, researchers have to sign research grant agreements. Final full reports are required when the research projects are complete.

Generally, for each research project, managing research in state universities in Thailand requires a state budget from the Government. Researchers who affiliate to universities must conduct research in accordance with guidance and regulations from relevant institutes as following (Petchurai, 1999):

- The Office of National Research Council of Thailand (NRCT) - NRCT develops national research policy and direction. Further, it monitors research projects proposed for the budget in accordance with the policy in order to prevent duplication of research and to allocate budgets effectively.
- Bureau of the Budget - It determines the suitability of the proposed budget for each research project from each university. After receiving the proposed research project with details of expenditure, Bureau of the Budget asks university to submit an explanation of the research and outcomes which are from research conducted during the last three years.
- Ministry of Finance - sets rules and regulations governing the disbursement of the state budget and approving funds to universities.
- Office of the Higher Education Commission - promotes research by financial support and collaborates with universities in terms of research information such as research topics, subject fields, allocated budget, research funding, the amount of completed research projects, etc.
- Office of the Auditor General of Thailand - is responsible for tracking and monitoring budget expenditure and accomplished research projects. If the projects are not successful, the reasons and expenditure should be reported. Further, the institute audits the budget and disbursement of funds.

As a result, good collaboration with effective research information systems is required for research administration. The information kept in databases at each institution must be repurposed in order to serve its needs and mission.

Apart from the government sectors, research funds can be from international organizations and the private sector, such as industrial and commercial companies. These research agreements may cover the publicizing of research findings.

2. Academic performance assessment

Faculty members in Thailand must work in accordance with the Announcement of the Civil Service Commission in Higher Education Institutions (CSCHEI) on the Standard Academic Workloads of the Faculty Holding Academic Ranks ‘Lecturer’, ‘Assistant Professor’, ‘Associate Professor’, and ‘Professor’ (2009). Teaching workloads are basically required for all academic positions, but each academic position must produce scholarly publications in different numbers (see Table 4-2).

Table 4-2 Workloads of each academic rank

Lecturer	<ul style="list-style-type: none"> • No less than 35 hours / a week / a semester • Minimum teaching workload is not less than 45 percentages of all workloads.
Assistant Professor	<ul style="list-style-type: none"> • Must follow standard of minimum workloads of Lecturer position • Produce scholarly publication / an academic year: <ul style="list-style-type: none"> - 1 research work, - 1 textbook or book, - 1 academic publication is equivalent to research work or - 2 academic journal papers.
Associate Professor	<ul style="list-style-type: none"> • Must follow standard of minimum workloads of Lecturer position • Produce scholarly publications / an academic year: <ul style="list-style-type: none"> - 2 research works, - 2 textbooks or books, - 2 academic publications are equivalent to research work
Professor	<ul style="list-style-type: none"> • Must follow standard of minimum workloads of Lecturer position • Produce scholarly publications / an academic year: <ul style="list-style-type: none"> - 1 research work published at the international level, - 2 textbooks or books - 1 academic publications are equivalent to research work

Each university has authority to prescribe workload policy for its faculty members. Faculty members holding administrative positions have lighter teaching workloads. However, research publishing is required for faculty members in every academic position.

The motivations and barriers behind conducting research and publishing research findings have been investigated. The study by Putwattana (2002) indicated that teaching workloads prevented faculty members from conducting research although most universities set goals for becoming research intensive universities. It is suggested that research policy, research administration, sufficient research resources, and research outputs can contribute to the development of a faculty-wide research culture. Reaching similar conclusions to Putwattana (2002), clear policy, reward system, and publicizing research findings have been suggested by Kovilaikool, Suwanketnikom, & Prachyapruit (2007) as possible factors enhancing the research culture at the workplace. One interpretation of this would be that the research publishing culture of Thai academics can be developed by encouragement, incentives, and institutional policies.

3. Academic position promotion and tenure system

In addition, the promotion to the rank of *Assistant Professor*, *Associate Professor*, and *Professor* must follow the criteria in “The Announcement of the Civil Service Commission in Higher Education Institutions (CSCHEI) on the Regulations and Consideration Procedure of Promoting Academic Ranks ‘Lecturer’, ‘Assistant Professor’, ‘Associate Professor, and ‘Professor’ (No.2),” (2007) and “The Announcement of the Civil Service Commission in Higher Education Institutions (CSCHEI) on the Regulations and Consideration Procedure of Promoting Academic Ranks ‘Lecturer’, ‘Assistant Professor’, ‘Associate Professor, and ‘Professor’ (No.6),” (2012).

Table 4-3 Criteria for Promotion of Academic Ranks

From <i>Lecturer</i> to <i>Assistant Professor</i>
<ol style="list-style-type: none"> 1. Teaching experiences <ul style="list-style-type: none"> - 9 years for the faculty holding Bachelor degree - 5 years for the faculty holding Master degree - 2 years for the faculty holding Doctoral degree 2. Good teaching handouts 3. Scholarly publications <ul style="list-style-type: none"> - Written work, textbook, book, or academic journal article with good quality and publicized in the accordance with the regulation of CSCHEI or - Good research work or - Good academic works in other genres
From <i>Assistant Professor</i> to <i>Associate Professor</i>
<ol style="list-style-type: none"> 1. Being Assistant Professor for no less than three years 2. Good teaching materials 3. Scholarly publications <ul style="list-style-type: none"> - Good research work or good academic works in other genres AND - Written work, textbook, book, or academic journal articles with good quality and published in journals qualified by the Announcement 2013
From <i>Associate Professor</i> to <i>Professor</i>
<ol style="list-style-type: none"> 1. Being Associate Professor for no less than two years 2. Demonstrating a high level of expertise in teaching 3. Scholarly publications <ol style="list-style-type: none"> a) Approach A <ul style="list-style-type: none"> - Very good research work or very good academic works in other genres AND - Textbook or book with very good quality b) Approach B <ul style="list-style-type: none"> - Excellent research work OR - Excellent academic works in other genres OR - Textbook or book with excellent quality

To serve the faculty's research behaviours, research libraries provide proactive information services. Information resources especially books, online databases, and other electronic resources are acquired by the libraries. However, Thai faculty members tend to use information on the Internet for their research more than library-provided resources (Phetwong & Tuamsuk, 2012). Factors influencing use of research resources are the contextual variables (institutional policy, research culture, research collaboration), the characteristics of research output (its usefulness, relevance, and research updates), and personal variables (attitudes, research interests, research scope) (Poopan, 2011). However, Poopan's study may overlook availability and accessibility as potential factors impeding the use of research resources.

Publications are a widely-accepted research output for academics. It is reported that research reports are the most published research findings followed by books and textbooks, research papers, theses, and then academic journal papers (Phetwong & Tuamsuk, 2012). However, the researchers added, more than it seem, since journal papers are the most stated useful information sources for conducting research. Consequently, university presses and academic journal publishers play an important role in research dissemination in Thai scholarly society.

4.2.1 University presses

University presses in Thailand have been established since 1979 in as attempt to increase the number of Thai textbooks with quality control processes (Sinlarat, 2000). Chulalongkorn University and Thammasat University were the first university presses in Thailand. Most Thai university presses are non-profit organizations subsidized partially by their parent institutions for a certain time span, thereafter they must sustain their business and serve to promote the academy (Kingkaew, 2002). The production processes such as manuscript acquisition, peer-review process, design, marketing, and distribution demand high investment and considerable effort (Thatcher, 2007).

Running the business with the objective of disseminating scholarly resources rather than seeking profits has challenged the sustainability of Thai university presses. Consequently, university presses in Thailand have continuously changed their business models and marketing strategies in accordance with institutional, sociological, and technological changes. In the past, Thai university presses were faced with insufficient staff members and dead stock of some published books. Sinlarat (2000) addressed three issues which need to be considered for the systematic development of Thai scholarly publishing, namely 1) academic culture of producing good manuscripts, 2) an expansive marketing regime, and 3) sufficient information about books. Apart from that, university presses should reconsider their missions, business management, and technology management in accordance with the changing environment in which they operate (Chotiwong, Pinthapataya, & Chaloejjanya, 2013).

Technological advances have driven university presses to produce scholarly resources in various formats and to change their print-based systems to digital printing. According to the study on information resources produced by five Thai university presses between 1991 and 2000 by Kingkaew (2002), university presses produced printed publications, audio-visuals, and electronic media. However, the highest number of information resources produced by university presses was textbooks by faculty members within their university. It could be assumed that Thai university presses have played roles in Thai scholarly communication in general and at institutional level, especially producing, collocating, and disseminating institutional intellectual assets generated by their own university members. With the *Printing Act B.E. 2550 (2007)* (2007), university presses and other presses must deposit two free copies of publications for public use in the National Library of Thailand. Otherwise, the publishers will be fined 10,000 baht (approximately 200 GBP). This regulation however does not apply to electronic publications.

Some university presses have reconsidered their business models and now advocate OA to sustain their business within the new ecosystem. In the 1990s, some university presses in the USA made some books available online for free but it was not fully OA due to copyright and technological restrictions (Thatcher, 2007). Collaboration between university presses and other relevant partnerships such as authors, libraries, research centres, and funders are important in developing a new suitable business model for OA publishing (Withey et al., 2011). However, no empirical study shows Thai university presses engaging in the discussions about the influence of OA on their business and their participation in this new form of scholarly communication.

4.2.2 Journal publishers

There is no official association of academic journal publishers in Thailand. Similar to university presses in Thailand, academic journal publishers are non-profit organizations receiving substantial budgets from their host institutions. The main objectives of producing academic journals are to advance knowledge and to diffuse research findings among colleagues. Most academic journals are published by higher educational Institutions such as faculties, research institutes, associations, or universities (Dhiratayakinant, 1986).

The exact number of academic journals in Thailand is difficult to identify. However, the Thai scholarly community endeavours to improve Thai academic journals to reach international quality standards. The latest attempt is the establishment of “Thai-Journal Citation Index Centre”. The Thai-Journal Citation Index Centre (TCI) was developed from the research project on “The study and development of citation index for academic journals in Thailand” by Professor Dr. Narongrit Sombatsompop and Dr. Nongyao Premkamoned in 2001. The project aimed to investigate how to establish “Journal Impact Factor - JIF” and “Journal Immediacy Index - J-II” for academic journals published in Thailand by employing the same standards as the Institute for Scientific Information (ISI).

This project resulted in further research to develop the Thai-Journal Citation Index database. Editors, librarians, faculties, researchers and administrators were invited to attend the seminar in order to design TCI database for their needs. This has attracted attention from academic journal publishers and compelled them to improve their publications.

According to the Thai-Journal Citation Index Centre (http://www.kmutt.ac.th/jif/public_html/index.html) accessed in 2012, 484 journal titles (236 academic journals in Science and Technology and 248 academic journals in Humanities and Social Sciences) have joined the project “Thai Journal Citation Index Centre” in order to make their published journal articles more widely known.

With the website analysis of some randomly-selected academic journals in Science and Technology and in Humanities and Social Sciences, some critical issues on Thai academic journals can be illustrated as follows:

- Publishers - - Thai academic journal publishers in both Sciences & Technology and in Humanities and Social Sciences are faculties and research institutes in universities, associations in specific subjects, and government sector organisations.
- Peer-reviewed process - - all academic journals in the TCI database have peer-reviewed processes to qualify for inclusion.

- Disciplinary divide - - academic journals in Sciences tend to be electronic more than ones in Humanities and Social Sciences. Most academic journals in Humanities and Social Sciences do not provide full-text electronic content.
- Copyright policy - - some academic journal publishers provide few details on copyright policy on their websites. Especially, copyright statements are not clear enough to cover the sharing of published articles on personal websites or in digital repositories. However, it cannot be assumed that they do not concern themselves much with this issue. Instead, journal publishers may inform authors directly about copyright issues and ask them to sign copyrights transfer forms. This needs an exploratory study to gather more detailed information.

Very little has been written on making Thai journal papers freely accessible without any restrictions. Only 13 OA journals in the Directory of Open Access Journals (DOAJ) are from Thailand and none are in Library and Information Science (Thaotip & Nimnoi, 2013). Thaotip and Nimnoi (2013) introduced so the authors claimed, the first OA journal in Library and Information Science which is titled “Asia Pacific Journal of Library and Information Science (APJLIS)”. This OA journal adopted an institutional subsidized model, which means that anyone can freely access it and the authors are not responsible for publishing fees. However, there is as yet no clear evidence for other Thai journals. Therefore, closer examination of Thai journal publishers on their journal management, copyright policy, and their attitude towards OA publishing and archiving papers for free download-ability from IRs probably will reveal more about the current situation and pose some discussion and solutions for other relevant stakeholders.

In addition, the attitude toward OA publishing among Thai academics is worthy of investigation. Thaotip (2009) revealed that the Thai Library and Information Science professions need OA resources to be promoted among users and need more OA journals and archives/repositories to be launched by their universities. This study contributes to an understanding of Thai academics’ attitudes to OA journals in only particular field. It shows that Thai academics appreciate the advantages of OA journals; however, more exploratory studies in other disciplines may make understanding clearer. Moreover, no empirical information

on the effect of OA publishing on Thai research libraries has been yet undertaken.

4.3 Open Access (?) movement in Thailand

Knowledge sharing has been a feature of Thai scholarly society long before the concept “Open Access” was coined. With the advent of library networks and advanced technologies, sharing information resources has been dramatically improved. The library networks in Thailand were established in 1993. It can be divided into two main groups: Thai Library Network Metropolitan (Thailinet) and Provincial University Library Network (Pulinet). With the proliferation of digital technologies, the project “Inter University Network (UniNet)” was founded in 1997 to provide an information and communication technological infrastructure to connect every higher education institutes across the country to the Internet for enhanced education and research and data sharing inside and outside Thailand (UniNet, 2013b). In 2000 a master plan was drawn up for the development of Thai Library Integrated System (ThaiLIS) by networking Thailinet, Pulinet, and OHEC on the UniNet for developing an automated library system in order to provide complete information services rapidly and to improve effective resource sharing (UniNet, 2013a). Sharing resources both in printed and digital formats across the country became easier with projects under the administration of ThaiLIS. Then it could be said that an open-access-like movement had already started in Thailand. The next section will identify and describe some open-access-liked projects in Thai scholarly community.

4.3.1 Thai Digital Collection (TDC)

Thai Digital Collection (TDC) (<http://tdc.thailis.or.th/tdc>), a project initiated by the Thai Library Integrated System (ThaiLIS), aims to provide one-single online full-text database of theses and research reports generated by Thai researchers and collected by university libraries across the country. Owing to the better content, physical shelving space saving, and further knowledge development, postgraduate research and faculty research are the first collections of scholarly resources considered for digitisation and made freely accessible to the public (Sengupta, 2012). Saengthai (1998) added developing a full-text database “TDC”

can increase widespread dissemination, solve inconvenience in access to this kind of resources, and enhance preservation.

The access is limited only to members searching from university networks. The standards “Z39.50”, web service, and OAI-PMH are employed to facilitate interoperability. University libraries are responsible for uploading digital theses and research to TDC for full-text access. However, not every university uploads all digital institutional research to TDC and some universities set some access restrictions. Therefore, TDC collections may not be fully complete and not represent the range of all university research. The study on user satisfaction with TDC by ThaiLIS (2012) revealed that unlimited online access to full-text downloadable content should be provided and searching features should be improved. However, it is an initial step in digital resource sharing and the OA movement in Thailand.

4.3.2 Thailand National Research Repositories (TNRR)

National research organizations as research funders have recognized the significance of funded research output management and accessibility. The attempt to collocate government-funded research output for the better accessibility and usage was started in 2001 with the support of national research funders by exploiting Information and Communication Technology, especially the Internet. The ThaiReSearch (thairesearch.in.th) as the first one-stop search portal for Thailand’s research was developed with the cooperation of four national research institutions, namely 1) The National Science and Technology Development Agency (NSTDA), 2) The Thailand Research Fund (TRF), 3) The Office of National Research Council of Thailand (NRCT), and 4) The Health System Research Institute (HSRI). It seems from feedback that ThaiReSearch was only moderately successful. It was inconvenient for each institution to update its own database and share metadata across the various research organizations’ online databases. This led to a discussion among the four collaborating research institutions about improving the central research portal. According to the resolution of the meeting on 25th August 2010 at the Health System Research Institute (HSRI) presented by Professor Dr. Soottiporn Chittmittrapap, Secretary General, the Office of the National Research Council of Thailand (NRCT), the new project “Thai National Research Repository (TNRR)” was implemented as a

central portal of government-funded research output in Thailand under the umbrella of the Thailand Research Organizations Network (TRON)⁵.

The Thai National Research Repository (TNRR) project (<http://www.tnrr.in.th>) aims to be a system of research work, research projects, and research output from all relevant research organizations in Thailand. This system provides freedom to each research institutions to add or update information on their funded research projects and outcomes on their own databases. With the metadata standard “Dublin Core Metadata Set (DCMS)” and technical standard “OAI-PMH”, it facilitates data sharing across the systems. Likewise, other databases supporting the OAI-PMH protocol can harvest and be harvested (<http://www.tnrr.in.th/index.php/project-introduction/23-tnrr-detail>).

The expected benefits of TNRR are for research funders, researchers and end users, and budget allocators as follow (Aroonpiboon, 2011):

1. *To have a national research database which supports the workflow of research projects - applying for a grant, reporting online research projects, and providing access to final research outputs.*
2. *To have an Open Standard national research database.*
3. *To decrease the duplication of research projects granted by each research funder.*
4. *To facilitate researchers and the general public to search for research output via the Internet.*
5. *To provide information for decision making to all Members of Parliament and agencies which are responsible for budget allocation.*
6. *To provide overview of national research projects and output to administrators.*
7. *To support analysts in assessing the research trends and undiscovered research areas, matching researchers with industry clusters, evaluating the ability in technological competition with other countries, and in allocating research funds appropriately.*

⁵ Thailand Research Organizations Network (TRON) is consist of six national research institutions, namely 1) The Office of National Research Council of Thailand (NRCT), 2) The Thailand Research Fund (TRF), 3) The Health System Research Institute (HSRI), 4) The National Science and Technology Development Agency (NSTDA), 5) Thai National AGRIS Centre, and 6) Office of the Higher Education Commission (OHEC).

At the current stage, TNRR provides search and links to research output held by organizations in Thailand and abroad. However, the research grant agreements and their policy regarding the deposit and full-text online access to government-funded research outputs via digital repositories are not provided for the public. This can influence information services and research dissemination. Additionally, the national research funders' expectation on or the perceived benefits of university-based IRs to support the TNRR or the visibility of government-funded research output needs further investigation.

4.3.3 University-based institutional repositories

IRs in Asia have been increasingly implemented and have been investigated by several researchers (Abrizah, Noorhidawati, & Kiran, 2010; Nazim & Mukherjee, 2011; Sengupta, 2012). Most literature began their preliminary survey with the statistical data from the authoritative directories: Directory of Open Access Repositories (OpenDOAR) maintained by the University of Nottingham, in the UK, and Registry of Open Access Repositories (ROAR) hosted at the University of Southampton, the UK.

The growth of IRs in Asia started in 2006 and has continuously increased. Japan, Taiwan, and India are the top countries adopting and implementing IRs among Asian countries (Abrizah, Noorhidawati, & Kiran, 2010; Nazim & Mukherjee, 2011). The number of IRs in Asia varies depending on the sources cited. For example, the study of Abrizah, Noorhidawati, and Kiran (2010) showed that 191 OA repositories in Asia based on the OpenDOAR where Chen & Hsiang (2009) indicated there were a greater number of repositories in Asia especially in Japan, Taiwan, and Korea. The different figures could possibly reflect how researchers surveyed them. It seems that the data derived from the OpenDOAR may not provide accurate information because the registration at the OpenDOAR is on a voluntary basis. Therefore, personal communication which was used in Chen & Hsiang (2009) may be a more useful method of collecting data.

Regarding the number of IRs in Thailand, it needs a preliminary survey to start with. Three authoritative directories such as OpenDOAR, ROAR, and DSpace are used here with some Thai relevant literature in order to present the overview information on university-based IRs in Thailand. In an initial survey, it was

discovered that the number of university-based IRs in Thailand vary, as elsewhere, depending on the reference sources (see Table 4-4).

Table 4-4 List of university-based institutional repositories in Thailand

No.	University - based Institutional Repositories	DSpace ⁶	ROAR ⁷	OpenDOAR ⁸	Tanmala (2009)	Yoowang (2012)	Klungthanaboon, Leelanupab, & Moss (2012)
1.	Asian Institute of Technology (<i>Knowledge, Imaginary, Discovery, Sharing - KIDS-D</i>)	✓	✓	✓			
2.	Burapha University						✓
3.	Chiang Mai University						✓
4.	Chulalongkorn University (<i>Chulalongkorn University Intellectual Repository</i>)	✓			✓	✓	✓
5.	Kasetsart University	✓					✓
6.	Khon Kaen University (<i>Khon Kaen University Institutional Repository - KKUIR</i>)	✓	✓	✓		✓	✓
7.	King Mongkut's University of Technology Thonburi						✓
8.	Mahidol University (<i>Mahidol University Institutional Repository - Mahidol IR</i>)					✓	✓
9.	National Institute of Development Administration (<i>NIDA Wisdom Repository & ASEAN Library</i>)	✓					
10.	Prince of Songkla University (<i>PSU Knowledge Bank</i>)	✓	✓	✓		✓	✓
11.	Puparn Royal Development Study Center	✓					
12.	Rajamangala University of Technology Phra Nakhon (<i>Rajamangala University of Technology Phra Nakhon Intellectual Repository - RMUTP IR</i>)	✓	✓	✓		✓	✓
13.	Rajamangala University of Technology Suvarnabhumi (<i>Research+rmuts</i>)		✓	✓			
14.	Rajamangala University of Technology Thanyaburi (<i>Intellectual Repository @ RMUTT</i>)	✓				✓	
15.	Shinawatra University (<i>SIU Knowledge Bank</i>)	✓			✓	✓	✓
16.	Srinaharinwiroth University	✓					
17.	Sripatum University (<i>Sripatum University Knowledge Bank</i>)	✓			✓	✓	✓
18.	Suan Sunandha Rajabhat University (<i>DSpace SSRU</i>)	✓	✓	✓			
19.	Suranaree University of Technology (<i>Suranaree University of Technology Intellectual Repository - SUTIR</i>)	✓	✓	✓	✓	✓	✓
20.	Thaksin University (<i>Institute Repository of Thaksin University - TSU Knowledge Bank, TSUKB</i>)					✓	✓
21.	Thammasat University (<i>Thammasat University Publications Knowledge Based Website</i>)	✓			✓	✓	✓

⁶ DSpace (<http://www.dspace.org>) Data accessed on 23rd September 2014

⁷ Registry of Open Access Repositories (ROAR) (<http://roar.eprints.org>) Data accessed on 23rd September 2014

⁸ The Directory of Open Access Repositories (OpenDOAR) (<http://www.opendoar.org>) Data accessed on 23rd September 2014.

However, the raw data cannot provide empirical information on the management of NRUs' IRs. Therefore, library and university websites were examined in 2011 to confirm the current number of NRUs' IRs (see Table 4-5). This provided enough information for the study. However, it still required a deep investigation to gather empirical details especially the perspectives, awareness, management, and problems which are not obvious by simply exploring websites.

Table 4-5 Institutional repositories implemented in nine national research universities in Thailand (surveyed in 2011)

National Research Universities	DSpace	Inhouse database	Note
Chulalongkorn University (CUIR - Chulalongkorn University Intellectual Repository)	✓		http://cuir.chula.ac.th
Kasetsart University (Scopus - KU derived from Scopus and categorized by subject area)		✓	Thai Agricultural Research Repository (Subject-based repository) (http://anchan.lib.ku.ac.th/agnet/?locale=en) ***Having a project to develop IR with DSpace.
KhonKaen University (KKUIR - KhonKaen University Intellectual Repository)	✓		http://kkuir.kku.ac.th/dspace/
Chiang Mai University		✓	CMU Scholarly Research Report http://library.cmu.ac.th/scholarly/home.php CMU e-Research http://ss.lib.cmu.ac.th/digital_collection/eresearch/
Thammasat University (Thammasat University Publications Knowledge-based Website)	✓		http://dspace.library.tu.ac.th/
Mahidol University (Mahidol University Institutional Repository - Mahidol IR)	✓		Ongoing project - - For Intranet only
Prince of Songkla University (PSU Knowledge Bank)	✓		http://kb.psu.ac.th/psukb/?locale=en
Suranaree University of Technology (SUTIR - Suranaree University of Technology Intellectual Repository)	✓		http://sutir.sut.ac.th:8080/sutir/
King Mongkut's University of Technology Thonburi		✓	http://hermes.kmutt.ac.th/researchinter/frmResearchResearcherSearch.aspx

Like other countries, research on IRs in Thailand has been conducted from many perspectives which can be categorized into three main research areas: user studies, management and implementation, and software development.

1. User studies and the current state of institutional repositories

After the first IR was implemented in 2006 at Chulalongkorn University, research on user studies was conducted by Tanmala (2009). She investigated how faculty members and postgraduate students at Chulalongkorn University use Chulalongkorn University Intellectual Repository (CUIR) in terms of objectives, information resources, subjects, frequency of use, search strategies, and problems. This quantitative study, which employed questionnaires as a data collection tool, revealed that the majority of faculty members and graduate students use CUIR for conducting their own research. With their previous experiences of online searching, most users learn how to use CUIR by themselves. This research indicated that university community members have low awareness of CUIR. The CUIR contents are in non-printable pdf files. This causes annoyance and restricts usage.

Next research focused on the management, collection development, and services by analysing the IR websites. Phetwong & Tuamsuk (2011) compared IR websites in Thai and Foreign Universities in terms of the units responsible for them, scholarly community structure, types and format of stored documents, services, statistical data of archiving activities, and recommendations for users. The study investigated five Thai university-based IRs registered with the OpenDOAR and the top five foreign universities ranked by Webometric. The study revealed that libraries are responsible for most of the Thai and foreign IRs. The IR contents mostly are research reports and academic articles followed by theses and books. This differed from the study by Yoowang (2012) which revealed that most Thai IRs hold largely theses and dissertations. Compared to Thai IR websites, foreign IR websites provided more proactive services and more information to users such as IR policy, user guides, and FAQ etc. This increases IR awareness among institutional members and their content contribution more than in Thai IRs. Phetwong & Tuamsuk (2011) explained this by suggesting that it could be because foreign IRs have more experience in IR management than Thai

IRs. However, this study did not investigate the factors influencing the participation of institutional members.

Regarding the management of university-based IRs in Thailand, Yoowang (2012) interviewed 11 library directors and IR managers from both private and public universities about their IRs in terms of objectives, policy, budget, responsible units, collection, technology used, services, public relations, evaluation, and problems. The study revealed the objectives of Thai IRs are to collect and provide access to institutional scholarly output and to promote its dissemination. Most IRs, which are the responsibility of divisions/departments in the libraries, have no written policies. The projects gain financial support through the libraries' annual budget. The IRs in Thailand collect thesis, technical articles, research articles, and research reports and most of these IRs were implemented using DSpace. All of them provide services to the university community and external users. The student orientation and the library websites are mostly the chosen vehicles for drawing attention to the repositories. Libraries used several acquisition approaches: to contact owners of work directly, to receive works from owners, and to collaborate with relevant divisions on campus. Although libraries allow institutional members to deposit themselves, librarians mostly work as depositors. All IR content is held in bibliographies, abstracts, and full text with various access rights. Full-text contents are accessible and downloadable only by university members via university networks and Virtual Private Networks (VPN); whereas the public can access only bibliographical information and abstracts. However, some IRs have no access restrictions. These are Khon Kaen University, Prince of Songkla University, Rajamangala University of Technology Thanyaburi, Thaksin University, Srinaharinwirot University. Their objectives are for open access, research visibility, and broader educational purposes. Yoowang found these problems in libraries: no clear written policies, low content contribution, and ineffective approaches to promotion. Yoowang (2012) recommended that senior university administrators should pay more attention to IRs; libraries should do more to educate staff about the potential of IRs with appropriate promotion strategies especially the use of Social Media; and more project evaluation to improve practices.

2. The implementation of institutional repositories

Another aspect of research on IRs in Thailand focuses on the development and implementation of IR at particular institutions. The research and development (R&D) study by Phetwong (2012) surveyed the requirement specification for a proposed model of implementing IRs in nine Rajamangala Universities of Technology (RMUTs) and developed an IR “Research+Plus”. Phetwong (2012) collected data from senior university administrators and researchers in nine RMUTs about research policies, the current state of research output management, the need for IRs, and research behaviours. This study revealed that senior university administrators perceived the values of IRs for individual researchers and the quality or fame of universities. According to Phetwong (2012), the responsible units for IRs at RMUTs are the Institute of Research and Development (IRD) and Office of Academic Resource and Information Technology (OARIT). IRD works as IR administer managing member information and verifying deposited research works, whereas OARIT is responsible for providing technological support, such as hardware and software to facilitate access and use of IRs. This differs from the findings of Phetwong & Tuamsuk (2011) and Yoowang (2012) where libraries were identified as the responsible units. Apart from the metadata crosswalk among IRs in nine RMUTs, the interoperability between RMUTs’ repositories and Thailand National Research Repository (TNRR) or other repositories is also under consideration in the repository implementation plan. Therefore, OAI-PMH protocols is suggested for the Research+Plus and other RMUTs’ repositories.

Another R&D study by Vinitketkumnuan (2013) investigated the implementation of IR at the faculty level. The researcher developed an IR for the Faculty of Humanities, Chiang Mai University. This repository aims to collocate research and scholarly documents generated by faculty members. This research studied user needs and built a system. Then the system was tested and assessed by Faculty of Humanities community members. It showed that faculty administrators, academics, and librarians at the Faculty of Humanities lacked knowledge and understanding of OA and the purpose of IRs. However, the stakeholders are aware of the advantages of implementing an IR at the Faculty level to disseminate its work. To maintain the IR, the faculty administrators agree that the research division should be responsible for collection

development and the IT division should take care of software and IT related issues. This is similar to the recommendation by Phetwong (2012) but it differs from Phetwong & Tuamsuk (2011) and Yoowang (2012). After studying user needs, an IR at the Faculty of Humanities was developed with Drupal, open source software. This system was based on the Faculty of Humanities' needs. However, no information is currently available on how this IR is supported or works in conjunction with the IR at the university level. For testing the system, some journal articles published in Manusayarn Journal, research reports and textbooks were digitized and deposited. However, this study does not provide any publishers' perspectives on depositing the faculty's scholarly publications and copyright management and clearance.

3. Technological - related Development

Some research conducted by Thai researchers focuses on technological aspects, especially additional features improvement for better user interfaces and web services. The study by Saeueng (2006) is seemingly the first research to invoke the technological development of an IR in Thailand. This study collaborated closely with the CUIR working committee and faculty members in the Department of Computer Engineering, Chulalongkorn University. The programming interface facilitating the interoperability between DSpace software (v.1.3.2), the e-Thesis System developed by the Graduate School and the library automation system, named INNOPAC, was developed. Then the retrieval capabilities of IRs were pioneered by Thongsuk (2009). She developed a one-stop searching web application to enhance single search service across digital repositories with DSpace software. It reflects how housing digital institutional scholarly publications should concern not only the volume of content, but also searching capabilities which suit Internet users. This enhances the visibility and usage of content in IRs. In addition, a Handle system was installed in the CUIR for providing the secured name service and the persistent URLs as document references on the Internet (Thongsuk, 2009).

A few years later, Khongthaen (2010) developed additional improved features for Chulalongkorn University Intellectual Repository (CUIR) by using Drupal's modules. This study solved the sophisticated user interface designs and facilitated web services at the frontend of the system. It is expected that

providing user-friendly interfaces will help both content depositors and users to create metadata, submit academic work, manage the workflow, and harvest documents by OAI-PMH.

The studies in this section were conducted by Thai researchers in Library and Information Science and relevant fields such as software development and computer engineering. Some was conducted in particular institutions and others across institutions. Data for each study came from individuals and various groups of stakeholders depending on the researchers' purposes and objectives. These show awareness of OA and development of IRs in the Thai scholarly community. However, some aspects are undeveloped especially the current state of IRs in national research-led universities, their relationship to OA and across a broad range of stakeholder groups. Nor have any previous studies suggested a model for IR development.

4.4 Copyright and intellectual property rights in Thailand

The development of legislations related to intellectual property in Thailand dates back to 1892. The Announcement of Vajirayaan Library Ror Sor 111 (B.E. 2435 / 1892) is regarded as Thailand's first Intellectual Property Law. To modernize the copyright legislation, Thailand's Copyright Act B.E. 2537 (1994) is the latest legislation on copyright and intellectual property rights with international standards under the agreement of Trade-Related Aspects of Intellectual Property Rights (TRIPS) and the Berne Convention. This Act came into force in March 1995 to cover digital copyright. Since Thailand is a member of the Berne Convention for copyright protection in literary and artistic works, no additional agreements to protect copyright of foreign works was necessary (U.S. Commercial Service in Thailand, 2011).

The Copyright Act B.E. 2537 (Kingdom of Thailand, 1994) states that

Section 6 The Copyright work by virtue of this Act means a work of authorship in the form of literary, dramatic, artistic, musical, audiovisual, cinematographic, sound recording, sound and video broadcasting work or any other work in the literary, scientific or artistic domain whatever may be the mode or form of its expression. Copyright protection shall not extend to ideas or procedures,

processes or systems or methods of use or operation or concept, principles, discoveries or scientific or mathematical theories.

Section 7 *The followings are not deemed copyright work by virtue of this Act : (1) news of the day and facts having the character of mere information which is not a work in literary, scientific or artistic domains, (2) constitution and legislations, (3) regulations, by-laws, notifications, orders, explanations and official correspondence of the Ministries, Departments or any other government or local units, (4) judicial decisions, orders, decisions and official reports, (5) translation and collection of those in (1) to (4) made by the Ministries, Departments or any other government or local units.*

The Act provides the following exclusive rights to the owner of copyright (Section 15):

- (1) Reproduction or adaption,*
- (2) Communication to public*
- (3) Letting of the original or the copies of a computer program, an audiovisual work, a cinematographic work and sound recordings,*
- (4) Giving benefits accruing from the copyright to other persons,*
- (5) Licensing the rights mentioned (1), (2), or (3) with or without conditions provided that the said conditions shall not unfairly restrict competition. Whether the conditions as mentioned in sub-section (5) of the paragraph one are unfair restrictions of competition or not shall be considered in accordance with the rules, methods, and conditions set forth in the Ministerial Regulation.*

As a member of the Berne Convention and the TRIPs Agreement, the exemptions from the copyright infringement are determined in the Section 32, the Copyright Act B.E. 2537 (1994) (Kingdom of Thailand, 1994):

- (1) research or study of the work which is not for profit;*
- (2) use for personal benefit or for the benefit of himself and other family members or close relatives;*
- (3) comment, criticism or introduction of the work with an acknowledgement of the ownership of copyright in such work;*
- (4) reporting of the news through mass-media with an acknowledgement of the ownership of copyright in such work;*
- (5) reproduction, adaptation, exhibition or display for the benefit of judicial proceedings or administrative proceedings by authorized officials or for reporting the result of such proceedings;*
- (6) reproduction, adaptation, exhibition or display by a teacher for the benefit of his teaching provided that the act is not for profit;*

- (7) reproduction, adaptation in part of a work or abridgement or making a summary by a teacher or an educational institution so as to distribute or sell to students in a class or in an educational institution provided that the act is not for profit;
- (8) use of the work as part of questions and answers in an examination.

4.4.1 Fair Use in Thailand's Copyright Act

The legal concepts of fair use and exemption from copyright infringement have been welcomed across the globe. This enhances the dissemination of knowledge and accelerates innovation and development. Like other international copyright laws, Thailand Copyright Act B.E. 2537 (1994) provides exceptions from copyright infringement called "Fair Use" to stimulate new innovation and enhance the dissemination of knowledge.

Fair use of copyrighted works covers the use of copyright for educational purposes, news reporting, or the work of librarians, etc. The provision on fair use of copyrighted works and exclusive privileges for libraries is also stated in Section 34 of the Copyright Act B.E. 2537 (1994) (Kingdom of Thailand, 1994).

Section 34 *"A reproduction of copyright work by virtue of this Act by a librarian in the following cases is not deemed an infringement of copyright; provided that the purpose of such reproduction is not for profit and Section 32 paragraph one is complied with:*

- (1) *Reproduction for use in the library or another library:*
- (2) *Reasonable reproduction in part of a work for another person for the benefit of research or study."*

As in other countries, the concept and scope of fair use and exemption from copyright infringement in Thailand's Copyright Act B.E. 2537 (1994) remains debatable (Indananda & Suebsiri, 2010). This leads to different understanding and interpretation of copyright law. However, these issues have their roots in the ambiguity of the Berne Convention for the Protection of Literary and Artistic Works, 1886 and the Agreement on Trade-Related Aspects of Intellectual Property Rights, 1994 (TRIPs Agreement).

The Berne Convention, Article 9(2) introduced the three-step test for fair use in copyright works which was further refined in TRIPs Agreement, Article 13. When

it is a matter of the reproduction of copyright works, these three factors should be considered:

1. Certain special cases;
2. Does not conflict with a normal exploitation of the work; and
3. Does not unreasonably prejudice the legitimate interests of the rights holder.

The authorized reproduction of copyrighted works can be summarized as follows (Serebenjapol, 2009):

1. Specific exceptions from infringement of copyright for teachers and students based on Sections 32, 33 and 34 of the Copyright Act B.E. 2537
2. Fair use guidelines provided by the Department of Intellectual Property, Thailand
3. Licenses or written permission from the copyright owner

In Thailand, the Department of Intellectual Property of Thailand distributed the *Manual on Fair Use of Copyright Work* as a guideline for the interpretation of fair use under Section 32, the Copyright Act B.E. 2537 (1994). This manual just provides basic criteria for the use of copyrighted works. It is the responsibility of users to consider them most carefully before exercising fair use: 1) objectives and characteristics of use of copyright work; 2) features of the copyright work; 3) the amount of work and major content being used when compared to the overall content of work; and 4) the impact on the market or value of the copyright work (Department of Intellectual Property, Ministry of Commerce, 2007). However, Indananda & Suebsiri (2010) criticize this manual as providing little guidance on the employment of Section 32 paragraph 1 as a defence against copyright infringement.

4.4.2 Copyright law and libraries in Thailand

Providing access to and preserving information resources in libraries may unintentionally infringe copyright law, especially by making copies, and adapting formats of deposited works. It is necessary for information resource centres to

understand this aspect of copyright law and other related legislation in order to provide services to their users effectively without infringing copyright.

At a national level, the National Library of Thailand, under the jurisdiction of the Fine Arts Department of the Ministry of Culture, is the legal deposit library for Thailand. Legal deposit of publications in Thailand has been required since the establishment of the National Library of Thailand in 1905. With the royal command of King Chulalongkorn, the government sector and other commercial publishers have to deposit copies of publications with the National Library in order to preserve Thai intellectual assets. The Library's operation aims to collect and preserve information resources published in the Kingdom for future generations. However, the Library's operation and services must be in accordance with national regulations and international standards.

According to the Annual Report CDNL-AO 2011 (Sapphansaen, 2011), legislation which directly and indirectly impacts on the operation of the National Library of Thailand are the National Library Act, the Press Act B.E. 2550 (2007), Computer-Related Crime Act B.E. 2550 (2007) and Copyright Law.

- The National Library Act and National Archive Act are being redrafted so as to support the National Library and National Archive in their main task of collecting, providing, and preserving Thai intellectual assets for future generations.

- The Press Act B.E. 2550 (2007) Even though the National Library of Thailand serves as a legal deposit library, there is no specific legal deposit act. With the Press Act B.E. 2484 (1941), the National Library of Thailand has received two free copies of books, newspapers, and periodicals published in Thailand from publishers without any compensation. One copy is to be kept in the Legal Deposit Section of the National Library and the other is for public use in the National Library. In 2001, a new Legal Deposit building was built at Salaya Sub-district, Nakhon Pathom Province in order to enlarge storage for the increasing number of forthcoming publications and to facilitate the classification of publications for easy search.

Due to technological and sociological changes, the new Press Act B.E. 2550 (2007) was simply amended from the existing Press Act B.E.2484 (1941) and simply replaces the previous one. The significant issues of this Act which relate to the library's operations are:

1) Coverage of the term “publication and types of publications” - - in the amended Press Act, the definition of “publication” has been expanded to cover notebooks, books, papers or other published materials that are recorded electronically. However, it does not include government publications, cards, blessing cards, emblems, forms, reports, brochures, leaflets, diaries, exercise books, colouring books, thesis, curriculum, lecture notes, and other documents disseminated in educational institutions. This leaves open questions of how libraries can collect national intellectual assets in other forms excluded from the scope of “publication” in the Act.

2) Numbers of copies and penalty - - the publishers must deposit two copies of publications, not newspaper, with the National Library within 30 days after the date of dissemination. If not, the publishers will be fined no more than 10,000 Baht (200 GBP).

Additionally, Sapphansaen (2011), the Director of National Library of Thailand, explained the impact of the Press Act B.E. 2550 (2007) on the library's responsibilities. The National Library plays a new role as Registration Office for the publication of newspapers, journals, and magazines in Thailand. The publishers in Bangkok and surrounding area register their publications at the National Library whereas those in other provinces register at 1-15 Regional Office of Fine Arts. Secondly, this new Press Act B.E. 2550 (2007) enlarges the significance of ISBN and ISSN for publications in Thailand. This greatly increases the rate of deposited publications and also standardizes Thailand's publication business internationally.

However, this Act does not mention that publishers must deliver their journals, magazines, and newspapers to the National Library. This issue is of significant concern and will be recommended for inclusion in the next amendment to the regulations. The Director also emphasizes that the National Library will only be

fully regarded as the National Legal Deposit library if the proposed amended regulations are approved and issued (Sapphansaen, 2011).

- Computer-Related Crime Act B.E. 2550 (2007) Advances in information and communication technology bring a number of benefits and drawbacks to society. To deal with the technological criminals, the accusation and penalty are specified. This Act also defines the illegal use of technology, such as hacking information, illegal editing, false information dissemination, etc. The libraries with the assistance of IT services have to keep details of every Internet transaction on campus and remote access.

- Copyright Act B.E. 2537 (1994) is administered by Copyright Office, Department of Intellectual Property, Ministry of Commerce. This Act defines the terms of many copyrighted works such as literary works, computer software, dramatic work, artistic work, musical work, audio-visual work, cinematographic work, sound recording work, and broadcasting work. This Act specifies the penalties for the illegal use of copyrighted intellectual assets. Moreover, this Act states that the author owns the copyrights of their works for their entire life and for 50 years after their death.

In addition to printed resources, the National Library confronts problems with the copyright management of electronic resources. According to Section 8 paragraph three, it can be assumed that the printed materials in electronic format, such as electronic books, are required for legal deposit. In practice, currently the National Library does not legally accept the deposit of electronic books. Additionally the Library is still investigating the possibility of digital rights technologies in order to accept, preserve, and service electronic resources.

Academic libraries should also acquire and provide access to information resources in accordance with copyright law and other licences or agreements. According to Section 14, Thailand's Copyright Act B.E. 2537 (1994), research or academic reports are owned by employers, even if faculty members, researchers or other university staff have been responsible for the research projects on which they are based.

Section 14 *The Ministries, Departments or other government or local units are the owners of copyright in the works created in the course of employment, order or control unless it is otherwise agreed in writing.*

However, agreements between university members and research funders may be considered as a better guide to rights management. Moreover the university regulations should cover publications in whatever format.

4.5 Conclusion

Reviewed research contributes towards a better understanding of IRs in Thailand. However, there is as yet no consensus on this research area. Especially the management of IRs at national research-intensive universities and the perspectives of other stakeholder groups are still relatively undeveloped. It raises questions: how different stakeholder groups perceive university-based IRs in NRUs and how to optimize the implemented NRUs' IRs. Consequently this demonstrates the need for in-depth investigation of university-based IRs in NRUs in Thailand from the viewpoint of various stakeholder groups. The diversity of research methodologies employed may help in the exploration of this uninvestigated phenomenon. Further study should shed some light on OA and IRs in Thailand and it is expected that the results will be applicable to other institutions within a similar context. The research methodology and method will be explained in the following chapter.

Chapter 5 Research Methodology and Method

This chapter will explain the ontological and epistemological positions underlying this study by dividing the content into seven sections. Firstly, research objectives and research questions are presented. Then Grounded Theory as a research methodology is discussed with the rationale for the selection of this approach. The third section explains research population and samplings with rationales. The fourth section introduces the research instrument and data collection methods. Then the process of data analysis is described in the fifth section. After that, ethical considerations are discussed. Research limitations are discussed in the last part of this chapter.

5.1 Research objectives and research questions

The ultimate purpose of this research is to optimize the participation of stakeholders in and use of established IRs in NRUs in Thailand. This can be divided into the following specific objectives:

- 1) To explore scholarly publishing practices in Thai research universities,
- 2) To examine the perceptions of stakeholders in institutional repositories in national research universities in Thailand,
- 3) To investigate the extent to which stakeholders participate in and use institutional repositories,
- 4) To identify the barriers preventing the participation in and the use of institutional repositories and the challenges of sustainable institutional repository projects.

To achieve these objectives, the following research questions were formulated:

- 1) How do different groups of stakeholders engage with scholarly research publishing?
- 2) How do different groups of stakeholders in national research universities in Thailand conceptualize institutional repositories?
- 3) To what extent do the stakeholders in national research universities participate in and use their institutional repositories?

4) What affects the decision making of self-archiving and participation in university-based institutional repositories?

The research outcome is the holistic understanding of, and the perceptions of key stakeholders towards IRs in NRUs in Thailand and their roles in research output management. The findings will propose a framework for the management of digital research output within university-based IRs. This may serve as a guideline for other higher educational institutions, research centres, and institutions wishing to establish IRs. Finally, this study will offer some suggestions for academic libraries to increase the awareness of and contribution of university members to their IRs.

5.2 Grounded Theory

The Open Access movement, particularly in university-based IRs in Thailand, was investigated through a qualitative approach. According to Creswell (2007, p. 44), the nature of qualitative research is that:

...qualitative researchers use an emerging qualitative approach to inquiry, the collection of data in a natural setting sensitive to the people and places under study, and data analysis that is both inductive and deductive and establishes patterns or themes. The final written report or presentation includes the voices of participants, the reflexivity of the researcher, a complex description and interpretation of the problem, and its contribution to the literature or a call for change.

With these characteristics of qualitative research in mind, researchers have freedom to gather data closely from informants in a natural setting through multiple qualitative approaches in order to reveal discrete or hidden points of activity or perspectives. Additionally, the qualitative research approach enables the researchers to investigate and discover the phenomenon of the research area from inner experiences (Corbin & Strauss, 2008). Grounded theory is employed as a methodology for this qualitative research with the aim of creating inductive theory based on a constant set of data collection and data analysis.

5.2.1 Development of Grounded Theory

Grounded Theory pioneered by Barney G. Glaser and Anselm L. Strauss (1967) is defined as “*the discovery of theory from data*” (Glaser & Strauss 1967, p. xx). Glaser and Strauss developed this methodology because they believe a quantitative research approach cannot generate an understanding of human behaviour and the interaction with social changes through an induction process rather than testing hypotheses and deductions (Elliott & Lazenbatt, 2005). Strauss and Corbin (1994, p. 273) defined Grounded Theory as:

... a general methodology for developing theory that is grounded in data systematically gathered and analysed. Theory evolves during actual research, and it does this through continuous interplay between analysis and data collection.

This approach aims to construct theories based on simultaneous data collection and data analysis in order to understand the research phenomenon. Glaser (1978, p.93) stated that “*it generates theory that accounts for a pattern of behaviour which is relevant and problematic for those involved.*” Therefore, grounded theory researchers focus on discovering theory from the data rather than testing hypotheses or verifying existing theories (Dunne, 2011; Glaser & Strauss, 1967). This raises some issues about engagement with any literature review which is discussed in the section 5.2.3.

The concept of Grounded Theory has been gradually modified and refined by three major schools: 1) Glaser and Strauss, 2) Strauss and Corbin, and 3) Charmaz. The development of Grounded Theory from its original inception to the developed concepts it is today is summarized by Morse (2009, p. 17) (see Figure 5-1).




Figure has been removed due to Copyright restrictions.

Figure 5-1 Genealogy of Grounded Theory: Major milestones

These three major schools of Grounded Theory have gradually refined the concept of Grounded Theory; however, they share the same goal which is to generate theory from constant comparison of data collection and data analysis. These systematic procedures aim to generate an inductive theory emerging from the data. However, Niekerk & Roode (2009) distinguished theories generated from Glaserian Grounded Theory which differ from theories employing Strauss's method. Glaserian Grounded Theory generates an "abstract or conceptual theory", whereas Straussian Grounded Theory creates explanatory theory or "descriptive grounded theory" focusing on explaining the area under investigation.

The differences in Grounded Theory among three major schools: 1) Glaserian, 2) Straussian, and 3) Charmaz can be explained in the following ways:

1. Glaserian Grounded Theory was originally proposed by Barney Glaser and Anselm Strauss and later modified by Barney Glaser. Glaserian method is not sufficiently prescriptive and a number of both novice and experienced researchers have experienced frustration and confusion in applying this approach. However, this method provides both rigorous rules to build a theory and freedom to conceptualize data (Niekerk & Roode, 2009). The aim of

Glaserian Grounded Theory is to generate concepts and relate these concepts in explaining the behaviours in research areas based on insiders' experiences (Niekerk & Roode, 2009). Therefore, researchers following Glaser's theory tend to start conducting research without any preconceptions or research questions. This provides freedom for researchers to conceptualize data. Consequently theoretical sensitivity is emphasized by this school.

2. Straussian Grounded Theory was influenced by the ideas of Anselm Strauss and later in collaboration with Juliet Corbin. This approach was disputed by Glaser. According to Glaser (1992a), Straussian Grounded Theory is not Grounded Theory because it is a "*preconceived, forced, conceptual description (p.4)*". Straussian Grounded Theory starts with research questions aiming to guide the research rather than having any preconception about the research phenomenon. Probably Glaser's criticism of preconception results from this starting point of Strauss's method. However, having research questions provides some advantages for researchers and students in terms of meeting traditional research requirements of faculties and funders. Contrary to Glaser's emphasis on theoretical sensitivity, Strauss's method focuses on the researchers' insight and making data meaningful (Niekerk & Roode, 2009).

3. In Charmaz Grounded Theory or Constructivist Grounded Theory, Glaser's and Strauss's methods are regarded as objectivist grounded theory, whereas Charmaz's method is constructivist grounded theory. Charmaz emphasized constructing theory based on collected views and the reflections of researcher's thinking. The researchers are responsible for making data meaningful. The generated theory is an interpretative picture of the area studied, not a precise one (Charmaz, 2001).

After studying these three main schools of grounded theory, Constructivist Grounded Theory was chosen as a research methodology for this study. The researcher recognizes the importance of raw data and the roles of the researcher as an interpreter who makes collected data meaningful.

5.2.2 Application of Grounded Theory in interdisciplinary investigation

Grounded Theory has been widely accepted as a methodology for various disciplines. Even though grounded theory originated in sociology and health science, it has been increasingly employed as a research methodology across other disciplines, such as business management, organizational behaviour, and nursing. This is because, significantly, it attempts to understand human behaviour and social change. Additionally, Martin & Turner (1986) viewed Grounded Theory as one of the most appropriate research methodologies for investigating organizational behaviour and cultures. Similar to the field of Business Administration and Marketing, Grounded Theory is also adopted by many studies to explore a wide range of management and cultural issues such as consumer behaviour, leadership in organization, or mass media (Goulding, 2005).

In the area of Information Systems, a number of studies have employed Grounded Theory as a methodology (Matavire & Brown, 2008). For example, Hoda, Noble & Marshall (2010) conducted grounded theory research on human aspects of software engineering. Like other Social Sciences, Library and Information Science (LIS) has employed this methodology to carry out research since the early 1980s (Mansourian, 2006). As a part of LIS research focuses on user behaviours, Grounded Theory can be adopted to explore them and attitudes towards several other issues in LIS. Chen et al. (2010) adopted Grounded Theory as a method to study the attitude of chairs of LIS departments toward LIS education in China. In addition, Grounded Theory was employed to understand the library research process of individuals in specific disciplines (Caregnato, 2000). These examples can show the important role of Grounded Theory in understanding the research phenomenon in LIS. This understanding enhances theory development and improvement in practice in LIS.

However, conducting Grounded Theory research is a challenge for researchers. The methodology is not preconceived enough especially at the stage of conceptualization. Especially novice researchers without any conceptualization training find this stage difficult and frustrating. It is important to understand the methodology and its distinctive features to enable researchers to embark on Grounded Theory studies.

Grounded Theory has distinctive features: 1) Simultaneous data collection and data analysis; 2) Analytic codes and categories are created from collected data; 3) Theories are developed to explain the activities; 4) Memos are written during collecting data and coding data. This is an important step in explicating and linking categories; 5) Sampling in this method is for theory construction, rather than representing the research population; and 6) Starting fieldwork without extensive literature review (Charmaz 2004, p. 497).

5.2.3 Controversial issues about Grounded Theory research

Researchers confront controversial issues in the employment of Grounded Theory, despite the fact that this methodology has been employed for decades. However, no conclusion is offered on these issues. It could be said that researchers should employ Grounded Theory flexibly depending on the situation with awareness of these controversies.

- **Avoiding literature review or not**

The objective of Grounded Theory is to constitute and facilitate the discovery of theory from data without any preconception about the research area (Glaser & Strauss 1967, p. 1). Additionally, Grounded Theory research focuses on theory development from grounded data rather than testing hypotheses or verifying a theoretical framework (Dunne, 2011). Glaser and Strauss (1967, p.3) asserted that - *“An effective strategy is at first, literally to ignore the literature of theory and fact on the area under study.”* Therefore, literature review should be left until after data collection is complete. However, whether or not a literature review should be conducted before fieldwork begins is still vigorously debated by researchers employing Grounded Theory.

Conducting a literature review prior to data collection offers a chance for researchers to identify gaps in research. Glaser and Strauss did not recommend conducting a literature review before commencing data collection. Later Strauss changed his position and advocated conducting a prior literature review. This leads to a split with Glaser and collaboration with Corbin (Dunne, 2011). In addition, Dunne (2011) disagreed with the idea of avoiding a literature review as

Glaser and Strauss (1967) originally suggested. Dunne (2011, pp.113-114) explained that

This stance directly contradicts most methodologies, which view a detailed literature review as an essential foundation upon which to build a study. The reasoning behind this call for abstinence from existing literature, which is explored in greater detail below, essentially related to the desire to allow categories to emerge naturally from the empirical data during analysis, uninitiated by extant theoretical frameworks and associated hypotheses.

To meet school requirements or funding requirements, it is quite difficult for doctoral students and researchers who employ Grounded Theory to avoid conducting a literature review or to approach their subject with an open mind. However, Simmons (2011) suggested that the researcher needs to “forget” the literature review instead of avoiding preconceptions. Similarly, Martin and Turner (1986, p. 142) concluded preconceptions cannot easily be discarded. Seemingly there is consensus that a literature review should be conducted. However, how and when the engagement with existing literature should take place is another vital issue to be considered (Dunne, 2011).

- **Reliability and validity**

Reliability and validity are mainly regarded as significant issues in conducting qualitative research. Grounded theory may, however, raise questions about the reliability and validity of collected data and the researcher’s bias and interpretation. Kolb (2012) identified four potential strategies to prove the trustworthiness of grounded theory studies:

1) Triangulation - it is generally believed that fidelity of interpretation can be proved by using multiple data collection methods. However, using the same method to gather data can also enable triangulation to confirm validity and trustworthiness.

2) Validity - reflexivity, documentation, and theoretical sampling, negative case and transferability are suggested as potential measures to increase the validity of a study. Additionally, the constant comparison and theoretical sampling, which are the distinctive features of Grounded Theory, can work as an approach to increase validity.

3) Reflexivity - the approach that the researcher reflect, examine, and explore his interpretation of collected data through all stages of a research project. This enables the presentation of research findings without researcher bias.

4) Negative cases - collecting data from negative cases offers valuable insights and prevents personal bias in interpretation.

These four strategies can ensure that Grounded Theory methodology provides the reliability and validity for readers just like any research methodologies.

- **Common pitfalls and quality concerns**

As in conducting any qualitative research, researchers may face some difficulties and confusion in dealing with research practices and keeping research effectively on the right track. The practice of grounded theory research has distinctive features: 1) constant comparative data collection and analysis, and 2) theoretical sampling (Glaser & Strauss, 1967). However, these methodological problems are often regarded as common pitfalls. Becker (1993) identified some common pitfalls in the employment of Grounded Theory:

1) Research outcomes - in Grounded Theory research, the discovery of relationships among variables and core categories should be presented analytically rather than simply as a descriptive narrative. In other words, grounded theory research aims to generate explanation or theory to describe the research phenomenon and explain how it happens to illustrate the discovery mode.

2) Sampling pitfalls - researchers found difficulty in differentiating between selective sampling and theoretical sampling. Becker (1993) explains that selective sampling is a technique to determine who and where to sample a research population prior to data collection, whereas theoretical sampling is an on-going process and cannot be predetermined.

3) Using the wrong theoretical lens - there is a tendency that data collection and interpretation is influenced by theoretical models guiding the researcher.

4) Data analysis - Grounded Theory recommends researchers to adopt a comparative approach. This is a major problem in conducting Grounded Theory research. Researchers tend to analyse data at the conclusion of data collection, against concurrent data collection, coding, and analysis.

5) Computer programme - Becker (1993) claimed that using qualitative data analysis software results in flat and descriptive results. To address this criticism skills and ability in making conceptual connections are needed.

Quality concern is another controversial issue. Elliott & Lazenbatt (2005, p.49) summarized the criteria of assessing the 'quality' of Grounded Theory studies (see Figure 5-2).

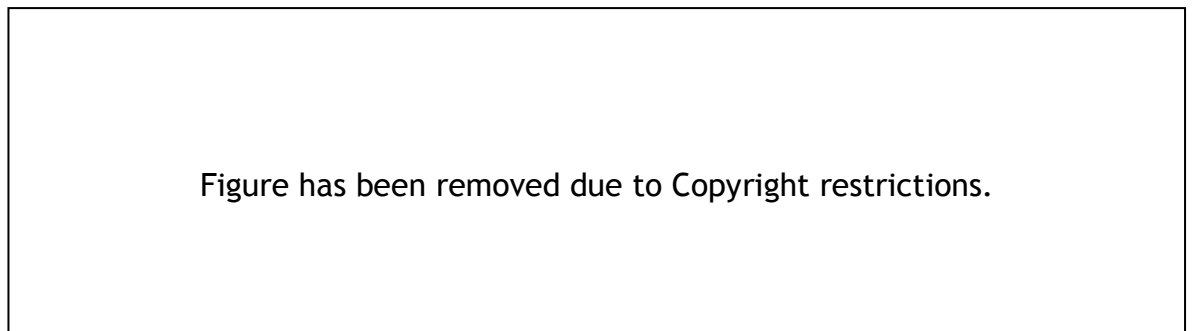


Figure 5-2 Criteria for assessing quality of research

Elliott & Lazenbatt (2005) explained that the quality of Grounded Theory study depends on whether the researcher follows strictly the essential features of grounded theory or not: theoretical sampling, data collection and data analysis as a continuous cycle, including memoing and respondent validation to guard against researcher's bias and subjectivity.

In considering the key strategies of Grounded Theory, some studies failed when claiming to employ Grounded Theory. However, there is no one standard to evaluate whether a study is grounded theory or not. On the contrary, due to the uncontrolled environmental circumstance affecting research practices, it is

questionable if researchers should employ either the flexibility or the purity of grounded theory.

5.2.4 Rationale for Grounded Theory

Despite existing arguments and comments, this methodology offers the flexibility in this study to gather the perceptions of a multi-group of stakeholders in the Thai scholarly community with an interest in IRs in the NRUs. Grounded Theory is appropriate for exploring the complex multiple levels of the research area and related issues in order to obtain rigorous insights and establish a theory to respond to the research question (Jones & Alony, 2011). Further, Charmaz (2004, p. 497-498) argues that “*Grounded theory methods are suitable for studying individual processes, inter-personal relations, and the reciprocal effects between individuals and larger social processes.*” Moreover, grounded theory provides the researcher with the opportunity to document inner experiences and to understand the core process of social change. This allows for the description of research phenomena and social changes and also works as a synthesising tool to generate concepts and theory which is generalizable and transferrable to other similar phenomena (Morse, 2009).

Grounded theory and case study methods may share some common ground but they are different in detail. Pickard (2007, p. 86) explained that the case study method aims for “*...holistic account of the case and in-depth knowledge of the specific through rich descriptions situated in context. This may lead to an understanding of a particular phenomenon.*” On the other hand grounded theory aims to generate theory based on gathered data and analysis. Moreover, specifically, grounded theory initiates research with no hypothesis (Glaser and Strauss, 1967) whereas preconceived propositions are developed before data collection and analysis if using a case study method (Yin, 1994). To develop an understanding of university-based IRs in Thailand from the stakeholders’ perspectives, grounded theory can offer flexibility and creativity to the researcher in investigating this research phenomenon without any preconceptions.

However, it is not straightforward to differentiate the case study method from grounded theory. Allan (2003, p. 8) comments that the use of grounded theory and the use of the case study method are not different:

A criticism of the case study as a research method is that there can be no generalization of findings but Yin (1994) defended the position that case studies do lead to building theories applicable in the world at large. Grounded theory specifically attempts to investigate the real world, usually through interview data. It discovers the concepts grounded in the data and uses those concepts to build theory. The use of both these methods, therefore, minimizes this criticism.

In Thailand, several attempts to generate theories to explain society have been made by a number of Thai Social Science researchers, rather than applying and testing western theories in the particular social context of the country (Havanon, 1996). This inspired this researcher to investigate Open Access and university-based IRs in Thailand adopting a Grounded Theory research methodology. This will enhance the building of a body of theory which can be applied to Thai society and lay the foundations for further research to test this theory against other contextual research frameworks.

The adapted employment of Grounded Theory for this research has been applied only after careful consideration. According to Morse (2009), all qualitative research methods cannot be made to fit every situation. She asserted that *“Every application, every time grounded theory is used, it requires adaptation in particular ways as demanded by the research question, situation, and participants for whom the research is being conducted (Morse 2009, p. 14).”* It is therefore acceptable to adapt or employ any research methodology differently from the outset (Morse, 2006; Strauss & Corbin, 1994).

With some practical constraints, this grounded theory research was conducted in the adaptable approach by recognizing quality concerns and common pitfalls. Firstly, mixed sampling strategies were used to gather data. For grounded theory studies, theoretical sampling is suggested for gathering research participants. In fact, practically theoretical sampling cannot be the only sampling strategy. Consequently in this research, selective sampling, convenience sampling, and theoretical sampling were used at different stages with different purposes. Selective sampling was used to determine roughly the research sites with

university-based IR projects and the potential key informants such as university executives and library directors who could potentially participate. Then convenience sampling was adopted to organize the interviews with faculty members and academic publishers. Theoretical sampling, however, shaped how the interview questions were formulated and was used for contacting some interviewees. Similar to grounded theory research discussed by Furniss, Blandford & Curzon (2011), a convenience sampling strategy was adopted rather than theoretical sampling. They claimed that convenience sampling was adopted so as to organize the interviews for their grounded theory doctoral research because participant availability and accessibility had to be arranged prior to the interviews. In practice, the interview appointment should be done before the meeting.

Secondly constant data collection and analysis is not quite concurrent. The participation of stakeholders in this research is voluntary. Therefore, interview schedule mostly depended on the availability of the interviewees. Sometimes there were three interviews in one day. There was no time to transcribe the interviews and analyse data properly prior to the next interview. Therefore note writing and initial conceptual analysis were used to identify emerging concepts for constant comparison and for the next interviews.

Finally, interview transcripts were not checked by research participants for their validity. The validity of grounded theory can be better assessed by the theoretical sampling and constant comparative analysis. Elliott & Lazenbatt (2005, p.51) indicated that

An important feature of grounded theory is that it does not require that the researcher return to the original participants to check if participants agree with the researcher's interpretation of data. The progressive nature of theoretical sampling and constant comparative analysis suggests that the researcher moves on to involve other groups or people who have different experiences to see if the findings hold as new data is collected.

However, some interview transcripts were sent to some interviewees at their requests. No comment from the interviewees was received. Consequently, this research adapted grounded theory methodology in a flexible way with careful consideration of quality issues in order to present the explanation and theory of

the research phenomenon as well as potential guidelines to optimize established IRs in Thai NRUs.

5.3 Research population and sampling

As discussed subjects in grounded theory research can probably be recruited by using two approaches: theoretical sampling and selective sampling. According to Glaser (1978), theoretical sampling is the process by which sampling is made after preliminary data collection and analysis. The results describe the phenomenon and then serve as guides for more specific sampling for further data collection. Selective sampling or purposive sampling is another approach to determine the subjects for the study selectively. This approach has been used in several grounded theory research activities because it enables the researcher to select the subjects purposefully who best match the studied phenomenon (Schartzman & Strauss, 1973 cited in Backman & Kyngas 1999, p. 149).

From a preliminary survey in 2012 by collecting data from the university libraries' websites in Thailand and the Directory of Open Access Repositories (OpenDOAR www.opendoar.org), about 16 universities were identified as having implemented IRs as shown in Table 5-1.

Table 5-1 List of Thai universities implementing institutional repositories

List of Thai universities implementing institutional repositories	
1. Asian Institute of Technology	9. Rajamangala University of Technology Phra Nakhon
2. Burapha University	10. Rajamangala University of Technology Suvarnabhumi
3. Chiang Mai University	11. Shinawatra University
4. Chulalongkorn University	12. Sripatum University
5. Kasetsart University	13. Suan Sunandha Rajaphat University
6. Khon Khan University	14. Suranaree University of Technology
7. Mahidol University	15. Thaksin University
8. Prince of Songkla University	16. Thammasat University

A set of criteria was designed in order to select case sites representing the diverse phenomena so as to provide an overview of university-based IRs in Thailand and to generalize the output effectively and efficiently.

- 1) Be a research university
- 2) Be a top-rank university
- 3) Implement an IR

According to Thailand Research Expo 2010 on “Research vision in Thailand for the next twenty years (2010 - 2029)”, a “Research University” can be defined with four indicators - 1) not being lower than 500+ in Time Higher Education World University Ranking and QS World University Ranking, 2) having more than 500 research publications in the Scopus database within the previous 5 years, 3) having excellent international research outputs in two fields of QS, and 4) having more than 50 percent of the faculty who hold PhD degrees. There are nine universities in Thailand recognized as “Research University” using these criteria as shown in Table 5-2

Table 5-2 List of National Research Universities in 2011

National Research Universities in the year 2011
1. Chiang Mai University
2. Chulalongkorn University
3. Kasetsart University
4. Khon Khan University
5. King Mongkut’s University of Technology Thonburi
6. Mahidol University
7. Prince of Songkla University
8. Suranaree University of Technology
9. Thammasat University

After considering the convenience of data collection, the strength of teaching and research, and IR projects, three leading national research universities, namely Chulalongkorn University, Thammasat University, and Mahidol University, were selected to be the most suitable research sites.

1) *Chulalongkorn University (CU)* - The first established university in Thailand and has strength in interdisciplinary teaching and research. Chulalongkorn University Intellectual Repository (CUIR) is also the first university-based IR project in Thailand. Thai version of DSpace software was first developed here and distributed freely for other higher education institutions.

2) *Thammasat University (TU)* - The University is recognized for its strength in Social Sciences and Humanities. It was considered that this might provide different perspectives on the management of institutional research publications especially in these fields. Thammasat University Publication Knowledge-based Website (TU Knowledge-based website) is an IR project holding a variety of institutional intellectual assets.

3) *Mahidol University (MU)* - The University is recognized for its strength in Science and Technology. The academic strength of the University reflects the academic and research performance of the faculty. This influences the perspective of the faculty on IRs and the management of the university's IR project "Mahidol Repository". Additionally, the organizational structure of the university press is very interesting in the way it collaborates with the library.

These three selected leading national research universities are located in Bangkok, the capital city of Thailand. This made it easy for the researcher to visit and collect data from the participants. Moreover, all these universities have established their own university presses. This enabled the researcher to collect perceptions and perspectives of academic publishers towards IRs and to investigate whether the collaboration between university presses and libraries has any effect on the deposit of content or not. The selection of cases was considered carefully with the aim of obtaining a range of perspectives. Consequently, purposive sampling was used in this research for determining research sites for investigation.

Convenience sampling and theoretical sampling were used to collect data from stakeholders. Convenience sampling is a sampling technique where subjects are selected because of their convenient accessibility. Considering Thai good manners, the researcher had to contact subjects in advance to secure their voluntary participation by sending an official letter of permission, making a call,

or emailing. Therefore, it was quite hard to depend solely on theoretical sampling. However, the researcher did not ignore the importance of theoretical sampling and used theoretical sampling whenever it was appropriate. For example, based on the interview with an IR manager, theoretical sampling was used to get an interview with the faculty member who spontaneously deposited his image collections in the IR.

This study collected data from various groups of stakeholders from administrative policy level to the operational level in three leading national research universities in Thailand which reflect a range of variables. Besides, some stakeholders from outside campuses, such as the national research council, the National Library of Thailand, and an expert in Higher Education, were also key informants. Figure 5-3 shows groups of the stakeholders in this research.

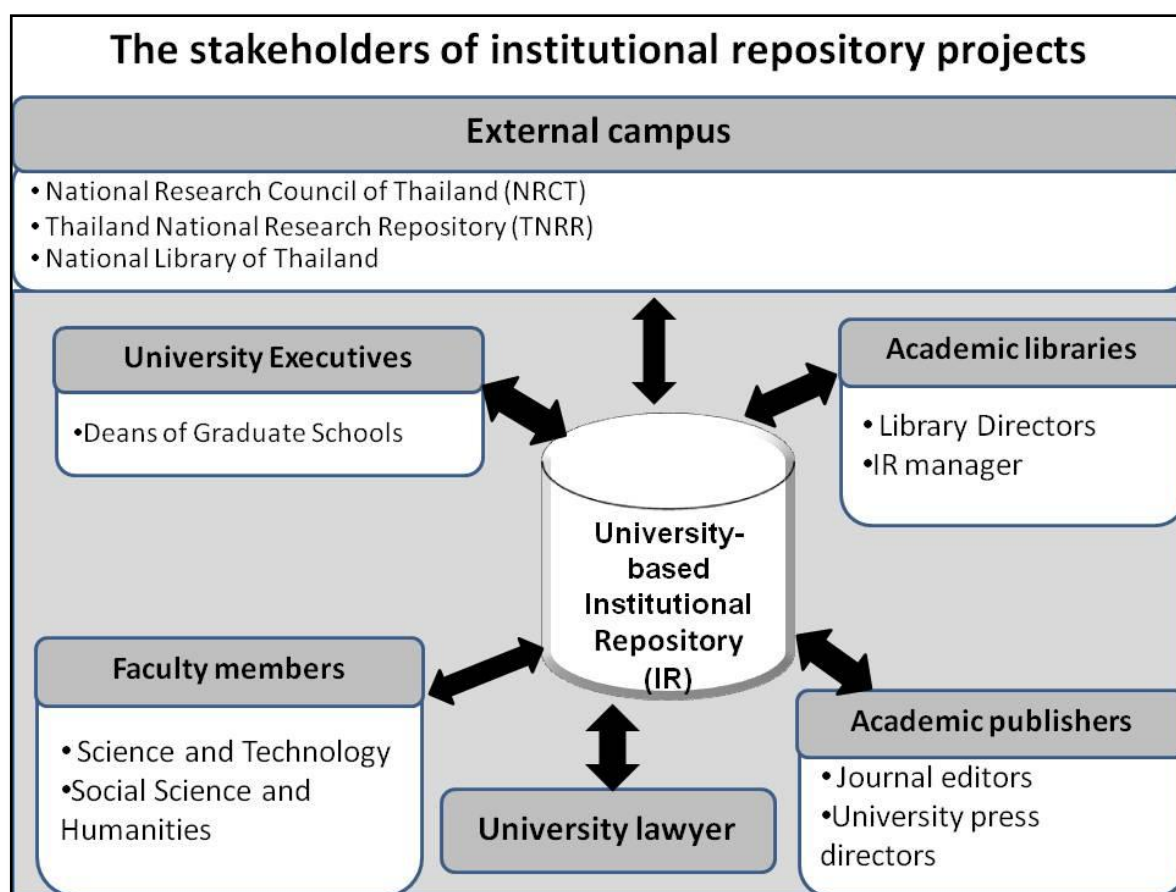


Figure 5-3 Groups of stakeholders of institutional repositories

To gain the participation in this research by local journal publishers, the researcher recruited and contacted local academic journal editors. The list of local journals qualified by Office for National Education Standards and Quality

Assessment (ONESQA) (<http://goo.gl/1eu8sO>)⁹ and Thai-Journal Citation Index (TCI) Centre (http://www.kmutt.ac.th/jif/public_html/index.html) were used. 56 of 68 qualified local journals are published by these three national research universities. Only nine qualified local journal editors voluntarily participated in this study.

In Grounded Theory research, the research samples are for theory construction, instead of being representative of populations as a whole. An exact number of key informants cannot be set but theory saturation will guide the researcher to stop drawing the samples when no new sample can provide new data for theory development (Glaser & Strauss, 1967; Johnson, 2001). After reaching the stage of theory saturation, it emerged that there were approximately 58 interviewees. The number and category of interviewees is shown in Table 5-3.

Table 5-3 The number and categories of interviewees

Categories of interviewees	Number (N=58)
Deans of Graduate Schools	2
Academic authors (three universities)	(33)
- Science and Technology	12
- Humanities and Social Science	21
Library Directors	3
IR manager	1
Academic publishers	
- University Presses	3
- Thai academic journal editors	9
Thailand National Research Repository Project	
- Secretary of National Research Council of Thailand	
- Committee member with background in Library Science	3
- Committee member with background in Information Technology	
University lawyer	1
National Library of Thailand	1
Others (an expert in higher education, director, etc)	2

⁹ List of approved national/international journals in the field of Science and Technology and Humanities and Social Science was compiled and announced by Office for National Education Standards and Quality Assessment (ONESQA) as a guide for selecting qualified national academic journals to publish research findings

Interviewees do not constitute a representative sample of academics, disciplines, or decision making; rather their different views on IRs help to illustrate the range and variety of IR participation and development.

5.4 Data collection instrument

This qualitative research employs an in-depth semi-structured interview for gathering information from stakeholders. In-depth interview is a method to seek “deep” information from an informant. Deep information enables the researchers 1) to learn the meanings of actions; 2) to reveal hidden points from outsider’s common understanding; 3) to better understand an incident, a process, and a setting; and 4) to obtain explicit understandings of various perspectives on the settings (Johnson, 2001, pp. 106-107). Accordingly, in-depth interviewing seems to be the best method to unravel complicated phenomenon from diverse groups of people. In addition, Charmaz (2001) affirms that in-depth interview fits grounded theory study because it throws up perspectives which stimulate the researchers to ask for further information and to improve their understanding. This is very helpful in data collection and analysis. However, grounded theory interviewing differs from qualitative interviewing in terms of the intention and the scope of interviews. Charmaz (2001, p.676) explains they are different because “...the research process proceeds in that grounded theorists narrow the range of interview topics to gather specific data for their theoretical framework.”

The in-depth interview in this research was semi-structured. It offered the benefit of flexible and dynamic questioning to elicit different perspectives. In other words, the interviewer is flexible in topic or question order and the interviewees can develop and elaborate their ideas freely. Open-ended questions are used for open discussion with the key informants. However, the researcher avoids leading questions and bias in order to gather the actual information and perspectives on the particular phenomenon. Questions are flexible and changeable based on the previous interview in order to validate collected data and to assemble data from new and different dimensions.

For each group of stakeholders, semi-structured interview questions and interview guides were designed with the specific purposes of gathering different

information and perspectives (see Appendix E - Appendix M). However, interview questions in each interview may overlap. The interview topics for each group of stakeholders were roughly designed; however, the researcher attempted to prevent interviewing from bias or preconception (see Table 5-4).

Table 5-4 Interview topics for each group of stakeholders

Groups of Stakeholders	Interview Topics
University executives	<ul style="list-style-type: none"> • The opportunities and challenges of being national research universities • The visions on research and scholarly communication in the digital environment and the future of universities in the next five years • Information sharing among the relevant university divisions • The attitudes towards open access, self-depositing, and IR • The perceptions of IR: roles, benefits and usage • The expectations on the IR as an essential tool for NRUs • Internal and external criteria for measuring the success
Academic authors (Faculty members across disciplines)	<ul style="list-style-type: none"> • Research patterns in the analogue and digital context • The characteristics of research publications and the research sharing across disciplines • The attitudes towards open access, self-depositing, and IR • The motivations of content contribution and non-contribution • Problems or challenges of participation in IR • Relationship of publications to performance measurement
IR staff (Library directors, IR managers, and academic librarians)	<ul style="list-style-type: none"> • The general information on IR project • The motivation of the IR implementation • The perceptions of IR: roles, benefits and usage • The expectations on the IR in the context of NRUs • Intellectual Property Rights arrangements • Challenges of the maintenance and sustainability of the project: project marketing, content recruitment, staff, time, and budget • Challenges/threats posed to the library and librarians
Academic publishers (University presses and Thai academic journals)	<ul style="list-style-type: none"> • The general information on journal publishers and university presses • The effects of information technologies on academic publications and scholarly communication • The attitudes towards open access, self-depositing, and IR • Challenges of open access on publishing industry • Copyrights agreement, the work ownership, and university-based IRs
Lawyer (s)	<ul style="list-style-type: none"> • Information on managing intellectual assets in the university context • Relevant legislation on copyrights, authorship, and ownership • Some legal practices for depositing intellectual assets into IRs

Groups of Stakeholders	Interview Topics
National Library of Thailand	<ul style="list-style-type: none"> • The impact of Publication Registration Act B.E. 2550 (2007) • The impact of emerged electronic publications • The participation in managing theses and research publications • The perspectives on OA and the roles of National Library on OA movement in Thailand • Challenges in the digital information age

5.5 Data collection method

The appointment for interview was made before through both informal and formal approaches. The official letters of permission accompanied by interview questions were sent to the participants especially at administrative level via post and email. Personal contacts as an informal approach assisted the researcher in gaining the participation of more faculty members at three research sites in a short time. For example, the researcher's colleagues introduced their colleagues, their lecturers, and their previous students. However, personal contacts did not have any influence on data collection. These introductory contacts enable the researcher to obtain consent and arrange the timing and venue of the meeting so that the interview schedule could be made up week after week.

The interviewees received the informed consent form and a set of flexible interview questions for the interview day. They were requested to sign the informed consent form to demonstrate their understanding of the research project and agreement to participate in this study. Moreover, the interviews were audio-recorded with verbal permission. Next, the audio-recorded interviews were transcribed. The interview transcripts in Thai were stored in NVivo10 and on another backup external hard drive and a cloud service with a security code.

Gathering data from national academic journal publishers is slightly different from others. The letter of interview permission and a semi-structured questionnaire with closed-ended and opened questions were sent to academic journal publishers. When collecting the questionnaires, the researcher asked the publishers for a 30-minute follow-up interview. The note writing was used

instead of audio-recording the interviews. Then collected data was compiled as a dataset in NVivo10 and on external hard drive.

Transcription and data analysis were done after data collection. In Grounded Theory research, data collection and data analysis occur simultaneously until samples stop providing any new information. In practice, time-limited research projects employing Grounded Theory cannot follow all Grounded Theory principles, but have to adapt them to situations with careful considerations. Likewise, participant convenience, time limitation, and geographically dispersed university sites delayed transcription and proper data analysis. However, note taking during the interview enables the researcher to record emerging issues for subsequent interviews.

Memo writing is very critical approach in Grounded Theory research. This strategy assists the researchers in clarifying thinking, reminding them of emerging issues during the interviews, articulating perspectives on collected data and expediting theory development (Birks, Chapman, & Francis, 2008). In other words, through the research process, memo writing is a helpful technique to record ideas, perspectives, and reflection on research phenomena. The output of memo writing is called “an analytic memo” providing descriptions about the research phenomena and analytic meanings for further data synthesis and the preparation of the final report (Miles, Huberman, & Saldaña, 2014). Birks, Chapman, and Francis (2008, pp. 70-72) explained the four functions of memos as “MEMO”:

- **Mapping research activities** - the decision making throughout the research process is recorded by writing memos. The researchers can recall their decisions and rationales. This results in the research engagement
- **Extracting meaning from the data** - as the qualitative research aims to investigate deep insights about research phenomena from insiders, memoing facilitates comparative analysis and interpretation of collected data.
- **Maintaining momentum** - the interpretation of insider’s perspectives is a key activity of qualitative research. Memoing enables the researchers to review their perspectives later. Then they can isolate further research phenomena which will contribute to decision making.

- Opening communication - as research activities are recorded as memos, the researchers can use their memos as sources for communicating the ideas and findings to others.

Memo writing is a time-consuming process requiring considerable effort both to articulate and interpret. Ideally, richly detailed notes are a considerable help in qualitative research (Martin & Turner 1986, p.145). However, in this study the researcher noted critical insiders' experiences and perspectives as well as her own reflection on research phenomena. Descriptive research context was not recorded in order to save time and effort in data analysis. The data analysis methods are explained in the following section.

5.6 Data analysis methods

Data analysis is a systematic process of collected data management and synthesis. This results in understanding and discovery of research phenomenon. As a Grounded Theory study, the inductive approach is used to analyse interview transcripts. This is suitable for analysing data with no predetermined theory or no preconceptions. Although this approach is comprehensive and time-consuming, it enables the researcher to investigate, structure, and interpret collected data to explain research phenomena (Burnard et al., 2008, pp. 429-430).

Kolb (2012) divides the data analysis process into two main stages which are data reduction and coding. Data reduction means categorizing collected data whereas coding is a way of analysing data. Similarly, Miles & Huberman (1994, p.56) explains the term "coding" as:

Coding is analysis. To review a set of field notes, transcribed or synthesized, and to dissect them meaningfully, while keeping the relations between the parts intact, is the stuff of analysis.

In general, the coding process of qualitative data can be summarized as a Figure 5-4 by Johnny Saldaña (2013, p.13).

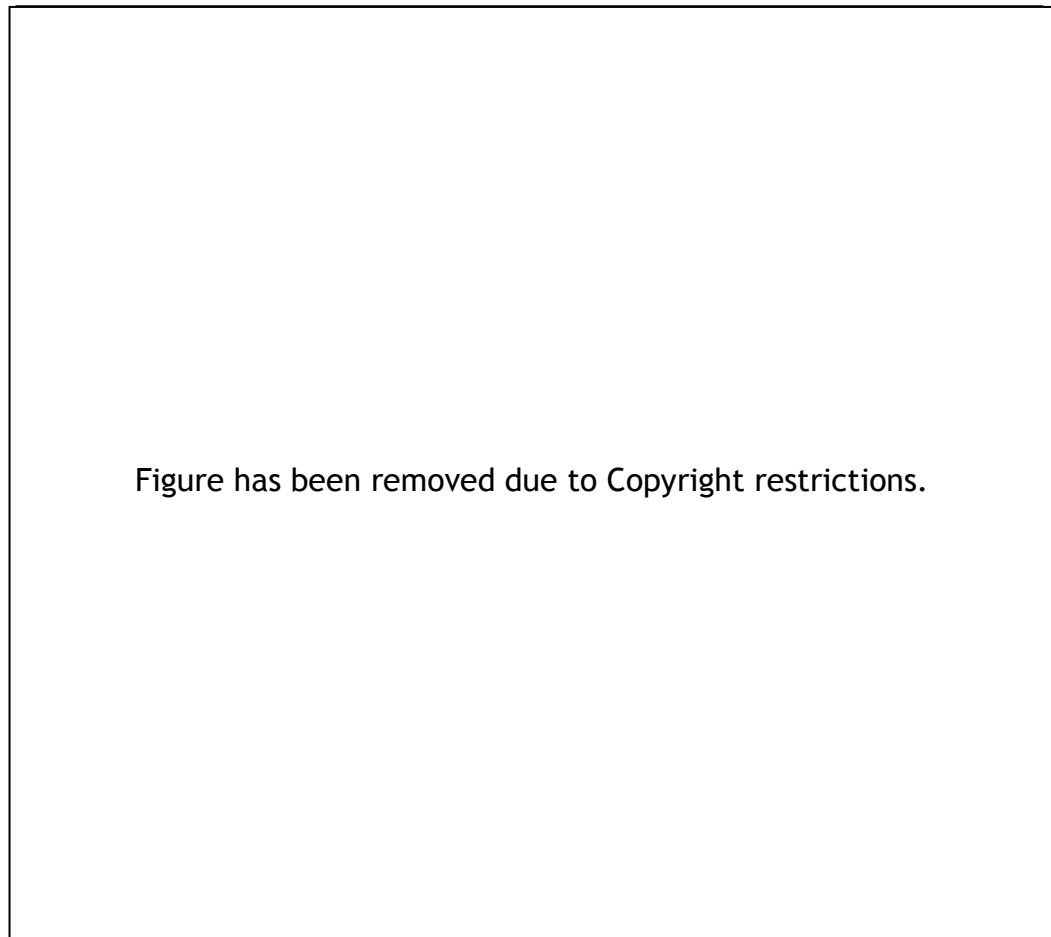


Figure 5-4 A streamlined codes-to-theory model for qualitative inquiry

The data analysis method in Grounded Theory study is unique. As the nature of Grounded Theory is that no preconception of the research phenomenon exists or informs the research. Therefore, no pre-assigned terms are set as codes in analyzing data. Importantly, the stages of data analysis are named differently. According to Strauss & Corbin (2008, 1998), micro-analysis coding, a term coined by Strauss and Corbin, consists of three stages: open coding, axial coding, and selective coding. This can be simply shown as a Figure 5-5.

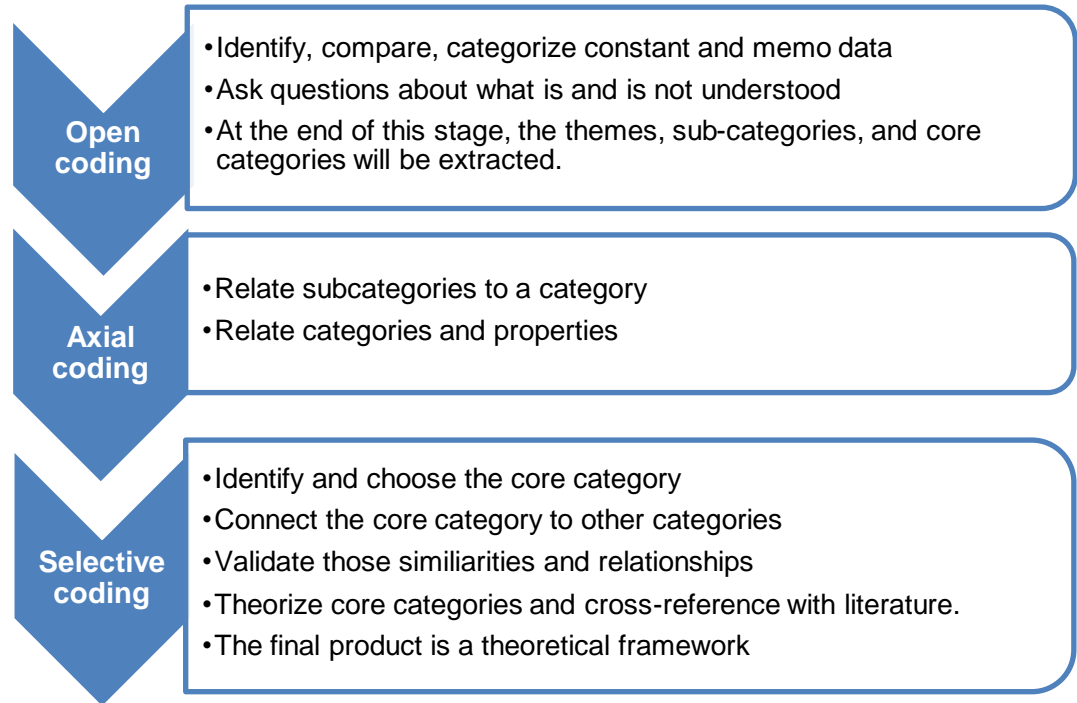


Figure 5-5 Three stages of Grounded Theory Method by Strauss and Corbin

Gibbs (2010) explains clearly Strauss and Corbin’s Grounded Theory Method as follows:

1. Open coding - a procedure for developing categories of information
2. Axial coding - a procedure for interconnecting the categories
3. Selective coding - a procedure for building a story that connects the categories producing a discursive set of theoretical propositions.

The Strauss and Corbin (2008, 1998)’s Grounded Theory Method (GTM) differs from Glaser’s GTM process and Charmaz’s GTM process (see Table 5-5). Glaser (1978) divides the process into three stages: 1) Open coding, 2) Selective coding, and 3) Theoretical coding; however, “theoretical sensitivity” is the most important. However, vague and complicated Glaser’s GTM process requires an advanced understanding of concepts and terminology (Kelle, 2010). According to Charmaz (2001, p.684), this stage of GTM can be divided into two steps:

(a) Initial or open coding forces the researcher to begin making analytic decisions about the data, and

(b) Selective or focused coding follows, in which the researcher uses the most frequently appearing initial codes to sort, synthesize, and conceptualize large amounts of data.

Charmaz (2001) and Glaser (1992) have different perspectives on the step “axial coding” from Strauss & Corbin (1998, 2008). From their views, this unnecessary step requires more time and effort without improving the analysis.

Table 5-5 Grounded Theory Method – data analysis stages

Glaser (1992)	Strauss & Corbin (2008, 1998)	Charmaz (2001)
1. Open coding 2. Selective coding 3. Theoretical coding	1. Open coding 2. Axial coding 3. Selective coding	1. Initial or open coding 2. Selective or focused coding

Consequently Charmaz’s Grounded Theory data analysis stages - open coding and focused coding - have been used in this research. To ensure consistency, the following terminologies “codes”, “categories”, and “core categories” have been used in this research.

Codes are assigned to represent each concept. The chunks of collected data varying size - words, sentences, or paragraphs - are labelled by words. Codes function as indexes to retrieve and organize these concepts (Miles & Huberman, 1994; Miles et al., 2014). When coding qualitative data, it should focus on meaning rather than the word itself. As coding is a precise science, the chunk of text can be conceptualized and coded with various labels depending on the researcher’s perspective.

The combination of Descriptive coding, In Vivo coding, and Processing coding approaches have been employed in this study as coding strategies. Each strategy contributes its own unique strength. Saldaña (2013) explained each term as follows:

Descriptive coding - Assigns labels to data to summarize in a word or short phrase - most often a noun - the basic topic of a passage of qualitative data...(p.262)

In Vivo Coding - Uses words or short phrases from the participant’s own language in the data record as codes...(p.264)

Process coding - Uses gerunds to connote observable and conceptual action in the data... Appropriate for virtually all qualitative studies,

but particularly for grounded theory research that extracts participant action/interaction and consequences... (p.266)

At the stage of open coding, it ended up with over 600 codes. This researcher revisited and relabelled the codes to ensure consistency in conceptualization and correct spelling. The Figure 5-6 shows some segments should be grouped into the same node with revised labels.



Figure 5-6 An example of inconsistent labels requiring revision and standardization

For coding the interview transcripts in this study, NVivo 10, software for qualitative data analysis, was used to assist in the analysis of qualitative data. Employing this software assisted the researcher in sorting and organizing an extensive set of interview transcripts, and facilitated coding and visualizing interview data (Burnard et al. 2008, p.430) (see Appendix P). However, analysis and interpretation depends on the researcher because the software works as a tool.

The next step is constant comparison. This means grouping codes which share some similar characteristics into categories. Corbin & Strauss (2008, p.159) defined the term “categories” as “...Higher-level concepts under which analysts group lower-level concepts according to shared properties...They represent relevant phenomenon and enable the analyst to reduce and combine data.” In this research, there were firstly about 86 categories as shown in Figure 5-7. However, there were too many categories to generate an explanatory theory on university-based IRs in Thailand. Therefore, the researcher revisited categories and compared constants.

86 categories

Name	Sources	References	Created On	Created By	Modified On	Modified By
Academic crime	2	2	20/2/2557 18:16	WK	3/2/2557 1:01	WK
Academic publishers	0	0	20/2/2557 19:11	WK	9/5/2557 15:40	WK
Accessibility management	2	6	20/2/2557 18:16	WK	20/2/2557 19:20	WK
Advanced technology	2	4	20/2/2557 18:16	WK	25/3/2557 17:06	WK
Author's rights	4	4	20/2/2557 18:16	WK	11/5/2557 3:17	WK
Background of IRs	5	12	20/2/2557 18:16	WK	8/5/2557 21:49	WK
Barriers	2	3	20/2/2557 18:16	WK	8/5/2557 21:49	WK
Barriers of conducting research at the university	6	6	20/2/2557 18:16	WK	8/5/2557 21:49	WK
Challenges	2	2	20/2/2557 18:16	WK	9/5/2557 6:24	WK
Collaboration	3	6	20/2/2557 18:16	WK	11/5/2557 4:58	WK
Collection development	8	11	20/2/2557 18:16	WK	9/5/2557 15:14	WK
Communication	0	0	6/5/2557 1:54	WK	9/5/2557 15:40	WK
Competition in the field	1	1	20/2/2557 18:16	WK	9/5/2557 15:14	WK
Concerns	2	2	20/2/2557 18:16	WK	9/5/2557 15:14	WK
Copyrights	1	1	20/2/2557 18:16	WK	11/5/2557 4:53	WK
Cost effectiveness	4	5	20/2/2557 18:16	WK	11/5/2557 6:19	WK
Criteria for selecting journals	25	40	20/2/2557 18:16	WK	9/5/2557 15:40	WK
Depositors	9	10	20/2/2557 18:16	WK	9/5/2557 15:14	WK
Different from western culture	3	4	20/2/2557 18:16	WK	11/5/2557 6:35	WK
Disciplinary differences	6	7	20/2/2557 18:16	WK	9/5/2557 15:14	WK
Disseminating postgraduate research	2	2	20/2/2557 18:16	WK	9/5/2557 15:14	WK
Electronic resources	0	0	20/2/2557 23:18	WK	9/5/2557 15:40	WK
Finding manuscripts for publishing journal	1	3	20/2/2557 18:16	WK	9/5/2557 15:14	WK
Fulltext availability	22	42	20/2/2557 18:16	WK	11/5/2557 6:55	WK
Funding sources	17	21	20/2/2557 18:16	WK	9/5/2557 15:14	WK
Future of IR	7	12	20/2/2557 18:16	WK	12/5/2557 17:23	WK
How to get research funds	7	7	20/2/2557 18:16	WK	9/5/2557 15:14	WK

Figure 5-7 86 categories were generated at the first visit of focused coding

Then a core category is identified and relate to other categories. Strauss (1987b, p. 36 cited in Corbin & Strauss, 2015, p.189) suggests some criteria for choosing a core category:

1. *It must be sufficiently abstract so that it can be used as the overarching explanatory concept tying all the other categories together.*
2. *It must appear frequently in the data. This means that within all, or almost all, cases there are indicators that point to that concept.*
3. *It must be logical and consistent with the data. There should be no forcing.*
4. *It should be sufficiently abstract so that it can be used to do further research leading to the development of general theory.*
5. *It should grow in depth and explanatory power as each of the other categories is related to it through statements of relationships.*

The final step is model or theory building. In this research, models were generated based on grounded data to explain the current state of university-based IRs in the NRUs in Thailand and to propose some solutions to improve and

sustain university-based IR projects. Saldaña (2013, p. 250) identifies the characteristics of a social science theory as:

...it predicts and controls action through an if-then logic; explains how and/or why something happens by stating its cause(s); and provides insights and guidance for improving social life...what is a sound theoretical proposition to one person may be perceived as a weak statement to another.

Consequently, an explanatory theory is formulated through grounded data and the views of researchers. It could be said theory is an output of the researchers' constructivism and interpretivism. Obviously Grounded Theory methodology offers "*...an interpretative portrayal of the studied world, not an exact picture of it*" (Charmaz 2001, p. 678). Literature review plays an important role at this stage: the core categories that have emerged are compared with a wide range of existing literature. Additionally, Eisenhardt (2002, p. 24) suggested how to build theory by asking these questions: "*...what is this similar to, what does it contradict, and why.*"

In conclusion, the data analysis process of this research can be summarized as the Figure 5-8.

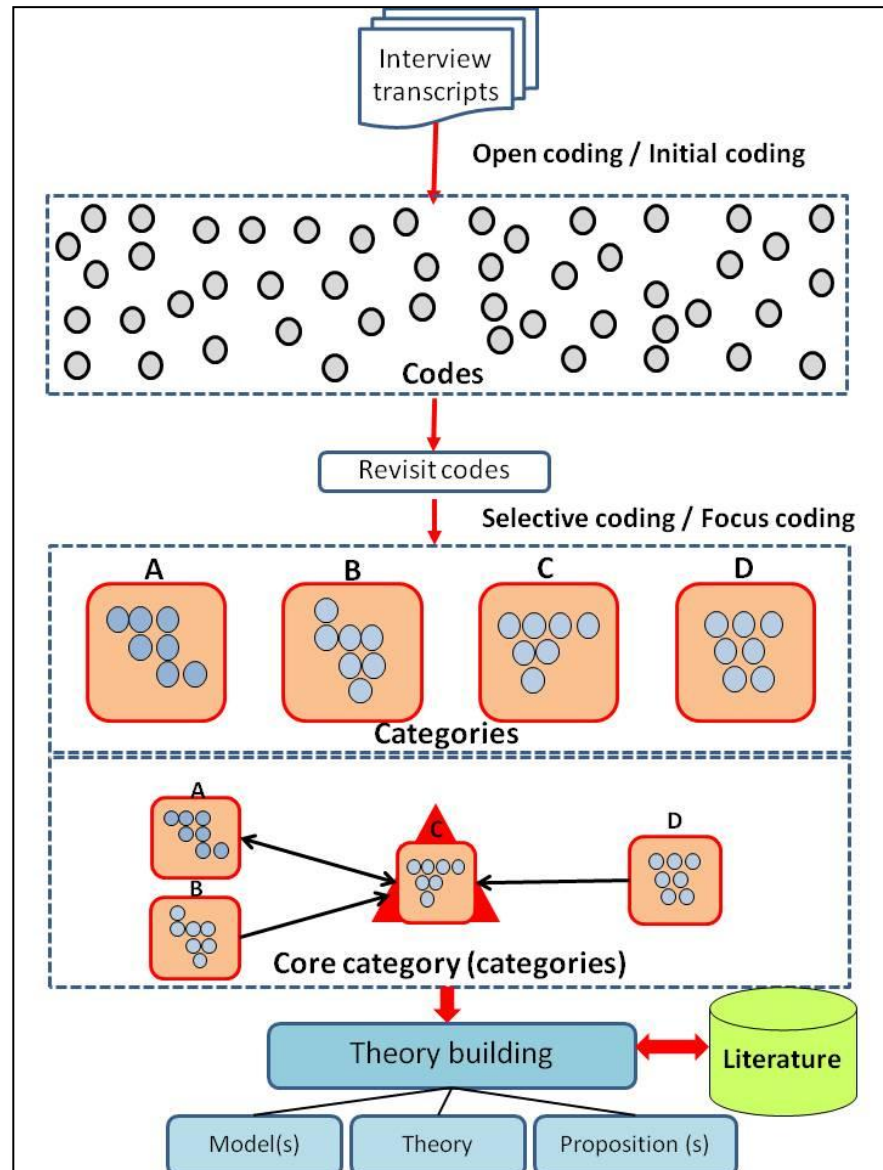


Figure 5-8 The diagram shows data analysis process in this research

The research findings are presented in Chapter Six. Regarding the anonymity of research subjects, the findings are presented without mentioning names of individuals. Then key findings are discussed in Chapter Seven. A proposed model for developing the university-based IRs in Thailand is presented in Chapter Eight.

5.7 Ethical considerations

The research ethics are considered a significant issue. Researchers consider possible ethical issues during all stage of the research process to protect the research, the researchers, and the research subjects. A number of ethical principles have been elaborated as guidelines for the researchers. Codes of

ethics are issued by professional associations, research councils, and higher education institutes.

For this study, the researcher followed the College of Arts Research Ethics Policy, the ESRC Framework for Research Ethics, and the British Academy Code of Practice. This research needed the involvement of human subjects. Then by following codes of ethics the researcher can conduct research carefully without any ethical problems. In accordance with the University of Glasgow's requirements on research ethics, because this research involved human subjects the researcher had to get research ethics approval from the College of Arts Research Ethics Committee, under an established Ethics Policy. The ethical policy in the College of Arts of the University of Glasgow was based on the ethical considerations of research funding bodies in the UK such as the Arts and Humanities Research Council (AHRC) and the Economic and Social Science Research Council (ESRC). The application accompanied by a research proposal and a consent form was submitted to the College in August 2012 and was reviewed and approved by the College in September 2012. Since this research gathered data from Thais where English is not their mother tongue, all documents such as letters of permissions, information sheet and consent form, and interview questions were in Thai. This enables subjects to better understand the research project and its objectives (see Appendix C and Appendix D).

Hennink, Hutter, and Bailey (2011, p. 63) summarized key ethical considerations which are often mentioned in several principles:

Informed consent. Individuals should be provided with sufficient information about the research, in a format that is comprehensible to them, and make a voluntary decision to participate in a research study.

Self-determination. Individuals have the right to determine their own participation in research, including the right to refuse participation without negative consequences.

Minimization of harm. Researchers should not do any harm to participants or put them at risk.

Anonymity. Researchers should protect the identity of research participants at all times.

Confidentiality. Researchers should ensure that all data records are kept confidential at all times.

The researcher was aware of and considered common key ethical considerations throughout this research project.

1) Informed consent

Regarding the use of in-depth interviewing which involves personal data, expression, and perspectives, the researcher should as far as practical follow the codes of ethics in order to protect research participants (Johnson, 2001). Therefore, the interviewees were provided with interview guidelines to enable them to make informed decisions about participating in the research study. The research subjects have the right to refuse to participate in the study. The research participants were requested to read and sign the consent form to ensure that they understood and agreed to participate voluntarily in this study (see Appendix C and Appendix D). A signed copy of the consent form was given to the participants. Verbal consent was sought from the interviewee prior to the commencement of the audio recordings to facilitate information collection and later transcription for data analysis.

2) Confidentiality, Anonymity, and Data protection

In ethical practices, confidentiality differs slightly from anonymity. Hennink, Hutter, and Bailey (2011) explained that “Confidentiality” refers to not revealing information from discussion to the public whereas “Anonymity” refers to removing any identifiable information so that no participant can be identified. However, it is quite hard to assure confidentiality because qualitative researchers have to report what they collect and interpretation depends on the gathered information. However, Hennink, Hutter & Bailey (2011) indicated that the researchers can protect confidentiality by storing the audio-recorded files and the transcripts in a secure location which only authorized people can access. The anonymity of interviewees where it is applicable is respected when transcribing, presenting and discussing gathered information. Additionally, personal data and sensitive data are protected. Therefore, in this study audio-recorded files and transcripts were stored in a secure place. Pseudonyms and code numbers were used to replace participant names.

5.8 Research limitations

All research projects have limitations; and this is no exception in this research. Generally, it should be noted that the study of social development, especially views and perspectives, can only present a snapshot of the research phenomenon at a particular point in time. Therefore, views and practices may have changed since interviews, observations, and analysis were conducted. However, in this study three main limitations should be addressed.

The first limitation is concerned with the scope of the study. Subject-based repositories and IRs in research institutes are outside the scope of this study. This research is limited to university-based IRs. The number of research outputs and research publications are the work of university community members - faculty members, researchers, and students. Accordingly, the researcher investigated the roles of university-based IRs in the management of research publications and sought appropriate ways to improve the effectiveness of IRs.

Secondly, this study did not aim to explain the totality of OA publishing. OA publishing strategies typically encourage self-archiving. This study discusses scholarly communications and OA movement in the context of the research questions.

The final limitation of the research is lack of participation from university administrators. After attempting to ask for contributions from university administrators several times, the research could not gain their participation within the data collection period. Thus the perspectives and visions on managing research outputs and research publications with university-based IRs from the group of policymakers cannot be explored in this research. This will necessitate future research to fill this gap.

5.9 Conclusion

This qualitative research employed Grounded Theory as the research methodology. The information from various groups of stakeholders was collected by in-depth interviews. The qualitative data was managed and analysed with NVivo, software for qualitative data analysis. The research ethics through the

research project were of concern to the researcher. With time limitation, this research could not cover all relevant issues. These will be addressed in further research initiatives based on the foundations of this study.

Chapter 6 Research Findings

This chapter presents findings collected from semi-structured interviews with various stakeholder groups in the Thai scholarly community especially in National Research Universities (NRUs). This research aims to understand the stakeholder perspectives of IRs in NRUs and to optimize the stakeholder engagement with and the utilization of the established NRUs-based IRs in Thailand. Fifty-eight key stakeholders from many sectors of Thai scholarly society participated in this research. Charmaz's Grounded Theory Method - Open Coding and Focused Coding - were used to conceptualize the collected data and to generate a theory to explain the research phenomenon and to foresee the future trend of university-based IRs in Thailand. NVivo10, software for qualitative data analysis enables the researcher to manage, analyse, and visualize collected data easily. How the data analysis informs the interpretation is explained in this chapter followed by the research findings.

6.1 How to form the interpretation

Like other qualitative research, the data analysis is a labour-intensive and time-consuming process. The researcher read and re-read the interview transcripts then analysed the collected data. The data analysis can be divided into two main stages: Open Coding and Focused Coding. At the Open Coding stage without any predetermined coding scheme, over 600 descriptive and conceptual codes emerged freely. Then the researcher restructured and relabelled the codes to ensure the consistency of coding and spelling (see Figure 6-1). This also reduced a number of codes. Next, Focused Coding was employed to sort and assemble the codes into coherent categories. Firstly there were 86 categories as shown in Figure 5-7. After several revisits at this stage, they were distilled to 51 categories (35 conceptual categories and 16 descriptive categories) (see Figure 6-2 and Appendix O). This elaborates the analytic process.

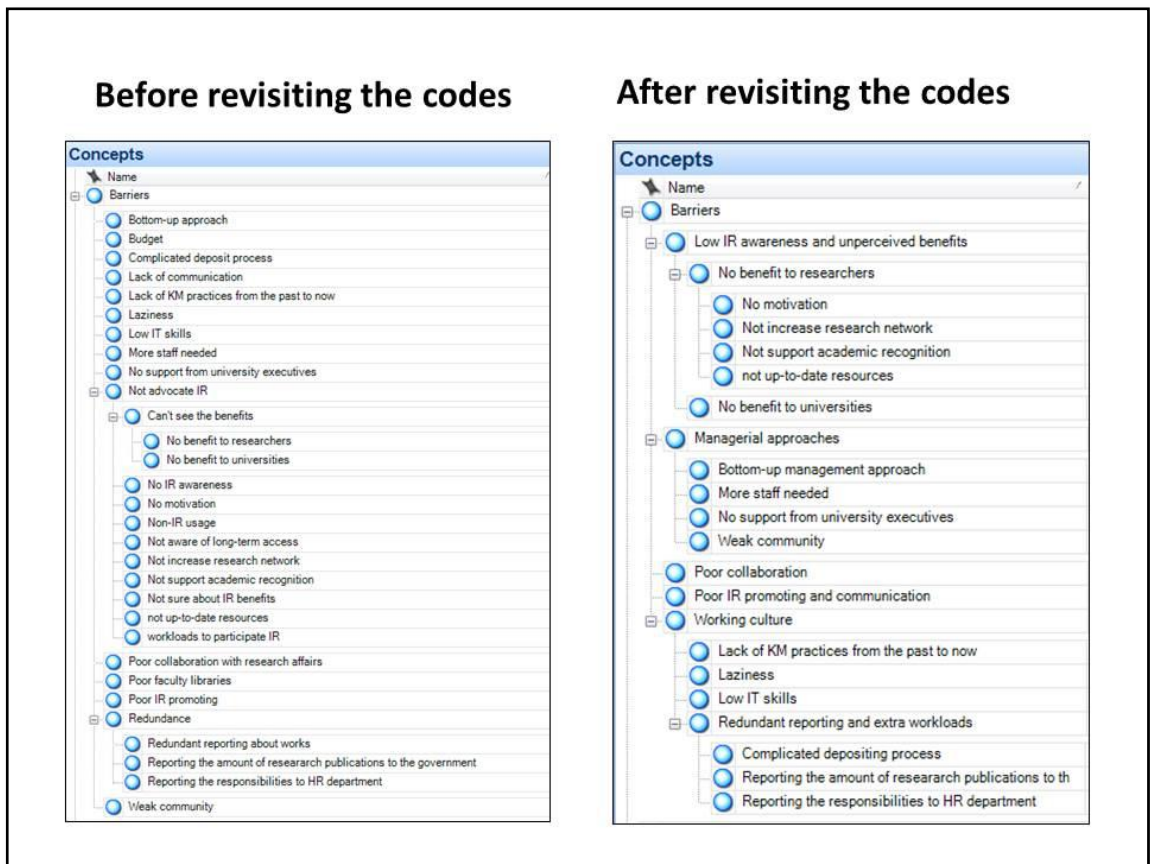


Figure 6-1 An example of revisited codes and categories at the stage of Focused Coding

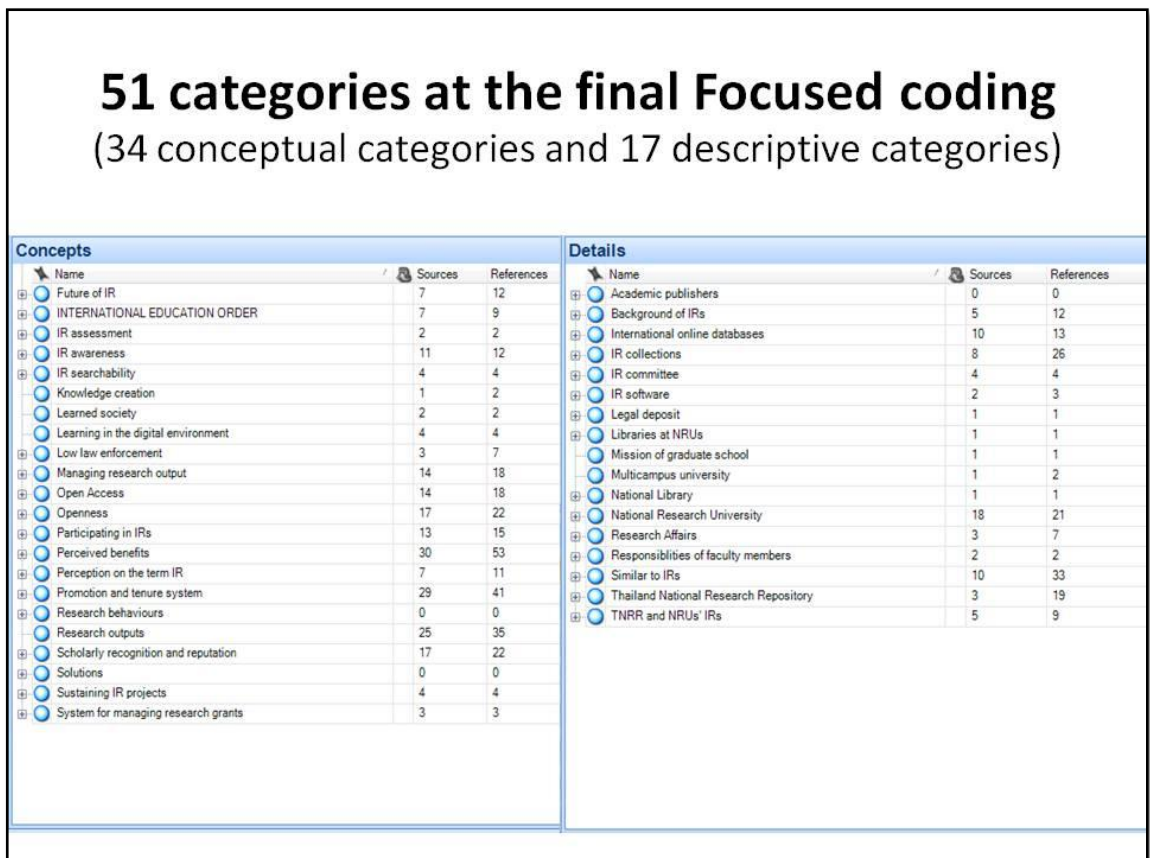


Figure 6-2 51 categories at the final Focused Coding

To make sense of these refined categories, this study uses three dimensions of viewpoints to investigate the analysed data: 1) the most weighted categories, 2) the highest occurring coding codes/categories for each stakeholder group, and 3) questions. With these three techniques, it is expected to extend the understandings of the perspectives of stakeholders towards the university-based IRs in Thailand. In addition, conceptual visualizations of data are generated easily and in various views with the software NVivo10.

1. The most weighted categories

Firstly the tree map of categories visualizes the comparison of coding references among categories in the project. Figure 6-3 shows all codes compared by number of coding reference. The top ten categories are listed as shown in Table 6-1.

Table 6-1 The top ten categories which have the highest number of coding reference

Top ten categories	The number of coding references
1. Research behaviours	349
2. Copyright	223
3. Perceived benefits	166
4. Scholarly recognition and reputation	161
5. Full-text availability and accessibility	113
6. Barriers	111
7. Concerns	90
8. IR collections	82
9. Open Access	77
10. Promotion and tenure system	65

From the interviews with stakeholders, the most coded category is “Research behaviours” followed by “Copyright” and “Perceived benefits”. It can be inferred that the access provision of digital scholarly research works is interrelated with academics research behaviours, performance assessment schemes, scholarly recognition and reputation, and copyright. However, the interview data showed that there are barriers and concerns in making scholarly publications available and accessible online.

	Stakeholder groups	The 1 st mostly assigned codes	The 2 nd mostly assigned codes	The 3 rd mostly assigned codes
	Journal publishers	<ul style="list-style-type: none"> • Full-text availability and accessibility • Promotion and tenure system 		
Funder	Funder	<ul style="list-style-type: none"> • Metadata and harvesting 	<ul style="list-style-type: none"> • Limited space 	
Lawyer	Lawyer	<ul style="list-style-type: none"> • Copyright management 	<ul style="list-style-type: none"> • Educational purposes and fair use 	<ul style="list-style-type: none"> • Universities as journal publishers
TNRR project	TNRR - Policy maker	<ul style="list-style-type: none"> • Metadata and harvesting • Limited space 	<ul style="list-style-type: none"> • Metadata scheme • Electronic resources • Future of IR • Interoperability • Openness • IT and knowledge sharing • Decentralization deposit system • Attempts to make research available • Dspace • Thailand National Research Repository 	
	TNRR-IT	<ul style="list-style-type: none"> • Thailand National Research Repository 	<ul style="list-style-type: none"> • Full-text availability and accessibility 	
	TNRR-Library	<ul style="list-style-type: none"> • Role of librarians 	<ul style="list-style-type: none"> • Thailand National Research Repository 	

*** Themes in bold are categories.

According to Table 6-2, the highest assigned codes/categories by stakeholder groups appear to align with the main responsibilities of each group in the scholarly community and attitudes towards IRs.

- Libraries

This group includes Library Directors of the three NRUs and IR manager. It is not surprising that the category “IR collections” is the highest category at both the administrative level and practical level. This is probably explained by the scope of institutional intellectual assets in their IR projects. The differences between Library Directors and IR manager are the other highest themes. For IR manager, the codes “Supports from administrators” and “Poor collaboration” can reflect their problems and challenges in the management of the collaborative IR projects. The categories “Perceived benefits”, “Copyright concerns”, and “Developing and populating IR collections” are the highest assigned based on the

interviews with Library Directors. It is positive that Library Directors can perceive the IR benefits and the importance of collection development, but they recognise the importance of copyright issues on sharing digital full text. However, it raises question: do the Library Directors give enough support to maintain these projects?

- Faculty members

Faculty members in three NRUs conduct research and produce scholarly works under various agreements such as work agreements, grant agreements, and publisher's agreements. When faculty members were asked to explain their research behaviours, research publishing, and the perspective on self-archiving for public use, the categories "Copyright understanding", "Copyright concerns", "Impact factor" and "Promotion and tenure system" emerged prominently.

- University executives

University executives who participated in this study are Deans of Graduate Schools. Therefore regulations on graduation such as publishing journal papers and the management of theses are amongst their main responsibilities. This is reflected in the highest assigned codes for this group of "Quality of journal" followed by "Criteria of selecting journals", "Theses", and "National Research University".

- Academic publishers

This group includes university presses and local journal publishers. It is interesting that there are some differences between university presses and local journal publishers. The highest assigned code for university presses is "Copyright agreement" whereas the categories "Full-text availability and accessibility" and "Promotion and tenure system" are mostly assigned to the Thai academic journal publishers. It could possibly suggest that Thai university presses have a clear contract and a copyright transfer agreement for those who would like to publish their works with them. Additionally even though Thai university presses may not be concerned about profits as much as commercial publishers, they still need to sustain their business. This leads university presses to have more concern over copyright issues. Compared with university presses, Thai journal publishers publish their journals as knowledge sharing spaces and communication

channels. Consequently, the most assigned categories are “Full-text availability and accessibility” and “Promotion and tenure system”.

- TNRR project

This stakeholder group is TNRR project’s committee: the Secretary of NRCT, a member of the committee with an IT background, and a committee member with a library background. The highest codes for the Secretary of NRCT are “Metadata and harvesting” and “Limited space”. It can be implied that the TNRR project is expected to enhance the management of and access to the government-funded research reports by employing harvesting techniques. Moreover, when digital research reports can be accessed through the Internet, it can decrease the problem of limited space. Advanced technology provides opportunities to increase the effectiveness of information management and access. For the committee member with an IT background, the most assigned categories are “Thailand National Research Repository” and “Full-text availability and accessibility”. He is concerned with how to make research reports funded by several research councils available and accessible through TNRR without adding to the burden of routine jobs. Finally, the TNRR committee member with a library background recognizes the importance of librarians as key agents in making this project successful. Consequently the most assigned code and categories for her are “Role of Librarians” and “Thailand National Research Repository”.

- Lawyer

The most assigned codes for the interview with an academic lawyer who has expertise in intellectual properties are unsurprisingly “Copyright management”, “Educational purposes and fair use”, and “Universities as journal publishers”. The main responsibilities of this interviewee can be shown from the coding. Moreover, it indicates that some misunderstandings of the management of copyrighted work for educational purposes at the universities were discussed. In particular, the copyright ownership of academic journal papers was criticized and explained. However it should be noted that whilst providing a valuable perspective, only one lawyer was included in the sample of interviewees.

3. Questions

Another approach to make the collected data meaningful is by asking questions of it. Questions here are research questions and emergent questions when working with the collected data. These questions directed the researcher to investigate the text from different angles. After reviewing the codes and categories with the research questions and other questions, the associated categories for each question were identified (see Table 6-3).

Table 6-3 Relevant categories for each research question

Questions	Categories
1. How do different groups of stakeholders engage with scholarly research publishing?	Research behaviours, Promotion and tenure system, Responsibilities of faculty members, Research output, Scholarly recognition and reputation, Research Affairs, National Research University, Libraries at NRUs, National Library, Academic publishers
2. How do different groups of stakeholders in national research universities in Thailand conceptualize institutional repositories?	Openness, Open Access, Perception on the term IR, IR awareness, Background of IRs, IR committee, IR collections, Similar to IRs, Thailand National Research Repository, TNRR and NRUs' IRs
3. To what extent do the stakeholders in national research universities participate in and utilize their institutional repositories?	Developing and populating IR collections, Participating in IRs, IR assessment, IR awareness, IR searchability, Future of IR, Perceived benefits
4. What affects the decision making of self-archiving and participation in university-based institutional repositories?	Barriers, Challenges, Concerns, Copyrights, Depositing works into IRs, Electronic resources, Full-text availability and accessibility

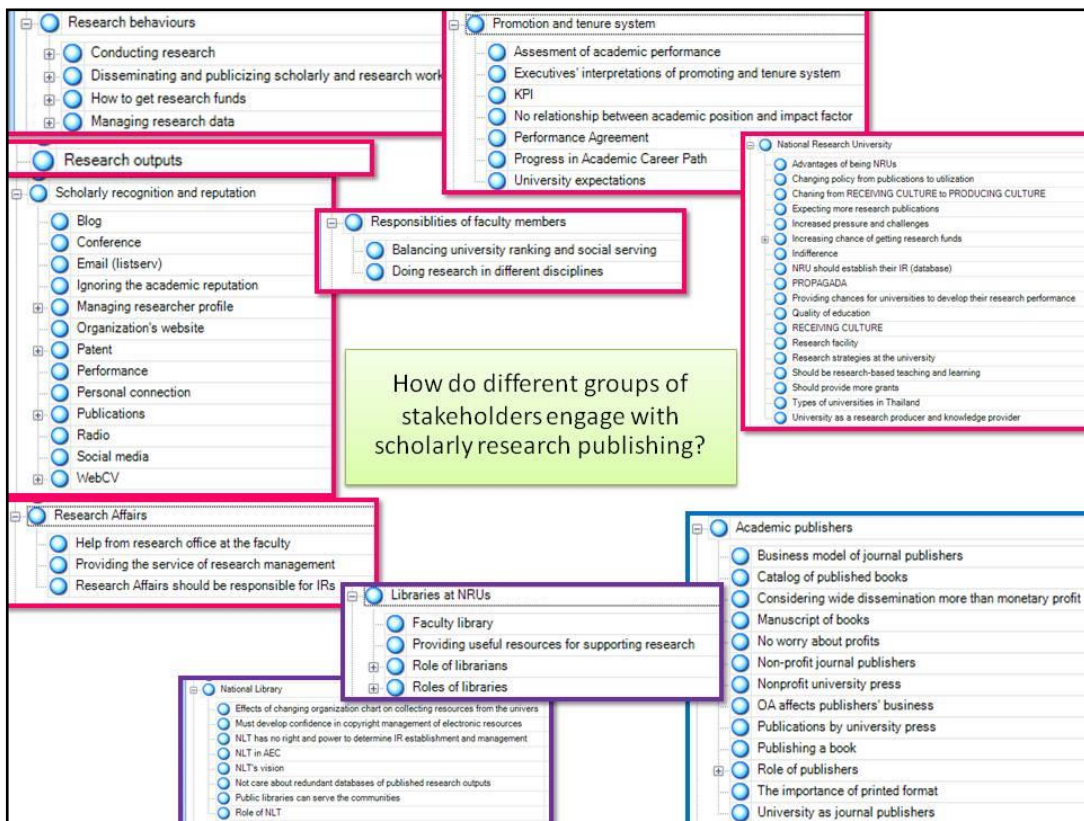


Figure 6-4 The 1st research question and relevant categories with subcategories

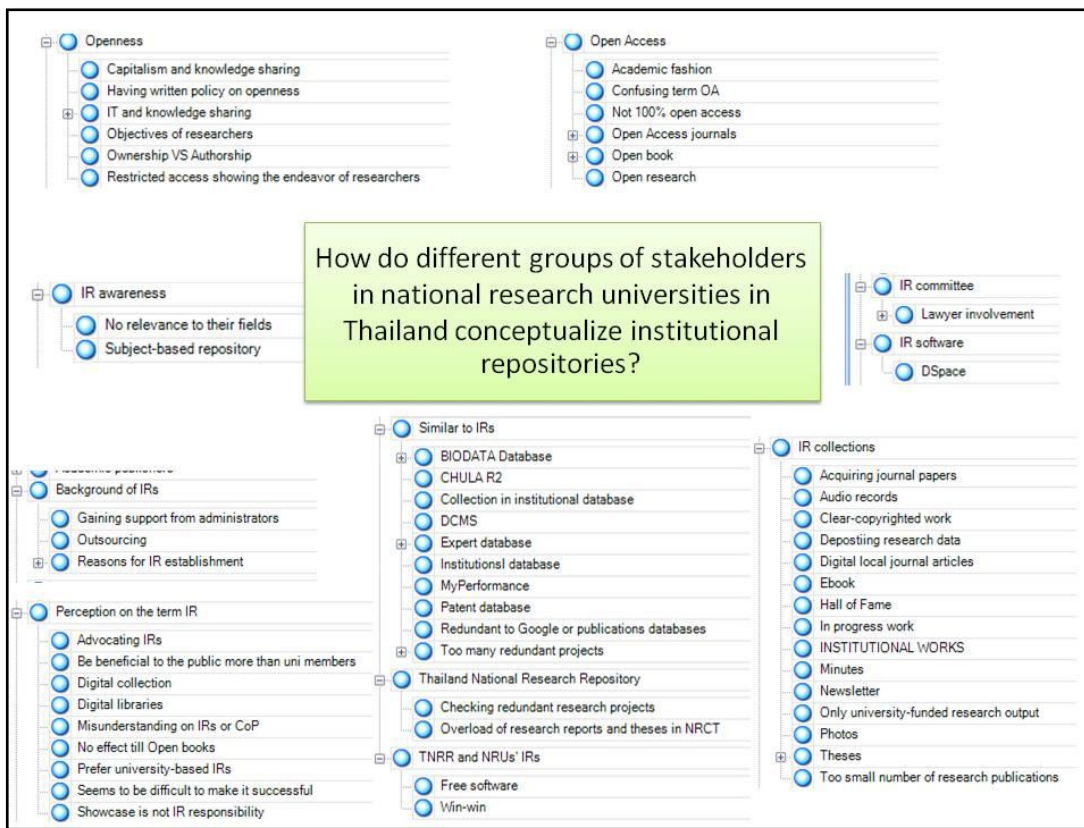


Figure 6-5 The 2nd research question and relevant categories with subcategories

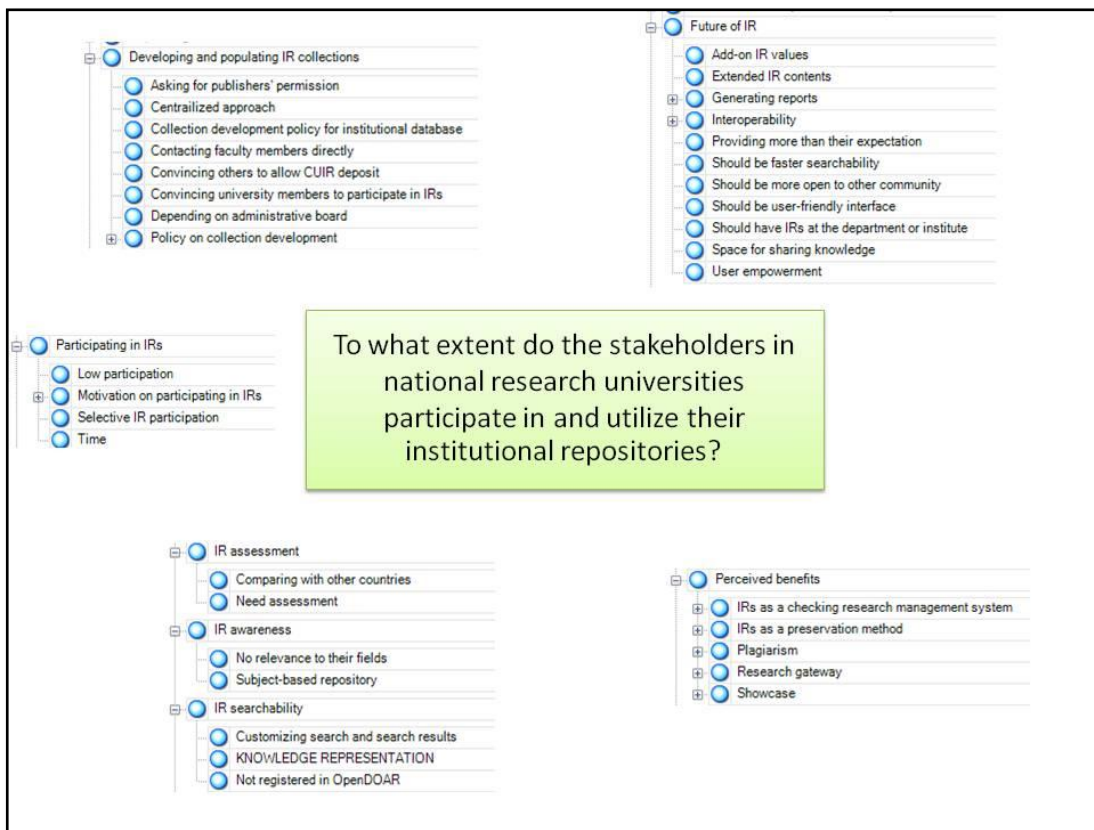


Figure 6-6 The 3rd research question and relevant categories with subcategories

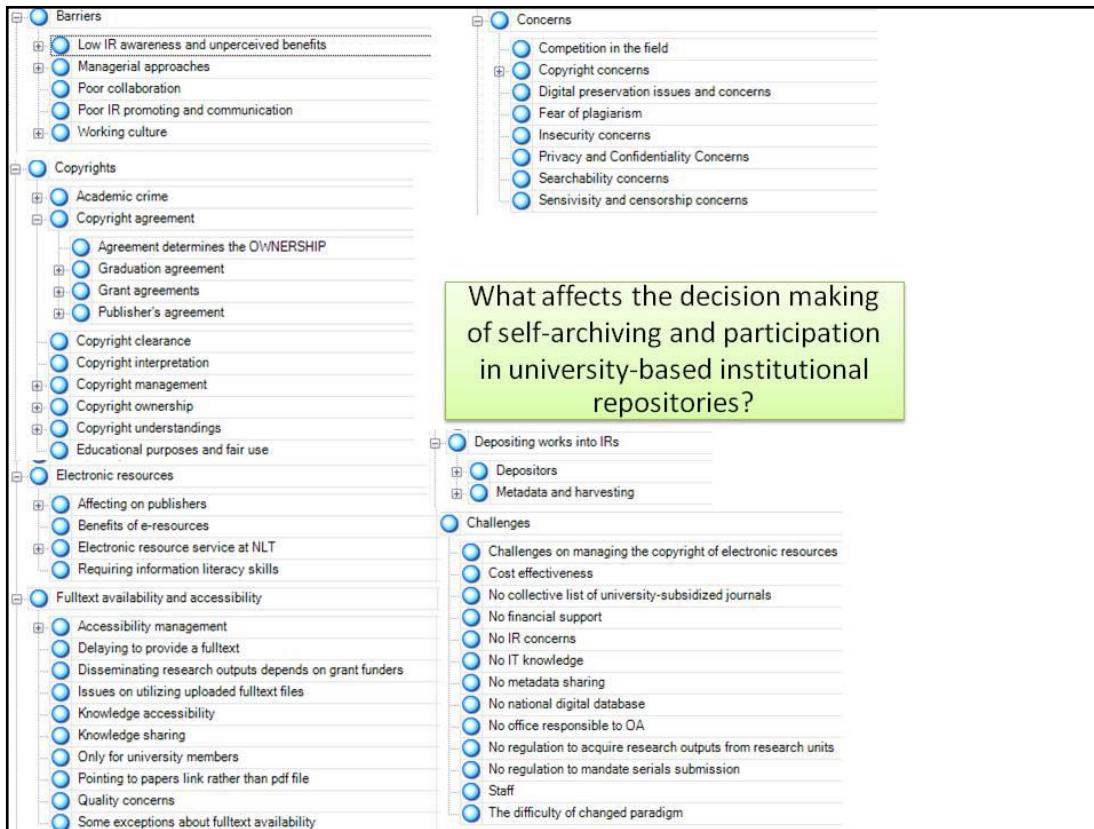


Figure 6-7 The 4th research question and relevant categories with subcategories

The close investigation of analysed data extends the understanding of the current state of IRs in NRUs in Thailand and the perspectives of stakeholders towards IRs. With case analysis, cross-case analysis, and research questions, the research findings are reported by logic and frequency of coding reference in this chapter. The process of reporting the research findings can be summarized as in Figure 6-8. As a result, the research results can be divided into these sections:

Section I: Thai Scholars and Research Practices

Section II: The Concepts of Institutional Repositories Perceived by Different Stakeholder Groups

Section III: The Current State of IR Participation and Utilization by the Stakeholders

Section IV: Barriers to Improved University-based Institutional Repositories in Thailand

Section V: The Expectations of Institutional Repositories in Thailand

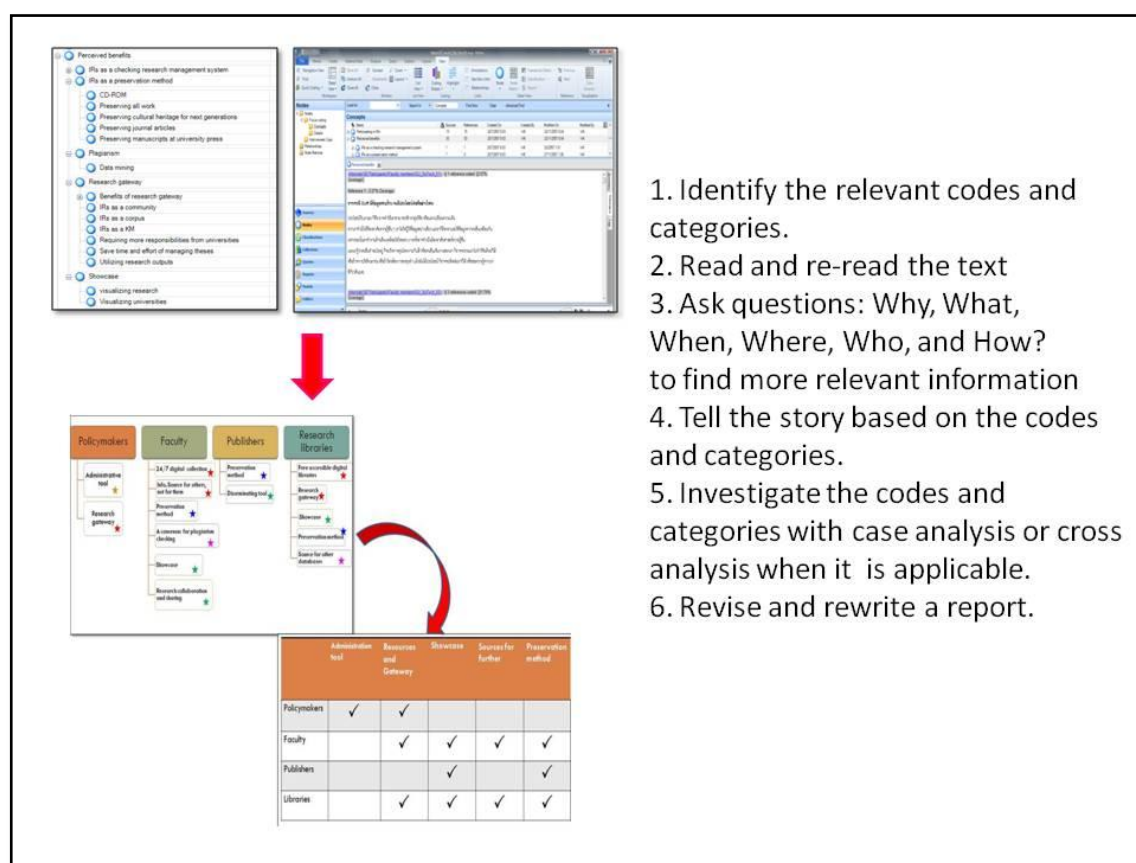


Figure 6-8 Process of writing a report of research finding.

6.2 Thai scholars and research practices

To draw Thai faculty members' attention and content contribution to university-based IRs, especially without any mandatory policy, it is necessary to study the research behaviour patterns of faculty members in NRUs in Thailand. This understanding will enhance the effectiveness of university-based IR projects. Research libraries then can create collection development approaches and services which match the faculty's research behaviours. This section presents research behaviour patterns of the faculty in NRUs in Thailand.

6.2.1 Responsibilities of the faculty

As in other countries, the responsibilities of faculty members in Thailand are teaching, research, administration, and community services. According to The Announcement of the Civil Service Commission in Higher Education Institutions (CSCHEI) on the Standard Academic Workloads of the Faculty Holding Academic Ranks 'Lecturer', 'Assistant Professor', 'Associate Professor', and "Professor" (2009), teaching workloads are basically required for all academic positions, but each academic position must produce scholarly publications in different numbers.

Each university has authority to prescribe workload policy for its faculty members. Faculty members holding administrative positions have lighter teaching workload. However, in general faculty members are expected to demonstrate their competencies and knowledge through instructions, research, consultation, and services. Instruction is the central responsibilities of the faculty. The faculty impart knowledge to students. They are also committed to mentoring students both inside and outside the classroom. Apart from teaching in the classroom, community service is part of the responsibilities of universities and faculties. Universities serve and help society through training, workshops, and student activities. Students can apply their knowledge to the real world with the guidance of the faculty. Researching is another main responsibility. It is obligatory that faculty members should display scholarly achievement through publishing research findings.

In addition, the promotion to the rank of *Assistant Professor*, *Associate Professor*, and *Professor* must follow the criteria in “The Announcement of the Civil Service Commission in Higher Education Institutions (CSCHEI) on the Regulations and Consideration Procedure of Promoting Academic Ranks ‘Lecturer’, ‘Assistant Professor’, ‘Associate Professor’, and ‘Professor’ (No.2),” (2007) and “The Announcement of the Civil Service Commission in Higher Education Institutions (CSCHEI) on the Regulations and Consideration Procedure of Promoting Academic Ranks ‘Lecturer’, ‘Assistant Professor’, ‘Associate Professor’, and ‘Professor’ (No.6),” (2012).

The research projects conducted by university members can be individual or collaborative projects. Most faculty members reported that they carry out research and publish their work individually. Especially in Science and Technology faculty members tend to conduct their collaborative research projects in two ways: faculty-faculty and faculty-student collaboration. The faculty-faculty collaborative research projects can be conducted across disciplines and universities.

Teaching, researching, counselling and service activities make for heavy workloads for faculty members. It is doubtful if being designated a NRU has any direct influence on the faculty and their research behaviours. Two main perspectives of working at the designated NRUs are reported.

- 1) No difference

The attitude of faculty members towards working life at the NRUs remains the same as before. The term “National Research University” seems just propaganda (TU_SocHum_09). Faculty members usually conduct research and produce scholarly publications in accordance with a requirement of performance assessment and promotion up the academic ranks (MU_SciTech_01). They do not see any difference in working as lecturers in universities and NRUs. Moreover, universities support the conduct of research as a matter of course. Being in a NRU does not put faculty under pressure to produce more research publications. Instead, faculty members are happier because they can get more research grants from the government. Conducting research can produce a new body of knowledge that will contribute to academic progress and the research findings

can be useful to the public (CU_SocHum_02). Being a NRU increases the likelihood of research grants for the faculty (TU_SocHum_05).

2) More pressure and challenges

The National Research Universities (NRUs) project brings both expectations and challenges for the universities and university communities. The Dean of Graduate School at Chulalongkorn University (CU_Dean) explained that being one of the designated NRUs brought several expectations - 1) an increasing number of research publications, 2) more intellectual properties, 3) higher potential development, and 4) an increasing number of grants for students. However, this project has changed its objectives. Originally the project aimed to raise Thai universities in the world university rankings by focusing on increasing the number of publications. Later, due to changes in the Government and policy, considerations, utilization of research outputs, in other words impact, are now of more concern rather than publications (CU_Dean). Accordingly the visibility, availability, and accessibility of research outputs is increasingly considered as one of the most significant key indicators for research utilization and knowledge creation.

Changes in the Government administration have cut the budgets for the NRU project. This has challenged NRU executives to win more research grants and allocate them effectively to every designated research projects for three years. For example, Graduate Dean at Chulalongkorn University explained that the University has confronted challenges in finding additional budgets to support all designated research projects categorized into seven research clusters¹⁰. The University used its own budget to support these designated research projects. Moreover, the research projects with good performance have been funded continuously, whereas projects which fail to deliver any research outputs as promised will be abandoned. The budget reduction has decreased overall research outputs of the designated research projects (CU_Dean).

¹⁰ These research proposals could be categorized into 7 clusters, namely 1) Advance materials, 2) Climate change, 3) Energy, 4) Health, 5) Aging, 6) Food and water, and 7) Human security.

Moreover, being a NRU requires university executives to revise research production and university management in a holistic fashion. One of faculty members reflected on the administration of university:

If the university does not think about this in a holistic fashion, it causes the faculty workload problems. The faculty have both teaching and research workloads. The university still provides teaching and the number of students is increasing every year. So if the university would like to be a research university, what is the suitable number of students to allow the faculty to [have enough time to] conduct research? ...The expectation on research production requires the university to reconsider the nature of each Faculty. How can the faculty provide lectures for all students as well as conduct research? (TU_SocHum_06)

The impact of being NRUs on faculty members is pressure of work. To keep universities in the ranks of NRUs, university executives need to promulgate mission statements and policies which foster research production and publishing. Some faculty members in some fields find it difficult to conduct research.

Junior faculty members face more difficulties, especially those members who teach a language course such as Introduction to English. With the nature of this field, it is difficult to produce any research papers. Most are classroom research. Sometimes [they] do not read any literature and what they have taught does not encourage them to [know more about] theories...Briefly, no time to do [research] and no research ideas. (MU_SocHum_01)

...for junior faculty members, they are affected by it some because they don't want to do research. Most junior faculty members have a teaching background rather than research background. Therefore, it is hard for them to understand why they must do research. They already have heavy teaching and community service workloads. (TU_SocHum_01)

The international ranking system and NRU status put pressure on faculty members to produce research publications. However, research is not the only responsibility of faculty members. Consequently it is hard to balance the teaching and research workloads. The universities need to revise their mission statements and provide practical workload policies. Increased salaries, clear performance assessment policy, time, more faculty members, and a well-planned research management system are expected by the faculty if the status of the university is to change to that of a NRU (TU_SocHum_02, TU_SocHum_04).

In addition to academic performance assessment, faculty members would like to share their findings with other scholars in their fields and the public.

However, a Professor of Higher Education criticized the role of NRUs in higher education:

So in the scholarly aspect, I think the role of research universities should at least change from “receiving culture” to “producing culture”. That means [research universities] can develop [knowledge], [and] create the body of knowledge in our country. If we have our own body of knowledge, foreign influence will be increasingly balanced. So I think [national] research universities have important roles. If [they] can do it fully, it will change the whole of higher education in our country and the long-term outcome will be a change to produce our own culture. Universities must do research and develop a new body of knowledge so that teaching and learning will be balanced between knowledge borrowed from foreign countries and that of Thailand. Then learners will know more (HEI).

More published research outputs by Thai scholars call for the management of research publications at both institutional level and national level in order to make these research publications searchable, available, and publicly accessible. The Office of National Research Council of Thailand (NRCT) recognizes not only the importance of formulating national research policies and strategies which corresponds with the National Economic and Social Development Plan, but also the significance of a national research output management system to promote a knowledge-based society. The Secretary of NRCT stated that each NRU should establish its own research repository and link these IRs to the Thailand National Research Repository (TNRR) (Secretary_NRCT). This would enhance the effectiveness of research project management and the visibility of research publications at institutional and national levels. Currently the collaboration between nine NRUs and NRCT has begun to deliver a national research portal.

6.2.2 Research grants and agreements

Faculty members in NRUs conduct research projects with financial assistance from several funding sources both outside and on campus. The proportion of research funding agencies varies between different disciplines. Funding sources reported by the faculty participating in this research can be categorized into five groups: 1) Government sectors, 2) Private sectors, 3) International funding

agencies, 4) Faculty and university research funds, and 5) Self-funding. Different funding sources may place differing restrictions upon access to results and publications. Therefore, when a university receives funding from multiple sources, establishing and agreeing an OA policy is likely to be more complex.

1) Government sectors

Ministries and other government agencies allocate some public funds to support research contributing to national development. Key research funders from the government sectors are the National Research Council of Thailand (NRCT), The Thailand Research Fund (TRF), Office of the Higher Education Commission (OHEC), Agricultural Research Development Agency (ARDA), National Science and Technology Development Agency (NSTDA), Health Systems Research Institute (HSRI), and the National Science Technology and Innovation Policy Office (NSTIPO).

2) Private sectors

Some research projects are funded by companies, factories, industries, and state enterprises. Such university-private research partnerships result in innovations with the aim of developing processes with commercial benefit.

3) International funding agencies

Foundations and organizations in foreign countries, such as Japan, Austria, and the United States, offer research grants to Thai researchers. Two main approaches lie behind this research funding: 1) To receive research funds for the projects in assigned research themes and 2) To allow Thai researchers to conduct research in other countries.

4) Faculty and university research funds

Universities and faculties themselves allocate some institutional funds to assist their faculty members in achieving excellence in research. This encourages faculty members to publish research findings. Junior faculty members, especially, have more opportunity to secure such funds.

5) Self-funding.

Some research projects are self-funded, as research grants from research agencies may not be available at the time. To pursue their research interests, some faculty members are happy to fund themselves (MU_SocHum_01).

Faculty members have different approaches to winning research grants. Most research grants from government agencies and international organizations are advertised through research offices at each university. Usually they have specific research themes. University research offices have important responsibilities: to distribute grant news, review research proposals, manage research funds, and coordinate with funding agencies. Faculty submit research proposals to many different funding sources depending on their research interests and support required. However, the performance of research offices needs to be improved to achieve rapid processing and to support new faculty members (CU_SocHum_01). Additionally, faculty members contact research funding agencies themselves and only later do they cooperate with research offices in their Faculties in terms of budget management, research project management, and research contracts and agreements.

The research agreements between the funders and the faculty differ in detail, such as timing, budgets, and genres of outputs. All research funders require grant recipients to submit a hardcopy and a softcopy of final research reports. However, some funders require published journal papers (CU_SciTech_07) but they do not specify which journals (CU_SciTech_02). For example, as one of the requirements of a research agreement and one indicator of quality assurance, the researchers must publish their findings in peer-reviewed journals or present them at a conference which publishes proceedings (MU_SocSci_01).

The requirement to publish research findings vary between research funders and disciplines. Some government-funded research findings are confidential because of the in-depth information they contain and sensitivity concerns. Research funders in Social Sciences do not seem to require any journal papers. Publishing papers is driven largely by promotion criteria and the researchers' own ambition.

Most [funds] are from the Ministries or government sectors in Thailand. They have their own research topics relating to policy and would like us to investigate certain aspects or measure the impact of success. [These government funders] sub-contract to faculty members in the universities and faculties. [Faculty members] submit proposals. [to them for their consideration]. If the proposal is accepted, we will conduct research and submit a [final] research report to donors. After that, as we [faculty members] would like to get promotion in academic rank, most of us will write a research article based on research findings and then publish them in both local and international professional journals. (CU_SocHum_02)

However, in Science and Technology, journal papers are the most important sources of knowledge sharing. In addition to research reports for funders, the researchers usually publish their findings in international journals.

When I publish [anything], I must acknowledge funders explicitly. Some funders determine the number of published papers per year. When finishing research projects, [I] must submit a final research report along with any published papers. ...Additionally my lab's rule is that before completing any project we must have a manuscript for an international journal. I will keep this manuscript and submit it to the funders. (CU_SciTech_03)

The university-private funded collaborative research projects tend to maintain confidentiality because of business benefit concerns. Therefore grant recipients must understand and agree with this condition before signing any agreement. However, the faculty can negotiate with the research funders before or after signing a research contract. A faculty member in Social Sciences and Humanities shared his experience of requesting permission from private funders:

Regarding publishing academic works based on funded research findings, some funders do not permit [the recipients to publish any academic papers]. This is already stated in the written research grant agreement. Or if the project has been carried out over a period of time, we can send a written letter requesting permission to publish research papers. Whether I attach the manuscripts of research papers to funders or not depends from case to case. Some do not care while other check to what extent I have written about them. (TU_SocHum_05)

Memoranda of Understanding (MOU) between private funders, universities and researchers are signed for all commercial research projects. Agreement on patent ownership and benefits based on such projects are clearly stated. The

proportion of shared benefits is variously specified. One interviewee explained the agreement on benefits and ownerships of private-funded research outputs.

[Concerning the patent ownership and monetary benefits,] we signed an MOU from the start [of the project]. The university and private funders share the benefits 50/50. As an inventor, I will get some benefits too. However, the number of inventors will be checked again. [It will affect the proportion of benefits]...The monetary benefits depend on the MOUs. For example, in my case, the university gets 50% and private funders gets 50%. Then the inventors will share the university's benefits but I can put this on my CV as an inventor. (CU_SciTech_01)

Interviewees reported that international funding agencies tend to provide research grants without any requirement for publications.

Most international research organizations are humanitarians or cosmopolitans. Their funding supports the development of human beings no matter where we are from. Then there is no special requirement except submitting a final report. The most definitive agreement is effective and transparent research expenditure. Regarding the distribution [of research outputs], it is an abstract agreement requiring that the researchers must have publications or inform the funder of the details of publications. (MU_SciTech_05)

Faculty members must study the research grant contracts carefully. Researchers, who have many research projects, apply for financial assistance from many funding sources. The experiences of dealing with grant agreements show how complicated agreements can be

...If I get the research funds from government offices such as NRCT or state enterprises such as National Housing Authority (NHA), the grant contract determines that the research reports are owned by funders...but the researchers wishing to publish academic papers or research papers based on funded projects must acknowledge the funding sources. In the case of NHA, the researchers must receive permission from the NHA before publishing any paper. The researchers must give any fees from publishing a paper to NHA according to the agreement. The NHA agreement states that any outputs based on the NHA-granted research are owned by NHA for two years. After that, the copyrights will be owned by the researchers...In the case of TRF using the public funds to support research projects, research outputs must be submitted to TRF. TRF provides me with additional grants to publish a pocket book based on the research report. TRF owns the copyrights and can sell the book for profit. As the author, I have the right to use this for promotion in

my academic rank but no right to sell it. For TRF, the contract and the procedure are very clear. (TU_SocHum_01)

Due to the variety of requirements and conditions from each research funder, faculty members need to understand and follow the grant contracts. In practice, no lawyers are involved in signing research grant agreements. The faculty's misunderstanding and misinterpretations can infringe copyright and agreements. Unintentionally this affects the dissemination of research output

6.2.3 Publicizing research findings and scholarly recognition

Scholarly recognition and reputation in Thai scholarly society comes from research outputs. Thai academics conduct research and produce research publications because they want to share knowledge among their peers in their field. Scholarly recognition and reputation are not their principal objective. As a result Thai scholars tend not to market themselves purposively. They do research and produce research publications with the aim of knowledge creation, knowledge exchange, and career progress.

...The reputation of academics depends on scholarly work. We must do research and publish findings. Although [academics or the public] do not meet us in person, they know our names [as authors or researchers]. Also since my field is small, there is no problem [to get to know each other]. If you are a new researcher having no research output, you must go out and get to know other [academics]. Firstly, [it is] through reading their scholarly publications. At least you must read core collection. Attending conferences is a good channel to build a research network. For me, scholarly outputs are the most important. (MU_SocHum_01)

The more research outputs are disseminated, the more knowledge is developed, and that is the expectation of Thai researchers. The increase in scholarly recognition and reputation depends on the quality and contribution of research outputs. Consequently, research outputs are the evidence used to market Thai researchers' expertise and scholarly reputation.

Intellectual assets created by university members are in a variety of forms. Most research outputs are publications including research reports, textbooks, monographs, translated works into Thai and other languages, and journal papers.

Patents, one specific form of research output, are quite often referred to by the researchers in Science and Technology. Additionally, faculty members can share their research findings through poster presentations and oral presentations at national and international conferences. Conference papers and proceedings are considered as another genre of academic publication. In addition to publications, performances, training events and workshops are also regarded as research outputs in the field of musical studies, fine arts, and community-service research projects.

Journal papers are highly esteemed by the faculty across the disciplines as the most preferred research output. Moreover, journal papers are accepted as one key performance indicator for promotion and tenure across the disciplines. International peer-reviewed journals are the most sought after for publishing research findings. One aspect of publicizing research findings is the recommendation to publish academic work in qualified journals in the Announcement of Civil Service Commission in Higher Education Institutions (CSCHEI) on the Regulations and Consideration Procedure of Promoting Academic Ranks “Assistant Professor”, “Associate Professor”, and “Professor” (No.2) B.E. 2550 (2007). Additionally, the Announcement of Civil Service Commission in Higher Education Institutions (CSCHEI) on Regulations for Considering Qualified Academic Journals for Publishing Academic Works B.E. 2556 (2013) decrees that the faculty should publish their research findings only in qualified local journals listed in the Thai-Journal Citation Index database (TCI) and international peer-reviewed journals listed in selected online databases¹¹

Publishing papers in international journals is preferred by university executives. Universities themselves encourage their faculty members and students to publish their research work in international journals with a high impact factor, in online databases through several approaches such as monetary incentives and language services (CU_Deans). However, self-interest, promotion, and academic achievement are also important drivers in conducting research and publishing findings (CU_SocHum_02). The international scholarly community also influences

¹¹ International academic journals in these online databases are accepted as qualified evidences for the promotion of academic ranks. The online databases are Academic Search Premier, Agricola, BIOSIS, CINAHL, EiCompendex, ERIC, H.W.Wilson, Infotrieve, Ingenta Connect, INSPEC, MathSciNet, MEDLINE/Pubmed, PsycINFO, Pubmed, ScienceDirect, SciFinder, Scopus, Social Science Research Network, and Web of knowledge.

research practices of Thai faculty reflecting the ranking system and prevalence of online databases (mostly in English). The Dean of the Graduate School at MU indicated that *“If you would like others to know and see [what] you [have done], then [you] must publish [your work] in journals which others accept. And if [you would like your papers] to be counted in the ranking system, then you must follow these rules (MU_Dean).”*

Criteria for journal selection vary among faculty members in the Thai scholarly community. Firstly, readership is one essential criteria mentioned by the faculty especially in Social Science and Humanities. Next, the quality of work and journals is another factor. If output is of sufficient merit to compete at international level, the faculty will submit work to high impact factor international journals. Further, the faculty consider the quality of new and core peer-review journals. Journals in online databases such as ISI Web of Science or Scopus are preferred because of the role they play in the worldwide university ranking system based on the number of publications cited in these online databases. The last criterion for journal selection is impact factor.

With the motivating force of institutional performance assessment and international acceptance, the impact factor is mentioned frequently as the most important criteria for publishing. Some universities offer monetary incentives to faculty members to publish their work in international journals with high impact levels.

I will choose the highest impact factor journal in my field. If my work is rejected, then I will submit [my work] to journals [with less impact factor]. The international journals are my first choice because the university sets it that way. If that journal is in ISI database, the university will rate it higher and the Faculty supports [publishing in international journals] more. (CU_SciTech_04)

In addition, impact factor can inform the quality of published papers, wide distribution, and utilization. This guarantees the quality of the research and academic competencies of authors and increase their academic standing and acceptance in the field. The importance of high impact factor journals has gradually been learned since their time as postgraduate students.

Journals with high impact are definitely significant because 1) [Publishing in these journals] increases the authors' academic fame and 2) [it] results in the high acceptance rate for the next piece of writing. It is like we gain wide acceptance which is very important in the research community. (CU_SciTech_03)

We gradually learned that papers published in a journal with high impact factor are very detailed and better. Also, the review process is more extensive. Consequently if we can publish our work in journals with an extensive peer-review process, it means that our work is of good quality. (CU_SciTech_01)

The impact factor issue is probably less important for faculty members in Social Science and Humanities, where themes and readership are much more important than the impact factor.

About the impact factor, I do not care much even though there are some impacts on the [performance] assessment. I don't want to set any hierarchy for journals. I think every journal have their advantages at some level. It is an open space for the scholarly community. (TU_SocHum_02)

However, when universities and the promotion and tenure system employ impact factor as one of assessment regimes, the faculty in Social Science and Humanities naturally begin to consider selecting impact factor journals for their work. However, it brings some pressures and concerns for them.

In the past, it [university] did not focus on the impact factor. We just selected core journals in our fields. ...But now as the impact factor becomes more serious. ...It is difficult to find impact factor journals in Social Science; we are quite worried... (MU_SocHum_03)

Publishing in international journals or local journals becomes an important issue for Thai faculty members in sharing their research findings. The faculty can produce scholarly publications in English, Thai, or other languages depending on their objectives and target readers. Most national academic journals are subsidized and organized by the university sector. The objectives of these academic journals are for non-profit knowledge sharing and academic progress. As the Office of Higher Education Commission (OHEC) and universities want to be in the world-class university rankings, the faculty are encouraged to publish their work in peer-reviewed international journals with a high impact factor in online databases such as ISI and Scopus. This raises questions about the

importance of national academic journals in Thai scholarly communication and how to position Thai academic journals to meet the national education standards and win acceptance internationally.

The project “Thai-journal Citation Index” has been implemented in an effort to increase the standing of Thai academic journals and to measure and count their impact factor. It is anticipated that the acceptance of local journals as significant will increase gradually. However, some researchers publish their work in national academic journals because they recognize their contribution to the development of Thai society and scholarship. If the faculty publish such content in international journals, Thais will not be able to access it due to the language barrier and high subscription fees. Faculty members themselves found themselves torn between the encouragement to publish in international journals and their loyalty in sustaining national academic journals.

Researchers are confused about where I would publish. When the organization assessing us accept international journals more [than local journals], then we must publish in those [international journals] to match their acceptance. However, I have publications in local journals as well. I published an article in English in the journal managed by the Faculty. ...If my work is good, I will choose to publish in international journals in compliance with the university-determined key performance indicators. If they [the university assessment committee] use local journals as an indicator, I will publish in them. (CU_SciTech_01)

The faculty are required to sign copyright transfer agreements prior to publishing papers in journals. Journal publishers require copyright transfer from the authors. International journal publishers have clear copyright statements and request the authors to sign copyright transfer agreements. Accordingly, Thai faculty members reported that they cannot legitimately provide a digital copy of their papers for free download because of copyright infringement concerns. However, negotiation with international academic publishers for permission to open their journal papers freely is not on the agenda of Thai faculty. The faculty claimed that “Fair Use” allows for the sharing of these publications.

Local academic journal publishers may, however, have a different approach to managing copyright. Some publishers request the authors to sign copyright transfer agreements while some do not. If no copyright transfer agreement is

signed and no reward is offered, the authors own the copyrights in their scholarly work. Nevertheless, some local journal publishers believe that they own the copyright because they manage and publish these papers. This reveals that among publishers and researchers themselves the copyright ownership and authorship are variously understood. This contributes to the variety of copyright interpretation when dealing with the access provision of digital content.

Another issue is unlawful copyright transfer agreements. The agreements are invalid because they are not signed either by juristic persons (the publishers), or the authors. Thai journal publishers are Departments or Faculties which are not considered as legal entities. It is quite hard for the authors to know whether the agreement is lawful or not. After signing the agreement, some authors thought that copyright was already transferred to the publishers whereas some thought they still owned the copyright. Disputes over copyright ownership of scholarly publications are not yet resolved. Fortunately, no lawsuit concerning copyright infringement of academic journal papers has been reported in the Thai scholarly community. It might be said that both faculty members and journal publishers share journal papers with not-for-profit and educational purposes, but the faculty may not be aware of copyright retention of their research publications.

Open Access (OA) journals are a new alternative for Thai scholarly society. OA journals are perceived by Thai academics in both positive and negative ways. OA journals offer opportunities to both authors and readers. For authors, the duration of accepting papers and the peer-review process is shorter than other conventional journals. OA journals by their very nature ensure wide knowledge exchange across the scholarly community. Moreover, authors retain copyright in their papers. Besides, readers can freely access academic papers without any financial restriction. This enhances visibility, impact, and innovation/development.

[OA journals] are excellent because I submit [a paper] without any payment. [The publisher] replies quite quickly and we can read papers for free. [We] can also download [papers]. I think it offers opportunities for people in developing countries or new researchers who do not have large grants. If he must subscribe to journals or pay for downloading [papers], it is a burden. (CU_SciTech_02)

Unlike conventional fee-based journals, OA journals require the authors to be responsible for article processing charges (APC). However, the pay-to-publish business model does not mean that all papers will be accepted without quality considerations. Some OA journals have high impact factors so that they are good enough for scholarly communication. Additionally as a result of the free accessibility and availability, OA journals increase readership and this leads to high citation and impact.

[Most scholars] think OA journals demand high article processing charges to get published. I think they probably misunderstand that we must pay first so that publishers will accept [our papers]. It is totally different. The possibility of a paper being rejected by OA journals is about the same as by traditional journals. (MU_SciTech_03)

However, the quality and reputation of OA journals are of concern to Thai academics. Due to the shorter peer-review process, faculty members harbour misunderstandings about the quality of accepted papers. Additionally, OA journals have changed the business model from pay-to-read to pay-to-publish. This leads to the impression that everyone who pays APC can get their papers published easily without peer review.

Personally, the quality of Open Access is still not good and focuses on making a profit. The quality of the review process is not the same as other conventional journals with low article acceptance rates. Ethics is everything. Paper rejection is purely based on academic practices. Prestige is different. It is obviously [OA journals] emphasize business [sustainability] and [they] do not care about the quality. That is one of the reasons why I do not choose OA journals [for publishing my work]. (MU_UniPress)

The high author processing charge (APC) probably is one of barriers to embracing OA publishing. In order to sustain the business, the publishers charge the authors for publishing and making the work available freely to the public. Some Thai researchers can allocate some grants to meet publication costs whereas some Thai researchers find it difficult to afford APC. So only a few faculty members publish their work in OA journals.

The acceptance of OA journals as qualified scholarly publications is another major factor behind the delay in adoption of OA publishing. If OA journals are not accepted as a Key Performance Indicator (KPI) for annual performance

assessment and promotion in academic rank, the faculty tend not to publish their work in this kind of journal.

Now I would still choose a conventional journal [over an open access journal] because Open Access journals are still new [for me and other Thai academics]. However, if OA journals have a high impact factor and are included in online databases which are well-accepted at the academic level or for the performance assessment at the departmental level and university level, it will be another option. (CU_SciTech_05)

To increase the number of OA journal papers published by Thai researchers, information on OA journals should be provided to researchers, university executives, and policymakers. When the regulations covering performance assessment and the promotion and tenure system are revised, OA journals will be an important source for knowledge exchange and utilization.

In addition to research publications, attending international and national conferences is also considered as a potential channel for increasing the researchers' scholarly reputation and scholarly networking. Researchers can share their ongoing research projects or research findings. This is another approach to promote their research projects and their research expertise. Additionally networking with experts in the fields can enhance knowledge exchange and future research collaboration.

Personal connection among Thai academics is another informal means of enhancing scholarly reputation and specialization. At national level, Thai academics in certain disciplines have small networks as they tend to know each other since their time as students. At international level it is quite difficult to have personal connections if the researchers did not graduate abroad or do not have any research collaboration from abroad. It could be said that disseminating research findings in international peer-reviewed journals and at international conferences could increase personal connections between Thai and international researchers.

With technological advances, scholarly recognition can be increased through university websites. The information on the faculty's educational background, work experience and publications as well as contact information can be made

accessible online. This tool is helpful for prospective students in finding out about the faculty and their research interests, much more than fostering research and teaching collaboration.

For the Web CV or department website, it is probably a communication channel for prospective students. For example, postgraduate students use the Department's website to search for academic staff to supervise them. But I'm not sure whether other faculty members browse other academic profiles or not. (CU_SciTech_07)

The organizational website can promote the faculty; however, the public accept the faculty's ability and expertise based on publications

In terms of full-text accessibility of research publications on their Web CV, some faculty members provide only bibliographical information whereas some attach downloadable files or provide URL links to the full-text papers in online databases. Thai academics providing only bibliographies worry about copyright infringement and rights to access. Additionally, time and extra workload are factors in providing only bibliographies. If the faculty provide URL links to full-text publications, users may not have any right to access it, which is frustrating and wastes time. However, sending email to the faculty can be an alternative way to request and receive a digital copy without exposing themselves to the risks of infringing copyright.

In the digital environment, social media becomes a convenient channel to receive comments and feedback publicly. Blogging or using a Facebook Group enables the researchers to increase public recognition. Moreover, social media can function as a knowledge sharing space across the globe. For example, creating an account on ResearchGate (<http://www.researchgate.net>) increases research visibility and scholarly recognition at international level (TU_SocHum_01). Nevertheless from some perspectives, Social Media are for entertainment rather than scholarly communication (MU_SciTech_01).

6.2.4 The management of research data and research outputs

The increasing number of research outputs generated by Thai faculty members raises the questions of management and organization of research data and

research outputs to facilitate retrieval and research visibility at the universities. Practices in research data and output management in National Research Universities vary and can be categorized at three levels: Individual level, university level, and national level.

1) Individual level

The faculty have different practices in the management of research data and research outputs. The majority of faculty members recognize the importance of raw data to further research and innovation. Raw data can be text, images, or maps in a variety of formats - handwritten, printed, and digital formats. The faculty tend to keep raw data as long as they can.

In Science, raw data is regarded as a fact which is the most important. That is because it does not lie. If some faults happen or some faults from the measurement happen, the result may change but it does not lie. If data seems strange, then we need to check whether the equipment [and tools] are set correctly. ...we need to record this data because it is the most accurate. The findings presented in journal papers may be adapted but raw data is the fact ...If we do more experiments later with new materials or different systems but the same mechanism, we may check with the previous experiments and raw data. Therefore, [I] can't determine how long raw data is helpful. If I don't change my workplace, I will keep it for generations because it is a fact. This may be different from [raw data] in Social Science, it is quite changeable. (MU_SciTech_02)

No disciplinary difference influences the attitudes towards raw data. Faculty members in Social Science and Humanities tend to study and interpret data from documents, interviews, or observation. Similar to faculty members in Science and Technology, raw data are very important and helpful for further research.

[I] still keep raw data although I submitted report or completed the project already. [I] wouldn't delete [raw data] because raw data is the most valuable. It is true because I have kept raw data since 2003. At that time I kept it for one thing, but then I thought I could also use it for another. It's never out-of-date. Regardless of research benefits, raw data is useful for teaching... (MU_SocHum_01)

The researchers tend to share research ideas instead of raw data. In some research areas, high research competition prevents the faculty's raw data sharing practices. However, in the teaching and learning environment data

sharing is highly recommended. Researchers can learn from previous unsuccessful research projects by investigating factors and process which are recorded. However, this approach limits information sharing to closed research groups.

...For each research project, the researcher must note [everything] down in a notebook which is regarded as the lab's treasure. I strictly ask [my] students or researchers in our laboratory not to take this notebook from this lab and ask them to write details down. In a case that [they] graduate [and] newcomers continue working [here], this will be helpful for newcomers to search for previous information...Even though many previous research cannot answer research questions or offer negative results at that time, new researchers will not repeat the same process. Information in the lab's note is not published for public access but it is interesting and important... (MU_SciTech_05).

As raw data are of considerable significance for further research projects, the questions of depositing research data for public access are raised in the open access environment. However, depositing research data for public consumption is not yet discussed widely in Thai scholarly society, but there is a growing tendency for it to be debated. Some researchers are aware of copyright and issues of research ethics, whereas some perceive some advantages of depositing research data.

I think research publications are the outputs of the research process. However, learning from other research experiences is the most important to the progress in research. Therefore, if having research data repositories, more researchers can develop further research, innovation, and new interpretation. Research data should be managed by research funders and libraries at our host institutions but the storage and management capability of funders should be considered. (TU_SocHum_02)

It could be said that copyright concerns become one of the barriers to open research data. However, it is to be hoped that the success of the university-based IR projects may provide some potential for further open research data projects.

The researchers across disciplines do file backups for long-term access. They prefer to keep all versions of their research publications. Publishing a paper means that the researchers probably have at least three versions, namely

“manuscript”, “revised version”, and “accepted version”. The content of each version has different importance. A manuscript contains the author’s original ideas on research projects and how to convey information. After the peer-reviewing process, the authors have to modify some ideas in accordance with the suggestions of reviewers. They receive some interesting viewpoints which they may accept or reject. The final version looks similar to the published version. Actually the authors may not need to keep this version because we can access it on the publisher’s database. Two reasons for backing up these versions are 1) Born-digital file - the authors have to make no effort to keep it. It is already digital and kept on the hard disk or other storage device. The authors prefer to keep all publications themselves and 2) knowledge sharing - the authors may not have any rights to access to the publications without database membership. For further use, authors keep them.

[I think I] will keep [the files of published works]. That is because some parts the reviewers had some comments about referencing or copyright were not published due to copyright concerns. [These parts] are still good for teaching [students]. I keep it for personal usage. (MU_SocHum_02)

The faculty collect and manage their research-relevant information in both analogue and digital approaches. Presently, most documents are prepared by digital technologies. Some academics note down on paper and then make a draft by using computer software. The tendency is to keep everything and store them in several places such as hard disk drive, external hard disk, and clouding services. Backing up is the most-mentioned preservation methods. Technology obsolescence seems not be a big deal for access to back-up files. The faculty especially in Science and Technology know how to convert files to appropriate file formats. Some regard computer viruses and stolen laptops as considerable threats to the accessibility of back-up files.

The faculty themselves show disregard for the management of their research outputs. After completing research projects via submitting a research report or publishing a research paper, the faculty seemingly do not care how their host universities, research funders, or publishers manage their research publications. According to the interviews, many faculty members do not know what the funders do with their research reports.

I do not know what Research Affairs do with [submitted] research reports. [From my colleagues who have received a fund], they said that Research Affairs put research reports on the shelves in the research room. I am not sure whether they transfer them to the Library or not. I speculate that Research Affairs may send some to the Library. (TU_SocHum_04)

2) University level

The management of research outputs at the National Research Universities are unsystematic and redundant across the institutions. As a requirement for academic performance assessment, the faculty must prepare and submit a half-year review report to the department's performance assessment committee and further to the committee at the Faculties. Accordingly information on the faculty's research publications has been collected by departments, faculties, and universities. One part of an organization does not know what another part is doing.

No integrated management information system is employed for data sharing among Human Resource Management Offices, Offices of Research Administration, and libraries. It causes redundant workloads for the faculty especially preparing information and completing forms several times with the same set of information. Moreover, it is difficult to retrieve institutional research outputs and visualize the university's and individuals' research performance due to the lack of an effective database for managing scattered institutional research outputs across university units and the country.

University units have managed their funded research reports by themselves. The research reports are not deposited in the university library. It is just like institutional profiles. Consequently these interesting research outputs are not searchable by the public, but the institutions do not make them confidential. It tends to be open for all, but they seemingly are not aware of the importance of research reports for other academics. One faculty member, who works in a research institution at one university, commented:

As a part of [Research Institute], most final reports are already collected here [at the institute] as a holder of an institutional portfolio. But we have never discussed what we would do if someone asks for a photocopy, will we allow it? At the present time, final

reports we collect are kept at the research office. They were not submitted to the central library. (CU_SciTech_05)

3) National level

Research funders should be responsible for not only research budget allocations, but also research output management. A Professor in Higher Education stated that:

[As research funders, government sectors] probably are the best sources [for managing and providing access to research outputs] because professional associations may not have enough capacity to do so. Also, research funds are from these government sectors then I think at present they are the best ones to collect all information [on research outputs]. (HEI)

Key government research funders in Thailand recognize the importance of research management and research output management. In fact, individual management information systems were implemented by each funder with their own metadata practices (TNRR_LIB). Consequently, it could not present an integrated picture of public-funded research projects and reports. As a result key government research funders agreed to set up the “Network of National Research Management Institutions - NNRMI¹²” recognizing the significance of building a national research management infrastructure. NNRMI launched the “Thailand National Research Repository - TNRR” project in an attempt to develop a national research repository for funding agencies.

Libraries at the research funders will play important roles in realising the national research performance infrastructure. The National Library of Thailand may have a lesser role in research management, as there is no national legal deposit legislation and because of changes in organizational structures. Most NRUs are not in the government sector. They are autonomous bodies

Now we do not issue ISBNs to theses anymore. Universities can choose whether to submit theses to the National Library or not. Moreover,

¹² Network of National Research Management Institutions in Thailand (NNRMI) is composed of seven core research organizations namely 1) National Research Council of Thailand (NRCT), 2) The Thailand Research Fund (TRF), 3) Office of the Higher Education Commission (OHEC), 4) Agricultural Research Development Agency (ARDA), 5) National Science and Technology Development Agency (NSTDA), 6) Health Systems Research Institute (HSRI), and 7) National Science Technology and Innovation Policy Office (NSTIPO).

universities are not in the government sector so theses are not regarded as government publications. We do not have any reason or power to ask them to submit theses here as we did before. Depositing theses at the National Library is treated like any other dissemination or preservation method. When universities digitize their theses, they submit printed formats of theses to us. (NationalLib)

Consequently libraries at the NRUs must play an active role in the management of research publications. To facilitate further research, libraries attempt to collocate all institutional research outputs by implementing IRs. This could be a one-stop information source for institutional research outputs. Moreover, IRs can provide information for the administration, especially information on the research performance of individual members of faculty. However, the availability and accessibility of research outputs in IRs is debatable. Should they be open for all or just for community members? Eventually it is expected that the interoperability between TNRR and other IRs owned by NRUs will be accomplished. This will greatly improve national research visibility and research budget allocation.

6.2.5 Openness of research publications in Thai scholarly community

Openness of research publications in the Thai scholarly community has existed long before the term “Openness” was coined globally. An OA environment could easily happen in the Thai scholarly community. Thai academics are expected to share their publications with students and colleagues in their fields. Thus the availability and accessibility of scholarly publications in Thai scholarly society has been free to some extent.

It is possible to have [Open Access] [in Thailand]...the characteristics of an instructor are to teach, explain, [and] disseminate [knowledge] otherwise it will be a contrast to the nature of the occupation, right? ...The academic community is an open one unlike commercial or private communities... The term “university” equates to an open-knowledge and research community. (CU_SciTech_07)

Thai faculty members as teachers and researchers have the good will to transfer their knowledge to their students and to share knowledge with their colleagues or research fellows. In other words, Thai academics appreciate and advocate the principles of Open Access. One Thai faculty members asserted that

[I think Open Access] is excellent because we are researchers. Our goals are not for ourselves but we do research for our society. Free accessibility to research outputs optimizes information utilization. [Will it happen in Thailand?] I believe that this environment may come about in Thailand. (MU_SciTech_03)

Capitalism and copyright legislations can present an obstacle to sharing scholarly publications despite the fact that the faculty have every intention of sharing knowledge freely. To be a knowledge-based society, free access to scientific publications needs to be improved, especially the capitalism issue (TU_SocHum_02). One faculty member explained that *“I do not mind that [the university] disseminate my work to [the public]. I fully support the [research] dissemination. I mind copyright and legal issues more [than research dissemination].”* (CU_SciTech_04)

Unlike commercial international peer-reviewed journals, local academic journals published by the university sector have advocated free wide-ranging dissemination of journal papers on the Internet. The publishers have a non-profit purpose in managing and publishing journals. Consequently, back issues are digitized and downloadable from the Internet. However, copyright issues of journal papers in local journals are ambiguous due to the variety of understandings on copyright and work ownership. The copyright ownership is still debatable and interpreted variously. However, no lawsuit has yet been reported. Knowledge sharing and educational purpose are claimed as the exemption for making these journal papers freely available and accessible. However, international journals or other publications by university presses are restricted to those who pay subscription fees or buy books.

6.3 The concept of institutional repositories perceived by different stakeholder groups

While IRs have become widely and internationally accepted, the idea of IRs in Thailand has been conceptualized variously by different groups in the Thai scholarly community. This section reviews how each group of the stakeholders in the NRUs in Thailand conceptualizes university-based IRs. Moreover, it is difficult to avoid referring to opinions on the OA movement which is a closely related concept. The perceived and non-perceived benefits of IRs are also presented in this section. Based on the interviews, the findings are classified and are

respectively presented by groups of the stakeholders - research funders, the faculty, academic publishers and academic libraries.

6.3.1 Research funders

Research funding agencies in Thailand can be categorized into two main sources: 1) local sources, including government sectors, core research institutions, universities, and private organizations, and 2) international sources which are governmental and non-governmental organizations from abroad. Each research funder has different grant agreements. However, every research funder requires the grant recipients to submit research reports in printed format as well as digital files.

Depositing all funded printed research reports with funding agencies introduces challenges for information services and space storage. Research funding agencies confront serious limitations in storage space. With the proliferation of digital technologies, research funders have established their own databases of research reports. However, simply storing reports cannot provide access needed across funding agencies.

Each year there are more than 10,000 - 100,000 research reports... NRCT's library collects and manages this huge collection especially theses and research reports about 8,500 boxes. We don't have any more space. Then we spend about 1 million baht for outsourcing repository service... Then now we changed to use Thailand National Research Repository. (Secretary_NRCT)

Network of National Research Management Institutions (NNRMI) recognizes the importance of building a national research management infra-structure. Consequently, NNRMI launched the project "Thailand National Research Repository - TNRR" in an attempt to develop a national research repository for funding agencies. The major driving force is the lack of a single information source to generate reports on research budget allocation and research projects across the country for the Bureau of the Budget (TNRR_LIB). Additionally the TNRR project is regarded as a free national gateway to research projects and research publications funded by NNRMI members.

According to the Secretary of National Research Council of Thailand (NRCT) who is a key OA advocate, it is essential for the country to establish a national

research repository. TNRR project firstly enables research funders and researchers to check whether proposed research projects are duplicated or not across the NNRMI. Secondly, this repository enables research funders to check the status of funded research projects: on-going or completed government-funded research projects. Thirdly, it aims to collocate scattered government-funded research outputs for easier search and utilization through advanced technologies, and finally TNRR will be useful for considering research budget allocation in the future.

The openness of research publications has been considered by the research councils in Thailand. It could be said that the vision of openness of government-funded research publications in Thailand has found a champion when Professor Dr. Soottiporn Chittmittrapap became Secretary of NRCT. He advocated that open scholarship should start with all government-funded research reports. These collections should be freely available and accessible for everyone. The Secretary of NRCT mentioned that the mindset on the accessibility and the ownership of research outputs should be changed so as to support a knowledge-based society and the growing international OA environment. He explained that:

Which funding source do the faculty use for their research projects? NRCT? TRF? NECTEC? No matter from which funding source, the more important question is “Whose money?” All is the public’s tax. Government budgeting? ...

However, outlining and promoting this vision for Thai academic society without any written formal policy is a formidable challenge. As a result it is only slowly being adopted by the relevant organizations. The Secretary of NRCT suggests two pragmatic approaches to gaining the collaboration of funded researchers and government funders in order to ensure the deposit of research publications in TNRR:

1. *In the case of government-funded research projects...,as working at the NRCT, I have responsibilities to allocate budgets [for research], even if research outputs are conducted by the faculty but I’m the middleman concerning the research dissemination [and utilization]. ...Then I announce all government-funded research reports will be opened for the public automatically. If anyone doesn’t make it freely accessible, please notify me. That is fair. For example, a researcher may claim that this research report cannot be freely accessible because this research can provide monetary profits. This may or may not be included in the*

grant agreement before. However, the researchers have rights to protect themselves.

2. *Some researchers conduct research projects which may be risky to public security. There may be impacts if the research information is made to be accessible openly. ...In this case, I would tell them to make sure to reserve their rights prior to submitting their information to me... ...There will be a committee that will consider this matter...*

Apart from persuading researchers to deposit reports with TNRR, the Secretary of NRCT and the TNRR committee have to consider possible technologies to solve the resulting workflow without damaging the routine work at each research council. It seems that the concept of IRs matches such requirements. Also, a single-window database with OAI-PMH standard enables each research council to deposit its research outputs into TNRR. However, metadata across databases needs to be standardized. In short it is agreed that the decentralized deposition is the best approach. This will save time and effort as well as result in little change in working practices (TNRR_LIB). The advantages can be easily appreciated by the researchers as well:

...It should be accepted that the government-governance system is not highly effective. [Information] is scattered. Even in the internal institution itself, information on research projects and research outputs is located diffusely. If we start collecting and organizing research data in each institution, it will be better. It's quite hard to start with the central institution. (CU_SciTech_05)

While research councils have developed the TNRR project, it is expected that national research universities should establish their own IRs and collaborate with the TNRR project. The Secretary of NRCT stated that:

Research universities produce increasingly many publications and conduct more research projects. The question is "Can anyone know [how many publications these universities produce]?" How can you verify it? ...If research universities establish their databases, anyone can get information...As the Secretary of NRCT, I support the establishment of institutional repositories connected to the TNRR database. Currently we ask nine National Research Universities for their collaboration and all agree with this. However, at this current stage we need to check whether their databases have OAI-PMH or not. (Secretary_NRCT)

Research councils are attempting to collaborate with universities by asking for permission to harvest metadata from university-based IRs. It is noticeable that

collections in each IR are variable. Some IRs do not collect government-funded research reports because of copyright concerns and there is no official policy on Open Access from the government research councils. Additionally, access to IR content at the universities varies widely. These issues need careful considerations by the core national research institutions.

6.3.2 The faculty

The faculty in this research were selected purposely and cooperation depended on getting permission and agreement. However, the objective was to gather various views from this essential group of stakeholders, for without the support of frontline researchers an IR has little chance of success. Faculties at three research sites across disciplines and with different work experiences were invited to participate voluntarily in the research. Their perceptions on IRs in general and specifically on the established IR projects at their universities were investigated.

The interviews demonstrate that some faculty members do not know anything about IRs and are unaware of the established IR at their place of work. The concept of IRs and IR projects are described in different ways in Thai. This may not convey clear information. Instead, the term “Institutional Repository” in Thai makes people confused. Some faculty members do not understand the concept of IR at all, whereas some think it is like collecting all information at the centre (TU_SocHum_04).

However, after the definition and characteristics of IRs were explained, the faculty were able to reflect on their perceptions of IRs and the potential advantages. Their perceptions will be classified into following themes.

1) IRs as a 24/7 digital collection

As all full-text information is available online, it saves the time and effort of visiting libraries to consult research outputs. The researchers can have access to the full-text of information resources from everywhere with an Internet connection whenever they like.

2) IRs as a preservation method

Some perceived IRs as a preservation method. For example a faculty member at TU (TU_SocHum_04) explained that “[I] trust that my research outputs can be accessible for a long time [if they are deposited in the IR]. If [I] keep them by myself, [it tends to] disappear. At least, [I] know where I can get my works.”

3) IRs as a source for plagiarism checking

It can be seen that the faculty are very much aware of the issue of plagiarism. Even if Turnitin, commercial plagiarism-prevention software, is available for use among universities in Thailand, there is still a lack of plagiarism checker software to check academic resources in the Thai language. Then IRs are perceived as a digital corpus of academic resources that can be used for this purpose.

If we have an accessible warehouse of full-text resources, plagiarism can be easily checked. (MU_SciTech_02)

The concept of institutional repository has both advantages and disadvantages. It's very good because it shows the potentiality of faculty members. Besides, foreign countries can use deposited data to check for plagiarism. If anyone plagiarizes my papers, I know. It's a good security system and definitely all knowledge should be collected and preserved in one format or another. (CU_SciTech_03)

4) IRs as a database of only public-interest research outputs

For some faculty members, IRs are just ordinary databases of institutional outputs. However, some faculty members consider IRs as a treasury storing and preserving only some public-interest research outputs. One faculty member explained that

The institutional repository here is just a storage or treasury, not promoting the university or the faculty. Therefore, IR usage depends on users. The repository was built with an expected function as treasury of most-wanted or public-interest research outputs. So some good-quality research outputs are probably not deposited into IR because [the university] already assesses that those are not in the public interest. (TU_SocHum_01)

This kind of the perception probably reflects the importance of communication and the IR promotion on the faculty's understanding and awareness of IRs. Moreover, it influences the decision to participate in the IR projects.

5) IRs lack of relevant scholarly publications

IRs are not likely to benefit the faculty as information users. Since the researchers prefer in-depth, exhaustive, and up-to-date information, IRs do not seemingly serve their information needs. As a result there is no point in searching for relevant publications in the IRs. One faculty member explained that

...If we use IRs to search for current academic progress in the field, it's impossible. ...IRs can provide just information on the profile of researchers and their publications. Therefore, if [I'd like to get] updated information [on the field], I tend to use search engines [more than IRs]. I think it depends on how much information the research project needs. If we need a lot of information, information from IRs may not be enough. (MU_SciTech_02)

[I] perceive that [IRs] are another approach to increase my academic reputation but [they] may be useful resources for other people. But for me, [I] don't use information in IRs as reference resources because [I] know that no one conducts research in this area, then [I] don't search [from IRs]. If I make a search, I tend to search from international online databases. (MU_SocHum_02)

As an information user, faculty members know where the most appropriate source of information in their fields is to be found, so they can see no point in searching for information in the IRs at their universities.

[IR] is another kind of library - Electronic Library. I think this is a good concept but in practice, it's difficult [to be accomplished] and difficult to maintain. About the usefulness, probably it's useful for the young generation who can search [who can use ICT to search for information]. But for the researchers, we ourselves know where we can get needed information. However, if there is someone assisting to organize [deposit our publications], it is good but isn't helpful for us much. (MU_SciTech_05)

However, seemingly faculty members forgot to think about IRs in general or in other universities across the globe which probably provide access to relevant and needed scholarly publications freely. Probably digital convergence makes information retrieval borderless. When searching for information, the searchers concentrate on topics or keywords rather than considering where articles are kept and made available. Consequently, the searchers may not notice which organization provides information.

6) IRs increase academic reputation

As the authors of deposited works, the faculty have more positive attitudes toward IRs as one of the most important channels of communication. IRs make it possible for more people to gain access to their research outputs. They raise the faculty's reputation and the recognition of universities.

Users access and use our IR; then they will know the University increasingly. The reputation of university comes from university members who are authors and transfer knowledge in different formats. Then people will refer to the University. (CU_SocHum_02)

Additionally, IRs can help universities manage research projects and plan research strategies. Statistics of IR usage can show evidence of research performance of institutions and individuals. This information may be beneficial for policymakers.

If the university collects its institutional research outputs at one place, it will be a one-stop source for dissemination [to the public]. The university itself can examine and easily summarize its institutional research outputs, right? Also, people can search to see what research the university has done. (CU_SocHum_01)

Moreover, faculty members can perceive IRs benefits for postgraduate students.

For postgraduate students, they will get to learn about what they are interested in and see which faculty members are experts in the field and have the same research interest. They can contact them. Moreover, this database is a tool for checking whether students indulge in plagiarism or not. (CU_SciTech_04)

Sharing scholarly publications widely provides more opportunities to the researchers and their institutions to increase their renown. In all likelihood promoting academic reputation may not be the principal benefit of IRs in the opinion of faculty members:

[Academic reputation] may be increased because everyone can know who I am from the deposited data. But I don't think IRs will promote my academic recognition a lot. [I mean that] there may be [an increased reputation] but It's not the main point. (MU_SciTech_05)

Faculty members in Thailand do not think the academic reputation of their institutions and individuals is very important, but recognize the way IRs can increase their own standing.

I don't mind if IR is a marketing tool. I think it's another way to increase more readers for my publications. Then my academic reputation is up to the readers instead. (CU_SciTech_04)

Additionally, the statistics of viewing and downloading each item could not represent the popularity of faculty members (TU_SocHum_06).

7) IRs increase research collaboration and knowledge sharing

In addition to increasing academic recognition of individuals and universities, IRs have the potential to increase research collaboration and knowledge exchange. When searching for publications in IRs, academics and the public can see the profiles of researchers at that institution too. As a result, IRs can be a communication channel for the public or other academics to know more about each other's expertise and previous research. This can contribute to further contact for conducting research together or networking.

...[IRs] help us establish research group or exchange opinions... I don't only provide information but also seek and use information from others. For example I work in the field of environment. Sometimes I need knowledge from other fields and know what other people are doing. This leads to discussion about projects. Or when people see my work, they may ask me to be a member of their research projects. Or if private companies want to invest [in R&D project with me], probably contact me or ask me for information. Then I think it's great. (CU_SciTech_01)

For me, if I want to do a research and don't have any knowledge on that topic, I search the [IR] database with keywords. It will tell me in this university who has worked on the topic. Then, I can contact him/her to join my collaborative project. (CU_SciTech_04)

If Chula[longkorn University] regarded itself as a pillar of the Kingdom in term of research, [IR] is a source of research outputs created by university members for the public. The public could acquire the [existing] knowledge, or if the public require more information or develop further from collected research outputs, this will become a source of information and knowledge. They can find out what university members do and contact them. Presently they may want this type of information but do not know whom to contact. (CU_SciTech_01)

Most of the faculty agree with knowledge sharing. Having a one-stop online database of institutional academic publications enables knowledge sharing and knowledge development among academics at the institution and across the

country. It is widely accepted that academic publications should be freely shared. Moreover, the faculty intend to publicize their research findings because they would like to share the findings with the public. Conducting research and publishing findings are regarded as one of the core services for the academic community and the public.

As an author, I'm glad someone uses and cites my works. Also, I'm happy that my opinions and works are good enough for further research and development. (CU_SocHum_03)

It's academic usefulness. [IRs] drive knowledge exchange and critique. What is the weakness? ...It leads to potential development and enhances knowledge creation. (TU_SocHum_09)

8) IRs work as an official search engine to scholarly publications

Although a number of effective search engines are available for free, the faculty prefer to have an official and trustworthy repository of their own research outputs. As a research gateway implemented and maintained by renowned universities, at some points IRs seem to be more reliable and trustworthy sources than search engines. It could be said that information on university's websites or databases are regarded as reliable sources.

[IRs] create and extend research network. Only Google can increase dramatically [scholarly networks]. If there's an official and institutional one developed by the university, it will be more obvious. Also, bibliographic data and citation information will be more reliable. If the university takes charge of establishing and maintaining IRs, there will probably be less copyright issues. (TU_SocHum_08)

9) IRs play an important role on research management at the national level

At the national level, IRs can provide an overview of research activities across the country.

At least we could check whether in Thailand there is anyone conducting research in the same or relevant areas. Sometimes we confront the same problems, then we would like to share ideas and discuss with someone. However, we don't know whom we should discuss it with. (MU_SciTech_01)

IRs are considered by some as a national research portal.

I think IRs will have benefits for the scholarly community in general. This enables us to know who conducts which research. In Thailand it's quite difficult to check the repetition of theses...Besides, this system enhances [scholarly] community. Well, this facilitates me to contact academics. For example, I've a background in cultural management but I need someone who has expertise in architecture to help me on urban areas. Then I can contact him. At the present it's just personal network connections but this IR may expand the community. Then it will increase more opportunities to do collaborative research. (TU_SocHum_10)

However IRs in Thailand do not have any impact yet on grant allocation. From the viewpoint of faculty members, IRs can provide a source of information when applying research grants.

Then, I can contact him/her to join my collaborative project. But, if there's no one, it's a proof that no one studies this [area] yet. It can be weighted evidence for me to apply for research grants. (CU_SciTech_04)

The content availability and accessibility

The faculty expressed their opinions on the availability and accessibility of IR content. As already discussed access to IR contents is variously controlled. Some universities allow some groups of people access to the full-text of IR content. Some faculty members think all content should be open to all (institutional members and the public) otherwise what is the purpose of developing and populating the database. It demands time and effort as well as costs. However, rights management for particular resources should be carefully considered.

At least (IR) should be open for all to use. [It] should allow the public [not only university members] to search and retrieve [any content in IR]. But is it possible not to allow access to full-text textbook? Just provide the bibliographical data. Personally, if [IR's] already built and there is no access, then [there's] no benefit at all. (MU_SocHum_01)

Definitely! Why would we want to limit the access [to research outputs]? After publishing [the findings], [I'm happy that] anyone can use them but [he/she] should follow the correct reference system. I focus on this very much. I think Thais are careless about citing others' works. I say have it as open access. Our field is quite small; why not do open access? (MU_SocHum_01)

The content contribution

The faculty have been asked by academic libraries to deposit their research outputs in IRs. Most do not participate in IRs because of copyright concerns. The Library Director at MU suggests that copyright concerns are one of the barriers to delivering IR projects. She asked faculty librarians to ask for the faculty's participation, but not many agreed to deposit their research outputs. She explained that

...the faculty wouldn't agree to [deposit their work here] because [they are] afraid of infringing copyrights, especially plagiarism issue. Especially publications in English, it should be understood that some probably copied and pasted [statements from other resources]. Currently plagiarism is another key issue. Some faculty members are afraid that they may unintentionally use copyrighted works without following rules [of citation or quotation]. That's a concern we found. (MU_LibDirector)

The faculty's copyright concern is a common issue which academic libraries across the globe face. Library Director at MU mentioned that

I talked to librarians from Hong Kong and Singapore about institutional repository [management]. They also faced obstacles about the content contribution of the faculty. I think they probably have [problems]. However, they still develop [and manage] IRs [at their universities]. Some faculty members participate in their IR projects. (MU_LibDirector)

Another issue is the lack of interoperability among relevant information systems. This results in faculty members completing forms with a set of repetitive data several times. Then they tend not to contribute to IRs because it will cause them extra work.

The obvious perceived benefit of IR is for the university itself. Every semester the academic performance of faculty members is assessed. Faculty members have to complete the form listing what they do. ... If we have data at the centre, it will be useful obviously to set a query and generate all relevant data into one form. After working 3-5 years, it's time to be promoted to a higher academic position. This is redundant work to prepare relevant hardcopies and softcopies. Therefore, it will be grateful if all data are kept and organized at the central database. The university can link this information with promotion academic positions. That is the direct IR benefit I can perceive. (CU_SciTech_05)

Concluding, a Professor of Higher Education expressed his views on IRs that there are advantages to many groups of people in the scholarly community comprehensively.

The most importance is that [we] know who carries out research on what topic and where it is done. This will be beneficial for researchers. That is there is no conducting a research on the same thing. Secondly, [IRs] enhance knowledge creation. For the public, they know what kind of knowledge are already discovered and created then they can further develop new inventions or new research based on the previous knowledge. Thirdly, some compare and contrast information to set a policy. Fourthly, a group of people in budget allocation and usage [use generated data from IRs] to make a policy. Finally, [IRs] indicate academic ranking. (HEI)

CUIR is a good idea to combine everything [every institutional scholarly works] at one place. This can visualize what [institutional research outputs] the university has. ...also it enhances wider dissemination of research outputs. It's another way to increase our academic recognition. (CU_SocHum_06)

6.3.3 Academic publishers

Academic publishers here include university presses and academic journal publishers. The interviews demonstrate that most academic journal publishers and university presses in Thailand do not know what IRs are and especially university presses are not aware of IRs at their universities. If academic libraries do not focus on acquiring copyrighted journal papers and publications then they see no need to collaborate or market IRs to this group of stakeholders. Academic libraries mostly started establishing IRs with some digital collections in their hands which were largely theses and university-funded research reports.

Journal publishers agree with the concept of free access and knowledge sharing. In Thailand most academic journals are non-profit with the aim of distributing knowledge as widely as possible.

The main principle of our journal is not about profit. We are welcomed to disseminate our journal papers on the Internet to maximize utilization of journal papers. (Journal_09)

Even when journal publishers do not focus on profits, copyright issues are still of concern. Journal publishers seemingly allow the content to be deposited in IRs,

but prefer for good reason providing linked data through URLs rather than downloadable files.

Maybe sending a letter of permission to us and acknowledging our journal helps [to get some participation from the publishers]. Providing links to the Journal's website may be better than depositing downloadable files. We just think that they can see other relevant journal papers [published in the same journal title]. Then the readers will get more benefits. (Journal_01)

Journal publishers can take advantages from providing online access to journal articles in terms of increased recognition, more readers, increased citation, and higher impact factors.

I don't worry about decreasing numbers of subscribers. Providing free downloadable journal papers is another way to access and use them. Also this can increase citation index. (Journal_08)

University presses have different perspectives on IRs. Two of them were not aware of IRs at their universities and tend not to contribute any digital content of their published resources to IRs due to uncertainty about digital rights management and copyright infringement. However, the other, collaborating with the library, has an agreement to deposit a digital copy of manuscripts in IRs as a preservation method. Copyright issue is still a significant issue which can accelerate or impede the progress. However, this concern might be solved by clear copyright statements and good practices on managing copyrighted resources for free access.

6.3.4 Academic libraries

Academic libraries in this research conceptualize their IRs in different ways depending on the administrative structure of libraries and library directors. The established IRs in three NRUs are at different stages: 1) At Chulalongkorn University, the CUIR has been established for about 10 years with the support from the university executives from the beginning. Later, it seems that university executives were not aware of the implications of setting up an IR, particularly that the IR was going to be publicly accessible with an ID number requirement system, 2) At Thammasat University, the IR has been recognized by university executives and faculty members. As a multi-campus university, faculty libraries play an important role in acquiring and depositing research

publications, and 3) At Mahidol University, the IR has just been established and can be accessible through the Intranet only. The close collaboration between the university press and library has resulted in a mandated policy to deposit a copy of publications published by the university press with the IR. However, all of them employ a bottom-up management approach and have no written collection policy for their IRs available for the public. They concentrate on populating the collections as the first important stage. They consider IRs as a storage and dissemination tool, not having any role in administration yet.

The interviews with Library Directors and IR manager on university-based IRs can be classified by themes.

- 1) IRs are different from digital libraries.

Initially, the concept of digital libraries and IRs were quite similar. Understanding about IRs became clearer as time went on. The concept of IR was introduced to Thailand from initial training in India. A Thai academic librarian at Chulalongkorn University got a grant to attend a workshop in India. She reported that she never heard the term “institutional repository” nor did she learn what it was. The workshop did not mention anything about IR but focused on digital library software. The concept and how to build a digital collection by Greenstone and DSpace were delivered. At the workshop, the term “digital library” was used instead of IR. Later, she got to know the term “institutional repository” and then did more research. Finally she decided that DSpace was probably the appropriate software that matched the workflow and the needs. However, she explained that the scope of the IR was not extended from theses to cover other resources.

From the perspectives of library directors, IRs are different from digital libraries in aspects of content and well-developed software. Information resources deposited in IRs can be of various types: text, audio, photos, and video clips. Well-designed IR software provides more opportunities to organize these digital scholarly resources. Additionally, two criteria to distinguish between digital libraries/digital collections and IRs are software and full-text accessibility, as well as unrestricted reuse. According to the Library Director at Chulalongkorn University, IRs should have these characteristics:

Many institutions have secretly built up digital collections but don't make it accessible [for the public] yet. Also, they did not use specific-designed IR software. (CU_LibDirector)

- 2) IR as a one-stop online database of scattered research outputs created by university members.

All academic libraries consider IRs as an information resource and knowledge bank. Capturing diffuse research outputs created by institutional members enhances and facilitates knowledge creation. IR at Chulalongkorn University is primarily expected to be a source of academic publication:

We hope that when Chulalongkorn University reaches the 100th anniversary of its foundation, we would like to have CUIR as a pillar of the nation for information and knowledge. It means that no matter what the topic is about one can get information from CUIR. (Secretary_NRCT)

Since CUIR is considered a national reference source, Prof.Dr. Soottiporn had an idea and an approach for making IRs successful. Once you don't deposit your scholarly outputs here, when you are retired, who will keep your work? (TNRR_LIB)

- 3) IR as an institutional and individual showcase.

When institutional intellectual assets are available online, more people can access these scholarly resources. This increases the opportunities for institutions to be recognized through visualized research performance. All library directors in this research perceive their IRs as institutional showcases.

Library director at MU added *"IR is another way to increase the reputation of a university. [In other words,] if more people [can] access and use these [institutional research outputs], the more impact the university gains."* (MU_LibDirector) Similar to the University Press Director, she added that *"This also increases the reputation of the university press and authors too. Then it's a win-win situation."* (MU_UniPress)

This is confirmed by Library Director at TU. She highlights that

Actually, depositing research outputs into institutional repositories is one good way to disseminate research findings. People across the world can see the faculty's publications. If the faculty contribute

only their printed publications to [physical] libraries, a small number of users use their works. On the other hand, if their works are deposited in IR, they will be more visible and easily accessible ...this brings many benefits to the faculty. (TU_LibDirector)

According to Library Director at Chulalongkorn University, CUIR is considered as the strength of university in the eye of the Office for National Education Standards and Quality Assessment (ONESQA)¹³. This may attract certain attention from the university executives. Other benefits were mentioned:

Institutional research output can be internationally disseminated [via IRs]. The current statistics of content viewing show that several visits are from around the world even though most of content are in Thai. 2) [IRs enhance] knowledge sharing and 3) [IRs are] information resources. Students can learn more. Though, the public pay quite a lot of attention to [IRs]. We just announced that we would allow downloading full-text files. They appreciate this a lot (CU_LibDirector).

Librarians perceive several benefits of IRs to universities. On the contrary, they report that university executives do not perceive any benefits of IRs, even though we can generate or leverage more services from the content.

Apart from visualizing research performance of universities and individuals, established IRs increase the recognition of academic libraries at international level too. This increases the participation of Thai university libraries in library networks across the globe. According to Library Director at Chulalongkorn University, librarians from Laos were trained in how to use DSpace software here. Moreover, this became collaboration between the two institutions in terms of resource sharing. For example, as one of the Libraries of ASEAN University Network (AUNILo) members, we established the AUN¹⁴ Portal of all member IRs (<http://aunilo.org/repositories/>). Currently, it does not connect through a technology-based approach but just provides links. That is because each institution has its own rights management to consider. This project is on the

¹³ Office for National Education Standards and Quality Assessment (ONESQA) is a public organization which was mandately established according to Chapter 6 of the Act on Education Standards and Quality Assurance. This Office aims to develop the criteria and measurable methods for the quality of education provision from at the national level to the smallest.

¹⁴ The ASEAN University Network (AUN) was founded in November 1995 by ASEAN member countries

website of ASEAN University Network Inter-Library Online (AUNILO) (www.aunilo.org).

4) IR as a preservation method.

One of the most deposited collections in IRs is serials. Libraries try to digitize or ask for digital copies of academic journals published by the universities or university units. Some journal editors agree to deposit copies of previous issues whereas some do not agree at all. For example, TU Knowledge Base Database also collects digital back issues of scholarly journals to save costs of printed preservation and journal bindings (TU_LibDirector). For CUIR, some journal editors brought previous journal issues to the library to digitize and deposit into the CUIR. The editors are willing to preserve and disseminate published papers for educational purposes.

5) IR as a library-press collaborative project.

A digital copy of publications published by the university press is deposited in the IR as a mandatory policy. However, the availability and accessibility of full-text publications is only considered case by case. Library Director at Mahidol University explained that

In fact, by the technology we can manage IR to visualize what the content is. However, the accessibility is another issue. This will let us know what we have but if they want the full text, they will probably have to purchase the downloadable one. (MU_LibDirector)

6) Several relevant systems can be built on IRs

- Plagiarism detection software

As being a full-text database, several projects can be leveraged from the IR content. Projects developing software for anti-plagiarism contacted academic libraries for permission to use digital content in IRs for running and testing their software: Anti-Koppae¹⁵ and Akkarawisut. However, it is noticeable that

¹⁵ Anti-Koppae is software for checking plagiarism. This NRCT-funded project was developed by Kasetsart University and National Electronics and Computer Technology Center (NECTEC). This enhances checking plagiarism in theses, research proposals, research findings, and other documents as well as song lyrics. This software is compatible with several file types

plagiarism checkers for collections in Thai could not be perfected unless research publications in Thai in university-based IRs were included.

- Expert Database

At Chulalongkorn University, CUIR can be linked to and shared data with the Community of Practice (CoP) database. This database provides information and research publications and details of the expertise of all university members such as faculty members and researchers. This increases the showcases available to faculty members and researchers and encourages greater dissemination of scholarly work. However, it seems that the CoP database and the CUIR database require more time and effort from faculty members and researchers. Some faculty members feel annoyed at having to give duplicate data several times. If CoP could generate CVs and automatically update data, it would help overcome such objections. Additionally a librarian-driven approach is still employed for content enrichment.

Some similar IRs have been developed by other institutions on campus. For example, Chula Scholar Bank ¹⁶ was developed by Chula International Communication Centre (CICC). This shared database is considered as a communication channel for the public and media to learn more about the profile of university members and provide contact information. The ultimate goal is to promote the work of faculty members and researchers at the university to the media.

CICC Director identifies the difference between Scholar Bank and CUIR:

[Chula] Scholar Bank basically aims to make it easy for anyone who would like to contact our faculty members, academics, or researchers for broadcasting [their opinions on particular issues]...It focuses on mass media but anyone around the world can use this because we provide information in English...Providing a special service for public

such as .doc .odt .docx .txt and .pdf This project tests the software with digital content in CUIR databases at Chulalongkorn University and e-Theses collection at Kasetsart University. ("Anti-Koppae" Plagiarism Checker Software DailyNews 3 September 2012 p.10. Available: <http://www.nectec.or.th/clipping/news/2012-09-03-4609.pdf> Accessed 11 February 2014)

¹⁶ Chula Scholar Bank (http://www.scholarbank.chula.ac.th/index_en.php) was developed by Chula International Communications (CIC).

relations is the main objective [of Chula Scholar Bank]. It is possibly different from CUIR. (CICC)

6.4 The current state of the National Research Universities' institutional repositories

Three NRUs in this research have implemented IRs for years with the same objectives of collocating institutional scholarly content and research visibility. These three university-based IRs currently are at different stages. The development and management of IR projects in these participating research universities can be traced to a number of sources. Information on library websites and interviews with various stakeholder groups can explain the current state of university-based IRs in NRUs from the following perspectives on their management, the scope of IR content, collection development policy, IR participation of stakeholders, and utilization.

6.4.1 The management of Thai university-based institutional repositories

The central libraries of the three national research libraries are responsible for IRs. At Chulalongkorn University and Thammasat University, central libraries sustain the IR projects by considering them as routine jobs so that the projects can receive financial assistance and support from the administrative board. No specific working committees or job positions for IR projects in these universities is reported at this moment. Some librarians at the central libraries are responsible for this project and later seek collaboration from faculty librarians. In other words, no faculty librarians are involved in the strategic planning and decision making. On the contrary, Mahidol University's library has established a specific working committee for the Mahidol IR. The Mahidol IR committee is composed of librarians from all faculties across the campuses. Faculty librarians participate at every stage such as planning, developing collections and providing services. This can greatly enhance the effectiveness of an IR project.

No academic lawyer is involved in any IR projects except in the case of Mahidol IR. It seems likely that librarians manage mostly copyright issues themselves. However, libraries can get advices and assistance from the university's legal affairs office and faculty members in the Faculty of Law in cases of complicated

copyright issues. Consequently, copyright understanding and interpretation by library directors and librarians influence collection development, availability, and accessibility. For example, research reports, funded by off-campus organizations, are not deposited with Chulalongkorn University Intellectual Repository (CUIR) because of concerns about copyright infringement (CU_LibDirector). The faculty must clear copyright of their scholarly work themselves before deposit, even though they declare an intention to contribute content.

No official written institutional policies and collection development policies are available online for the public. It is unsurprising then that most stakeholders are not aware of the implementation of repositories and mechanisms for content deposit. As a collaborative project, it is important that librarians and paraprofessionals should understand the mission and goals of such projects in order to enhance standardized collection development. Mahidol University's library has a detailed collection development policy for the IR committee only. However, the libraries of Chulalongkorn University and Thammasat University do not have official written collection development policies. This does not mean, however, that there is no standard for their practices. They use minutes as guidelines for their IR staff. To sum up the management of IRs in the participating NRUs vary depending on the administrative structure of each university. No institutional policy and collection development policy are available for the staff and the general public. This may lead to stakeholders' reluctance to deposit and affect content recruitment and contribution.

6.4.2 The scope of university-based institutional repositories

All NRU libraries embraced IRs with the optimal intention of garnering institutional scholarly outputs for research resource, research discovery, and as showcases for research output. Generally these university-based IRs house a wide range of institutional scholarly works of various types. What the content of these three IRs have in common are theses, research reports, and journal articles. However, some collections in these repositories differ in detail depending on collection development policies. They can be summarized as follows.

- Chulalongkorn University Intellectual Repository (CUIR)

CUIR houses only institutional intellectual assets with university-owned copyright. Therefore intellectual assets generated by university members can be deposited with CUIR if the copyright is owned by the university. The limited scope of CUIR affects decision making by librarians in terms of collection acquisition and collaborations with others. The manager of the CUIR project gave an example of depositing journal articles written by university members. Even though journal articles are written by university members, she does not deposit them because the university does not own the copyright (CU_IR). In such cases the library has to contact the authors or journal editors for their permission before digitizing and depositing them in CUIR. As Thai journal publishers are Departments, Faculties, and Institutes on campus, some journal editors contribute their printed edition of previous issues with the libraries. Then the library can digitize and submit them to CUIR for remote online access. However, articles in international journals written by the faculty are not deposited in CUIR even bibliographic records because of copyright concerns.

The research reports funded by other institutions are not currently deposited with CUIR because of similar copyright concerns. However, the IR manager stated that the scope of IR content will be expanded or not depending on policy set by the university executives. She further expected that the Akarawisut plagiarism checker software project, which originated on campus, can attract some supports from the university executives in recognition of the importance of CUIR as a database for the Akarawisut software and could lead to a policy to obtain the deposit of more research reports/papers from the faculty (CU_IR).

Apart from theses, journal articles, and research reports, CUIR houses technical reports, learning materials, lectures, best practice manuals, and photos. Therefore in CUIR the file formats are various, such as pdf, html, video clips, images, and audio.

- Mahidol University Institutional Repository (Mahidol IR)

Mahidol IR content can be divided into two main categories. The first category is university archives. The Library Director stated that meeting minutes are

digitized and deposited with Mahidol IR as university archives (MU_LibDirector_UniPress). The other category is institutional research outputs. Mahidol IR recruits theses, research reports, and journal articles like other university-based IRs. Proceeding documents including all conference papers, abstracts, conference posters and exhibitions are also recruited into Mahidol IR. In addition, intellectual properties owned by the university and manuals are also housed here.

For international journal articles in traditional journals, librarians create bibliographic records with links to online databases. The pdf files are not provided in order to avoid copyright infringement. The full-text accessibility of these resources depends on users' access rights. Apart from traditional journals, the library is aware of Open Access journals in which case articles are captured for the Mahidol IR. This has the potential to locate all journal articles written by university members in one place and to enhance wider dissemination.

Theses collection in Mahidol IR includes all theses written by postgraduate students at Mahidol University and by university members. No matter whether master degrees or doctoral degrees provided by Mahidol University or other universities, all theses must be deposited with the Mahidol IR. In this case some copyright infringement issues may arise if the full-text is downloadable freely. This will need to be revised if the IR committee decides to open their IR to the public. Unlike Mahidol IR, CUIR and TU Publications Knowledge-based Website house only the output from postgraduate research.

The unique feature of the Mahidol IR collection is publications published by the Mahidol University Press. As the establishment of university press was originated and developed by the university library, it is a requirement that the university press must deposit a copy of publications with the Mahidol IR as a preservation tool. However, full-text accessibility is only for university members and even this issue is open to question by the university press, the library, and legal affairs. In addition to books and textbooks published by the MU Press, Mahidol IR committee attempts to acquire books and textbooks written or edited by university members no matter which press they are published by. This may require more effort and time in dealing with copyright clearance.

Access to Mahidol IR is currently restricted to the local Intranet only. Copyright issues and full-text availability will be further discussed in the near future. However, at least creating bibliographic records of institutional scholarly works without downloadable full text can give an impression of the University and its staff.

- Thammasat University Publications Knowledge-based Website (TU Knowledge-based website)

The content of TU repository covers three main categories: international publications, university staff's research outputs, and postgraduate research. As a result, TU repository houses articles, book chapters, books, conference papers, research reports, papers, presentations and theses. The e-Theses are deposited with the repository using ContentDM as its software platform. Research reports funded by outside organizations are not deposited with the repository, except when permission is given. The library director explained that there are two approaches to obtaining off-campus funded research reports: collaboration with funding sources and researchers' own contribution. For example, Thammasat University's library collaborates with the Thailand Research Fund (TRF) to acquire TRF's research reports and publications for free. Apart from theses, independent studies by students at the Faculty of Commerce and Accountancy are deposited with access restrictions.

Thai journal articles have been digitized for a long time. Most are journals subsidized and published by Thammasat University. Some are from commercial journal publishers if the library can obtain permission. In fact, digitized Thai journal article collections and a Thai journal index database have been being developed for decades. Then this collection in the TU knowledge-based website has been developed from the collection of digitized journal articles and journal index database. The library director stated that digitizing previous journal issues is a preservation method and this saves binding costs and space to store the physical materials.

In addition to scholarly publications by university staff and postgraduate students, digital collections with relevance to the university and important university staff and alumni are also held in this repository. In the initial stage,

there were three digital collections that of Pridi Banomyong who was the founder of Thammasat University, Puey Ungpakorn who was the University Rector, and Sanya Dharmasakti who was the Dean of the Faculty of Law and the Rector of Thammasat University and subsequently the Prime Minister. These three people played important roles not only in Thammasat University, but also in the history of Thailand. The library developed digital collections about their lives, documents when they were alive, and books about them. Apart from this, the repository also holds information on the university such as the case of the severe flood faced by the university in 2011 and democracy in Thailand.

In conclusion, it can be assumed that institutional policy and collection development policies affect the deposited contents, the involvement of university members, and repository-based information services. Each IR has its own defined scope and collection development policy. This has resulted in a variety of content and probably does not serve the Thailand National Research Repository (TNRR)'s objectives and mission well.

Apart from the effects at the institutional level, collection development policies also affect the development of IRs at the national level. The TNRR project is intended to be a national research gateway by collocating government-funded research reports. Deposited contents are housed by government funders individually. Therefore, TNRR employs OAI-PMH protocols to exchange metadata and point to full-text links at the funders' repositories. In addition, it is expected that this approach is also used to harvest metadata from university-based IRs. However, as mentioned above, the scope of collections in each university varies. Some collect off-campus funded research outputs whereas some do not. Probably this will result in problems in identifying and recruiting the government-funded research reports in the university-based IRs for TNRR.

6.4.3 Collection development policy

Both mandatory and voluntary policies are employed for archiving institutional scholarly works from university members for the NRU-based IRs. The mandatory policies are used for postgraduate research at all three NRUs. As a requirement of graduation determined by Graduate Schools, postgraduate students must submit their theses and dissertations in printed and digital formats to Graduate

Schools. After that Graduate Schools send both printed and digital theses to the libraries for long-term access. It can be said that IRs from the perspective of Graduate Schools function as dissemination and preservation tools in scholarly communication. Similar to one of the possible future models of scholarly communication suggested by Pinfield (2007), most IRs across the globe function as dissemination and preservation repositories rather than as a component in the peer-review process.

The digitization and provision of electronic theses and dissertations have been a part of the “Thai Digital Collection (TDC)” project before IRs were adopted. When libraries embraced university-based IRs, e-Theses collections were first to be deposited in the repositories. With the mandatory policy in place for a long time, it is not surprising that postgraduate research accounts for the majority of IR content and continues to grow steadily. The submission and deposit process from Graduate Schools to the libraries is manual and now largely redundant. However, Chulalongkorn University Graduate School developed a new e-Theses submission system. This system allows students to submit their theses online to the Graduate School and after that the digital files of theses and metadata will be automatically deposited with the CUIR. After verification and keywords have been assigned, digital theses are available for use more quickly (CU_Dean, CU_IR). This also facilitates the metadata creation process and saves time and effort.

The voluntary policy is mostly used for recruiting research outputs generated by the faculty and researchers as well as academic publishers subsidized by universities. Libraries employ several methods of staff to approach the faculty for their content contribution, such as emailing the faculty or collaborating with research affairs and research funders. It has been found out that it is hard to get content contribution from the researchers themselves and research funders. As a result, the mandatory policy was adopted as a strategy to promote the use of repositories. For example, Thammasat University Publications Knowledge-based Website has employed the mandatory policy to archive university-funded research reports. In 2010, the Thammasat University announced a regulation stating all university-funded research reports are copyrighted by the University and must be submitted to the university library (TU_LiBDirector). The Office of Research Administration at Thammasat University will send printed university-

funded research reports, probably with digital files, to the Library to either digitize or deposit directly in the repository. Besides, Thammasat University Research and Consultancy Institute will also send research reports to the Library for further copyright clearance before deposit and dissemination. The collaboration among the Office of Research Administration, the Research and Consultancy Institute, and the Library is a natural outcome of the awareness of the roles of each institution. The researchers themselves submit their research reports directly to the Library.

The voluntary policy is also employed for acquiring books, textbooks, and journal articles from university presses and journal publishers. The university presses at Chulalongkorn University and Thammasat University are not aware of the IR roles and benefits. Consequently they do not participate in content contribution, while libraries do not yet start to acquire monographs. It will be the next stage probably. However, Mahidol University Library has started collaborating with the Mahidol University Press. There is an agreement: to deposit a copy of publications published by the Mahidol University Press with Mahidol IR for long-term access. However, access to these collections is restricted to university members only via the Intranet. It can be assumed that all university presses will be concerned about digital rights management and security systems if their publications are deposited and made freely accessible. Free accessibility may affect their profits and business. The deposit of monographs is another challenge for the future stage of development of university-based IR projects.

Collaboration between journal publishers and libraries is low. Libraries started promoting the IR projects to obtain participation from local journal publishers. Some journal publishers contribute previously printed issues with the libraries for digitization and dissemination, whereas others cannot recognize the benefits and raise concern about copyright. There are various practices for populating this part of a collection. Chulalongkorn University Intellectual Repository and Thammasat University's repository create online records for only full-text downloadable journal articles especially in local journals. The non-licensed journal articles written by university members are not deposited in order to avoid copyright infringement. However, Mahidol IR committee has a different opinion. They create records for journal articles in Thai and international journals written by university staff no matter with or without full-text provision.

If articles are in online databases, URL links are provided for full-text access. The access depends on the users' rights. The practice of Mahidol IR committee seems to be a more effective alternative to populating the IR content without infringing copyrights. Pointing to full-text content does not breach copyright, but enhances a more comprehensive acquisition strategy for journal articles.

Libraries in these three NRUs provide many avenues for submission by stakeholders. Even though in principle only university members can register for accounts as depositors and have rights to deposit their scholarly output themselves, only a small number of them do this in practice. To deposit institutional intellectual assets, librarians are the most important depositors and metadata creators at present. Not many self-archiving practices of other stakeholder groups can be found. Faculty members have positive and negative perspectives on self-depositing. Some faculty members would like to deposit content by themselves, because of the verification of metadata (MU_SocHum_01), user empowerment (CU_SocHum_02, TU_SocHum_04), and knowledge of their research projects (TU_SocHum_02, TU_SocHum_08). Some faculty members were concerned that the submission process required extra time and effort (TU_SocHum_01, TU_SocHum_06) and raised copyright issues (MU_SciTech_02). In addition, they recognized the expertise of librarians in terms of resource management, technical skills, and software familiarity (MU_SocHum_02). As a result the faculty would prefer to receive assistance from librarians and support staff if a mandate is adopted. However, some questions about better deposit processes were really raised by the faculty. It is questionable whether metadata can be shared across databases or not. A faculty member stated that

...For funded research reports, Research Affairs should deposit them [to IR] automatically. In case of journal articles, I'd like to do it myself. Actually, my articles are in online journals. Why do we have to complete [the form] again? Why don't we find a way to export metadata? ...However, librarians must cross-check whether data is correct or not. (TU_SocHum_05)

Moreover, to avoid redundancy it is recommended that the library should contact Offices of Research Affairs for the deposit of content, instead of researchers themselves (CU_SciTech_05). Offices of Research Affairs are responsible for funded research project management from research fund

applications, disbursement, monitoring, and to assessment. It can be assumed that all information about research projects conducted by university members and research reports (preliminary, interim, and final reports) are kept by Offices of Research Affairs. Consequently the faculty expect that libraries can easily contact Offices of Research Affairs for information on projects and copies of research reports, instead of the researchers themselves, in order to receive sufficient information and save time.

From the viewpoint of library directors and IR manager, the most appropriate depositors are upstream of the scholarly communication process which are researchers, research affairs, research funders, and academic publishers. One of the CUIR developers stated that the IR project can easily populate institutional scholarly works if it gets the collaboration upstream (TNRR_Lib). The work owners as depositors enable IRs to receive more comprehensive content (TU_LibDirector) because they know what the research outputs are and they are more successful at depositing than librarians.

The libraries and other stakeholders should work together to improve the deposit process. It is impossible to assign these tasks to any particular group. Librarians need the engagement of authors and copyright owners in terms of descriptive information and scholarly outputs, whereas the work owners require assistance from librarians in terms of times, effort, and resource management skills. In summary, the IR deposit process is a collaborative and integrated process among the various IR stakeholders.

Copyright management is an important issue influencing collection development and digital information services. Libraries have to ensure copyright clearance of scholarly outputs before the submission process can begin. Consequently the first deposited institutional collections are inevitably theses, university-funded research reports, and other resources with university-owned copyright. Similar to Hsiang & Hung (2005), librarians at these NRUs employ different copyright management approaches. Firstly, the authors are advised to clear copyright and obtain permissions for online availability and accessibility through the IRs. Secondly, libraries request the rights holders of copyrighted research outputs to sign any proof of consent statements; the rights holders permit the libraries to digitize, deposit, and disseminate their scholarly works through the IRs. Finally,

librarians seek publisher permissions to obtain rights to deposit journal papers and monographs for unrestricted online access. Moreover, some university-based IR committees decide to create bibliographical records for their copyrighted institutional works even if libraries cannot get permission from the rights holders. This approach enables the discovery of institutional research outputs and makes it possible to collocate all institutional intellectual assets without copyright infringement. At least the IRs function as research discovery tools.

Universities and libraries cannot thrust the burden of responsibility for copyright clearance on the faculty, otherwise no one will participate voluntarily in IR projects. A faculty member expressed his opinion on copyright management and IR involvement:

I think if the authors are responsible for copyright clearance, this causes some difficulties: 1) the authors have no knowledge about copyright management; 2) Time - [the authors] probably have no time to process this; and 3) the authors share some rights with journal publishers. Then if the university would like to take part in managing research outputs and it creates extra workload for the authors, the authors will not cooperate because the current situation does not cause them any additional work. If IRs increase workload and the authors cannot perceive any benefit obviously, we will probably resist. (TU_SocHum_02)

At present copyright management of IR projects at the three NRUs is done by the IR librarians. Their practices depend on their understanding and interpretation. Mostly librarians balance their digital information services in favour of Fair Use. Lawyers will be contacted for advice in case of doubtful and complicated copyright issues. However, it is worth repeating that individuals in no matter which stakeholder group have various interpretations of copyright and ownership. This leads to confusion and misinterpretation among IR stakeholders. Moreover, it affects the full-text accessibility policy of deposited content.

While open access content is the default of IRs in general, an embargo or other options for restricting access are applied in some circumstances. Currently all university-based IR projects at these three NRUs provide restricted access. The IR projects at Chulalongkorn University and Thammasat University are available on the Internet. End users can search and access bibliographical information. Only university members can access downloadable full-text content via the

university Internet network on campus or Virtual Private Network (VPN). Additionally, the PDF digital document restrictions are applied depending on the security policy: read-only and prohibiting printing. For Thammasat University Publications Knowledge-based Website, users must contact librarians to obtain usernames and passwords if they would like to access full-text content. Moreover, the Directors of libraries at Chulalongkorn University and Thammasat University have been considering implementing trustworthy digital rights management systems to open up access to their repositories¹⁷. Unlike the above-mentioned IR projects, Mahidol IR currently is accessible via the Intranet only. After populating collection for a while, it is expected that Mahidol IR will be opened to the public through the Internet.

The idea of “Open Access” may not fit all contexts. The embargo periods will be applied for theses and research reports if the authors request to delay content releases. The Dean of Graduate School at Mahidol University explained that postgraduate students have authority to request an embargo period if they are planning to publish some or all parts of their theses as journal articles or monographs and would like to check the publisher’s policy. Then embargo periods can delay full-text availability and accessibility until permission is given. Besides, some institutional intellectual assets are indexed without available full-text for download because of content censorship. Such restricted access is applied to research publications associated with national security and sensitive issues.

6.4.4 The stakeholders’ participation in university-based institutional repositories

The stakeholders of university-based IRs are not aware of IR projects due to ineffective marketing. This results in lack of awareness of IRs and reluctance to participate. However, some participation in university-based IRs can be found from the interviews. The participation in university-based IRs can be categorized into two main topics: content contribution and administrative support.

¹⁷ In 2014, Chulalongkorn University Intellectual Repository (CUIR) was opened to the general public to search, browse, and download the full text. However, ones can download the full text in CUIR after registering the user accounts online.

1) Content contributions

After understanding what IRs are and their benefits, most faculty members tend to participate in IR projects by contributing content. By nature the researchers would like to share their research findings widely among others working in the same field and expect their works to be helpful. Therefore wider dissemination through the university-based IRs can result in wider academic acceptance and recognition too.

I believe that the inspiration of publishing scholarly works is to share them with others. It is not beneficial for anyone if [works] are kept on shelves. In contrast, it is better that someone uses my research outputs, cites them, and leverages them for further research and development. So wide dissemination motivates me to participate in archiving my research outputs for open access. (CU_SciTech_07)

Some stakeholders who are aware of implemented IRs and perceive the benefits contribute content to the repositories with librarians' assistance such as in digitization, training, and deposit. For example, one faculty member contacted the library to deposit his photographic collections derived from his research project with the university-based IR. He requested librarians to train his project staff in how to create metadata and deposit digital photographs in the repository as a dissemination and preservation tool (CU_SocHum_03). In addition, some academic journal editors have donated their previous issues to the libraries because they can perceive the usefulness of repositories as a preservation tool. Another example of IR participation is the e-Theses system at Chulalongkorn University. Graduate School and the library's attempt to improve data sharing in order to shorten workflow, decrease effort, and accelerate information services. In depositing theses, librarians collaborate with the Graduate School in order to capture digital copies and metadata. However, digital files and metadata are not shareable and transferable automatically at present. Cataloguers have to generate metadata for each thesis again. However, there is a plan to interoperate the Graduate School's system with the CUIR so the e-Theses system will decrease workload.

- Administrative support

No participation by University Presidents or Vice Presidents could be identified in this research. It would be wrong, however, to assume that university administrative boards do not support IR projects. Even when there are changes in administrative boards that may affect support for IR projects, the projects still continue to receive financial supports as usual. However, their promotion may gradually decrease.

Analysis of the data revealed that the senior management of the universities such as Deans of Graduate Schools, Library Directors, and some University Press Directors advocate the maintenance and development of university-based IR projects at least to a limited extent. Deans of Graduate Schools recognize the importance of eTheses and the role of central libraries in aspects of resource organization and management for access and use. Accordingly, Deans of Graduate Schools support IR projects and collaborate closely with the central libraries to improve services. The IR projects are mostly maintained by a few IR librarians in accordance with guidelines from library directors. All library directors allocate time, staff, and budgets to sustain and improve implemented IR projects for the optimal benefits of all university members. One university press director in this research advocates the management of university-based IR by making an agreement with the library to support content contribution. However, continuing support from university administrative boards is needed from the libraries' standpoint.

6.4.5 The utilization of university-based institutional repositories

The obvious usage of the university-based IRs is for developing knowledge and research. In general, the postgraduate students use IRs for finding relevant scholarly resources for the subject of their research. An analysis of faculty members and graduate students' use of CUIR by Tanmala (2009) revealed that searching information for conducting postgraduate research is their main objective in using CUIR. Although there was no involvement of postgraduate students in this current study, the faculty know that IRs are useful for their students to investigate previous research in their chosen area of study.

From the standpoint of researchers, the faculty tend not to search for research outputs from their own IRs. Some claimed that no relevant scholarly works are housed in their IRs compared to subject-based IRs. Some faculty require up-to-date information for their research so that they usually use commercial online databases for the newest research publications. To sum up, IRs seemingly are not useful resources for the faculty especially the repositories at their universities. However, there is no evidence to suggest that the IRs in other universities are also useless for their research.

Moreover, the university-based IRs provide reports and statistics generating services for the users. End users can view statistical data for each item, communities, and an overview summary report. According to CUIR, users can view the visit statistics of each item and collection: visits and downloads (see Figure 6-9 - Figure 6-11).

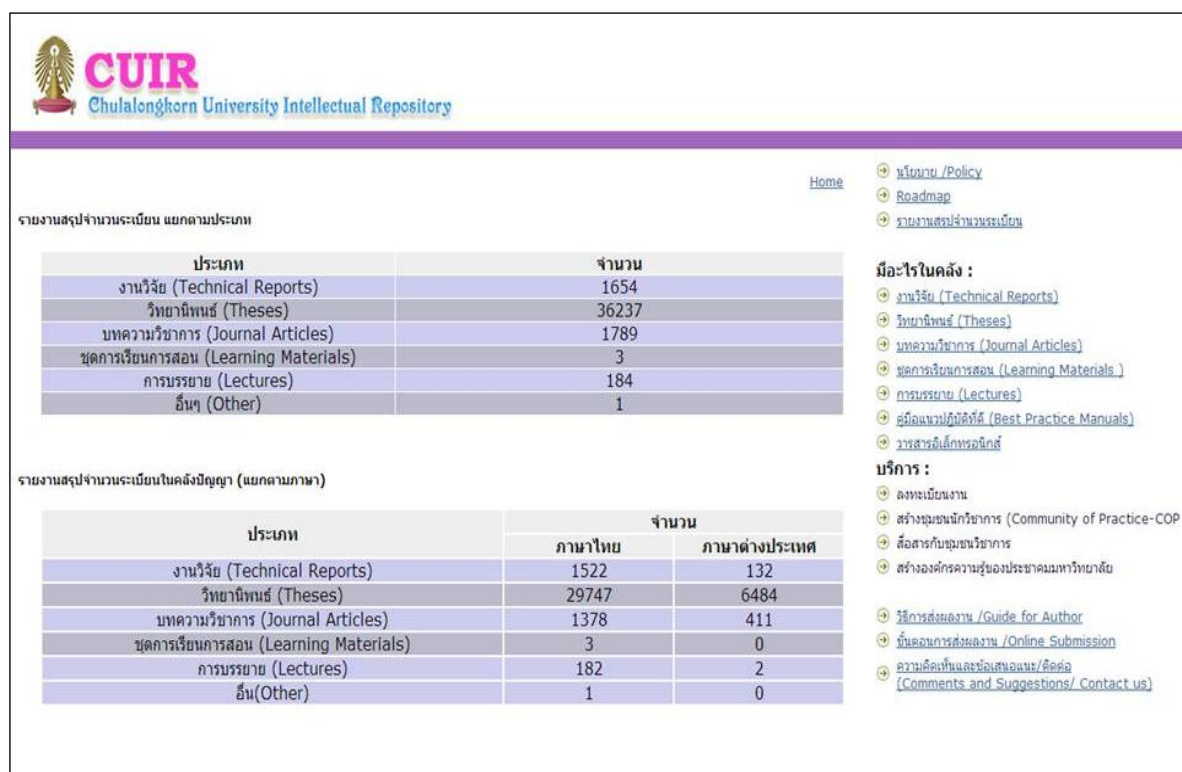


Figure 6-9 Summary report of the Chulalongkorn University Intellectual Repository (CUIR)

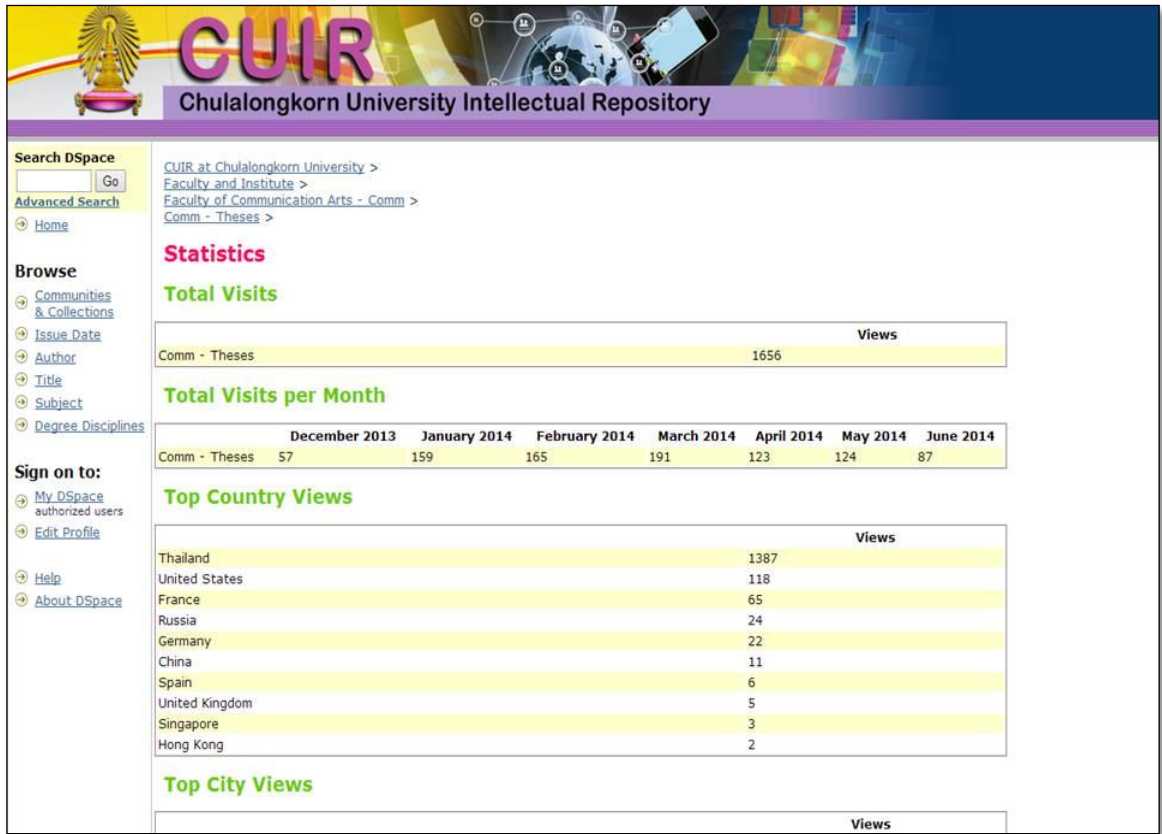


Figure 6-10 The view statistics of one collection in Chulalongkorn University Intellectual Repository (CUIR)

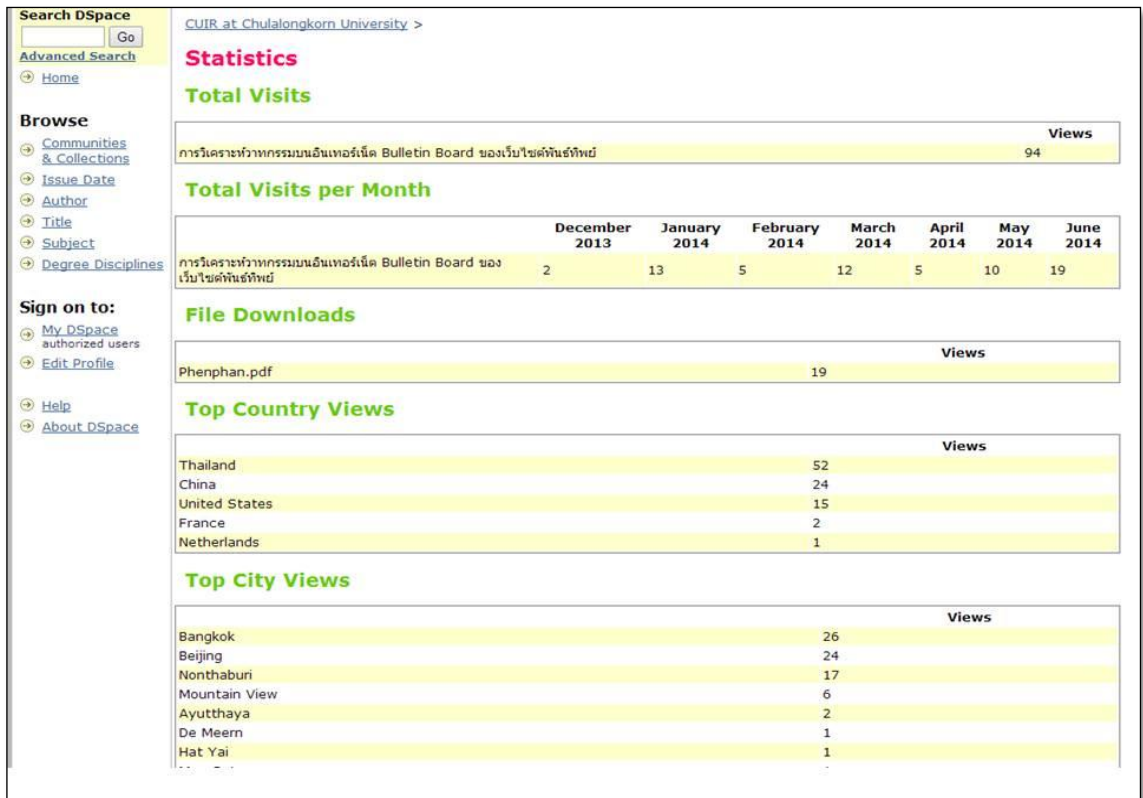


Figure 6-11 The view statistics of each item in Chulalongkorn University Intellectual Repository (CUIR)

No conclusive evidence shows whether remote users view such statistics and if they do who they are. Additionally, no statistical report is requested by any university administrative boards for planning purposes, except in Thammasat University. One of the objectives of Thammasat University's repository is to generate a summary annual report on the institutional research publications for the University President. Therefore it can be assumed that the university administrative board uses the statistical data from the university repository for administrative purposes. The Director of Chulalongkorn University Library requested statistical data of deposited collections and viewing in order to support strategic planning and budget allocation. In addition, she used these data for her presentation on managing electronic resources at an international conference¹⁸.

In addition, university-based IRs can visualize not only institutional research outputs but also research profiles. The research libraries recognize this capability of the repositories when they reuse metadata to create expert databases. For example, the library at Chulalongkorn University developed Communities of Practice (CoP) database at the same time as concepts of knowledge management and IR emerged. CoP database (<http://www.car.chula.ac.th/cop/>) is a database of researcher profiles including brief biographies, photographs, expertise, contact information, and publications. In addition, the CoP database offers a link to a list of deposited downloadable scholarly outputs in CUIR created by individual researchers. (see Figure 6-12)

¹⁸ Premsmi, P. (2012). "Managing e-resources at Chulalongkorn University." *International Conference on Electronic Publications*. Puducherry, India. 1-2 March 2012, pp. 278-285.

ข้อมูลประชาคมวิชาการ จุฬาลงกรณ์มหาวิทยาลัย
Communities of Practice, Chulalongkorn University

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คณะแพทยศาสตร์ / Medicine
เวชศาสตร์ป้องกันและสังคม / Preventive and Social
Website/Blog
662-252-7864, 662-256-4000 ต่อ 3700-1 / -
fmedpko@med.chula.ac.th

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Publication
กิจกรรมนิเทศ
Activity
โครงการและทุนสนับสนุน
Project & Funding
รางวัลที่ได้รับ
Award
สิ่งที่เรากำลังมองหา

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2514 / 1991
5. **พริ้ม งามรัตนกุล / Diploma**
- / Certificate Distinguished Visiting School
Wharton School, USA.
2530 / 1987
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CUIR
Chulalongkorn University Intellectual Repository

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A. Collections
Issue Date
Title
Subject
Degree Disciplines
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Go Author Search Start Over
Results 1-10 of 34 (Search time: 0.005 seconds).
Results/Page 10 | Sort Items by Relevance | In order Descending | Authors/record All | Update

Issue Date	Title	Author(s)
2544	การพัฒนาระบบการดูแลสุขภาพในโรงพยาบาลชุมชน	พริ้ม งามรัตนกุล
2549	โรคในชุมชนและผู้สูงอายุ	พริ้ม งามรัตนกุล, วิจิตร วัฒนวิเศษ
2536	การดูแลสุขภาพในชุมชน	พริ้ม งามรัตนกุล, พริ้ม งามรัตนกุล
2538	การดูแลสุขภาพในชุมชน	พริ้ม งามรัตนกุล, พริ้ม งามรัตนกุล
2537	การดูแลสุขภาพในชุมชน	พริ้ม งามรัตนกุล, พริ้ม งามรัตนกุล
2549	การดูแลสุขภาพในชุมชน	พริ้ม งามรัตนกุล, พริ้ม งามรัตนกุล
2547	การดูแลสุขภาพในชุมชน	พริ้ม งามรัตนกุล
2536	การดูแลสุขภาพในชุมชน	พริ้ม งามรัตนกุล
2530	การดูแลสุขภาพในชุมชน	พริ้ม งามรัตนกุล

Figure 6-12 The link between Communities of Practice (CoP) database and Chulalongkorn University Intellectual Repository (CUIR)

The use of university-based IRs for developing researchers' profile databases or expert finder systems will be further developed depending on comprehensive collections and users' information needs (TNRR_IT, TNRR_LIB). This will enable the IRs to provide more value-added services based on reused metadata.

Having the repository of Thai full-text scholarly outputs offers more opportunities for Thai scholarly communication especially plagiarism detection and prevention. Plagiarism is a serious academic crime leading to copyright infringement and raises serious ethical concerns. To prevent academic works from plagiarism, higher education institutions in Thailand buy licences from plagiarism checker software, mostly Turnitin for educators and students. However, there are several attempts from Thai academics to develop our own plagiarism checker software due to the expense of commercial products and Thai content coverage. At present three software development projects have developed plagiarism detection software, namely Anti-Kobpae (www.anti.kobpae.in.th) by Kasetsart University, CopyCat - Copyright, Academic

Work and Thesis Checking System (www.copy-cat.in.th) by National Electronics and Computer Technology Centre (NECTEC) and Akarawisut (www.akarawisut.com) by Chulalongkorn University.

Digital full-text databases of Thai scholarly publications, especially e-Theses collections and university-based IRs are necessary for system testing. The software developers have contacted universities and libraries to seek collaboration and permission to access and use their digital resources. Akarawisut's developer (personal communication, June 11, 2014)¹⁹ explains that successful and comprehensive plagiarism detection depends on not only textual analytic systems but also vast collections of documents. It could be said that university-based IRs holding Thai research publications are the best resources and enhance the capability of plagiarism detection systems. More universities have gradually increased their collaboration with these three plagiarism checkers. For example, Thammasat University collaborated with CopyCat by permitting the developers to access and use its e-Theses collections and the university repositories in order to use this software for checking plagiarism of postgraduate research.

At the national level, the university-based IRs can enhance the effectiveness of government-funded research projects and output management. The research councils in Thailand established the Thailand National Research Repository (TNRR) in 2010 as a national integrated database of government-funded research publications. One of the main objectives of TNRR is to be a gateway to all government-funded research projects and outputs. As an integrated database, TNRR asks permission to harvest metadata, index, and point to full-text research publications in the university-based IRs. The Secretary of National Research Council of Thailand explained that all nine national research universities gave permissions to access and use their digital repositories for populating and improving the TNRR (Secretary_NRCT).

¹⁹ Personal communication via email with Akarawisut's developer on 11th June 2014

6.5 Barriers to improved university-based institutional repositories in Thailand

Academic libraries have generally faced a number of challenges in optimizing the established university-based IRs in terms of deposited collections, services, and usage. The section 6.3 shows the perception of stakeholders towards the concept of IRs in general and their perspectives on the IR benefits for individuals and institutions. It can be said that different groups of stakeholders are aware of the established IRs and perceive the benefits of IRs in very different ways. Some perceptions confirm IR projects are worthwhile whereas some perceptions can build barriers against the participation and usage of IRs. This section presents potential concerns and barriers against the progress of IR projects based on the interviews with different groups of stakeholders.

6.5.1 Managerial issue

IR projects are implemented and maintained by academic libraries with the support of university executives for a while, especially at the initial stage of the projects. Then there is a tendency for IR awareness to gradually decrease. Without any written policy or support from the university executives, academic libraries and librarians have no power to create any fruitful collaboration with relevant stakeholders and to acquire institutional intellectual assets.

[It's just like] a child [without power] does IR solely whereas the policymakers know nothing about it. As a standard policy, if a project is not a top-down process, it then makes relatively slow progress. Even a vice rector for Research Affairs has no power [to announce a mandate policy], he announced and promoted IR project to the faculty but it may or may not be successful. (TNRR_Lib)

The lack of a mandatory policy from the university executives causes some difficulties in expanding the scope of IR collections and the amount of research outputs. Consequently, library directors and IR managers remarked mostly that top-down management style is more preferred for advancing IR collections and management.

[IR] is not an automatic system. The problem is that the University does not give precedence to [IR] at the level which the University should. The University could issue a policy or a mandate [for members to deposit research publications into IR]. The Library ended

up having to collaborate with Research Affairs. For example, [to increase the collaboration with and to acquire more institutional research output], the Library Director contacted and discussed with the Dean of Graduate School at the beginning of the project then later it is my responsibility to continue the work. (CU_IR)

However, it is still worthwhile to build university-based IRs. Academic libraries strongly asserted that collocating diffused institutional research outputs is better than doing nothing. They can exploit IR databases for university administration, strategic research planning, and information services. Hopefully university executives will perceive the IR benefits and then establish policy to mandate content deposit.

In the case we cannot do anything from the top-down approach, why don't we start it from bottom-up approach? Well, [let's start with] collecting [institutional intellectual assets]. If not, it may disappear, right? ...after that we can consider what we are going to do next. We recognize that we should make this workflow systematically from the upstream to the downstream of the process. We suffer with unsystematic process. [As the downstream of the process, library deposits research output into IR.] Why don't we solve this problem at the upstream of the process? Then [we] must make it a systematic workflow. (TNRR_LIB)

It is debatable that bottom-up management may not be the major barrier of optimizing IR projects. The director of CICC having a bottom-up management project similar to IRs believes that the success of a bottom-up project does not depend on the management. The communication is much more important:

...the sustainability of these [bottom-up and voluntary] projects depends on that we communicate and convey the information to the faculty. Then they perceive the benefits by themselves, and because of that they start participating without being told to do so by the University executives. Like WiKi or Facebook, it is successful because it offers a lot [of free useful services] and matches the needs of consumers. They are satisfied and spread word of mouth...(CICC)

Without policy support from the university executives, the bottom-up management approach places pressure on academic libraries to accelerate the collection development and information services of IRs. Probably this organizational communication is an internal campus factor behind unsuccessful IR projects. This issue is mostly reported by libraries and librarians as a barrier to make IR projects successful. Policy support from the university executives

may help populate the content contribution because the collaboration with policy makers and a mandatory policy is announced at the universities.

6.5.2 Poor communication

The success or failure of IR projects depends on the involvement of stakeholders in scholarly communities. However, it seems likely that academic libraries do not communicate effectively with their university members. According to the interviews with the faculty, academic libraries have poor communication with their university members. They are not aware of the established IRs, the benefits, and the potential involvement. However, it is quite difficult to put all the pressure on academic libraries.

I think library promotion is quite weak. I am not sure whose fault it is. Didn't library, university or we pay attention to [the IR]? (TU_SocHum_02)

Currently does the library have IR? Already established? I am not aware of our established IR ...[I have] heard the IR's name but I don't know [what it is]. Nobody from the library explains how I participate in IR. I thought that they built it up and then managed and maintained it themselves. If they would like to collect institutional research outputs, they should e-mail [me] or distribute any newsletter to ask for collaboration... (CU_SocHum_01)

For Mahidol IR, it is reasonable that Mahidol faculty members may not be aware of the repository. The library still wants to populate content without promoting IR to the community and providing access yet. This reflects the library's concern about the amount of deposited content. However, some faculty members explained that:

[I] do not know whether the university already developed IR because I usually use ISI and SciDirect databases. Probably the library promotes [IR] but I haven't paid attention. There is no e-mail invitation [from the library] asking for my work deposition yet. (MU_SciTech_01)

Misunderstanding and misperception of IRs result from insufficient communication and discontinuous promotion. This will result in low contribution and the lack of collaboration of university members. It seems that academic libraries understand that communication is their apparent weakest point.

...a few faculty members are not aware of [CUIR] while some are [CUIR's] fans. Consequently, it is necessary to increase the awareness of CUIR to university community members. Students are not aware of it either. (CU_LibDirector)

It means that library must explain the usefulness of IR to the faculty. If [IR content] can be indexed by Google, the collection will be more retrievable. [I] want others to publicize [my work]. Then if anyone says that they can search any research outputs created by the faculty and students here from CUIR, it will be great. This will increase the reputation of university. It's a new channel of research output dissemination. However, CUIR still needs to be promoted much more. (CU_SciTech_07)

In addition to insufficient communication among university members, academic libraries lack continuous IR promotion. IRs are long-term collaborative projects, therefore, continuous policy support and involvement of stakeholders is essential to reach the goal.

...at the opening of CUIR, [the library] tried to educate university members what it [IR] is. Actually we conducted training at a few Faculties. We would do it when it is convenient for them. We trained them whenever they are available. ...But we had only a little feedback [few content contributions]. There was not an increasing number of deposited works in CUIR. (CU_IR)

Apart from the communication across institutions, academic libraries should educate librarians about IRs and explain to them how they can be involved and can enhance IR projects. Especially faculty librarians and reference librarians, who cooperate closely with library users, tend to have more chance to introduce IRs projects and their benefits. This will be clarified in the section 6.5.3 Low collaboration - faculty libraries - main libraries relationship.

6.5.3 Low collaboration

As a collaborative project, the involvement of stakeholders is essential for the success of IR projects. In Thai scholarly society, the interviews reveal that there is poor collaboration between stakeholders and libraries and within university library communities themselves. The findings are presented respectively by the relationship among the stakeholders.

1) Faculty libraries - Main libraries relationship

In three participating NRUs, the federated library system is fashioned to serve information needs of the faculty and students in each faculty. Faculty libraries in Chulalongkorn University and Mahidol University have their own library operations such as acquisition, cataloguing, and information services whereas main libraries in Thammasat University centralize all those library operations. Therefore, faculty libraries play important roles in promoting IRs and collaborate with faculty members and research departments at Faculties. Faculty librarians know research practices and information behaviours of faculty members much more than librarians at the main libraries. Consequently they can collaborate with faculty members to explain IR projects and ask for them to contribute content. However, it is still a challenge to persuade all faculty librarians to involve themselves in IR projects.

...I tried to involve the faculty librarians in collaborating with their research department. It is more convenient and easier than having the main library contact different research departments. But it is not successful yet. (CU_IR)

Library networks in each NRU are established in order to enhance library cooperation and resource sharing for university members by following the strategies and agreements determined by main libraries. For collaborative IR projects, library networks in each university may facilitate content recruitment and IR participation differently. According to the interviews, low collaboration between faculty libraries and main libraries is reported.

We have [our library network] CHULALINET²⁰. When we have meetings, I always explain [to faculty librarians] how they can participate [in CUIR and enhance the project]. But after the meeting, there is no participation. ...They are back to their routine work. At the beginning stage of CUIR project, I visited different Faculties...and arranged workshops for CHULALINET [members] to explain what CUIR is, what it is for, and how they can be involved in [the project], but there was no response. (CU_IR)

²⁰ CHULALINET stands for Chulalongkorn University Library Information Network.

2) Libraries - Research Affairs relationship

To acquire institutional research outputs, offices of research affairs are the best sources of research outputs created by institutional members. Research affairs are responsible for managing research funds and research projects. Then it is a belief that academic libraries can contact them for shareable data on research projects and copies of full-text research publications. However, unfavourable collaboration with research affairs is reported mostly by academic libraries.

...library received a good collaboration from the University's Research Affairs. But it is just sending e-mails. The e-mails provide information on funded research projects and the expected submission date. We also CC e-mail to the work owners [researchers] asking them to submit their research report to CUIR. Well, no response from the researchers. Probably research output is not finished or maybe they just forget to submit to CUIR. We would have to contact Research Affairs asking for funded research outputs for CUIR... It is quite a time-consuming process to get each one. (CU_IR)

...After completing research projects, [Research Affairs] may send us only printed research reports or only digital files, or they may send both. ...it is quite a slow process. We get a letter listing all research projects from Research Affairs but it takes a long time to receive printed reports or files. And we may not get a complete report. (CU_IR)

The deposit of funded research reports to IRs is not automatically transferred from databases at Research Affairs. This suggests there is no collaboration between institutions at the policy level. Then librarians have to document and deposit research reports manually in order to populate the collections.

...[Research Affairs] has a traditional database. They don't allow importing and exporting [metadata files yet]. We have to key in the metadata manually. We are happy to do that...but it does not work well. (TNRR_Lib)

Interoperability across all information management systems on campus should be considered for sharing data and time-saving process. However, this low collaboration between research affairs and libraries may result from poor communication and no policy support from university executives. An IR manager explained that

Hopefully I think that [collaboration] should be discussed at the policy level. The library director should raise this issue to Council of Deans to seek for their collaboration.... It should start from this [level]. After that as a subordinate, I continue from there. (CU_IR)

However, this is quite different from Thammasat University (TU). The Library Director reported that the TU library receives content contribution from Office of Research Administration, without any policy support. The Office and other research institutes at the university recognize the roles of their library as an information source for university members and the public.

[We did] not have any policy but ...it is like an organizational culture which [the institutions] do not want to store printed research outputs. Too many [publications] then give them to the library. ...We do not ask for their content contribution. Most of institutions give [their publications] to us because they know that we are an information source. (TU_LibDirector)

3) Libraries - Graduate Schools relationship

The Graduate School at Chulalongkorn University has collaborated with the library by redesigning its management information system. As the Dean of Graduate School recognized the significance of collocated and accessible digital theses, he attempted to improve the workflow for a better and faster management information system. Therefore, he consulted the library and Registration Office to implement a comprehensive management information system which is able to serve all relevant offices on campus. This resulted in more collaboration from these offices because the Dean initiated this idea and asked for collaboration by himself. This leads to more effective workflow in developing theses collection in CUIR which the library appreciated considerably. However, it takes time to gain the participation and collaboration and to have it done properly.

The library director is on the administrative committee of the Graduate School so we know what Graduate School is going to do. We proposed [CUIR] to the meeting. Fortunately, this current Dean of Graduate School recognized the importance of collaboration. Graduate School not only invited us but also the upstream of students' information - the Registration Office - to join the discussion. Part of the students' information is there. It flows systematically from there to us. This enables us to share data. If the Deans, Director of Research Affairs, or Vice President in Research

Affairs can perceive [the IR's benefits] like the Dean of Graduate School, it will be great. (CU_IR)

With different administrative structures for Graduate Schools, the different collaboration affects collection development methods. At Thammasat University, there are Graduate Schools at each faculty, rather than a central Graduate School. Then Faculty Graduate Schools send all theses to faculty libraries and then finally to the central library to be catalogued and deposited into the TU repository. Therefore it can be implied that faculty libraries at Thammasat University collaborate closely with faculty members.

4) Libraries - Academic publishers relationship

Even when most research outputs are journal articles and textbooks, IRs can collect a few numbers of these types of research publications. Most journal articles and textbooks are copyrighted by journal publishers and university presses respectively. Consequently, to acquire more journal articles and textbooks, libraries need to collaborate and negotiate with academic publishers. The interviews with libraries reveal that different approaches are employed to populate journal articles and textbooks in their IRs.

For journal articles, libraries are aware of the issue of copyright infringement and as a result they have different ways to manage their collections: 1) Not collect any copyrighted journal papers, 2) Collect only university-copyrighted journal articles with the permission of journal editors, 3) Create records in IRs without providing downloadable files or links, and 4) Provide links to journal websites. The Director of Mahidol University library stated that journal articles on open access will be collected and provided for free accessibility.

For international journal articles, we will collect only ones published on open access [journals] which uses Creative Common License (CCL). With it, we can deposit and distribute [papers] although [papers] are published in international journals. (MU_LibDirector)

Local journal publishers do not know about IRs. Consequently it is quite hard for them to allow depositing their manuscripts into library repositories. It would be better if libraries start promoting IRs and asking for their participation. After receiving clear explanation about IRs, local journal publishers tend to

participate in IRs. Basically, local journal publishers are non-profit organizations and focus on wide-range dissemination of journal articles. They agree with the idea of open access. However, some of them have concerns about copyright issues. This is further explained in the section 6.5.4.

For monographs authored by institutional members, university presses are not aware of IRs and their possible involvement. Therefore, the presses at Chulalongkorn University and Thammasat University tend to refuse to deposit their publications into IRs. Additionally, the presses are concerned about digital rights management which the libraries do not provide enough information and advice about. However, with the agreed regulation, Mahidol University Press deposits a copy of publications published by the Press into Mahidol IR as a preservation method. These publications will be searchable and available but are not accessible. At least they will appear in the bibliographies of institutional research outputs.

As one of the rules, [the Press] must deposit electronic copies [of publications published by the Press] into the Library [IR]. The deposited files should be peer-reviewed and edited version. The version of edited artwork will not be deposited. However, we are quite concerned about this issue [deposited into IR] if we start publishing eBooks. Now we are in the beginning stage. (MU_UniPress)

The attempt to avoid copyright infringement with academic publishers results in the lack of comprehensive journal article and textbook collections generated by university members. Consequently the database cannot visualize all factual information on the research performance of institutions or individuals.

6.5.4 Copyright concerns

Academic libraries have considerable experiences of managing and providing access to digital content. However, IRs introduce new challenges on digital content management. In this new environment, academic libraries deal with acquiring, organizing, and managing copyrighted digital resources for unrestricted access. In addition to academic libraries, many groups of stakeholders in scholarly communities recognize increasingly their rights and are aware of copyright issues. Therefore different copyright understanding and interpretation among groups of stakeholders are seemingly barriers to scholarly

publications contributions and the availability and accessibility of deposited research outputs in IRs.

- Academic libraries

Academic libraries do not have any lawyers on IR committees. In case they are faced with unclear copyright management, they will contact university lawyers or faculty members at the Faculty of Law for help. Most decision making on copyright issues are from librarians themselves.

No [involvement from the university's legal department]. If we have [any legal problem], we will consult faculty members at the Faculty of Law. No matter what happens we will search for additional information and the Faculty has a legal information service. Then we will discuss with them. (CU_LibDirector)

To prevent the problems on copyright issues, academic libraries try to exclude some particular research outputs created by institutional members. This affects the building of comprehensive database of institutional research outputs.

To prevent copyright infringement, CUIR will recruit only university-owned copyrighted research outputs. The Library does not deposit any off-campus-funded research reports into CUIR even though they were generated by university members. From past experience, we found that some faculty members wanted to deposit their research report, but we had to refuse and asked them to clear the copyright concerns by themselves first. ...we explain to them that research output deposited into CUIR are only works with copyright clearance. (CU_LibDirector)

It turned out from the first launch of CUIR that we got negative feedbacks [from journal publishers/editors]. Consequently, we didn't develop the collection of journal articles except in the case that journal editors contacted the Library and gave their permission to us to deposit journal articles into CUIR. For example, a retired faculty member who is a journal editor gave the Library a bunch of [printed] journals and allowed us to digitize and deposit this collection into CUIR. (S)He did not know how to preserve the journals for long-term access. Recently, #Lecturer's name #Faculty gave the big collection of "Journal of Research Methodology" to the Library [for digitization and IR deposition]. Then we kept the permission letter as evidence and when we had enough budget, scanned and uploaded them on the Web. (CU_IR)

Even the National Library of Thailand (NLT) does not have any rule or digital rights management system; however, it does not ignore preparations for emerging digital publications in Thailand. It is going gradually to be improved.

- University presses

University presses have a written agreement for the authors mentioning the copyright ownership and periods. For example, Chulalongkorn University Press determines that the copyright of publications are owned by the Press for five years. However, digital technologies change the information needs of customers and are forcing the Press to follow the changes: e-Publications. University presses themselves are aware of e-publications and are preparing for this situation. However, there is no copyright agreement clear enough to cover this issue.

The traditional [copyright] agreement becomes a problem. The current threatening situation is e-book and other media. Currently, [we] are in a transitional change period. It is challenging. The reasons why [I] believe that the distribution via digital technology has an impact on [the amount of sold] printed monographs are two possible theories. Some says there is no effect. But [in another theory] as the university press collaborates with the authors, we found out probably there are some effects. (CU_UniPress)

Director of CU Press explained how the press prepares for the change.

Right now it is just a beginning stage. [We] will have a copyright agreement for disseminating [work] in other media such as in electronic format, not in printed format. The market of this new media just happens. There is no serious selling and buying yet. [Then we] still used the same agreement: it allows distributing electronic resources for five years and then [we] will discuss it later. Currently we sell eBooks by just for one download for one device: if you download it for Smartphone, then you will pay again for iPad. This is no time limitation and has a Digital Right Management system which links to service provider. The most concerned issue in the opinion of the university press and the authors is the trustworthiness of the security system. (CU_UniPress)

Director of CU Press justified the reasons why the Press is concerned about copyright infringement of electronic publications.

Past selling, buying, exchanging, and distributing digital content indicates copyright infringement. This is a barrier against the confidence of producers to distribute [publications in electronic

*format]. This may slow the market for electronic resources.
(CU_UniPress)*

Additionally, the Director of CU Press shared his first-hand experience on selling digital resources and copyright infringement. Bad previous experience affects any decision making and requires more confidence on a trusted digital rights management systems.

CU Press has produced eBooks in CD format. However, this market failed because one CD can be duplicated [quickly]. In the same ways, if we make this downloadable for sale, how would we know what the customers would do with the copy they have? (CU_UniPress)

Depositing a copy into the National Library of Thailand seems not to occur to them. The Press is quite concerned about the security system to manage and provide access to digital resources.

TU Press has a measured but flexible practice of providing digital publications.

The Press will track [copyright infringement] in some ways. For example, it does not allow distributing any publications on the market on the Internet for free download. This [action] infringes our agreements and causes some market to be lost. (TU_UniPress)

Even sharing soft file of e-publication, TU Press explained:

Any publications which the authors would like to distribute on a website or produce into e-learning, [the authors] should ensure that no reproduction for commercial purpose in the future. Since the content distribution on the website cannot prevent anyone making copies, this will be an overlap copyright issue. The next published work with the same content which is distributed online is prohibited. (TU_UniPress)

- Journal publishers

The copyright management of local journal publishers varies in their understanding. Most of them are non-profit academic publishers. Some ask the authors to sign a copyright transfer agreement whereas some do not. However, it is still questionable whether each agreement is legal or not. An academic lawyer at Chulalongkorn University Intellectual Property Institute explains the properties of a lawful copyright transfer agreement.

Only journal as a juristic person can claim to be the owner of copyright work. The said juristic person is not the Faculty or the Department. It is categorized into two types:

- 1) Juristic person such as partnership, company, foundation, or association which is the juristic person in accordance with the law; and*
- 2) Juristic person established by law such as ministry, bureau, or office. For example, Chulalongkorn University (CU) is established by Chulalongkorn University Act. This Act stipulates that CU is a juristic person but faculty or department is not a juristic person.*

[Although] journals have copyright transfer agreements [to ask the authors to sign some copyright transfer agreements], the agreements are null and void. That is because you sign a contract with one who is not a juristic person. (Lawyer)

Regarding the availability of downloadable journal articles, there are different perspectives and practices on the publishers' permission. Most publishers agree with Open Access because this will enhance knowledge creation and development. Moreover, distributing widely journal articles increases the exploitation of published journal articles and their reputation. There are various perspectives on providing free downloadable files.

We do not ask [the authors to sign a copyright transfer agreement] because people normally cite our journal articles. You can distribute your downloadable journal article files anywhere but you must cite the source. That is it. It is an academic etiquette. Personally and institutionally, there is no need to do that [signing copyright transfer agreements] because publishing with us means that copyrights are automatically transferred to the journal publisher - our Faculty. However, the uploaded journal papers should have our journal title on them. You do not have any right to provide an original version online. Actually, I do not mind [about it] as long as you provide a reference to our journal. (MU_SocHum_01)

However, some publishers think that they own the copyright of all published journal articles in their journals. Librarians or the authors need to contact the publishers for permission. Publishers make their decisions on a case-by-case basis.

...the IR participation will depend on a case-by-case basis and copyright issues are of concern to [the publisher]. In an aspect of dissemination, libraries should be responsible for copyright management of the faculty's disseminated publications. Therefore,

copyright issue probably is a factor impeding the deposition and the dissemination of IR contents. (TU_SocHum_06)

- Faculty members

Most research projects are funded by some research funders in Thailand and abroad. Research funders ask faculty members to sign funding agreements. Most government-funded research agreements allow the distribution of research reports freely while some do not provide any clear statement on research output dissemination. Private funders such as companies or factories quite often limit the dissemination of research findings. As a result faculty members must follow grant agreements carefully. Probably they have different understandings and interpret statements variously.

...If it is about copyright, the funders own the copyright [of research reports]. For example, after completing the funded research projects, we will submit a copy [of research report] to the committee. When someone wants to use this research report and he knows me, he will call me. I cannot give [this final research report to him]. The completed final research report must be submitted to the research funders. Then he must contact the research funders. (CU_SocHum_02)

Some faculty members thought that they are the work owner of funded research reports and research outputs.

We are the work owner. Just when we publish or disseminate research findings, we always need to acknowledge the research funders. (CU_SocHum_01)

Understandings of copyright ownership in published journal articles among faculty members are quite various.

For my published articles in other journals, journal [publishers] did not send me any agreement. For my personal understanding, we still own copyright. However, if I want to use these papers later, I will inform them first. (TU_SocHum_06)

If that work is written by me, then copyright should be mine. Right? But with academic etiquette, I should give reference to the source of published work. (MU_SocHum_04)

Under the doctrine of fair use, downloadable files of research publications on the Internet may possibly be made available to the public. Additionally, the reproduction and sharing of scholarly publications are for educational purposes which are the exceptions to using copyrighted works. Therefore some faculty members do not concern themselves about copyright infringement and will contribute their research outputs to the Libraries.

No problem. ...I would wait until the journals are out for sale then [I] will submit a digital file to the Library. ...the Library will e-mail me, asking for a digital file for further promoting of the work. ...[The Library] focuses on promoting [the research output and] sharing the knowledge with the public. Laws protect libraries [on using copyrighted works]. The libraries and the work owners will not be sued because [distributing downloadable digital files] enhances scholarship for the public. If anyone makes a copy and reproduction [for other purposes], journal publishers must sue that person, not libraries or me [as the authors]. (TU_SocHum_01)

For some faculty members' copyright understanding, sharing a digital file with students is regarded as an action infringing copyright even it is for educational purposes.

...finally copyright will be assigned to journal [publishers]. Then we cannot use this [published] version to publish in other journals or distribute anywhere. However, we probably can make a working paper version available on the Web. Actually, sharing a digital file of a full-text paper to students without accessing online databases is infringing copyright. It is not good [behaviour]. It should let students have access to online databases [themselves] because they have the right to access [online databases]. ...[I] cannot upload the full-text published version of my journal papers. This action is illegal...then publishers who own copyrights can prosecute [me]. (TU_SocHum_05)

Some faculty members especially in Science and Technology express considerable concern about copyright. These faculty members usually publish their research findings in international high-impact factor and peer-reviewed journals. These journals usually ask the authors to sign a copyright agreement. In such cases the faculty do not infringe the agreement and tend not to provide any downloadable full-text journal articles on the Web and IRs. In addition, failure to observe agreements may consequentially damage the reputation of the universities.

...For me, I will not make it downloadable on the Web because I'm concerned about copyright infringement. ...If I upload downloadable

files for our students, this can place our university on the blacklist... I'm concerned [about copyright issues and harmful effects on our university]....If anyone wants my paper and [s]he sends me an e-mail, I will reply to his/her with the attached paper. (MU_SciTech_02)

If [the publisher] does not open [access to journal articles], but we make [articles] freely downloadable on the Web while the publisher would like to sell their journals, that is our fault. Consequently, mostly I will not provide any link to full-text journal papers. [If I do,] probably I will provide a link to their systems and if anyone has access right by subscribing [online databases], then they can access to full-text content. I will not provide .pdf files but will make a link to their system instead. (CU_SciTech_01)

In conclusion, the variety of understandings on the ambiguous terms “work ownership”, “copyright ownership”, and “authorship” among academics, libraries, academic publishers, and funders have an influence on the participation of IR stakeholders, collection development, and the availability and accessibility of IR content. Collaboration and communication may enable this issue to be better understood by IR stakeholders.

6.6 Expectations on institutional repositories in National Research Universities in Thailand

National Research Universities in Thailand have implemented IRs with various purposes. The expectations for these university-based IRs have changed gradually over time. Additionally expectations vary between stakeholder groups. This section will report on stakeholder expectations in university-based IRs in NRUs based on the interviews.

The university-based IRs perform critical roles in the management, visualization, and utilization of research outputs at both an institutional and national level. The primary purpose of university-based IRs in Thailand is to compile and manage scattered institutional research publications more effectively for easier and better access. It could then be said that the main purpose is to be an online information source of institutional intellectual assets for university community members, not yet for the general public because of copyright concerns. At least it provides a good starting point for Thai scholarly society to reconsider and develop the national and institutional gateway to research publications. Based on the interviews, stakeholders express the view that university-based IRs should

be considerably improved to be of greater benefit for all at the institutional and national levels.

The Secretary of National Research Council of Thailand (NRCT), who was Vice Rector for Research Affairs promoting the implementation of Chulalongkorn University Intellectual Repository (CUIR) with collaboration from the library, expected the IR to function as an administrative tool for managing funded research projects and tracking the project status. Moreover, it is expected that CUIR will shorten the information flow between the Graduate School, Research Affairs, and the library in order to collect both the outputs of postgraduate research and the faculty's research publications to provide online access. This enhances the obvious visibility and wider accessibility of institutional research publications such as theses and research reports. Similar to CUIR, IRs in Thammasat University and Mahidol University were implemented with the same objectives and purposes. These three university-based IRs are in the different stages of development and contexts. However, the stakeholders share common expectations about university-based IRs.

The expectations of the future university-based IRs in Thailand can be categorized in the following ways:

- 1) Expanded collections

The collections in university-based IRs should be extended in terms of amount and institutional intellectual asset types. The number and range of institutional research outputs, regardless of format, should be acquired and deposited in the IRs. At present, e-Theses account for the majority of content in university-based IRs. As one of the requirements for graduation, postgraduate students must submit their printed theses with a digital copy to Graduate Schools. Next, university libraries contact Graduate Schools to acquire printed and digital theses for the library online public access catalogues and IRs. All stakeholder groups expected that in future IRs should cover all institutional research outputs, especially research reports and journal papers. However, depositing monographs is not yet being considered. Therefore, academic publishers, especially university presses, cannot understand why they should be involved in

university-based IRs because libraries have not yet started to consider the deposit of monographs in their IRs.

Collection development policies of the IRs at three NRUs are different in terms of scope, research output types, and the university administrative structures. It results, not surprisingly, in a variety of deposited institutional research outputs and difficulties in collocating scattered research outputs under a single portal. From the viewpoint of research councils, the university-based IRs are the most important channels for Thailand National Research Repository (TNRR) to acquire government-funded research outputs. If a complete set of government-funded research reports are deposited in university-based IRs, the TNRR can harvest metadata and functionality through a single portal for all government-funded research outputs.

In addition to non-copyrighted research publications, it is expected that libraries should create brief records of copyrighted research publications without providing full-text access. At least descriptive information or metadata enables institutional research outputs to be identifiable, searchable, and retrievable. This will permit assessment of research outputs of university members and create individual and institutional academic profiles.

Communication among stakeholders needs to be improved. The interviews revealed that communication has an influence on the awareness of and participation in university-based IR projects. IR manager and the library directors expect to receive more supports from university executives in terms of budget, staff, and policies. The faculty who are not aware of the established IRs at their universities asked for more marketing and training workshop.

2) Open accessibility

Scholarly publications deposited in IRs should be freely accessible and downloadable by the public. In addition to the extended scope of collections, libraries have been considering some approaches to make their IRs accessible to the public without any restriction. For example, the Library Director at Chulalongkorn University plans to issue an open access policy for the CUIR soon after choosing an appropriate digital rights management system. Consequently

not only university members but also the public will be able to access and download institutional research publications freely. University members and the public can already access theses and research publications. This helps develop knowledge on which to base further research. The faculty, as academic authors, support open access and sharing research. They expect that deposited research publications should be open for both institutional members and the general public. A faculty member stated that *“personally I think if we implemented [this digital repository] and it does not allow open access, it is worth nothing (MU_SocHum_01).”*

The faculty express the view that the interoperability of IRs across universities can bring considerable benefits to students and researchers. The research accessibility and utilization should not be limited to institutional members at an individual institution. Wider access will result in knowledge sharing and national development.

3) User-friendly interface

Depositing research outputs requires extra workload. Unlike other databases, the IRs require more contributions from authors in depositing their scholarly publications. In order to receive more contributions voluntarily, user interfaces for the work submission process should be user-friendly. Less complicated process is preferred by librarians, depositors, and users. The depositing process should not require a lot of time and effort by the depositors. Otherwise, no content will be deposited. Moreover, libraries can facilitate depositing and cataloguing processes via librarians as depositors, auto-generated metadata or data sharing among management information systems.

4) User empowerment and knowledge sharing space

User empowerment was another important feature of the interviews. Some faculty members asked for the right to deposit their academic work with IRs themselves. In fact libraries are happy to allow authors to deposit their works in IRs. Most IR software offers depositing features. The libraries allow the faculty and other university members to create user accounts and deposit works. This assumes that poor and discontinuous promoting of IRs should be improved.

However, it is a good sign that the faculty recognize their rights and would like to be involved in research output management. For example, a faculty member stated that *“If [the library] assigns user ID to the faculty for managing research outputs, it will be easier [to deposit their academic works] because we can manage and determine users’ rights.” (TU_SocHum_02).*

In addition to uploading free downloadable research publications, the faculty expect that the IRs should have some features for exchanging opinions. Virtual spaces and services should be created in the IRs to support knowledge exchange. This can be a channel for knowledge sharing between authors and users who share common research interests.

...it should have other motivations [to deposit academic works]. When we deposit [papers in an institutional repository], we do share knowledge with others. Other people probably comment [on our work] or [in the repository]. Or there are other academics who have similar works to ours. Then we can access his/her academic works. [For me,] the monetary incentives don’t matter. (TU_SocHum_10).

5) Add-on values and services

More add-on values and services of university-based IRs should be provided and promoted. The interviews revealed that the faculty mostly ask for more add-on values and information services derived from the university repositories. This raises questions for university libraries and librarians as how to revise and create new information services. The add-on values can motivate the faculty to participate in repository projects. One faculty member in Social Science explained that

...Like Facebook, people use Facebook frequently because we would like to share our interest and opinions. Then the [institutional repository] should provide some add-on values to the faculty who hesitate to deposit scholarly outputs. This attracts [the faculty]’s attention to share their publications...(TU_SocHum_10).

This faculty member (TU_SocHum_10) gave some examples of add-on values such as free downloads, knowledge exchange spaces, a channel to contact authors, statistics on full-text downloading, web CVs, or expert databases. She added further that

Library should communicate with the researchers and indicate the benefits of the institutional repository which are more than just being a digital storage or digital collection. Otherwise, the faculty have no motivation to deposit their scholarly works. (TU_SocHum_10).

Data mining, report generation services, knowledge linkage and representation were mostly mentioned by the interviewees as the expected values to be gained from IRs. A report auto-generation service was mostly requested by the faculty and staff at administrative level. The faculty expect that the IRs can generate any necessary reports, especially reports required for promotion to higher academic positions, performance assessment, and web CVs. Research funders and university executives as well as library directors would also like some reports derived from the IRs for planning and decision making purposes.

However this is no surprise for libraries, which have already perceived such benefits and have designed many report functions. From the libraries' perspectives, the benefit of such services will become obvious to other stakeholder groups if more research outputs are deposited with IRs. Additionally the libraries have considered metadata schemes and content standards before starting to deposit works so as to enhance resource discovery, interoperability, and auto-generated reports.

In addition to research discovery tools, it is expected that university-based IRs should have relevance linkage features to generate interesting search result pages. A faculty member in Social Science and Humanities expected that search and result features should be customized, not just bibliographical lists and downloadable full-text files.

...the same topic may be in various media. But there is linkage through keywords, IP address, pixel position, etc. ...For example, I set a linkage between some pixels of one image and one frame of motion picture as well as a text. It can be done successfully through computer technology because computers operate using binary number [as a symbol to represent content, no matter in which formats]. (CU_SocHum_03)

At the national level, research councils, especially the National Research Council of Thailand (NRCT), have advocated the development of a national research gateway. The utilization of research outputs, knowledge sharing, and social

development are one of the research councils' missions. Consequently, research councils advocate and support the development of university-based IRs. As TNRR was implemented, NRCT and other research councils hoped that they would receive collaboration from other universities in Thailand in depositing all their research outputs so that TNRR could harvest metadata and point to downloadable full-text research outputs deposited in university-based IRs. Moreover, IRs at the universities can have their own database design and collection development policies, but they should work in accordance with TNRR practice and procedure, especially using OAI-PMH standard and metadata schemes.

Research outputs that result from government-funded research projects should be deposited. The Secretary of NRCT indicated the next stage of TNRR attempts to cover all types of public-funded research outputs. He explained one research project can produce many different research outputs, such as research reports, publications, and dialogs. If TNRR can capture all these research outputs, it can visualize all publications generated by one research project and present all research projects and outputs in the same research areas. This will enable NRCT and other research funders to consider the most essential research areas to be supported and decide on essential knowledge development.

6.7 Conclusion

This chapter presented the findings from data collection, mostly based on the interviews with a variety of stakeholder groups. There are similarities and differences among each group and across the groups. The foreseeable future of open research outputs in Thailand through university-based IRs seems positive. Even though some participants are not aware of the implementation of university-based IRs, most of those interviewed could perceive the benefits after the benefits were explained to them. University executives, academic publishers, and the faculty tend to support IR projects with some concerns about the extra workload, copyright management, and knowledge exchange. From their various perspectives these reservations aside, IRs are expected to reduce workloads and to provide more add-on services. For libraries and librarians who were the first group to embrace the idea and potential of IRs, the increasing number and expanded scope of deposited collections are under consideration.

Moreover, some libraries have attempted to discover how to make their IRs fully open to the general public. It could be assumed that these university-based IRs in NRUs could reach the ultimate goals of complete open access.

Chapter 7 Discussions

This chapter aims to identify the major findings presented in the previous chapter by corroborating with previous research reviewed in the literature review. The ultimate goals of this study were 1) to provide a holistic view of the stakeholders in Thai NRUs towards university-based IRs in respect of research publishing behaviours, perceptions, participation and exploitation, and influencing factors of IR adoption and 2) to propose a grounded model explaining the IR development in Thailand. To achieve these goals, in-depth interviews with stakeholders were employed. The better understanding of university-based IRs in NRUs was presented in Chapter Six. Next, at the heart of this chapter is a discussion of four main themes in accordance with the research questions.

7.1 Thai academics' research practices

As IRs have brought changes to scholarly communication and scholarly society, it is worth examining the nature of research practices of Thai academics. By gaining such an insight, it should be possible to identify problems and propose potential solutions. A quick glance at Thai scholarly communication and society shows that conducting research, the research dissemination, and academic promotion and tenure system have been influenced by global scholarly communication. However, Thai scholarly society probably takes time to adopt any innovations in scholarly communication, to change attitudes, and to update any relevant policies or assessment systems. Further, research councils are key agents in determining national research development policies, providing fundamental research infrastructure, and enhancing research dissemination and impacts. In addition to the national level, universities have their own mechanisms organising and managing their administration in order to correspond to national research development policies and other relevant regulations.

The influence of being NRUs on the faculty's research behaviours

The enhanced quality of the higher education system with national research excellence is one of the most significant expectations in the 2nd 15-year Long Range Plan on Higher Education of Thailand (2008-2022) (Office of the Higher Education Commission, 2008). Therefore, the National Research Universities

project was launched in 2009. The influence of the NRUs project on university members' attitudes and practices was apparent. Unsurprisingly, on the university side, NRU status offers more opportunities to receive more research grants. Meanwhile, it brings more pressure and expectation on the increasing number of research publications published in recognizable and high-quality academic journals due to a ranking system based on published papers. However, it is slightly different from the perspective of the faculty. Prior to the implementation of the NRUs project, conducting research and publishing research findings were already one of the faculty's job responsibilities and embedded in the professional obligation and tenure system. Accordingly being NRUs did not introduce any change to faculty except more pressure of balancing the teaching and research workloads. Teaching workloads are barriers to conduct research and publish papers (Putwattana, 2002).

More research publications advance the university's reputation and prestige but the universities must provide a high-quality curriculum for students. Therefore balancing teaching excellence and research excellence is a challenge for the university and the faculty. Consequently, some Thai researchers asked policymakers to reconsider the university strategy and workloads. Kovilaikool, Suwanketnikom, & Prachyapruit (2007) and Putwattana (2002) suggested research policies, reward system, research administration, and publicizing research findings enhance the research culture at the workplace.

Moreover, the expectation for research publications to be in international academic journals may affect the decision making to publicize research findings. Closer examination of research publishing behaviours reveals that Thai researchers tended to generate research reports as a grant requirement and publish papers in international and local academic journals. This finding is consistent with a previous study by Phetwong & Tuamsuk (2012) which demonstrated that the most published research outputs generated by Thai researchers were research reports followed by monographs and journal papers. Phetwong & Tuamsuk (2012) further explained that journal papers were the most useful information sources for conducting research. Next, it is interesting to explore closely how Thai researchers select journals in which to publish their research findings.

Balancing local and international research dissemination

To raise professional recognition of individuals and institutional prestige, it is obligatory to disseminate research findings to local and international communities. Scientific publications by Thai academics are mostly in the genres of research reports, conference proceedings, journal articles, and monographs. This study reveals that Thai researchers publish their research work in local and international professional journals. Similar to global academic acceptance in scholarly communication (Anderson, 2004b), journal articles especially those published in international journals with high impact factors are widely accepted by Thai academics and universities. The impact factor is the most mentioned criteria for selecting journals for Thai researchers and this is consistent with a previous study (Bailey, Jr, 2007). Additionally, this study reveals that readership and quality of work and journals are additional influencing criteria for journal selection.

However, Thai researchers also disseminate research findings to the local community especially the community in which they conducted their studies. This study showed that disciplinary differences influence Thai researchers' decision making in publishing research findings in international and local journals. Thai researchers in Social Sciences and Humanities tend to choose journals with a wider range of readership whereas the impact factor is more important for Thai researchers in Science and Technology. This finding is in agreement with European researchers' publishing behaviours (Fry et al., 2011; Spezi et al., 2013) and Thai researchers (Poopan, 2011). The acceptance of impact factors among Thai academics is influenced by global academic trends from administrative perspective aiming to attain world-class university ranking. However, it is necessary for particular disciplines and community-based participatory research to serve local communities. Therefore, it is challenging Thai researchers to balance publishing research work in international journals to meet the assessment system and in local journals to serve local communities.

The acceptance of Open Access publishing in Thai scholarly community

OA publishing has emerged since 2003 at the BOAI conference (Open Society Institute, 2002) and has been gradually adopted. For the Thai scholarly community, Open Access is a quite new concept for many stakeholder groups. Some do not know exactly what Open Access is whereas some perceive OA as free access or only OA publishing, not Green OA strategy. This section presents the findings focusing on the perspectives of Thai academics towards OA publishing and the reaction of Thai academic publishers.

The participating academic journal publishers were not aware of both Green OA and Gold OA strategies. However, there was no evidence of Thai journal publishers' disagreeing with OA. Local conventional journal publishers have advocated knowledge sharing by employing a low subscription fee for some time. Their affiliated institutions have subsidized their journal publishing. This differs from international academic journal publishers. They have changed their business models such as subscription fee-based, hybrid OA, and Gold OA in accordance with OA policies issued by several developed countries. Briefly, Thai academic journal publishers agree with the principle of OA and support knowledge sharing even though they remain wedded to the subscription-based business model. There is a little evidence of concern about copyright infringement in a digital knowledge sharing environment.

Several countries have discussed and allocated some grants for Author Publishing Charge (Research Council UK, 2013, 2015). As the focus of this study is IRs, there is no evidence to demonstrate to what extent research councils in Thailand respond to OA publishing in terms of OA policy and APCs management. However, it would be a step in the right direction if universities and research funders in Thailand followed the examples of RCUK and US councils (Universities UK/Research Information Network, 2009) when considering national research planning and strategies.

On the researcher side, the low acceptance of OA publishing among Thai researchers is reported. Misconception of OA journals as unqualified journals without rigorous peer-review process delayed the adoption of OA publishing. This is consistent with previous studies (Boissy & Schatz, 2011; Oppenheim,

2008; Swan & Brown, 2005) which indicated OA journals were perceived to be low quality. However, researchers in developed countries tended to change their attitude towards OA publishing, whereas OA publishing is still new for Thai academics. It is necessary to educate community members about this concept.

The attitude toward OA publishing among Thai academics is worthy of investigation. Thaotip (2009) revealed that the Thai Library and Information Science professions need OA resources to be promoted among users and need more OA journals and archives/repositories to be launched by their universities. This showed that Thai academics appreciate the advantages of OA journals; however, more exploratory studies in other disciplines may make understanding clearer. However, it slightly diverges from this current study. The findings revealed researchers in different disciplines have different attitudes towards OA publishing. Thai researchers in Science and Technology tend to be familiar with OA publishing, but their response to OA publishing is various. Some have experience of OA publishing whereas some prefer the conventional journals with impact factor due to expensive APCs, misconception, and the traditional tenure system. Apparently Thai researchers in Social Sciences and Humanities have no idea what OA publishing is.

The roles of Thai academic libraries

University libraries have played a significant role in acquiring and providing information resources in various formats to their institutional members. This is similar to (Bailey, Jr et al., 2006; Yoowang, 2012) that found academic libraries implement and maintain IRs. They have experiences of copyright and license management, collection development, and content preservation. Oppenheim (2008) indicated that libraries are key agencies in this area. However, in the OA environment, it is quite challenging them to play more proactive roles and collaborate with other stakeholders. However, this study confirms that stakeholders trust the ability of academic libraries and competencies of librarians in managing institutional repositories. In addition, it is more effective if libraries work with research offices to develop collections.

The ambiguity of copyright agreement and the copyright understanding

This study demonstrates the variety of copyright understanding and interpretation among Thai scholarly community. The university presses have received some financial support from affiliated institutions. These non-profit university presses need some income streams to sustain their business as a result contracts transferring copyright are provided to authors. In contrast, Thai academic journals managed and published by the Faculty, Departments, or the Universities, which are also non-profit, are subsidised and do not necessarily require an income stream. Regarding the copyright agreement between journal publishers and the authors, there are various practices amongst the publishers. Some require the authors sign the copyright assignment documents, whereas some do not provide any agreement. However, the publishers and the authors understand the copyright and their rights variously. This is similar to previous studies (Gadd et al., 2003a; Swan & Brown, 2005) revealed that the majority of academics thought they owned the copyright in their works even though they signed an agreement with publishers. Mostly Thai academics were not aware of copyright transfer agreements which is similar to the study of Rowlands, Nicholas, & Huntington (2004). Unexpectedly, this study also found that some copyright transfer agreements are not into effective due to faults in designing the agreement. This finding will require local academic publishers to amend their copyright transfer agreement and raises questions as to how authors check the lawful validity of the agreements.

On the IR committee side, academic libraries at these NRUs did their best in managing copyright and providing digital access to the IR content. This is similar to several copyright management approaches surveyed by Hsiang & Hung (2005).

7.2 The Perception of Institutional Repositories

The confusion of assigned names for institutional repositories

The term “Institutional Repository” was defined by many scholars with slightly different standpoints. The terms are variously used for naming the IRs in these three NRUs: “Intellectual Repository”, “Knowledge-Based Database”, and “Institutional Repository”. These could reflect the implementers’ perception of

IRs. Moreover, the variety of naming brings some confusion to their community members if no clear policy is in place. Scholars could not understand the functionalities, benefits, and the need for engagement.

Perceived roles of IRs in Thailand

IRs in Thailand are perceived as useful information resources for free access with some restrictions. The IR committee developed the IRs with on the basis of free access rather than considering unrestricted derivation. This is similar to the original concept of “free online scholarship” promoted by Stephen Harnad (Harnad, 2003; Morrison & Suber, 2002). In addition, the university-based IRs in Thailand do not aim to replace the peer-reviewed system or journal publishing. According to Pinfield (2007), IRs will not replace the conventional peer-reviewed journal publishing. This finding is consistent to this predicted trend.

Academic libraries and the TNRR committee chaired by the Secretary of National Research Council of Thailand conceptualize IRs as free access digital repositories of scholarly works. This perception is similar to Yoowang (2012) which surveyed the objectives of Thai IRs which are to collect and provide access to institutional scholarly output and to promote its dissemination. This current study provides better understanding of the IRs in each institution that has various policies and aims. This affects their collection development policies and further the content sharing across institutions.

Thai academic publishers, especially university presses, do not recognize the importance of IRs to their business. One university press participating in this study perceived the benefit of IRs because the library has collaborated closely with the press and has a preservation policy for published monographs. For local journal publishers, copyright concerns were raised regularly. They allow the institutions to archive papers on a case-by-case basis with some particular restrictions (see Table 7-1).

Table 7-1 The perceived benefits of IRs by stakeholder groups

	Administration tool	Resources and Research gateway	Showcase	Sources for further development	Preservation method
Policymakers	✓	✓			
Faculty		✓	✓	✓	✓
Publishers			✓		✓
Libraries		✓	✓	✓	✓

The interoperability of university-based IRs and national research repositories.

The TNRR is firstly implemented for six main research councils to collocate funded research reports and to be a national research gateway. Later it began collaborating with universities to harvest metadata and enhance the national research gateway. The study made this clearer that NRCT provides full support to universities to develop their own IRs and only asks permission for metadata harvesting. However, NRCT did not interfere in formulating the collection development policies, the content accessibility, and university OA policy.

The findings demonstrate that university-based IRs in Thailand have a diversity of collection development policies and a range of content accessibility. This might cause some problems and confusion downstream on cleaning metadata and developing a comprehensive collection of national funded research reports. For example, CUIR does not hold government-funded research reports due to copyright infringement concerns. Consequently, the TNRR could not collect government-funded research reports from CUIR even though CU researchers receive research grants for research projects. Consequently, the finding can draw TNRR's attention to consider this issue if they would like to develop a comprehensive collection of research publications by harvesting metadata from

university-based IRs. Additionally, collaboration at policy level across research funders and universities should be re-examined.

7.3 IR Participation and Utilization

Unlike other countries, the implementation and improvement of IR projects in Thailand received administrative effort at the outset, but later the responsible units, mostly academic libraries, manage and sustain the projects via a bottom-up approach. Academic libraries as IR responsibility units have been reported by several researchers (Phetwong & Tuamsuk, 2011; Yoowang, 2012). It is hopeful that administrative effort hinges on the effective management and sustainability of Thai university-based IRs. Another issue with IR management is low awareness of institutional members and other stakeholder groups. Similar to the findings of Singeh, Abrizah, & Karim (2013), Thai researchers had low awareness of IRs but had a willingness to deposit works in the IRs.

The stakeholders' participation in university-based IRs is low especially in the bottom-up management. Only libraries and the IR project committee actively participated in the project by announcing policies, populating collections, promoting individual projects, and providing services. Deans of Graduate Schools support IR projects by improving the transfer process of the outputs of postgraduate research from Graduate Schools to the libraries.

Low IR awareness of academic publishers affects content contribution and collaboration in collection development. Most university presses and local academic journals are not aware of IRs and do not perceive their benefits. Seemingly, they have not been informed about IRs. Local academic journals tended to participate in IR projects if they received more information about IRs. Conversely, university presses are more concerned about copyright management and digital rights management systems. Therefore, they will not deposit full-text monographs with IRs. However, collaboration at the policy making level can enhance better understanding of IRs and gain the engagement from the university press in depositing content with IRs as a preservation tool.

Low IR awareness of Thai researchers is obvious from this study. However, they can perceive the value of IRs as information resources, as a means of visualizing

their academic performance, source of plagiarism checking, and a preservation method. When considering closely the influence of research positions as the authors and the users, it is interesting that Thai researchers as authors and readers had different perspectives of IRs. As authors, Thai researchers may perceive the benefits of IRs, but most Thai researchers are reluctant to deposit their work in IRs. A few use them to preserve their research data and to visualize their research projects.

As readers, IRs especially at their institutions were not helpful for Thai researchers at all. This finding is consistent with previous surveys (Fry et al., 2011; Spezi et al., 2013) indicating researchers likely went directly to search engines rather than IRs for relevant and up-to-date scientific publications. They further revealed that Google Scholar and Google search were mentioned mostly by academics as information sources rather than OA repositories.

The recent results agree by and large with those reported in a study of Thai faculty members' information behaviours by Phetwong & Tuamsuk (2012). Additionally, it could be explained by the factors influencing information use behaviours identified by Poopan (2011): contextual variables, the characteristics of research output, and personal variables. According to Poopan (2011), it could be assumed that the characteristics of research output such as usefulness, relevance, and research updates are obstacles to researchers using IRs established at their institutions.

The scope and the availability of IR collections

Lack of information on IR policy impedes the participation and usage of IRs. It can be confirmed by the website analysis by Phetwong & Tuamsuk (2011) that revealed foreign IR websites provided more information and services to users than Thai IR websites. Moreover, Yoowang (2012) found Thai IRs were the responsibility of libraries and had no written policies available for the public.

The IR collections depend on their institutional policies (Anderson, 2004a). NRUs stated developing their IRs with existing digital theses and dissertations. This is similar to other IR projects across the globe (Bailey, Jr, 2006; Buehler & Trauernicht, 2007; Chen & Hsiang, 2009). Additionally, this finding is consistent

with the survey of Thai IRs with library directors (Yoowang, 2012) which found Thai IRs housed mostly theses and dissertations. In addition to e-theses and dissertation, Thai NRUs-based IRs have gradually put more effort into capturing journal papers and other institutional collections. However, this poses challenges to librarians about collection development and copyright management. Therefore, the issue on the version of paper (Pre-prints VS post-prints) may not be in their consideration at this moment.

Similar to Yoowang (2012), all IR content is held in bibliographies, abstracts, and full text with various access rights. According to Tanmala (2009) and Yoowang (2012), institutional members could download full-text theses or papers from IRs via university Internet networks and Virtual Private Networks (VPN). However, some features in downloadable pdf files were restricted such as printing and editing. This recent research showed that academic libraries revised their policies and improved the availability and accessibility of IR contents. As a result, at the present end-users can access full-text IR content freely but they need to register their user ID. However, some access restriction is applied to particular user groups and unrestricted access is provided only for community members. This is similar to most ARLs (Bailey, Jr, 2006).

7.4 Factors of Self-archiving and IR Participation

Self-archiving and participation in university-based IRs in Thailand are influenced by non-continuous promotion, unclear communication, and copyright understanding. Moreover, the complicated submission process and the required extra time and workload are reported as barriers. Work owners raise several questions on acquiring and depositing their research outputs: why do not the libraries recruit the content from Research Affairs? Are there any mechanisms to shorten the process? Which do not impose burdens on the faculty? Collaboration between academic libraries and other stakeholder groups is significant to the success of IRs (Campbell-meier, 2011; Lynch, 2003; Palmer et al., 2008a). This could be seen from the way the University of Kansas invited their university members to participate in formulating institutional policy toward OA (Emmett et al., 2011). Additionally, the findings of this current research agree with previous researchers that collaboration is one of key factors in accelerating the progress

of IRs and word-of-mouth persuades stakeholders to participate in the IR projects (Björk, 2014).

The administrative effort is a fundamental issue hindering effective implementation. Communication through written statements and policies on self-archiving and OA publishing should be explicit (Renfro, 2011). Besides, copyright concerns are common issues among several research conclusions (Cullen & Chawner, 2009; Kim, 2008). This current study also agrees with previous studies that copyright is a common concern among stakeholder groups. The findings reveal the influence of copyright understanding on the stakeholders' interpretation and practices in copyright management.

7.5 Conclusion

This research confirms previous findings and contributes to our better understanding of institutional repositories in Thailand. Based on these findings, the proposed model for improving the university-based IRs in Thailand is constructed. The following chapter will introduce and explain the component of the 4Cs model for the development of the university-based IRs in Thailand.

Chapter 8 A Model of the Development of Institutional Repositories in National Research Universities

This chapter aims to introduce and discuss a proposed model for the development of university-based IRs in NRUs in Thailand. This model was derived from the analysis of interviews with various stakeholder groups. Firstly, the process of generating the 4Cs model is described. Secondly, the components of the model are defined and the relationship between categories is explained. Then the discussion indicates the similarities and differences of this model and other previous studies in this research area.

8.1 How to formulate the grounded 4Cs model

As a Grounded Theory research, this study aims to propose a grounded theory explaining the university-based IRs in NRUs in Thailand. Building a theory derived from its own culture may provide better insights on the research phenomenon (Corbin & Strauss, 2015). Corbin & Strauss (2015, p. 189) give an overview of the theory generation:

Theory building is a process of going from raw data, thinking about that raw data, delineating concepts to stand for raw data, then making statements of relationship about those concepts and linking them all together into a theoretical whole.

The collected data from multigroup stakeholders not only provides new insights on the university-based IRs in Thailand but also generates the 4Cs model for explaining the current situation and generating predictions for further research and development. Unlike other qualitative research, the theory from Grounded Theory research is grounded in collected data, not in the related literature or previous studies. However, literature was consulted at the end of theory generation in order to discuss whether this proposed 4Cs model can fit within the current understanding in the field (see Section 8.3).

Chapter Six explains the process of data analysis and presents the findings logically. To make sense of these conceptual categories, the researcher interpreted the concepts and chose a core category then integrated with other

major categories in order to propose a grounded theory “4Cs model”. Three strategies to formulate this model enhanced the theory generation:

1) The interaction between the researcher and data

Through the specific data collection and analysis process of Grounded Theory, the researcher experienced interviewed data and interpreted the findings. Especially in the Focused Coding stage, the researcher was immersed in collected data and often reread interview transcript. This enabled the researcher to understand the context and the main themes. It also led the researcher to view and determine the relationship among themes.

2) The most weighted categories

The analyzed data visualized the most important themes of the research phenomenon. Especially the highest weighted categories (see Table 6-1) mapped directly to entities in the model, with some omissions for and modifications for clarity. Figure 8-1 shows how to determine the associated categories for generating the 4Cs model.

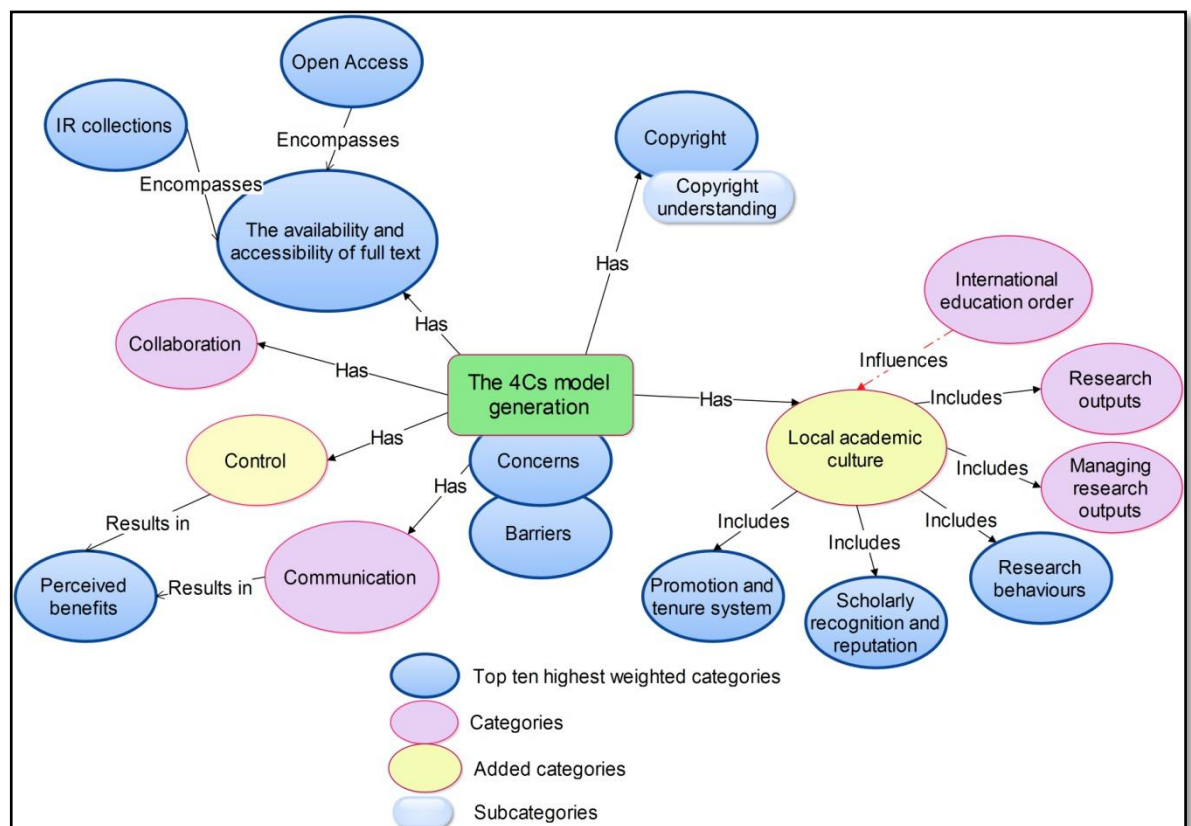


Figure 8-1 The importance of the highest weight categories on choosing the components of the 4Cs model.

3) The standpoint and reflective questions

The findings revealed low IR awareness of stakeholders, the difficulties of managing the non-mandate IRs and the differences in the perspectives among stakeholders. Based on this current understanding, some reflective questions were raised for determining the direction of the grounded model from the standpoint of policymakers and IR committee in order to advance the management of IRs for better knowledge management and sharing. For example, how does this research optimize Thai university-based IRs in the context of bottom-up management? Are there any effective methods to increase the deposited research outputs?

These strategies enabled the researcher to determine the core category and associated categories for the 4Cs model (see Figure 8-2). To select a core category, the researcher followed the criteria for choosing a core category recommended by Strauss (1987, p. 36 cited in Corbin & Strauss, 2015, p.189). Consequently, the category “Full-text availability and accessibility” was selected as a core category, renamed “The availability and accessibility of full text”. The reason for this emphasis is to reflect the significance of collection acquisition and the accessibility of full content at the heart of free online scholarship. Further, this issue is an expectation of the IR committee and the public: academic libraries would like to increase the number of deposited content especially the faculty’s research output whereas the end users would like to access to free full-text research output online. Moreover, this core category reflects the stakeholders’ shared concerns if they participate in OA environment especially IR projects. This core category also encompassed the categories of “IR collections” and “Open Access”.

Apart from the core category, the category “Copyright”, one of the top ten most weighted categories was also chosen. The category “Copyright” is addressed by the entity “Copyright understanding” since this is the substantive element relevant to effective content management for free access. Even though the categories “Communication” and “Collaboration” were not in the top ten highest weighted categories, they were chosen for the 4Cs model because these concepts can increase a stakeholder’s awareness of and participation in IRs as both depositors and users. As a result, the amount of research outputs can be

increased and the range of full-text collections can become more accessible. The category “Perceived benefits” was omitted from the model since it is an output of the effective execution of other elements such as “Communication” and “Control” whereas the category “Control” was added as a new emergent category to present the roles of policy support at any level. The model was also designed to address issues raised by stakeholders under the categories of “Barriers” and “Concerns”.

In addition, “Local academic culture”, a new emergent category, was added to cover relevant themes on research behaviours and research dissemination. The following categories were identified as forming a description of “Local academic culture”: “Research outputs”, “Research behaviours”, “Managing research outputs”, “Scholarly recognition and reputation”, and “Promotion and tenure system”. The last entity “International educational order” was chosen to reflect the fact that local scholarly communities are influenced by global academic trends.

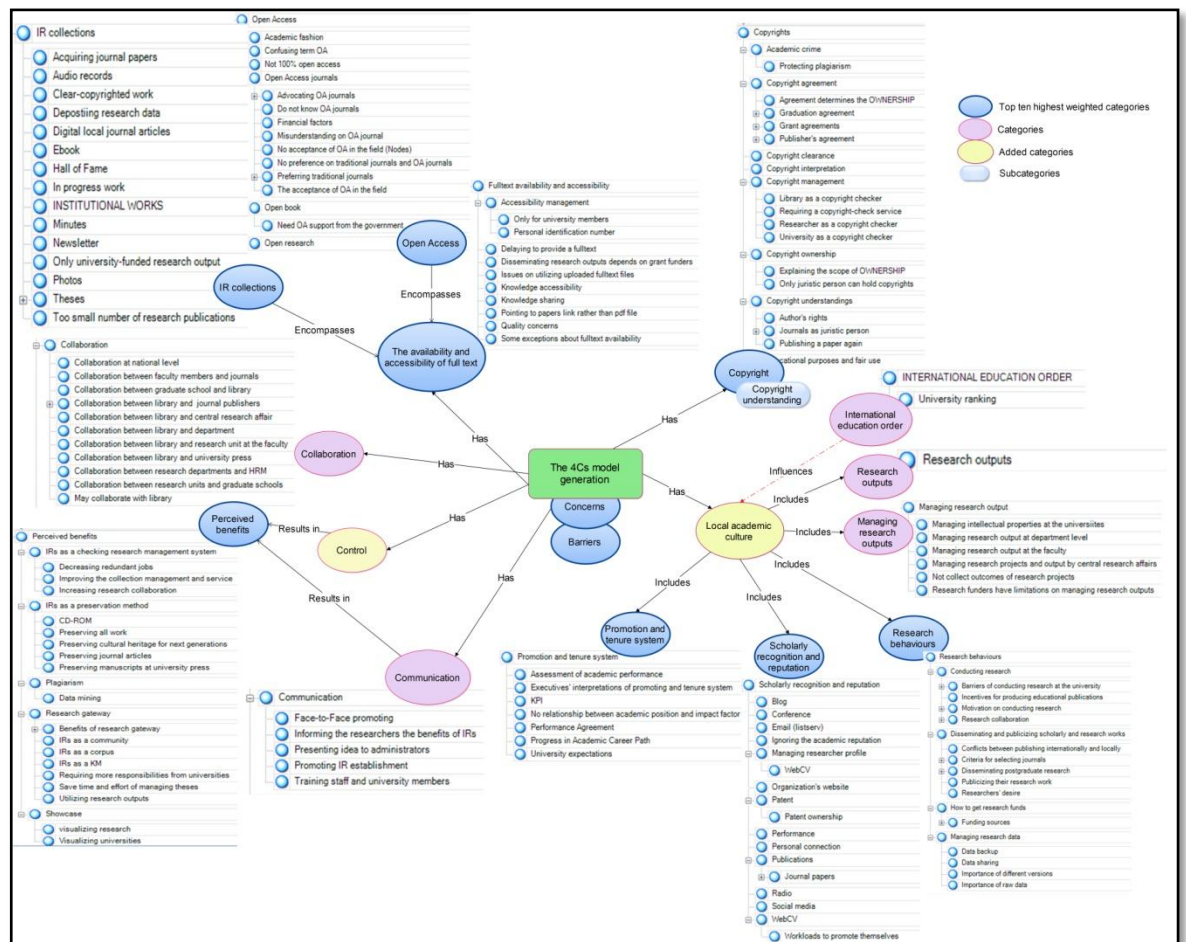


Figure 8-2 The relevant categories for forming the explanatory 4Cs model

Next stage is to integrate a core category with other categories in order to formulate an explanatory model. At this point in formulating a grounded model, the researcher reviewed analyzed data and memos closely and then stepped out in order to explore whether the relationship exists and how it should be interpreted from various dimensions and viewpoints such as IR committee, a policymaker, a researcher, an academic publisher, and a user. Next, diagramming the concept integration enabled the researcher to perceive logically a conceptual story and the relationship among categories and with the core category for meaningful interpretation. Eventually, the theoretical framework “4Cs model” was formulated.

8.2 The 4Cs Model for the Development of University-based Institutional Repositories in Thailand

According to Registry of Open Access Repository Mandates and Policies (ROARMAP)²¹, 693 open access repositories across the world have employed mandates to foster IR collection development. On the contrary, in Thailand the mandate is not yet employed for depositing faculty research, just for postgraduate research. Based on better understanding of the university-based IRs in NRUs, it found that NRU-IR projects faced several challenges in receiving content contribution from stakeholders for providing free access to digital full-text collections.

To advance the Thai university-based IRs employing the bottom-up management style, this study attempted to propose a model derived from the analysis of the stakeholders’ perspectives. The proposed 4Cs model (it is called “Foresee”) for the development of university-based IRs in Thailand has been developed specifically for the Thai context and has been tailored to manage a lack of mandates. Unlike other models, this model addresses the informal inputs to the processes of content capture by IRs in Thailand. Since the proactive roles of policymakers and IR project committees are necessary to develop the university-based IRs in a non-mandate governance framework, this model is formulated

²¹ The Registry of Open Access Repositories Mandatory Archiving Policies (ROARMAP) (<http://roarmap.eprints.org/>) is developed and maintained by the University of Southampton, UK. The statistical data on 19th May 2015 shows 693 open access repositories employ mandates. Only 12 OA repositories in South-Eastern Asia employed mandates: 8 Indonesia, 2 Singapore and 1 Vietnam.

aimed at policymakers and IR committees for generating practical ideas or mechanisms to improve IR governance and services.

This model consists of two main parts: 1) Factors influencing the availability and accessibility of full-text IR content and 2) Thai scholarly communities and research publishing behaviours (see Figure 8-3). The first part identifies and explains major factors influencing the availability and accessibility of full-text IR content. The other part is that the context of the way in which the Thai scholarly community influences the stakeholders' participation in IR projects, especially how it effects content contribution and the availability and accessibility of institutional research publications. These components of the model are regarded as barriers and drivers in the development of Thai university-based IRs.

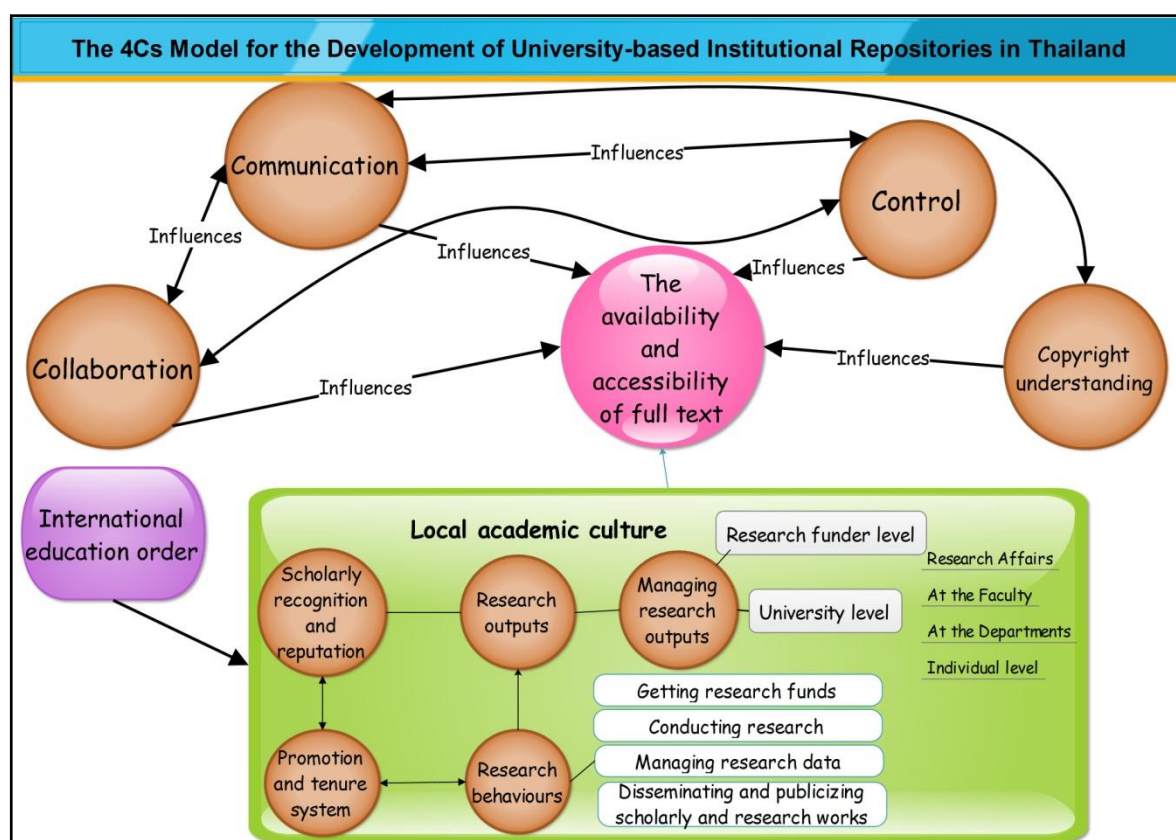


Figure 8-3 The 4Cs model for the development of university-based institutional repositories in Thailand

8.2.1 Factors influencing the availability and accessibility of full-text IR content

The main theme of this research is “the availability and accessibility of full text”, grounded from the data. As the core category, “the availability and accessibility of full text” represents the main concept lying behind this research which encouraged many stakeholder groups to share their perspectives on university-based IRs. Thai university-based IRs have been implemented to collocate all institutional intellectual assets for wider dissemination. In fact, these IRs failed to acquire faculty research outputs and did not allow the public to access these collections at the full text level largely because of copyright concerns. It could be said that the availability of research outputs for non-restricted access is at the heart of free online scholarship. Therefore, it needs to be addressed.

As collaborative projects, the management and development of IRs demands more engagement from stakeholders. Central to the processes of content contribution and full-text availability and accessibility, are these four factors: “Communication”, “Collaboration”, “Control”, and “Copyright understanding”. These four categories are interrelated. It is necessary that all four factors should work together in order to enhance the progress of IR projects. The relationship of these factors can be explained as follow:

1. Communication

Communication in this study means any activities that stakeholders use to contact and convey information among stakeholder groups in order to increase understanding. Communication channels can be formal and informal approaches: written institutional policies, collection development policies, grant agreements, publisher agreements, workshops, trainings, and personal communication. Internal, external, and across-campus communication are important for the management of IRs, accelerated institutional content contribution and value-added services.

Clear and continuous communication mostly will increase the engagement of stakeholders and the collection development of institutional publications. Clear

communication ensures every stakeholder is on the same page. Written institutional policies, collection development policies, research grant agreements, and publisher policies regarding OA, self-archiving, and copyright statements inform stakeholders how they can get involved in and gain benefit from university-based IRs. Potential concerns then can be addressed and discussed to ensure good practice.

In addition to common understanding, continuous communication can develop trust for all parties involved in IRs. Academic libraries and librarians are key agents in developing collaboration and trust among other stakeholder groups through potential communication approaches: user education, research training and workshops, and information services. A liaison system is one of the essential communication strategies to build collaboration, increase content contribution, and drive for IR development.

Every NRU in Thailand in this study has central libraries and faculty libraries. Additionally, library networks at each university have been established. Consequently it would be better to leverage faculty librarians and library networks to educate faculty members and other staff at Research Affairs and Human Resources at each faculty about projects, helping them to manage their research publications, and in acquiring their research publications for IRs. Liaison librarians can foster communication between the libraries and faculty members. This will lead to increasing participation of faculty members. Moreover, liaison librarians can collaborate with other staff at Faculties in acquiring the faculty's publications.

In addition, liaison librarians help in the acquisition and create valued-added services because they have knowledge of their faculty's grant applications, publishing behaviours, and concerns. This assists researchers in perceiving the benefits of IRs and in encouraging them to deposit their research publications where appropriate. However, academic libraries may embed their deposition workflow into the faculty's research behaviours. Moreover, libraries may provide any advocacy services associated with deposition and copyright management. For example, the faculty may be willing to deposit their research papers, but they do not necessarily want to deposit content themselves because of time consuming workflows and complicated web interfaces.

Apart from internal communication within departments and institutions, communication between libraries, universities, research funders, and academic publishers is another driver for better collaboration and support. Research funders and universities need to discuss with local academic journal publishers their policies on archiving published journal articles. Although international journal publishers already have announced their OA policies - - both gold and green strategies, all relevant parties need to read such policies and contest them if necessary. Therefore, good practices on the development of university-based IRs in Thailand can be accomplished by explaining their purposes, benefits, and value where appropriate. For university presses, depositing the published monographs into IRs is a new challenge. They do not adopt yet IRs yet due to copyright concerns and the effects on their business. However, the efficient communication especially at the policymaking level enhances the deposit of monographs into the IRs, at least for restricted access. For example, the Mahidol University Press has a policy of depositing a digital copy of monographs published by the press into the Mahidol IR.

2. Collaboration

Collaboration defined in this model is related to communication among stakeholders in the scholarly community. Communication affects relationships in the IR ecosystem. In other words, good communication among stakeholders can prevent them from being lost in translation and increase their awareness of university-based IRs and the perceived benefits. This can also lead to further collaboration simplifying workflow and more effective services.

Collaboration in this model focuses on acquiring faculty research publications and can be divided into five groups: 1) Collaboration between libraries and research funders; 2) Collaboration between libraries, university executives, and research offices; 3) Collaboration between libraries and faculty members; 4) Collaboration between libraries, the faculty, and academic publishers; and 5) Collaboration within library networks (see Figure 8-4).

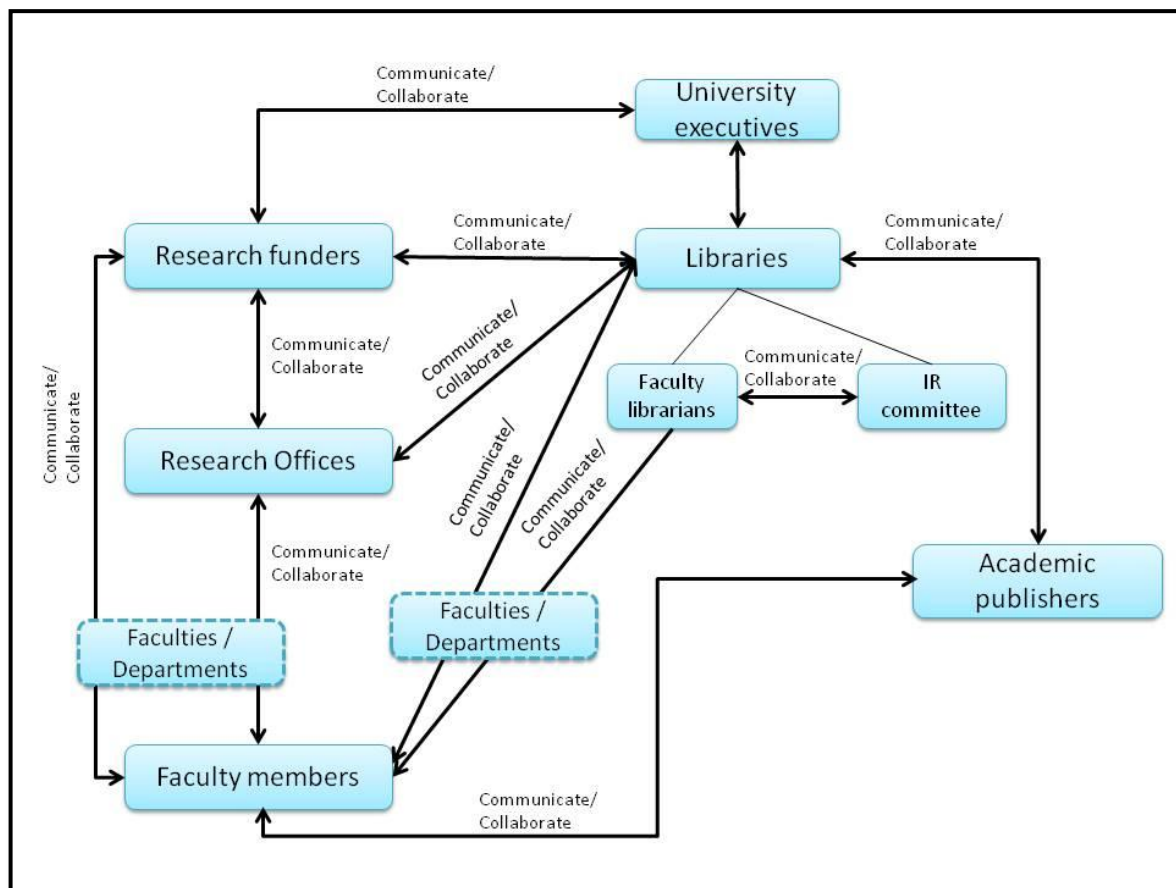


Figure 8-4 Communication and collaboration among stakeholders in the university-based institutional repositories in Thailand

The expected results from each collaboration group are various but they share the same goal: to optimize university-based IRs.

a) Collaboration between libraries and research funders

Libraries communicate with research funders to seek policy support from research funders in terms of rights to archive and disseminate funded research reports through IRs. After indicating the benefits of OA and IRs, it is expected that research funders especially research councils will announce written policies on Open Access or at least statements on access and permission to use funded research reports. Then the management of IRs can comply with research funders' OA policies. In other words, research funders' OA policies or research agreements can help librarians and researchers understand them and avoid copyright concerns in participating in content development. Research funders can also harvest their funded research outputs from university-based IRs for the Thailand National Research Repository (TNRR) which functions as a national research gateway.

b) Collaboration between libraries, university executives, and research offices

Libraries communicate with their university administrative boards for their financial and policy support. The university administrative board is usually composed of University President, Vice President for Research Affairs, Vice President for Human Resource Management, and Vice President for Academic Affairs, Dean of Graduate School, and Deans of every faculty. If the university administrative board can perceive the necessity of university-based IRs and their benefits, then some policies and support from this administrative board can ensure their sustainability and encourage university members to participate. Moreover, such collaboration together with good communication between research offices and libraries will influence metadata sharing and shorten the workflow of research publication submission and dissemination. Apart from that, librarians can support the decision making of the university executives. Librarians can generate reflective reports based on the deposited institutional research outputs. These reports show the statistics of views and usages to assist the administrative board in making decisions such as budget allocation, incentives for academic publishing, and visualizing the institutional and individual research performance.

c) Collaboration between libraries and faculty members

To acquire faculty research publications for university-based IRs, central libraries and faculty libraries must actively collaborate with faculty members directly or with their faculties and departments. Lists of research publications with full-text copies will have been collected by research offices at the faculties and departments for each academic performance assessment. If this is the case, it would be better to contact research offices at the faculties and departments first to ask their permission to share data. This will avoid extra and redundant work for faculty members. In addition, collaborating with faculty members enables libraries to gauge their information needs and their perceptions of IRs. This is useful in creating value-added services based on IRs.

d) Collaboration between libraries, the faculty, and academic publishers

The faculty must study publishers' agreements and publishers' Open Access policies when deciding to publish their papers with any publisher. Thai faculty members publish their research findings in international and local peer-reviewed journals which have various policies regarding OA strategies: Green and Gold approaches. However, OA journals are seemingly associated with low quality of peer-review and high costs. As a result, conventional peer-review journals with high impact factors are preferred by Thai academics. However, libraries can play an active role in assisting faculty members with their research publishing. Libraries can provide information on OA publishing, the benefits and drawback of green and gold OA strategies. However, faculty members will still need to reach their decision on where to publish by themselves. Libraries also negotiate with academic publishers to seek for potential approaches to archive institutional research papers. It seems that copyright issues may not be an important issue for local academic journal publishers, because local journals are subsidized by departments, faculties, and universities. The main intention of publishing journals is to disseminate research findings. However, it is necessary to negotiate with local journal publishers to permit archiving journal papers into IRs. Written agreements are very important. Therefore communication between libraries and academic publishers can increase collaboration influencing the rights to archive digital journal papers for public access. However, libraries need to communicate with international journal publishers to gain their collaboration so that approaches to archiving and disseminating digital research papers can be done without copyright infringement.

e) Collaboration within library networks.

The IR committee can take advantage of existing library networks to promote IR projects and ask for their collaboration. Faculty librarians can educate faculty members and contact them much more easily than central librarians. Clear communication and collaboration can be built with assistance from library networks.

3. Control

Control defined in this model relates to administrative management from research funders, academic publishers, university administrative boards, and library administrators. The management can be delivered through written policies or regulations stating clearly their standpoint on OA and IRs. Strategic research plans at university and national levels should include mechanisms and strategies to collect, manage, and disseminate research output. Otherwise, there is no point in providing financial supports for the conduct of research. These policies and regulations can result from communication and collaboration among the stakeholders at the administrative level.

For librarians, a mandate is regarded as a preferred strategy for developing an institutional research output collection. The deposit mandate not only increases deposited content but also can educate faculty authors and librarians in targeting their deposited research output types. According to Armbruster and Romary (2010, p. 9), a mandate is an effective approach to acquire research outputs and stimulate the awareness of users:

- *Deposit mandates help repositories to identify desirable content, which typically are peer-reviewed publications;*
- *The mandate asks the scholar to comply, requiring controls, thus distinguishing this type of mandated deposit from self-archiving;*
- *Institutional repositories may have their character altered insofar as deposit mandates primarily target research results.*

It will be difficult to implement a mandate in Thai scholarly society without any clear explanation informing the objectives, the expected outcomes, the gained benefits, how the stakeholders can become involved, and the possible results if they resist the mandate. However, standards of practice, regulations, guidelines, and policies are the foundation of how stakeholder groups become involved and optimize university-based IR projects.

4. Copyright understanding

Understanding copyright is one of major components influencing the availability and accessibility of institutional research publications through university-based IRs in Thailand. The dissemination of full-text research publications for free and public access via IRs raises concerns about copyright management and infringement among IR librarians, researchers, funders, and academic publishers. Their understanding of authorship and copyright ownership influences the provision and accessibility of full text. Digital rights management becomes a great concern. However, communication can clarify complicated copyright issues in order to achieve good practices for an IR's development.

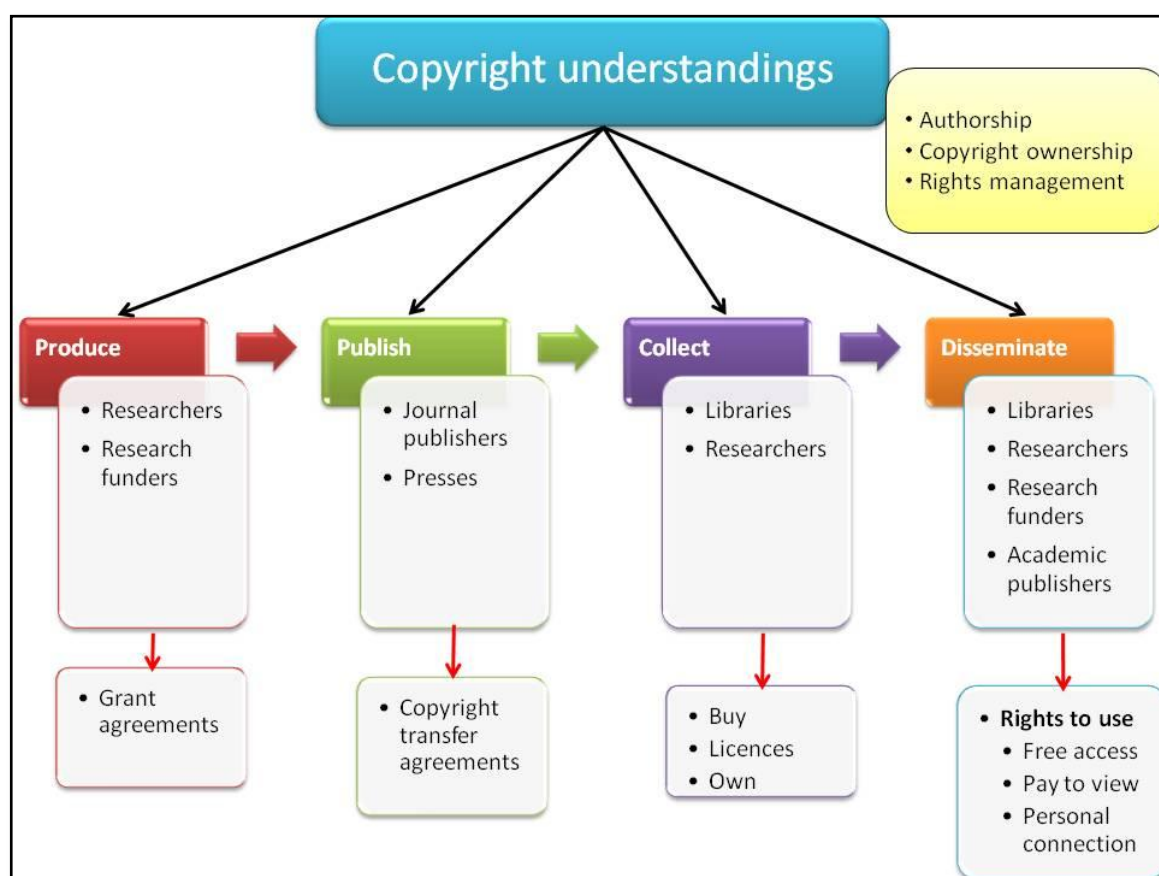


Figure 8-5 The influence of copyright understandings on scholarly communication

In conclusion, the Communication, Collaboration, Control, and Copyright understanding as key factors can move IRs forward toward OA or conversely impede progress.

8.2.2 Local academic culture

The 4Cs influencing stakeholders' participation and the availability and accessibility of IR contents can be applied to the management of IRs in general. However, the availability and accessibility of IR content must be tailored to the local academic culture. The content contribution and full-text availability are specifically influenced by local academic culture.

As Thailand is a non-English speaking country, Thai scholars have to balance dissemination of research findings to both local and international academic communities. In addition, the Thai scholarly community has been influenced by the global scholarly community, such as world-class university ranking, impact factors, and research publications. International academic communities influence the promotion and tenure system in Thai scholar society. This requires Thai scholars to conduct research and share their research findings by publishing in international peer-reviewed journals with high impact factors to achieve global and national standards. A number of published journal papers with high impact factors are one of the key performance indicators for academic promotion and tenure at both national and institutional levels. This increases scholarly recognition and reputation further. Therefore publishing and disseminating research findings in conventional journals with high impact factors are key determinants for Thai academics. It will take time to change the mindset to encourage publishing in OA journals or to disseminate their research findings via IRs. It is expected that changing international scholarly communication will raise some awareness amongst Thai academics in a short time. However, local journal publishers tend to agree with the culture of free knowledge sharing. Better understanding of OA benefits and valid written copyright assignments enable local journal publishers to embrace OA by allowing archiving papers in IRs.

However, individual faculty members have their own opinions about OA journals and IRs. These perspectives become keys to accelerating or blocking the development of IRs. Disciplinary difference can reveal trends in OA adoption. Seemingly faculty members in Science and Technology are familiar with OA journals more than those in Humanities and Social Science. However, some still argue that national regulations on academic promotion place more weight on

international conventional journals with peer-review process and high impact factor than publishing through OA journals.

Overall, this model may seem similar to previous studies. Low participation from academic stakeholders, even in successful IR projects, has been a challenge for a long time. As a result many researchers have investigated the reasons why IR projects fail to attract participation from stakeholder groups even if their value is recognized (Abrizah, 2009; Appleton et al., 2012; Campbell-meier, 2008; Creaser et al., 2010; Swan & Brown, 2005; Watson, 2007; Xia & Sun, 2007a). A number of studies have stated that the engagement of stakeholders assists projects to be successful in term of content size and accessibility (Campbell-meier, 2011; Emmett et al., 2011). However, only a few of them proposed solutions and factors of how to increase the engagement of libraries (Cullen & Chawner, 2009; Harris, 2012; Jubb, Rowlands, & Nicholas, 2013; Read, 2008). In addition, some practices are not directly applicable to Thai academic society. For example, the IR management in Thailand is bottom-up and no mandate policies are in place. Most IR projects in the USA, the UK, and other developing countries receive support from administrators and research funders at both national level and university level. Therefore, mandates and administrative support drive the progress of IR projects in these countries.

There are a number of strengths to the theory proposed here. Firstly, the 4Cs model was tailored for managing university-based IRs in Thai scholarly society which has no mandate OA policy. Therefore, it offers a great contribution to Thailand both in theory and practice. Academic libraries in NRUs can employ this model for improving their IR governance. Secondly, with the rigorous Grounded Theory methodology this comprehensive model was derived from the various perspectives of multigroup stakeholders. The voice of the stakeholders can identify the strengths and weaknesses of the current state of IR management. Further, it can offer clues and potential solutions for collaborating with stakeholders, even though the intended audience of this model are policymakers and IR committees. Some might argue that this 4Cs model is not useful for other situations due to the above-mentioned strengths. However, the “Local academic culture”, one of the 4Cs components, is broad enough and flexible for other organizational cultures and countries. Accordingly this 4Cs

model contributes to knowledge and practice in the particular context of Thailand and also in other situations because of its transferability.

8.3 Relevant theories

This section aims to discuss the proposed 4Cs model for the development of university-based IRs in Thailand with existing theories. The discussion intends to investigate how this 4Cs model can be embedded in previous studies without any intention of replacing them. The rationale why this proposed model is important to Thai scholarly community is also provided. Four theories are chosen for this study (More details are mentioned in Chapter 2):

- 1) Diffusion of Innovation Theory introduced in 1962 (Rogers, 2003)
- 2) Social Exchange Theory (1920s) (Cropanzano & Mitchell, 2005; Hall, 2003)
- 3) Socio-Technical Networks (Kling et al., 2003)
- 4) 6 “a” OA activities (Xia, 2013)

Diffusion of Innovation	Social Exchange Theory	Socio-Technical Networks	6A OA activities	4Cs model
Innovation	Actors	System interactors	Awareness	Communication
Communication channels	Resources	Core interactor groups	Attitude	Collaboration
Time	Structure of exchange	Incentive structure	Action	Controls
Social system	Process of exchange	Excluded actors and undesired interactions	Allusion	Copyright understanding
		Existing communication systems	Advocacy	Local academic culture
		Resource flows	Actor (agent)	Availability and accessibility of full text
		Architectural choice points		
		Socio-technical features to architectural choice points		

Figure 8-6 Comparing the existing theories with the proposed 4Cs model

In common, these four existing theories offer explanatory frameworks to understand the behaviour patterns when changes are introduced into society: how people interact with a change? Adopt or resist the change? What factors influence an adoption or resistance? Likewise, the 4Cs model in this study aims to identify and explain factors influencing participation in IR projects especially the availability and accessibility of full-text digital scholarly works. Eventually, this will improve the effective management of established university-based IRs and the IR-based services. It could be said that the existing theories and this proposed model share similar objectives.

Most of the above-mentioned paradigms have been adopted by many researchers with a multidisciplinary perspective, except the 6 “a” OA activities framework. The 6 “a” OA activities is a specific conceptual framework to explain the potential activities advocating OA adoption. Moreover, this framework offers a new approach to view OA in the real life which differs from the ideal concept. Each activity of this model coordinates and influences the others reciprocally, especially the element “Advocacy”. Due to a lack of theory explaining the OA circumstance in Thailand, the researcher attempted to construct a model grounded from the perspective of several stakeholder groups. Consequently, this proposed model is rather different from the others in term of the specific studied context and methodology.

As a Grounded Theory study, the researcher did not determine any conceptual frameworks for investigating this issue. After constructing the model, it is time to turn back to existing research. As stated earlier, this proposed model does not aim to replace the existing theories but to extend them. However, it is expected that all theories can be embedded or work together to provide a better understanding of the real life situation and a testable prediction.

Human communication behaviour patterns are the main theme of these five theories. The basic elements of communication are Sender, Message, Channel, and Receiver. When considering the components of these existing theories and the 4Cs model, different terms are represented for similar concepts (see Figure 8-6). For example, the element “Innovation” of “Diffusion of Theory” can be called as “Resources” in “Social Exchange Theory” and can cover the categories “Incentive structure”, “Awareness”, and “Attitude” in other theories. However,

the 4Cs model has a category “communication” to cover key agents, messages, and communication channels. This category influences other elements of this model. Briefly, the theories mentioned here all agree that the issue of communication is a key factor in influencing favourable or unfavourable attitudes towards intangible and tangible innovations and consequently motivate any responses to the innovations.

However, some might argue that the 4Cs model does not have the element “Actors” which can be Senders and Receivers in communication behaviours. As generating this model based on interviews with key stakeholder groups and without a predetermined coding scheme, emerged codes and categories are about conceptual themes rather than types of agents. However, it does not mean that this model overlooks the roles of agents in IR improvement. The roles and responsibilities of key agents are embedded in each theme. The categories “Control” and “Collaboration” can represent the roles of leading policymakers in advocating the IRs with the effective “Communication”. Furthermore, the category “Local academic culture” is another enabler to advance or impede IRs. The provision of digital scholarship or knowledge sharing in the digital environment demands common understanding of copyright among community members. Consequently, the 4Cs model focusing on the availability and accessibility of digital scholarly literature has the category “Copyright understanding” as a distinctive element. Another key strength of 4Cs model is the elements “Local academic culture” and “Control”. Although other theories also include these concepts, these elements focus on scholars’ research behaviours and their academic culture. This specific topic is essential for the scholarly community and communication.

The similarities and differences between the existing theories and the 4Cs model provide assurance that this proposed model has common and distinctive components. However, each theory has its own strength and different focused viewpoints. Accordingly the employment of each theory to investigate the research phenomenon requires careful consideration.

8.4 Conclusion

The 4Cs model is tailored to IRs in Thailand in the particular context of National Research Universities. It may relate to similar studies in terms of factors motivating or preventing stakeholders' participation in university-based IRs. However, when these factors are considered in the specific context of scholarly research publishing, it is different from the others. At first glance it may not be generalized to all at large but it can be applicable to university-based IR projects in developing countries and/or non-English speaking countries. Additionally, it is interesting to test whether this proposed model can be applicable in different contexts. The 4Cs model awaits further research to test and refine it.

Chapter 9 Conclusion and Recommendations

The aims of this chapter are to summarize the research project and to indicate the contributions to knowledge on the concept of an IR research. The research implications for key stakeholders are presented. Recommendations for the improvement of university-based IRs in Thailand are proposed. This chapter ends with suggestions for further research.

9.1 Summary of the project

Literature on Open Access especially IRs has shown several attempts to raise the awareness and the participation of stakeholders in order to enhance the projects efficiency. However, noticeable gaps were found in the previous research on the improvement of established university-based IRs in the context of Thailand. Firstly, basic information regarding university-based IRs in Thailand is insufficient. The second gap is the few studies involving multiple stakeholder groups. This causes a lack of understandings of university-based IRs in Thailand and feedback to improve the project performance. In other words Thai academic libraries developed IRs for their institutional members because they perceive the benefits for the members. However, the participation of stakeholders in IR projects measured by the number of content contributors and users is low. Consequently, it is necessary to listen to the voice of various stakeholders, especially in the collaborative projects which lack any mandatory policies from the administrative board at either institutional or national level.

This research has aimed to investigate the current state of the university-based IRs in National Research Universities (NRUs) in Thailand and to optimize the projects by investigating the perspectives of stakeholders towards self-archiving scholarly publications through university-based IRs and by identifying factors influencing progress. Moreover, the current study intended to reduce all the above gaps and shed some light on the bottom-up management of university-based IRs in Thailand.

Constructivist Grounded Theory was adopted in this research as a research methodology. Three NRUs were selected as research sites: Chulalongkorn University, Mahidol University, and Thammasat University. The participants were

contacted using theoretical sampling, convenient sampling, and purposive sampling, as the sample in Grounded Theory studies was not considered as sufficiently representative. The 58 participating stakeholders were faculty members, the directors of university presses, Library Directors, an IR manager, local academic journal publishers, Deans of Graduate Schools, the Deputy Director of the National Library of Thailand, the Secretary of National Research Council of Thailand, two committee members of the Thailand National Research Repository (TNRR), an academic lawyer, and an expert in Higher Education. The semi-structured interview was used to gather data from these voluntary participants. The transcripts in Thai were kept in the secured external hard disk and cloud services. Moreover, they were kept in the NVivo software for further data analysis.

Open coding and focused coding were applied for analysing the interview data. The categories and core categories were generated, relabelled, and restructured. Then core categories were identified along with their relationship with other categories. Finally, the 4Cs (/Foresee/) model on factors influencing the development of university-based IRs in Thailand was proposed.

9.2 Reflections of the research

The main contribution of this research is to shed light on university-based IRs in the particular context of Thailand from the perspectives of various stakeholder groups. This research contributes towards a better understanding of the perception of stakeholders in university-based IRs, the reasons why the NRUs' IR projects have not been successful, and barriers to the improvement in the performance of IRs. This research contributes to knowledge in three aspects: theoretical contributions, methodological contributions, and empirical contributions.

9.2.1 Theoretical contributions

There has been very little research into IRs in Thailand. A unique model is needed to explain the distinctive context of the country and only then is it possible to generate possible solutions. The 4Cs (/Foresee/) model on factors influencing the development of university-based IRs in Thailand was derived

uniquely from interviews with various stakeholder groups. This model not only identifies potential factors influencing the progress of the university-based IRs, but also offers a comprehensive explanation of the university-based IR ecosystem in Thailand. This model may be applicable to the management of IRs with a non-mandate policy and in other developing countries.

9.2.2 Methodological contributions

The employment of a particular methodology, Grounded Theory, is unusual in Library and Information Science (LIS) and particularly in regard to IRs and Open Access. Therefore, this research has extended the scope of Grounded Theory employment. It is proposed that other LIS researchers consider adopting Grounded Theory where appropriate for their research projects. By using the particular features of this methodology, the researcher can investigate the university-based IRs with rigorous data collection and data analysis. Moreover, the inductive qualitative approach provides freedom and creativity to investigate research phenomenon and analyse data without any preconceptions or restraints. As a result, the research findings and the proposed theory were drawn from the insiders' experiences and perspectives.

The involvement of various stakeholder groups laid the foundation for the sound understanding of the university-base IRs in Thailand. Several studies gathered data from only one or two groups, which suggest we may lack some perspectives in generating an overview from such studies. Therefore, several stakeholder groups were determined intentionally to generate a better understanding of the research phenomenon. The key informants in this research were from the senior administrative level right down to the practical level both on campus and off campus. This highlights the possibility of an holistic theory building if research participants are drawn from various backgrounds and experiences.

9.2.3 Empirical contributions

In addition to conceptual or theoretical contributions, this research contributes empirical knowledge to the field. The research findings were derived from data grounded within a distinctive cultural context of Thailand and especially in National Research Universities. This study has enabled better understanding and

explanation of the bottom-up management of IRs at research-intense universities in Thailand. The adoption of IRs in Thai research universities may differ from experience in other parts of the World such as the UK and USA. The established IRs in the UK and the USA have been maintained to correspond with Open Access policies and they are on the whole greatly further ahead. The IRs in Thailand function as databases of scholarly resources and at this current stage are little used for policymaking or administration. Research funders and university executives were found not to have written policies in place on research output management and dissemination. Local academic publishers have not been involved in IR projects as much as academic libraries expected. Additionally copyright and fair use were perceived and interpreted variously by stakeholders. Therefore, the IR projects in Thailand have faced difficulties in accelerating their progress. It is essential to resolve these problems. The engagement of scholarly communication stakeholders is important to the enhancement of university-based IR projects in Thailand. The practical implications of this research can be proposed for three key stakeholder groups.

- **Implications for academic libraries**

Academic libraries must make explicit their collection development policies to their stakeholders. It is necessary to substantively communicate continuously with university community members, research funders, and the public about their IRs in terms of the collections held, accessibility, and any restrictions on access. These policies can standardize collection acquisition and can provide essential information for beneficiaries. Moreover, the promotion of IRs should be active and continuous. Academic libraries should reconsider the utilization of librarian liaisons with their user community and build up collaboration with other units or institutions on and off campus. Librarians themselves should develop their knowledge and skills in Open Access, copyright management, and research project governance. The active roles are necessary to support stakeholders and gain their participation. Such initiatives are significant when running collaborative projects in no-mandate-policy circumstances.

Due to the variety of objectives and scope of IR projects, the management and services of IRs in each university differ. This leads to possible challenges for the national research repository project and for interoperability of IRs across the

country. Although the IR software and OAI-PMH harvester facilitate interoperability and data sharing across systems, it will be a waste of time and effort to standardize, filter, and harvest only required content. After considering the 4Cs model and the holistic views of the IRs in Thailand, it will be advisable for the project committee to consider this “3Rs” conceptual model as a guideline before implementing the IRs (see Figure 9-1).

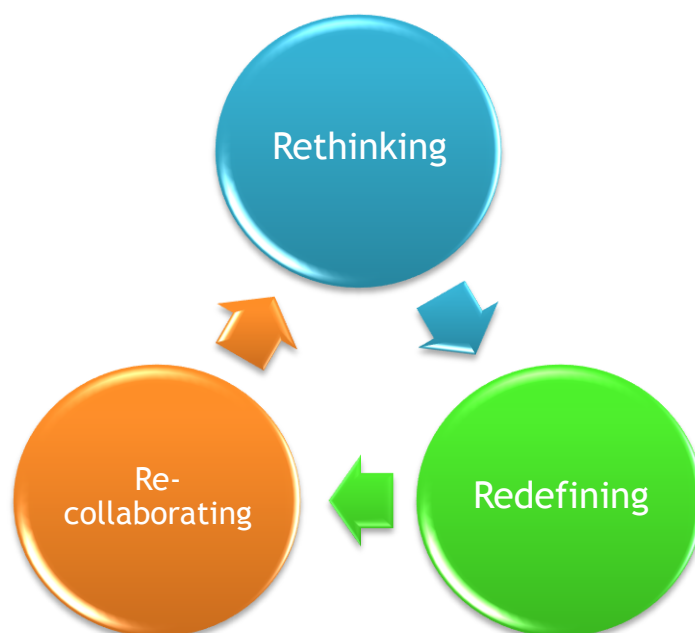


Figure 9-1 The 3Rs model to develop university-based institutional repositories in Thailand

The “3Rs” conceptual model consists of Rethinking, Redefining, and Re-collaborating.

1. Rethinking

The project committee need to study the concept of Open Access and the characteristics of IR. After considering the institutional administrative structure and members of the university community’s research publishing behaviours, the IR committee can adapt the original concept of IRs to the individual institutional context. Besides, the IR committee should broaden their perspectives on IRs in terms of the benefits for institutional members, the public, and at the national level. The future trends of university-based IRs should work in accordance with the national research repository’s collection development policy. Then the national research repository will be able to harvest government-funded research

reports from the university-based IRs. Moreover, committees should be aware of budgets and costs required to manage, maintain, and sustain such IR projects. In addition, academic lawyers should participate in the committee because they can provide advices on the copyright management of digital information provision.

2. Redefining

Secondly, IR committees should define and redefine the scope of their IRs. Defining IR projects influences the collection development, access management, and relevant stakeholders. As a result, clear collection development policies can be made available to librarians, researchers, and users in order to promote understanding of IRs among the stakeholders and then to increase participation. The IR website should convey meaningful information for the public and university members so that they can understand the general concept of IRs, particular information about the IR, and what is expected from them when they participate in an IR.

3. Re-collaborating

Finally, academic libraries should collaborate with research units, graduate schools, faculty libraries, faculty members, and academic publishers as well as research funders to manage digital research output for unrestricted access. Communication among key stakeholders especially in the official policy documents should be clearly explained. Moreover the library-liaison system should be able to enhance the collaboration between libraries and faculty members. In addition to collaboration on campus, it is necessary to collaborate with academic publishers and funders in order to acquire research output and the permission to make them available and accessible online for free. Besides, user education and staff development can be served as means of increasing the awareness of IRs.

- **Implications for policymakers**

Policymakers, including government research councils, university executives, and library directors, play important roles in supporting and sustaining the management of IR projects. Research councils and higher educational

institutions should recognize the importance of Open Access and determine the attitude of Thai academic society and the direction of national strategies towards Open Access in both Gold OA and Green OA standards. Written national policies on Open Access will increase the understandings and the participation of Thai scholars in the Open Access movement. In addition, relevant institutions and departments such as universities, libraries, and academic publishers can introduce policies and practical guidelines in accordance with national OA policies. Consequently stakeholders will be able to perceive the benefits of IRs and prepare themselves for OA publishing if national research councils advocate the Gold OA standard in the future.

- **Implications for academic publishers**

Academic publishers, especially academic journal publishers, have been supportive of IRs with certain copyright restrictions and have perceived benefits of IRs. The demand for Open Book will challenge Thai university presses. It is therefore important for academic publishers to develop greater knowledge and skill in Open Access, copyright issues, and relevant digital rights management systems. In other words, local academic publishers face the challenges of balancing conventional print publishing and digital publishing services. This will affect their business models and their preservation methods.

In addition to implications for particular stakeholder groups, this research has identified the key weakness of the management of university-based IR projects. The “2PSC model for operational excellence” suggests that the performance of Thai university-based IRs can be resolved by Policies, Procedure, Services, and Competencies (see Figure 9-2).

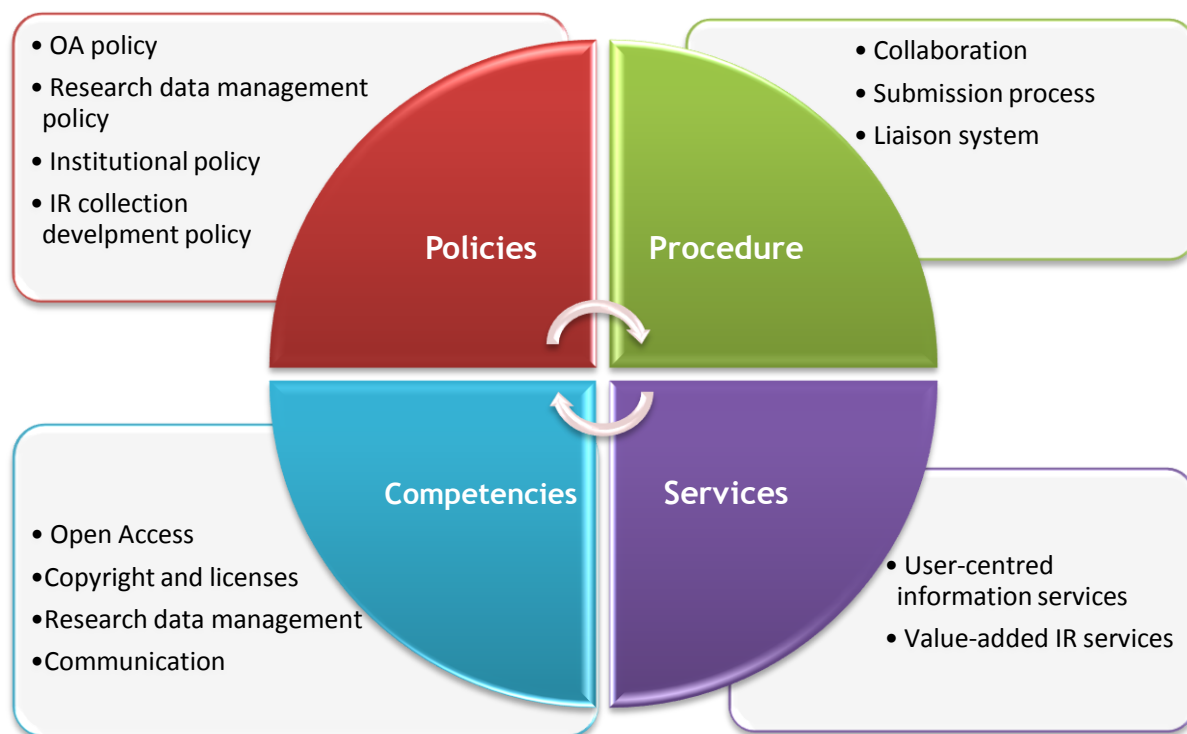


Figure 9-2 The 2PSC model for operational excellence

1. Policies

Having written policies in place is very important to move forward IR projects. Especially, national research councils should establish deliberate policies on Open Access and research data management. Written policies can serve as a basic communication tool for enhancing comprehension and offering consistent procedure. Clear statements on copyright ownership and the right to disseminate funded research outputs should be available to grant recipients and their affiliated institutions. At the institutional level, university executives should formulate institutional policies on managing research output at the universities. This should increase collaboration among the offices on campus. Libraries that are responsible for the IRs should provide the collection development policies for wide access. Besides, Thai academic publishers need to provide policies on self-archiving. Consequently clear understanding among stakeholders will enhance the project performance: garnering more content from stakeholders, providing unrestricted access and reuse, and creating more value-added services based upon the IR collections.

2. Procedure

With comprehensive understanding among the stakeholders through policy support from policymakers, academic libraries can increase collaboration with stakeholders to encourage content contribution. Further, the acquisition and deposition process must become more convenient. The content owners can deposit their work with less copyright concerns because academic libraries collaborate with academic publishers for permission to deposit papers for open access. Moreover, liaison systems can play more prominent roles in educating faculty members and research units to deposit their research publications in IRs. This will save time and efforts for faculty members.

3. Services

Thai IR projects should offer more value-added information services such as expert finder, citation analysis, or data-led reports to the scholarly community. Value-added information services based on IRs can attract attention to the use or involvement in IR databases. The IR committee should undertake user studies and generate interesting reports for specific purposes, for example for particular constituencies. Services should be proposed without demands from users. Besides, feedback information on view and usage statistical reports should be presented to senior management, researchers, and research units.

4. Competencies

Academic librarians need to reconsider their competencies and roles. Proactive roles are preferable. They need to develop the necessary knowledge about such subjects as Open Access, copyright management, and research data management. Apart from these, academic librarians should understand the current and future trends in research publishing behaviour. Communication and interpersonal skills are also needed for librarians working in the OA environment.

9.3 Implications for future research

This study contributes to a better holistic view of IRs in NRUs in Thailand and proposes a derived model “4Cs /Foresee/” explaining factors influencing the

availability and accessibility of full-text research output. Additionally several implications for practice are suggested in the previous section. However, as with all such studies, there are limitations that offer opportunities for further research.

The lack of the participation of policymakers at both institutional and national levels in this research remains questions on the effectiveness of research output management and dissemination in the OA environment at policy level. Consequently, continuing research on the attitudes of policymakers and institutional leaders towards OA and the possibility of OA adoption appears fully justified in order to determine national strategies for excellence in research output management and dissemination. For example, policymakers of Network of National Research Management Institutions in Thailand (NNRMI)²² should be contacted for further research because they are key agents in formulating national research policies and strategies, providing research infrastructure, and driving the effectiveness of research management and dissemination.

Further research is needed on how the Thai research policy context relates to other countries, especially in the Southeast Asia. With Thailand's ambition to be the regional education and research hub, it is worth examining national policies in other countries such as Cambodia, Malaysia, and Vietnam in terms of national research policies and strategies, research management, research dissemination, and their attitudes towards Open Access and Institutional Repositories (See Lee-Hwa, Abrizah, & Noorhidawati, 2013; Olsson & Meek, 2013). This can address commonalities and differences at policy level so as to offer some potential mechanism to improve Thai national research strategies and policies for the enhanced national research competitiveness and OA policy for research dissemination and access. Other developing countries such as Brazil, or smaller developed countries such as Finland and Sweden, face the same challenges as Thailand in balancing the need for international research dissemination with local community/audience expectations, global trends in scholarly

²² NNRMI is composed of seven core research organizations namely 1) National Research Council of Thailand (NRCT), 2) The Thailand Research Fund (TRF), 3) Office of the Higher Education Commission (OHEC), 4) Agricultural Research Development Agency (ARDA), 5) National Science and Technology Development Agency (NSTDA), 6) Health Systems Research Institute (HSRI), and 7) National Science Technology and Innovation Policy Office (NSTIPO).

communication and research management. However, Southeast Asian countries share fundamental economic, educational and research challenges at the regional level that makes these countries are more meaningful comparison.

Considering the IR management, further research on best practices of IR management in other countries is desirable to extend our knowledge of the development and maintenance of IRs. A benchmarking study on the IR management in Thailand with best practices from other countries may increase some aspect of performance. For instance, a comparison between the Digital Repository of Ireland (DRI) (<http://www.dri.ie/>)²³ (See O'Carroll & Webb, 2012) and TNRR (www.tnrr.in.th) may strengthen the current practices to support the dissemination and unrestricted access of research outputs via IRs at the national level. The DRI is an example of successful national digital repository gaining local and international community engagement for building the trusted repositories.

Based on the better understanding of university-based IRs in Thailand, it would be more interesting to extend the research scope to the role of subject-based repositories in information use and seeking behaviours, scholarly publishing and research dissemination within local community and across the globe. The researchers' attitudes towards and their experiences with local and international digital repositories in their fields are worth to explore further. This may reveal some potential (de)motivating factors in participating in sharing research outputs via subject-based repositories. Further comparative analysis with the factors in participating in IRs and subject-based repositories may contribute to better holistic views on the OA environment in Thailand.

In relation to the latter point, possible future work could include a closer analysis of the gather data to reveal any possible disciplinary differences and the distribution of the academic seniority among researchers in IR adoption and involvement. Moreover, the impact of different organizational structure and the institutional setting on the IR management and advocacy is another topic for

²³ The Digital Repository of Ireland is a national digital repository for social science and humanities data. In 2014 the repository was launched with the support from six research partners: 1) Royal Irish Academy, 2) National University of Ireland, Maynooth, 3) Trinity College Dublin, 4) Dublin Institute of Technology, 5) National University of Ireland, Galway, and 6) National College of Art and Design.

further analysis. This may point towards a role for subject-based repositories in strategic and policy decisions.

Further, the readiness to adopt open data and the implementation of research data management policy at national and institutional levels are important topics that were beyond the scope of this study. Additional research in this area may include cost effectiveness so as to provide feedbacks to policymakers. Digital preservation is also a critical issue to be investigated. This will ensure the trustworthiness of deposited collections for long-term access. Significantly the required competencies of research librarians in the IR ecosystem are worth exploring.

Finally, it is worth re-examining the same research phenomenon with different deductive methodologies such as case study or survey. This may provide interesting details for refining the 4Cs model and making it more meaningful. Another challenge for further research is to validate the proposed model within other contextual setting such as government research institutions, subject-specific research institutes, or international agencies.

9.4 Conclusion

This study has achieved its research aims and objectives by presenting a much more comprehensive view of the current IRs at NRUs in Thailand. It has also highlighted the barriers to and expectations of access to digital scholarly publications. Nevertheless, the concept of IR provides several advantages for scholars and the public, but in practice there are many challenges and obstacles. Consequently, the holistic view presented here and the proposed model of IRs in Thailand can work as an important initial step for further research to explore more deeply particular aspects. It is suggested that researchers should revisit and re-examine this phenomenon from different perspectives and standpoints to encourage better practice and resolve the current lack of uptake.

Appendices

Appendix A: Letter for Permission by Office of Educational Affairs, in the UK

TELEPHONE: 020 7584 4538/9
FAX: 020 7823 9896
E-MAIL: info@oealondon.com



OFFICE OF EDUCATIONAL AFFAIRS
THE ROYAL THAI EMBASSY
28 PRINCE'S GATE
LONDON SW7 1PT

ที่ 55003/ 3570

๒๘ สิงหาคม 2555

เรื่อง ขอลงความอนุเคราะห์ในการเก็บรวบรวมข้อมูลวิทยานิพนธ์

เรียน อาจารย์สังกัดจุฬาลงกรณ์มหาวิทยาลัย

ด้วยนางสาวชริราภรณ์ คลังชนบูรณ นักเรียนทุนรัฐบาล ปัจจุบันกำลังศึกษาระดับปริญญาเอก ณ มหาวิทยาลัยGlasgow สาขาวิชา Humanities Computing และทำการวิจัยเรื่อง ทักษะคิดของผู้ที่มีส่วนเกี่ยวข้อง ต่อการพัฒนากล้องเก็บสารสนเทศระดับสถาบันในมหาวิทยาลัยวิจัยแห่งชาติ (The Stakeholders' Perspectives on the Development of Institutional Repositories in National Research Universities in Thailand) โดยมีวัตถุประสงค์เพื่อศึกษาทัศนคติ การรับรู้ และการใช้ประโยชน์คลังเก็บสารสนเทศระดับสถาบันของผู้ที่มีส่วนเกี่ยวข้อง เพื่อนำข้อมูลมาวิเคราะห์ให้เห็นบทบาทของคลังเก็บสารสนเทศระดับสถาบันต่อแวดวงวิชาการในยุคดิจิทัล และเป็นแนวทางในการปรับปรุงการทำงานและการให้บริการต่อไป การเก็บข้อมูลจะเป็นการสัมภาษณ์ เป็นระยะเวลาประมาณ 45 นาที ซึ่งจะมีขึ้นในเดือนตุลาคมและพฤศจิกายน 2555

สำนักงานผู้ดูแลนักเรียนในประเทศอังกฤษ (สนร.) ได้พิจารณาแล้วเห็นว่า การเก็บรวบรวมข้อมูลเพื่อใช้ในงานวิจัยและทำวิทยานิพนธ์นี้ เป็นส่วนสำคัญของการศึกษาระดับปริญญาเอก จึงขอลงความอนุเคราะห์ให้ นทร. รายนี้ ได้มีโอกาสสัมภาษณ์ท่าน ตามที่นักเรียนแจ้งขอมา

จึงเรียนมาเพื่อโปรดพิจารณา

(นายปิยวัฒน์ ศิวรักษ์)

อัครราชทูต (ฝ่ายการศึกษา)

ประจำสถานเอกอัครราชทูต ณ กรุงลอนดอน

Appendix B: Letter for Permission by the supervisors



George Service House
11 University Gardens
University of Glasgow
Glasgow
G12 8QH

17th August, 2012

To whom it may concern,

This letter is to introduce Ms Wachiraporn Klungthanaboon who is in the second year of her PhD studies in the Humanities Advanced Technology and Information Institute at the University of Glasgow.

Ms Klungthanaboon is researching the development of institutional repositories in selected research universities in Thailand. The main part of her research is a case study analysis of repositories in different stages of development, through interviews with key stakeholder groups at each institution. To this end, we would be most grateful if you could spare some of your time to be interviewed by Ms Klungthanaboon or assist her in gaining interviews with other key staff she has identified. The creation of institutional repositories are a key development in Thai Higher Education and your responses will make a valuable contribution to this important and timely study.

Ms Klungthanaboon's research questions have been approved by the University's Ethics Committee and you can be assured your confidentiality will be preserved. We would like to thank you in advance for any assistance you can provide.

Yours sincerely

Dr Ian G Anderson

pp

Prof Michael Moss

Phd Supervisors.

Dr Ian G Anderson
MA, MPhil, PhD
Senior Lecturer and Director of Museum
Studies

HATII, 11 University Gardens, Glasgow G12 8QH, Scotland
ian.g.anderson@glasgow.ac.uk

The University of Glasgow, charity number SC004401

Appendix C: Information sheet and consent form (English version)

Research Title: Stakeholders' Perspectives of Institutional Repositories in National Research Universities in Thailand

Researcher: Miss Wachiraporn Klungthanaboon
PhD student in Humanities Computing
University of Glasgow, UK. Email:...

Supervisors: Dr. Ian G. Anderson and Professor Michael Moss
Email:... Email:....

The researcher would like to invite you to participate in this doctoral research. The researcher will explain and provide you time to read this information (or the researcher will read it for you) detailing the research project and the interview. If you have any questions about this study and your rights, please ask the researcher to clarify them. The researcher is grateful for your time in reading and understanding the following statement (the researcher may also read it for you).

This informed consent form, a part of the process of asking for the voluntary involvement from the research participant(s), entails giving information about the research project and activities which the research participant(s) will take part. If you have any questions, please ask the researcher directly. Please read this information sheet and consent form carefully.

1. The objectives of the research project

This research aims to investigate research behaviours, management of research output and scholarly publishing in National Research Universities, perceptions and perspectives of university executives, faculty members, students, IR managers and academic publishers towards institutional repositories and management of scholarly works in the digital age. This will lead to proposals for best practice to improve the management of scholarly works with institutional repositories.

2. Research participants

Purposive sampling is employed to select the key stakeholders: university executives (University Presidents, Vice Presidents of Research Affairs, Vice Presidents of Academic Affairs, Vice Presidents of Human Resource Management, and Deans of Graduate Schools), university lawyers, Directors of university presses, academic journal publishers, postgraduate students, faculty members in Science and Technology and Humanities and Social Science, Library Directors, and IR managers.

3. Research method

The in-depth interview is a method to collect data from the stakeholders. It takes about 45 minutes. The research participants in each stakeholder group will receive a set of different questions. While interviewing you, note-taking and audio-recording will be employed in order to collect your perspectives comprehensively. However, the researcher will ask for your permission first before recording the interview.

The data collection will stop when a sufficient breadth of data has been gathered such that further contributions do not yield new concepts. Following this, the researcher will summarize their research findings and may test the constructed conceptual framework by asking for some experts' opinions.

4. Data safety and protection

This research project recognizes the importance of confidentiality and the security of stored identifiable data of research participants. The collected data will be used for analysis in line with the research objectives only. Also anonymity is applied. However, it may be necessary to provide institutions' names and participants' job positions in any scholarly work.

5. Research effects

This research does not cause any effect or risk to the participants. Moreover, the research participants can withdraw their participation at any time.

6. Research findings

The research findings may be presented at academic conferences, through research reports, academic journal papers and other printed and non-printed media with educational purpose. When citing any information from this research, the researcher will cite it without identifying your name. If it is necessary to cite your name, the researcher will seek for your permission.

7. Research ethics

This research project has been approved by the Research Ethical Committee, College of Arts, University of Glasgow.

8. Agreement

If you feel sufficiently informed about the your involvement in the research and wish to take part in this study, please sign the consent form in order to ensure that you understand and are satisfied with the explanation on the research and participation in this research, and give your consent to take part in the study as a research participant.

Participation in this research is voluntary. If you do not want to answer any questions or would like to stop the interview, you can withdraw from this study at any time. Your personal information will be kept confidential and the researcher is only the person who is

Appendix D: Information sheet and consent form (Thai version)

เอกสารชี้แจงและหนังสือยินยอมเป็นผู้เข้าร่วมโครงการวิจัย

(Informed Consent Form)

หัวข้อวิจัย ทศนคติของผู้มีส่วนเกี่ยวข้องกับการจัดการผลงานวิชาการและงานวิจัยด้วยคลังเก็บสารสนเทศระดับสถาบันในมหาวิทยาลัยวิจัยแห่งชาติ

ชื่อผู้วิจัย นางสาวชิราภรณ์ คลังชนบุรณ์
นักศึกษาระดับปริญญาเอก สาขาวิชา Humanities Computing
มหาวิทยาลัยกลาสโกว์ สหราชอาณาจักร
Email:...

ที่ปรึกษาวิทยานิพนธ์ ดร.เอียน จี. แอนเดอร์สัน และ ศ.ไมเคิล มอส

Email:... ; Email:...

ผู้วิจัยขอเชิญท่านเข้าร่วมโครงการวิจัยเพื่อวิทยานิพนธ์ โดยผู้วิจัยจะอธิบายให้ท่านทราบ พร้อมทั้งเปิดโอกาสให้ท่านอ่าน (หรือผู้วิจัยอ่านให้ท่านทราบ) เกี่ยวกับรายละเอียดของโครงการวิจัยและขั้นตอนการสัมภาษณ์ หากท่านมีข้อสงสัยประการใดเกี่ยวกับการศึกษาครั้งนี้ รวมถึงสิทธิของท่าน กรุณาสอบถามจากผู้วิจัยเพื่อความกระจ่าง ผู้วิจัยยินดีที่ท่านได้ใช้เวลาในการอ่านข้อความข้างล่าง (หรือผู้วิจัยได้อ่านให้ท่านทราบ) ดังต่อไปนี้

หนังสือแสดงความยินยอมเป็นผู้เข้าร่วมในโครงการวิจัยฉบับนี้เป็นส่วนหนึ่งของกระบวนการขอความยินยอมจากผู้เข้าร่วมการวิจัย ซึ่งมีเนื้อหาโดยรวมเกี่ยวกับโครงการวิจัยและกิจกรรมในส่วนที่ผู้เข้าร่วมโครงการวิจัยจะมีส่วนร่วม หากท่านมีข้อสงสัยหรือต้องการข้อมูลเพิ่มเติมโปรดสอบถามผู้วิจัยได้โดยตรง โปรดอ่านเนื้อหาของหนังสือนี้โดยละเอียด

1. วัตถุประสงค์ของโครงการวิจัย

การวิจัยในครั้งนี้มีวัตถุประสงค์เพื่อศึกษาพฤติกรรมการวิจัย การบริหารงานวิจัย และการผลิตผลงานวิชาการและงานวิจัยของมหาวิทยาลัยวิจัยแห่งชาติ การรับรู้และทัศนคติของผู้บริหารมหาวิทยาลัย อาจารย์ นักศึกษา ผู้จัดการคลังเก็บสารสนเทศระดับสถาบันและสำนักพิมพ์ ที่มีต่อคลังเก็บสารสนเทศระดับสถาบัน และการจัดการผลงานวิชาการและงานวิจัยในยุคดิจิทัล เพื่อเป็นแนวทางในการปรับปรุงการจัดการผลงานวิชาการและผลงานวิจัยด้วยคลังเก็บสารสนเทศระดับสถาบันต่อไป

2. ผู้เข้าร่วมโครงการวิจัย

กลุ่มตัวอย่างของการศึกษานี้เป็นการคัดเลือกโดยวิธีสุ่มตัวอย่างเฉพาะเจาะจง (Purposive sampling) เพื่อให้ได้ผู้ให้ข้อมูลหลักที่สามารถให้ข้อมูลสำคัญได้อย่างละเอียด ประกอบด้วย ผู้บริหารมหาวิทยาลัยวิจัยแห่งชาติ ได้แก่ อธิการบดี รองอธิการบดีฝ่ายวิจัย รองอธิการบดีฝ่ายวิชาการ รองอธิการบดีฝ่ายทรัพยากรบุคคล คณบดีบัณฑิตวิทยาลัย นิติกรมมหาวิทยาลัย ผู้จัดการสำนักพิมพ์มหาวิทยาลัย ผู้จัดการพิมพ์วารสารวิชาการ นักศึกษาระดับปริญญาโทและเอกและคณาจารย์สังกัดสาขาวิชา

วิทยาศาสตร์และเทคโนโลยี สาขาวิชามนุษยศาสตร์และสังคมศาสตร์ ผู้อำนวยการสำนักหอสมุด และผู้จัดการคลังเก็บสารสนเทศระดับสถาบัน

3. วิธีการวิจัย

การเก็บรวบรวมข้อมูลเพื่อใช้ในการวิจัยครั้งนี้เป็นการสัมภาษณ์เชิงลึก โดยใช้เวลาประมาณ 45 นาที ซึ่งผู้เข้าร่วมโครงการวิจัยแต่ละกลุ่มจะได้รับชุดคำถามที่มีบางคำถามแตกต่างกัน ทั้งนี้จะมีการจดบันทึกและการบันทึกเสียงการสัมภาษณ์เพื่อให้สามารถเก็บรวบรวมข้อคิดเห็นของผู้เข้าร่วมวิจัยได้อย่างครบถ้วน อย่างไรก็ตามผู้วิจัยจะต้องได้รับการอนุญาตให้บันทึกเสียงการสัมภาษณ์จากผู้เข้าร่วมโครงการวิจัยก่อนเสมอ

การเก็บรวบรวมข้อมูลจะยุติเมื่อพบว่าผู้เข้าร่วมวิจัยไม่สามารถให้ข้อมูลที่แตกต่างจากเดิม หลังจากนั้นผู้วิจัยจะสรุปผลการวิจัยและทดสอบกรอบแนวคิดที่สร้างขึ้นโดยสอบถามความคิดเห็นเพิ่มเติมจากผู้ทรงคุณวุฒิ

4. ความปลอดภัยของข้อมูล

โครงการวิจัยนี้จะให้ความสำคัญต่อความลับและการเก็บรักษาข้อมูลส่วนบุคคลของผู้เข้าร่วมโครงการวิจัย ข้อมูลที่ได้จะใช้เพื่อการวิเคราะห์ตามวัตถุประสงค์ของโครงการวิจัยครั้งนี้เท่านั้นและจะไม่มี การระบุชื่อจริงของผู้เข้าร่วมวิจัย อย่างไรก็ตามอาจจำเป็นต้องระบุชื่อสถาบันและตำแหน่งงานในผลงานวิชาการในรูปแบบต่าง ๆ

5. ผลกระทบจากการวิจัย

โครงการวิจัยนี้ไม่ส่งผลกระทบหรือเกิดความเสียหายใด ๆ ต่อผู้เข้าร่วมการวิจัยและผู้เข้าร่วมการวิจัยสามารถถอนตัวจากการเข้าร่วมโครงการวิจัยได้ตลอดเวลา

6. ผลการวิจัย

ผลการวิจัยจะนำเสนอในการประชุมวิชาการ รายงานสรุปการวิจัย บทความเชิงวิชาการ และสิ่งตีพิมพ์และสิ่งไม่ตีพิมพ์อื่น เพื่อจุดประสงค์ทางวิชาการ หากมีการอ้างอิงข้อมูลใด ๆ จากการศึกษาครั้งนี้ ผู้วิจัยจะกระทำโดยไม่มีการระบุหรืออ้างอิงชื่อของผู้เข้าร่วมวิจัย หากแต่จะกระทำต่อเมื่อได้รับความยินยอมจากผู้เข้าร่วมวิจัย

7. จริยธรรมในการวิจัย

โครงการวิจัยนี้ได้รับการตรวจสอบรับรองและผ่านเงื่อนไขทางจริยธรรมของการวิจัยจากคณะกรรมการจริยธรรมการวิจัยของคณะอักษรศาสตร์ มหาวิทยาลัยศิลปากร

8. ข้อสัญญา

หากท่านได้รับทราบแนวทางปฏิบัติในขณะที่เข้าร่วมการศึกษาและตกลงที่จะเข้าร่วมการศึกษานี้ กรุณาลงนามหนังสือยินยอมเข้าร่วมการศึกษา เพื่อแสดงว่าท่านเข้าใจและพึงพอใจในข้อมูลเกี่ยวกับการมีส่วนร่วมในโครงการวิจัยที่ปรากฏในหนังสือฉบับนี้และยินยอมที่จะเป็นผู้เข้าร่วมโครงการวิจัย

การเข้าร่วมการศึกษาค้นคว้านี้เป็นไปด้วยความสมัครใจของท่าน หากท่านไม่ประสงค์จะตอบคำถามหรือจะยุติการเก็บข้อมูล ท่านสามารถถอนตัวจากการศึกษาได้ตลอดเวลา ข้อมูลส่วนตัวของท่านจะถูกเก็บโดยผู้วิจัยและผู้วิจัยจะเป็นผู้รับทราบข้อมูลของท่านเพียงผู้เดียว โดยใช้รหัสแทนชื่อจริงของท่าน การนำ

ข้อมูลไปอภิปรายหรือพิมพ์เพื่อเผยแพร่จะทำในภาพรวมของผลการวิจัยเท่านั้น และสิทธิประโยชน์อื่น ๆ อันเกิดจากผลการวิจัยจะปฏิบัติตามระเบียบข้อบังคับของมหาวิทยาลัยกลาสโกว์ ผู้วิจัยจะเก็บรักษาข้อมูลส่วนตัวของท่านเป็นความลับและดำเนินการอย่างรัดกุมปลอดภัยจะไม่มีการอ้างอิงถึงท่าน โดยใช้ชื่อของท่านในรายงานใด ๆ ที่เกี่ยวกับการวิจัยครั้งนี้ ข้อมูลทั้งหมดเกี่ยวกับท่านจะถูกทำลายเมื่อเสร็จสิ้นโครงการวิจัย

หากท่านมีคำถามเกี่ยวกับการศึกษาครั้งนี้ ท่านสามารถติดต่อกับผู้วิจัย นางสาวชัชราภรณ์ คลังธนบูรณ์ ได้ที่## ที่อยู่..... โทรศัพท์ Email หรืออาจารย์ที่ปรึกษาวิทยานิพนธ์ ดร.เอียน จี แอนเดอร์สัน และ ศ.ไมเคิล มอส Email:;

อย่างไรก็ตามการลงนามในหนังสือฉบับนี้ไม่ได้จำกัดสิทธิใด ๆ ของท่านและไม่ทำให้ผู้วิจัยพ้นไปจากความรับผิดชอบใด ๆ อันเนื่องมาจากการวิจัยครั้งนี้ ท่านสามารถบอกเลิกการเป็นผู้เข้าร่วมโครงการวิจัยได้ตลอดโดยจะไม่มีบทลงโทษ ท่านสามารถขอข้อมูลเพิ่มเติมเกี่ยวกับโครงการวิจัยได้ทุกเมื่อและโปรดสอบถามผู้วิจัยได้ที่

9. การยินยอมเข้าร่วมวิจัย

ข้าพเจ้าขอให้ความยินยอมของตนเองในการเป็นผู้ให้ข้อมูลในการวิจัย ซึ่งผู้วิจัยได้อธิบายแก่ข้าพเจ้าเกี่ยวกับการวิจัยครั้งนี้แล้วจนเข้าใจ และผู้วิจัยมีความยินดีที่จะให้คำตอบต่อคำถามเกี่ยวกับการวิจัยทุกประการที่ข้าพเจ้าอาจจะมีได้ตลอดระยะเวลาการเข้าร่วมการวิจัยครั้งนี้

.....ผู้ให้ข้อมูลในการวิจัย วันที่.....

.....ผู้วิจัย วันที่.....

ท่านจะได้รับสำเนาของหนังสือฉบับนี้ไว้หนึ่งชุด

Appendix E: Guidance for interviewing Deans of Graduate Schools

Guidance for interviewing Deans of Graduate Schools
Stakeholders' Perspectives of Institutional Repositories
in National Research Universities in Thailand

Description

The interview guidance is designed for Deans of Graduate Schools at the selected National Research Universities. The interview aims to gather the perspectives and visions on research publishing and research disseminations as well as the roles of institutional repositories as a tool to manage intellectual assets of university members in the following aspects:

1. Visions, opportunities, and challenges of the administration of National Research University
2. The management of research outputs and research support
3. Perspectives towards Open Access and self-archiving
4. The perceived benefits of and expectations on institutional repositories as well as potential approaches for improved management of institutional repositories

Definitions of Key Terms

Self-archiving: The work owners archive their scholarly work for free and public access. The work owners can self-archive their publications on personal websites, organizational websites, or institutional repositories.

Institutional repository: A digital repository collocates, organizes and preserves institutional intellectual assets created by university members. University members and the general public can freely and widely access to the institutional intellectual assets deposited into the digital repository.

Interview questions

1. Tell me your perspective towards being a designed National Research University.
2. How does being a “National Research University” provide opportunities or introduce challenges to you? (Research supports, research production and dissemination, teaching and learning, management information system, or research facilities)
3. What do you think about teaching, learning and conducting research in the digital age? Which strategies do you use to support research production and research project management?
4. At your university, many information systems for management have been used such as research management system, human resource information system, or budget management system. Do you still have any difficulties in acquiring information for decision making? Please explain.
5. In the next five years, what is your expectation on your university and its roles in researching? How will Graduate School support the university to achieve the set goals?
6. At present, the concept of Open Access has been introduced to scholarly society. This concept advocates the free accessibility of full-text scholarly publications via the Internet. It enhances knowledge development, knowledge sharing, and reducing the budget to subscribe online journal databases. What is your opinion on the concept “Open Access”? To what extent does this concept influence Thai academic society?
7. The Graduate School has developed and employed management information system which collects information on research projects, theses, and postgraduate students. Does this system collect research data and full-text research papers? If yes, please explain the process (submitting to research funders and/or National Library, storing in the computer server, etc.) Also, how do you consider a digital preservation of these research information?
8. Please explain the details of graduation regulations for both master and doctoral programs in terms of research finding dissemination and submission of thesis.
 - a) How does the Graduate School manage and preserve postgraduate research?
 - b) Why has Graduate School mandated postgraduate students to submit printed theses with digital files?
 - c) Why does Graduate School not mandate postgraduate students to submit published journal papers with digital files?

- d) How does Graduate School transfer digital files of theses and metadata to the library?
9. At present, the library already established the institutional repository to collect and make institutional research output freely accessible for university members and the public. What is your perspective towards this? How should the Graduate School collaborate with the library and participate in the research output acquisition?
 10. In your opinion, how is the current state of institutional repository at your university? How do you support this project?
 11. How do you perceive the benefits of the establishment of institutional repository at your university? Please tell me the important roles of institutional repository in 1) learning and teaching, 2) disseminating the institutional research output in wider ranges, and 3) visualizing the research performance of university and individuals.
 12. Have you ever request any statistical reports generated from the institutional repository for your administrative decision making? Why?
 13. At present the institutional repository receive low content contribution from university members. Then some universities mandate university members to deposit their research output into the repository. What do you think about adopting mandatory and voluntary policies to populate the content in the institutional repository? Which one do you advocate?
 14. What is your opinion about the university or the research funders using statistical data from the institutional repository as an indicator to assess academic and research performance of university?
 15. What do you expect of the future of institutional repository? Are there any strategies to improve the institutional repositories' roles on the university administration?
 16. Please tell me more about the management of research output via institutional repositories.

Appendix F: Guidance for interviewing faculty members

Guidance for interviewing Faculty Members
Stakeholders' Perspectives of Institutional Repositories
in National Research Universities in Thailand

Description

The interview guidance is designed for faculty members in Humanities, Social Science, Science and Technology in the selected National Research Universities. The interview aims to gather the perspectives, perceptions, and expectations on the roles of institutional repositories as a tool to manage intellectual assets of university members in the following aspects:

1. Behaviours of research production and dissemination, the research data management and sharing
2. Perspectives, perceptions, and utilization of institutional repositories
3. Motivation to deposit research outputs into institutional repositories and barriers to participating in the institutional repositories

Definitions of Key Terms

Self-archiving: The work owners archive their scholarly work for free and public access. The work owners can self-archive their publications on personal websites, organizational websites, or institutional repositories.

Institutional repository: A digital repository collocates, organizes and preserves institutional intellectual assets created by university members. University members and the general public can freely and widely access to the institutional intellectual assets deposited into the digital repository.

Interview questions

Section 1: Behaviours of research production and dissemination, research data management and sharing

1. Please tell me your research production and dissemination behaviour (Type of research production, the amount of researchers, information seeking, research information management, and genres of research outputs).
2. How do you share your research data or research output among your colleagues in the analogue and digital context?
3. What are the main research funders in your field? (on/off campus, private/government funders). Please explain each funder's agreement and restrictions of research data management.
4. How does Office of Research Affairs at your university play any roles in research support? How should the Office improve its services to facilitate researchers?
5. During conducting research, how do you manage information on research?
6. How do you disseminate your research output (publications, Internet, personal websites, organizational websites, etc.)? Have you kept your own work? How? Why?
7. How is the research dissemination in the digital age?
8. What are your criteria to select academic journals for publishing your research findings? (International/national journals? Thai/English? Impact factor?)
9. To what extent do you understand the copyright transfer agreement requested by journal publishers and funders? Please explain.
10. When collecting information on your research output for applying for research funds or academic position assessment, have you ever faced any problems?
11. How does being a National Research University affect you? (Research support, research publishing, teaching and learning, management information system, research facilities, quality assessment)

Section 2: Perspectives, perceptions, and utilization of institutional repositories

1. In the current academic society, there is a new concept of Open Access. This concept advocates the free accessibility of full-text scholarly publications via the Internet for facilitating knowledge development and information sharing. Further, it decreases financial constraints on journal subscription, enhances the accessibility of institutional research output, and provides useful information for applying research

funds. How do you think about this concept? To what extent is this concept beneficial to Thai academic society?

2. Please explain how you perceive “institutional repository”.
3. How does the established institutional repository offer benefits to you and your university? (Individuals as work owners and information users - 1) Teaching and learning, 2) The wider dissemination and accessibility of institutional research publications, and 3) the visualization of academic and research performance of university and individuals)
4. Do you know that your university already established an institutional repository? (If not, why?)
5. How did you get information on the institutional repository established at your university? (Librarians, library’s website, Office of Research Affairs, leaflet, etc.)
6. Have you ever searched for information or utilize the institutional repository? How is it?
7. What should the library and Office of Research Affairs do in order to facilitate researchers to conduct research, preserve research data, and disseminate research outputs?

Section 3: Motivation to deposit research outputs into institutional repositories and barriers to participating in the institutional repositories

1. How is your opinion on the implementation of institutional repository and the availability and accessibility of institutional research outputs?
2. What is your attitude toward the work deposition into institutional repository?
3. Have you ever deposited your work into the institutional repository? How? (Via the assistance of librarians or self-depositing?)
4. What are your motivating and non-motivating factors to deposit your scholarly work into the institutional repository?
5. Have you ever faced any barriers to participate in the collection acquisition and the usage of institutional repository? What can be potential solutions?
6. If the university adopt a mandate policy to request faculty members and researchers to deposit their research outputs into the institutional repository as a institutional research gateway and use this to consider the research fund collocation and to assess the annual academic and research performance, what is your attitude? Do you agree with adopting a mandate policy? Why?

Appendix G: Guidance for interviewing Library Directors

Guidance for interviewing Library Directors

Stakeholders' Perspectives of Institutional Repositories

in National Research Universities in Thailand

Description

The interview guidance is designed for library directors in the selected National Research Universities. The interview aims to gather the perspectives and visions on the roles of institutional repositories as a tool to manage intellectual assets of university members in the following aspects:

1. Background information on the institutional repository
2. The expectation, perceptions, and utilization of institutional repository and the management approaches and services of institutional repository
3. The effects of the development of institutional repository on roles and responsibilities of libraries and librarians
4. The effects of being a National Research University on roles and responsibilities of libraries and librarians

Definitions of Key Terms

Self-archiving: The work owners archive their scholarly work for free and public access. The work owners can self-archive their publications on personal websites, organizational websites, or institutional repositories.

Institutional repository: A digital repository collocates, organizes and preserves institutional intellectual assets created by university members. University members and the general public can freely and widely access to the institutional intellectual assets deposited into the digital repository.

Interview questions

Section 1: Background information on the institutional repository

1. What was the motivation to establish the institutional repository? How did the library adopt this innovation?
2. What are the goals of your institutional repository?
3. Could you tell me the current state of the management of your institutional repository?
4. Which department or committee did you assigned the responsibilities on maintaining the institutional repository? (If there is a specific working committee, who are the committee members? And from which department/office?)
5. At the administrative level, how have you built collaboration with other offices/institutions on campus and off campus in order to increase the utilization of institutional repository?
6. Do you have any policy to assess the success of the institutional repository project? (Any written policy? What are the indicators?)
7. To make the institutional repository project successful, what should the library director be concerned with? Please give some examples.
8. What factors affect the sustainability of this project? Which approach do you use to sustain the project? (time, budget, staff, policy)
9. What are the difficulties in managing this project? Which approaches did you employ to solve those problems?
10. Most institutional repositories confront challenges in receiving content contribution from faculty members and researchers. Then some universities employ mandate policies. What is your opinion on a mandate policy? Do you agree with a mandate?

Section 2: The expectation, perceptions, and utilization of institutional repository and the management approaches and services of institutional repository

1. In your opinion, how does an institutional repository differ from other online database?
2. What benefits can your institutional repository provide to the university and university members? How does it support the national research university's research activities?

3. As the library director, how do you utilize the institutional repository? Do you have to present any statistical report to any office/institution?
4. Have you ever use statistical data generated from the institutional repository for the management or decision making? Please explain.

Section 3: The effects of the development of institutional repository on roles and responsibilities of libraries and librarians

1. How did the establishment of institutional repository affect the library? (roles, opportunities, and challenges)
2. How did the establishment of institutional repository affect the roles and responsibilities of librarians?
3. In your opinion, what knowledge and skills should librarian have for managing the institutional repository?

Section 4: The effects of being a National Research University on roles and responsibilities of libraries and librarians

1. Your university was designated as a National Research University. Does it offer any opportunities or introduce any challenges to the management of library?
2. How has the library changed its own roles in order to support teaching and learning, research activities, and research publishing in the digital age?
3. At present, the concept of Open Access has been introduced to scholarly society. This concept advocates the free accessibility of full-text scholarly publications via the Internet. It enhances knowledge development, knowledge sharing, and reducing the budget to subscribe online journal databases. What is your opinion on the concept "Open Access"? To what extent does this concept influence Thai academic society?
4. Please tell me more about the management of research output via institutional repositories.

Appendix H: Guidance for interviewing IR managers

Guidance for interviewing IR Managers

Stakeholders' Perspectives of Institutional Repositories

in National Research Universities in Thailand

Description

The interview guidance is designed for the managers of institutional repositories in the selected National Research Universities. The interview aims to gather the perspectives, perceptions, and expectations on the roles of institutional repositories as a tool to manage intellectual assets of university members in the following aspects:

1. Background information on the institutional repository
2. The management and services of institutional repository
3. The perspectives, perceptions, and expectations on institutional repository
4. The effects of the development of institutional repository on roles and responsibilities of libraries and librarians

Definitions of Key Terms

Self-archiving: The work owners archive their scholarly work for free and public access. The work owners can self-archive their publications on personal websites, organizational websites, or institutional repositories.

Institutional repository: A digital repository collocates, organizes and preserves institutional intellectual assets created by university members. University members and the general public can freely and widely access to the institutional intellectual assets deposited into the digital repository.

Interview questions

Section 1: Background information on the institutional repository

1. Please tell me the background information on the established institutional repository at your university.
2. What was the motivation to establish the institutional repository? How did the library adopt this innovation?
3. What are the goals of your institutional repository?

Section 2: The management and services of institutional repository

1. Could you tell me the current state of the management of your institutional repository?
2. Why are you assigned to be responsible for maintaining the project? (If there is a specific working committee, who are the committee members? And from which department/office?)
3. Please explain your collection development policy.
 - a. Types of information resources
 - b. How to promote the project and seek for collaboration from university members.
 - c. Collection acquisition policy (Voluntary or mandate policy? Library liaison?)
 - d. Access restriction
 - e. Preservation
4. Are you concerned about the copyright management of deposited scholarly publications? How do you deal with copyright management? Do you consult with any lawyer?
5. Did you build any collaboration with institutions on campus and off campus in order to increase their content contribution?
6. Do you have any policy to assess the success of the institutional repository project? (Any written policy? What are the indicators?)
7. What factors affect the sustainability of this project? Which approach do you use to sustain the project? (time, budget, staff, policy)

8. How do you solve problems in association with the management of institutional repository? (The amount of information resources, submission process, community collaborations, copyright concerns, technology, etc.)
9. Most institutional repositories confront challenges in receiving content contribution from faculty members and researchers. Then some universities employ mandate policies. What is your opinion on a mandate policy? Do you agree with a mandate?

Section 3: The perspectives, perceptions, and expectations on institutional repository

1. To what extent do you understand the concepts of Open Access, self-depositing, and institutional repository? What knowledge and skills should librarians develop more?
2. In your opinion, what is “institutional repository”? Please explain.
3. What benefits can your institutional repository provide to the university and university members? How does it support the National Research University’s research activities?
4. Are there any institutions requesting for statistical data from the institutional repository? Do you know why they ask for that information? If not, how do you raise the university members’ awareness of institutional repository?
5. In the next five years, what will your institutional repository be? Any factors to archive the goals?

Section 4: The effects of the development of institutional repository on roles and responsibilities of libraries and librarians

1. How did the establishment of institutional repository affect the library? (roles, opportunities, and challenges)
2. How did the establishment of institutional repository affect the roles and responsibilities of librarians? (in general and in each particular department)
3. In your opinion, what knowledge and skills should librarian have for managing the institutional repository?
4. How has the library changed its own roles in order to support teaching and learning, research activities, and research publishing in the digital age?
5. Please express your perspectives toward the management of research outputs through adopting the institutional repository, the acquisition and services of electronic resources.

Appendix I: Guidance for interviewing Director of the National Library

Guidance for interviewing Director of the National Library

Stakeholders' Perspectives of Institutional Repositories

in National Research Universities in Thailand

Description

The interview guidance is designed for the director of the National Library of Thailand. The interview aims to gather the perspectives and visions on the management of National Library as a national repository which collects the intellectual property of the nation, the management of digital information resources, digital information services, and the preparation plan for technological advances.

Definitions of Key Terms

Self-archiving: The work owners archive their scholarly work for free and public access. The work owners can self-archive their publications on personal websites, organizational websites, or institutional repositories.

Institutional repository: A digital repository collocates, organizes and preserves institutional intellectual assets created by university members. University members and the general public can freely and widely access to the institutional intellectual assets deposited into the digital repository.

Interview questions

1. Please explain the impact of Publication Registration Act B.E. 2550 (2007) on the management and operation of National Library especially in the aspect of the national repository.
2. At present, there is an increasing number of electronic publishing such as eBooks, e-Journals, and multimedia. These are our cultural heritages. Then what strategies do you use to acquire and collect these resources for current and long-term access?
3. How is the National Library involved in the acquisition and organization of theses and research publications from universities and research institutes across the country? (both printed and digital theses and research publications)
4. What is your perspective on Open Access? What are the roles of National Library in Open Access movement in Thailand?
5. Please explain what the impact of information and communication technology on information services is.
6. There are several changes in the Thai society especially in the technological changes and users' information behaviours. How do you improve the management and services of the National Library?
7. Please give any additional opinion on the management of National Library of Thailand in the digital environment.

Appendix J: Guidance for interviewing the managers of university presses

Guidance for interviewing the managers of University Presses
Stakeholder's Perspectives of Institutional Repositories
in National Research Universities in Thailand

Description

This interview guidance is designed for the manager of university presses in the selected National Research Universities in Thailand. The interview aims to gather perspectives, attitudes, and visions towards the management of university presses in the digital age, Open Access, and copyright and ownership management.

Definition of Key Terms

Self-archiving: The work owners archive their scholarly work for free and public access. The work owners can self-archive their publications on personal websites, organizational websites, or institutional repositories.

Institutional repository: A digital repository collocates, organizes, and preserves institutional intellectual assets created by university members. University members and the general public can freely and widely access to the institutional intellectual assets deposited into the digital repository.

Interview questions

1. Please tell me about the operation of your university press. (committee, the brief history of the press, financial supports, the business goals, the manuscript management, etc.)
2. What kinds of scholarly publications are mostly published by your university press? What is the main subject of your publications?
3. Please explain the publishing process from acquiring the manuscript to selling monographs.
4. Who are the majority of authors who publish their work with you? (Faculty members at your university or other universities?)
5. What are the impacts of technological advance on publishing academic resources and the business management of your university press? How? (roles, opportunities, and challenges)
6. How do you organize and preserve printed and digital manuscripts?
7. Copyright management
 - a. Please explain about the authors' rights and especially their rights to disseminate their own works.
 - b. Do you have any approach to trace the copyright infringement? How?
 - c. If the authors provide their downloadable files on their personal websites, organizational websites, or e-Learning system, what is your opinion toward it?
8. According to Publication Registration Act B.E. 2550 (2007), Thai publishers must submit two copies of each published monograph to the National Library. How do you manage to do this? If you develop and sell e-Books, do you submit e-Book files to the National Library? Do you have any detailed permission or restrictions of dissemination?
9. At present, the concept of Open Access has been introduced to scholarly society. This concept advocates the free accessibility of full-text scholarly publications via the Internet. It enhances knowledge development, knowledge sharing, and reducing the budget constraints to subscribe online journal databases.
 - a. What is your opinion on the concept "Open Access"? If the university has a mandate policy and ask its community members to deposit their scholarly works for free access via the Internet, what is your attitude toward that?
 - b. To what extent is this concept beneficial to the Thai scholarly society?
 - c. How does this concept affect your business?
 - d. Do you have any preparation for this change?
10. Your university was designated as a National Research University. Does it offer any opportunities or introduce any challenges to the library management?

Appendix K: Guidance for interviewing academic journal publishers

Guidance for interviewing academic journal publishers
Stakeholder's Perspectives of Institutional Repositories
in National Research Universities in Thailand

Description

This interview guidance is designed for surveying the perspectives, attitudes, and visions of academic journal publishers towards the management and publishing academic journals in the digital age, Open Access, and copyright and ownership management

Definition of Key Terms

Self-archiving: The work owners archive their scholarly work for free and public access. The work owners can self-archive their publications on personal websites, organizational websites, or institutional repositories.

Institutional repository: A digital repository collocates, organizes, and preserves institutional intellectual assets created by university members. University members and the general public can freely and widely access to the institutional intellectual assets deposited into the digital repository.

Section 1: Information on academic journal

1. Which discipline is the main content of your academic journal?
 - Science and Technology
 - Humanities and Social Science
2. Your journal is ...
 - Local journal
 - International journal
3. What is the objective of your academic journal? (Check all that apply)
 - To be a channel to disseminate and share knowledge and opinions
 - To promote the institution and other activities
 - Other (please specify).....
4. Do you receive any financial support for publishing the journal? From which source? (Check all that apply)
 - Yes, from the affiliated institution
 - Yes, from off-campus institution(s)
 - No, we don't receive any financial support
5. Do you expect any profit from publishing and selling academic journal?
 - I don't expect any profit.
 - I expect the profit.
 - Other (please specify).....

Section 2 The management and dissemination of manuscripts

6. Most of the authors in your journal are (Check all that apply)
 - Students/lecturers/researchers in the same affiliated institutions
 - Students/lecturers/researchers in other institutions
 - Other (please specify).....
7. Which language are the journal articles published in? (Check all that apply)
 - Thai
 - English
 - Other (please specify).....
8. Which format is your journal? (Check all that apply)
 - Printed format
 - Electronic journal

9. If currently your journal is in only printed format, do you have any plan to develop it to be e-Journal? Why?

.....

10. How do you inform the authors about manuscript submission?

- Printed formatcopies
 CD-ROM
 E-mail
 Other (please specify).....

11. How do you archive manuscripts in printed and digital formats? Also, please explain how to preserve files for long-term access.

.....

12. Do you disseminate published journal articles for online access through the Internet? How? (Check all that apply)

- No online access
 The reader can download only abstracts
 The reader can download full papers in every issue
 The reader can download full papers except the latest issue.
 The reader can download full papers freely but must register the user account
 Other (please specify).....

13. Please tell me why you allow the reader to download full papers and/or abstracts.

.....

Section 3 Authorship and copyright management

14. Who owns the copyright of published papers in your journal?

- Journal publisher itself
 Authors
 Other (please specify).....

15. Do you provide any informed statement about “Work ownership” and “Rights to distribute published papers” to the authors? How? (Check all that apply)

- I don't provide any copyright statement because.....
- I provide some informed statement
- On journal website
- On journal
- Other (please specify).....

16. After papers are accepted, do you request the authors to sign “the copyright transfer agreement”?

- Yes, we do because.....
- No, we don't have “the copyright transfer agreement” because.....

17. Do you have any approach to trace the copyright infringement? Please explain.

.....

.....

.....

18. What is your perspective on the case of sharing freely downloadable papers published in your journal through personal website, organizational website, or e-Learning system?

.....

.....

.....

19. In scholarly society nowadays, there is a concept about the free access to scholarly information resources via the Internet for supporting knowledge development, information sharing in the academic society and avoiding financial barriers to subscribe academic journals and online databases, for accessing research outputs generated by university members and to get a research financial support.

- a) If higher education institutions and research funders announce any policy to develop institutional repositories by acquiring, depositing, and disseminating the community's full-text research output. These deposited resources are freely accessible on the Internet. Most research outputs are journal papers. As a journal publisher, what is your opinion on this idea? To what extent do you advocate this idea? Will you allow the authors to deposit full-text papers into the IRs for free access? How?

.....

.....

.....

b) How does this concept affect the business management of your journal?

.....
.....
.....

20. Please give any additional opinion on the challenges of scholarly communication in Thai academia which may be influenced by technological, economical, and sociological changes.

.....
.....
.....

21. Would you allow the researcher to contact you for more information?

- No
- Yes, (please give your contact information).....

Appendix L: Guidance for interviewing academic lawyers

Guidance for interviewing academic lawyers
Stakeholders' Perspectives of Institutional Repositories
in National Research Universities in Thailand

Description

The interview guidance is designed for academic lawyers. The interview aims to gather the perspectives and the visions on the organization of government-funded research outputs, research dissemination, as well as the roles of national research repository and university-based institutional repositories.

Definitions of Key Terms

Self-archiving: The work owners archive their scholarly work for free and public access. The work owners can self-archive their publications on personal websites, organizational websites, or institutional repositories.

Institutional repository: A digital repository collocates, organizes and preserves institutional intellectual assets created by university members. University members and the general public can freely and widely access to the institutional intellectual assets deposited into the digital repository.

Interview questions

1. Please explain the definition of “work ownership” and how to consider the ownership.
2. In the case of faculty members at the Chulalongkorn University receive research funds from the university, government sectors, or private companies, how can we determine the work owner?
3. In the case of the Thailand Research Fund (TRF), the fund recipients must submit the final research reports to the funder after the project has done. Often the researchers publish academic journal papers based on the funded research projects. If the university would like to deposit this kind of research output for online access, is it lawful for libraries to do this?
4. In the analogue environment, the researchers contribute their printed final reports to the libraries then other people can use their work. However, in the digital environment, the libraries provide digital information services to the users. So is that lawful for libraries to digitize or upload the digital files for online access?
5. If the funded research project can generate a published journal paper, who owns the copyright?
6. Would you offer any advices to clarify the copyright ownership and the work ownership to journal publishers, authors, funders, or libraries?
7. Most Thai academic journals probably do not follow the copyright laws strictly. Therefore, could it be said that journals are owned by the universities? Who owns the copyright?
 - a. The authors do not receive any pay from the publishers and the publishers do not request the authors to sign the copyright transfer agreement.
 - b. The authors do not receive any pay from the publishers but they sign the copyright transfer agreement.
 - c. The authors receive some pay from the publishers and they sign the copyright transfer agreement.
8. Please give some suggestions on how to collocate and provide online access to copyrighted scholarly works.
9. The work ownership and copyright ownership are variously perceived among the stakeholders. However, the institutional repositories were established. In the case that journal editor donated previous issues to the library, the library digitized and disseminated full papers through the institutional repository. Does this practice infringe the copyright laws?

10. How should the libraries do to prevent from the copyright infringement?
11. Can the libraries or educational institutions claim the principle “Fair use” for providing digital information services?
12. Please explain about the ownership of patent.

Appendix M: Guidance for interviewing National Research Council of Thailand

Guidance for interviewing National Research Council of Thailand Stakeholders' Perspectives of Institutional Repositories in National Research Universities in Thailand

Description

The interview guidance is designed for the Secretary of National Research Council of Thailand (NRCT). The interview aims to gather the perspectives and the visions on the organization of government-funded research outputs, research dissemination, as well as the roles of national research repository and university-based institutional repositories.

Definitions of Key Terms

Self-archiving: The work owners archive their scholarly work for free and public access. The work owners can self-archive their publications on personal websites, organizational websites, or institutional repositories.

Institutional repository: A digital repository collocates, organizes and preserves institutional intellectual assets created by university members. University members and the general public can freely and widely access to the institutional intellectual assets deposited into the digital repository.

Interview questions

1. When implementing the Chulalongkorn University Intellectual Repository (CUIR), you were Vice President for Research Affairs, Chulalongkorn University and advocated fully this project. What motivated you to adopt the concept of institutional repository and support the establishment?
2. How did you participate in formulating the policy on collection development? (Which institutional research outputs are recruited for the CUIR?)

The CUIR's collection development policy emphasizes on the university-own copyrighted research outputs generated by university members. Then this may exclude other institutional research outputs funded by off-campus research funders. Why did you determine the scope of CUIR like that?

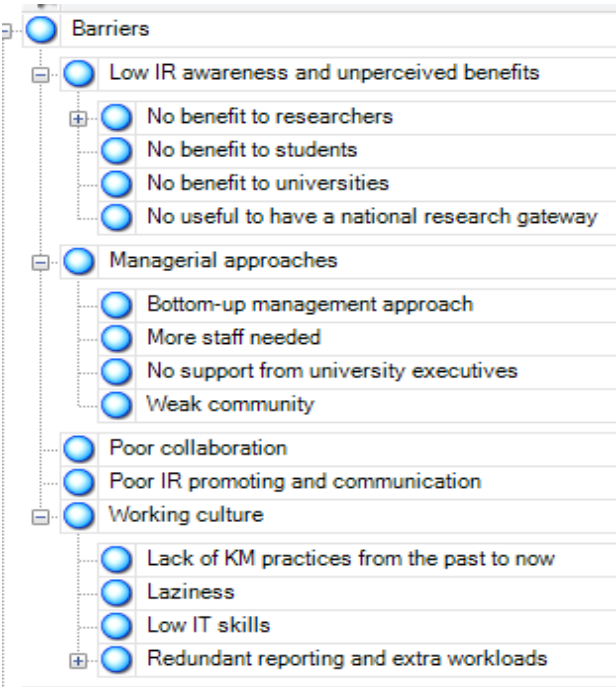
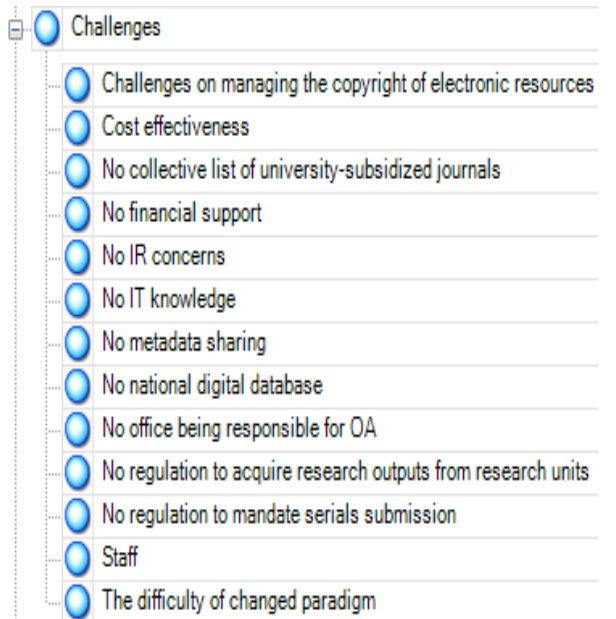
3. As the Secretary of National Research Council of Thailand which is one of the most important national research funders, what is your perspective on the dissemination government-funded research outputs?
4. If the universities deposit these government-funded research outputs into their institutional repositories for the wider access, what is your perspective on it? Do you provide any written policy to the public?
5. Please explain about the brief history of the project "Thailand National Research Repository".
6. How's about other outcomes of the funded research projects? Do you have any plan to collocate these kinds of scientific publications? For example, usually the researchers submit final research reports to the funders after the projects complete. However, the researchers may publish journal papers or other scholarly publications based on the funded research projects.
7. What is your expectation on National Research Universities and the collaboration between the university-based institutional repositories in the National Research Universities and the project "Thailand National Research Repository (TNRR)"?

Appendix N: Participant list

No	Coding name	Stakeholder groups	Interview date
Chulalongkorn University			
1	CU_CICC	Director	12 November 2012
2	CU_Dean	Dean of Graduate School	30 October 2012
3	CU_IR	Librarian who is responsible for the CUIR	7 November 2012
4	CU_LibDirector	Library Director	15 October 2012
5	CU_SciTech_01	Faculty member (Science and Technology)	2 November 2012
6	CU_SciTech_02	Faculty member (Science and Technology)	20 November 2012
7	CU_SciTech_03	Faculty member (Science and Technology)	29 November 2012
8	CU_SciTech_04	Faculty member (Science and Technology)	11 December 2012
9	CU_SciTech_05	Faculty member (Science and Technology)	12 December 2012
10	CU_SciTech_06	Faculty member (Science and Technology)	24 December 2012
11	CU_SciTech_07	Faculty member (Science and Technology)	19 December 2012
12	CU_SocHum_01	Faculty member (Social Science and Humanities)	6 November 2012
13	CU_SocHum_02	Faculty member (Social Science and Humanities)	7 November 2012
14	CU_SocHum_03	Faculty member (Social Science and Humanities)	15 November 2012
15	CU_SocHum_04	Faculty member (Social Science and Humanities)	23 November 2012
16	CU_SocHum_05	Faculty member (Social Science and Humanities)	13 December 2012
17	CU_SocHum_06	Faculty member (Social Science and Humanities)	18 December 2012
18	CU_UniPress	Director of University Press	16 November 2012
Mahidol University			
19	MU_Dean	Dean of Graduate School	1 November 2012
20	MU_LibDirector	Library Director	13 November 2012
21	MU_SciTech_01	Faculty member (Science and Technology)	11 October 2012
22	MU_SciTech_02	Faculty member (Science and Technology)	11 October 2012
23	MU_SciTech_03	Faculty member (Science and Technology)	6 November 2012
24	MU_SciTech_04	Faculty member (Science and Technology)	8 November 2012
25	MU_SciTech_05	Faculty member (Science and Technology)	14 November 2012
26	MU_SocHum_01	Faculty member (Social Science and Humanities)	18 October 2012
27	MU_SocHum_02	Faculty member (Social Science and Humanities)	1 November 2012
28	MU_SocHum_03	Faculty member (Social Science and Humanities)	26 December 2012
29	MU_SocHum_04	Faculty member (Social Science and Humanities)	10 January 2013
30	MU_SocHum_05	Faculty member (Social Science and Humanities)	10 January 2013
31	MU_UniPress	Director of University Press	13 November 2012
Thammasat University			
32	TU_LibDirector	Library Director	27 November 2012
33	TU_SocHum_01	Faculty member (Social Science and Humanities)	8 October 2012

No	Coding name	Stakeholder groups	Interview date
34	TU_SocHum_02	Faculty member (Social Science and Humanities)	10 October 2012
35	TU_SocHum_03	Faculty member (Social Science and Humanities)	10 October 2012
36	TU_SocHum_04	Faculty member (Social Science and Humanities)	13 October 2012
37	TU_SocHum_05	Faculty member (Social Science and Humanities)	25 October 2012
38	TU_SocHum_06	Faculty member (Social Science and Humanities)	26 October 2012
39	TU_SocHum_07	Faculty member (Social Science and Humanities)	31 October 2012
40	TU_SocHum_08	Faculty member (Social Science and Humanities)	7 November 2012
41	TU_SocHum_09	Faculty member (Social Science and Humanities)	27 November 2012
42	TU_SocHum_10	Faculty member (Social Science and Humanities)	18 December 2012
43	TU_UniPress	Director of University Press	6 February 2013
Other parties			
44	HEI	Professor and expert in Higher Education	6 December 2012
45	Lawyer	Academic lawyer with expertise in intellectual property	21 January 2013
46	NationalLib	National Library of Thailand	17 December 2012
47	Secretary of NRCT	Secretary of National Research Council of Thailand	6 November 2012
48	TNRR_IT	A IT committee member of Thailand National Research Repository	2 November 2012
49	TNRR_Lib	A librarian committee member of Thailand National Research Repository	8 November 2012
Journal publishers			
50	Journal_01	Humanities and Social Science	3 January 2013
51	Journal_02	Humanities and Social Science	21 January 2013
52	Journal_03	Humanities and Social Science	9 January 2013
53	Journal_04	Humanities and Social Science	3 January 2013
54	Journal_05	Humanities and Social Science	3 January 2013
55	Journal_06	Humanities and Social Science	15 January 2013
56	Journal_07	Science and Technology	24 January 2013
57	Journal_08	Humanities and Social Science	23 January 2013
58	Journal_09	Humanities and Social Science	14 January 2013

Appendix O: 51 categories

Name	Description
<p>Barriers</p>  <ul style="list-style-type: none"> Barriers <ul style="list-style-type: none"> Low IR awareness and unperceived benefits <ul style="list-style-type: none"> No benefit to researchers No benefit to students No benefit to universities No useful to have a national research gateway Managerial approaches <ul style="list-style-type: none"> Bottom-up management approach More staff needed No support from university executives Weak community Poor collaboration <ul style="list-style-type: none"> Poor IR promoting and communication Working culture <ul style="list-style-type: none"> Lack of KM practices from the past to now Laziness Low IT skills Redundant reporting and extra workloads 	<p>Anything that prevents stakeholders from understanding and participating in IRs and that prevents libraries from improving IR projects.</p>
<p>Challenges</p>  <ul style="list-style-type: none"> Challenges <ul style="list-style-type: none"> Challenges on managing the copyright of electronic resources Cost effectiveness No collective list of university-subsidized journals No financial support No IR concerns No IT knowledge No metadata sharing No national digital database No office being responsible for OA No regulation to acquire research outputs from research units No regulation to mandate serials submission Staff The difficulty of changed paradigm 	<p>Impediments to the goals of the IR project that requires significant effort in order to overcome.</p>

Name	Description
<p>Collaboration</p> <ul style="list-style-type: none"> Collaboration <ul style="list-style-type: none"> Collaboration at national level Collaboration between faculty members and journals Collaboration between graduate school and library Collaboration between library and journal publishers Collaboration between library and central research affair Collaboration between library and department Collaboration between library and research unit at the faculty Collaboration between library and university press Collaboration between research departments and HRM Collaboration between research units and graduate schools May collaborate with library 	<p>The process of two or more stakeholder groups working together to achieve the same goals.</p>
<p>Communication</p> <ul style="list-style-type: none"> Communication <ul style="list-style-type: none"> Face-to-Face promoting Informing the researchers the benefits of IRs Presenting idea to administrators Promoting IR establishment Training staff and university members 	<p>The transfer of meaningful messages between senders and receivers. Communication approaches and channels are included in this category.</p>
<p>Concerns</p> <ul style="list-style-type: none"> Concerns <ul style="list-style-type: none"> Competition in the field Copyright concerns <ul style="list-style-type: none"> IPR vs DRM concern No copyright concern Digital preservation issues and concerns Fear of plagiarism Insecurity concerns Privacy and Confidentiality Concerns Searchability concerns Sensivity and censorship concerns 	<p>Here we consider concerns with regard to participating in, contributing content toward and maintaining IRs.</p>

Name	Description
<p>Copyright</p> <ul style="list-style-type: none"> ● Copyrights <ul style="list-style-type: none"> ▣ Academic crime <ul style="list-style-type: none"> ● Protecting plagiarism ▣ Copyright agreement <ul style="list-style-type: none"> ● Agreement determines the OWNERSHIP ▣ Graduation agreement ▣ Grant agreements ▣ Publisher's agreement ● Copyright clearance ● Copyright interpretation ▣ Copyright management <ul style="list-style-type: none"> ● Library as a copyright checker ● Requiring a copyright-check service ● Researcher as a copyright checker ● University as a copyright checker ▣ Copyright ownership <ul style="list-style-type: none"> ● Explaining the scope of OWNERSHIP ● Only juristic person can hold copyrights ▣ Copyright understandings <ul style="list-style-type: none"> ● Author's rights ▣ Journals as juristic person ● Publishing a paper again ● Educational purposes and fair use 	<p>A legal right to use and distribute the work.</p>

Name	Description
<p>Depositing works into IRs</p> <ul style="list-style-type: none"> ○ Depositing works into IRs <ul style="list-style-type: none"> [-] ○ Depositors <ul style="list-style-type: none"> ○ Librarian as a depositor ○ Research units as a depositor [+] ○ Researcher as a depositor ○ Researchers and librarians as depositors ○ Staff as a depositor ○ University press as a depositor [-] ○ Metadata and harvesting <ul style="list-style-type: none"> [+] ○ Metadata creator ○ Metadata scheme 	<p>The process of work submission including actors such as depositors, metadata creators, etc.</p>
<p>Developing and populating IR collections</p> <ul style="list-style-type: none"> ○ Developing and populating IR collections <ul style="list-style-type: none"> ○ Asking for publishers' permission ○ Centralized approach ○ Collection development policy for institutional database ○ Contacting faculty members directly ○ Convincing others to allow CUIR deposit ○ Convincing university members to participate in IRs ○ Depending on administrative board [-] ○ Policy on collection development <ul style="list-style-type: none"> ○ Increasing IR collections [+] ○ Mandatory policy ○ No written collection policy ○ Voluntary mixed with mandatory policy ○ Voluntary policy 	<p>The method of acquiring institutional research outputs from the university members and populating the content.</p>

Name	Description
<p>Different from western culture</p> <ul style="list-style-type: none"> ● Different from western culture 	<p>The unique characteristic of Thai academics is not to promote their expertise and publications via social media or other communication channels. Publications or recordings in other formats are used to promote an academic in their field. No extra promotion channel is required. This differs from western academic culture.</p>
<p>Disciplinary differences</p> <ul style="list-style-type: none"> ● Disciplinary differences <ul style="list-style-type: none"> ● Applying scientific method to Humanities is fail 	<p>Disciplinary differences, in particular differing perspectives on sharing research output, can lend themselves to differing approaches to and levels of enthusiasm for self-archiving.</p>
<p>Electronic resources</p> <ul style="list-style-type: none"> ● Electronic resources <ul style="list-style-type: none"> ▣ ● Affecting on publishers <ul style="list-style-type: none"> ● Offering copyright challenges to university pres ● Benefits of e-resources ▣ ● Electronic resource service at NLT <ul style="list-style-type: none"> ● Information security system ● In-library use only ● Requiring information literacy skills 	<p>Electronic formatting of scholarly works provides benefits and challenges to many stakeholder groups in scholarly communication: authors, libraries as access providers, and publishers.</p>

Name	Description
<p>Full-text availability and accessibility</p> <ul style="list-style-type: none"> ● Fulltext availability and accessibility <ul style="list-style-type: none"> ▣ Accessibility management <ul style="list-style-type: none"> ● Only for university members ● Personal identification number ● Delaying to provide a fulltext ● Disseminating research outputs depends on grant funders ● Issues on utilizing uploaded fulltext files ● Knowledge accessibility ● Knowledge sharing ● Pointing to papers link rather than pdf file ● Quality concerns ● Some exceptions about fulltext availability 	<p>The opinions on both providing the full-text version of resources for public access and making those full-texts accessible.</p>
<p>Future of IR</p> <ul style="list-style-type: none"> ● Future of IR <ul style="list-style-type: none"> ● Add-on IR values ● Extended IR contents ▣ Generating reports <ul style="list-style-type: none"> ● Autogenerating a report for academic promotion ● Autogenerating webCV ● Providing statistical data of usage ▣ Interoperability <ul style="list-style-type: none"> ● HR system ● Interoperability between IRs and Institutional databases ● Link to all databases ● Link to CUIR ● Making link from OPAC to publisher's website ● Providing more than their expectation ● Should be faster searchability ● Should be more open to other community ● Should be user-friendly interface ● Should have IRs at the department or institute ● Space for sharing knowledge ● User empowerment 	<p>The improved performance and services provided by the future of IR projects.</p>

Name	Description
<p>INTERNATIONAL EDUCATION ORDER</p> <ul style="list-style-type: none"> ● INTERNATIONAL EDUCATION ORDER <ul style="list-style-type: none"> ● University ranking 	<p>This concept is from the expert in HEI. He stated that international education systems influence Thai academic society and communication to a great extent.</p>
<p>IR assessment</p> <ul style="list-style-type: none"> ● IR assessment <ul style="list-style-type: none"> ● Comparing with other countries ● Need assessment 	<p>The actions to assess the effectiveness and efficiency of the established IRs.</p>
<p>IR awareness</p> <ul style="list-style-type: none"> ● IR awareness <ul style="list-style-type: none"> ● No relevance to their fields ● Subject-based repository 	<p>The stakeholders' ability to perceive and be conscious of the established IRs in their community. This includes both awareness and non-awareness.</p>
<p>IR searchability</p> <ul style="list-style-type: none"> ● IR searchability <ul style="list-style-type: none"> ● Customizing search and search results ● KNOWLEDGE REPRESENTATION ● Not registered in OpenDOAR 	<p>The concept of one preferable functions of IRs includes customized search methods and ability to disseminate IR content to the public. Also, the ability to facilitate the retrieval of IR contents.</p>
<p>Knowledge creation</p> <ul style="list-style-type: none"> ● Knowledge creation 	<p>The accessibility of full-text scholarly resources enhances knowledge creation.</p>
<p>Learned society</p> <ul style="list-style-type: none"> ● Learned society 	<p>The roles of learned society in the increased collaboration between academics and practitioners in the fields and in knowledge creation and sharing.</p>
<p>Learning in the digital environment</p> <ul style="list-style-type: none"> ● Learning in the digital environment 	<p>The teaching and learning environment is influenced by digital technologies.</p>

Name	Description
<p>Low law enforcement</p> <ul style="list-style-type: none"> ● Low law enforcement ● Invalid in law 	<p>Thai journal publishers and university presses do not have any system or practice to track and check copyright infringement. Consequently, there have been very few lawsuits on copyright infringement instigated by educational institutions.</p>
<p>Managing research output</p> <ul style="list-style-type: none"> ● Managing research output ● Managing intellectual properties at the universities ● Managing research output at department level ● Managing research output at the faculty ● Managing research projects and output by central research affairs ● Not collect outcomes of research projects ● Research funders have limitations on managing research outputs 	<p>The methods that research funders and universities use to collect, organize, and manage their funded research outputs and research outcomes.</p>
<p>Open Access</p> <ul style="list-style-type: none"> ● Open Access <ul style="list-style-type: none"> ● Academic fashion ● Confusing term OA ● Not 100% open access ● Open Access journals <ul style="list-style-type: none"> ⊕ Advocating OA journals ● Do not know OA journals ● Financial factors ● Misunderstanding on OA journal ● No acceptance of OA in the field (Nodes) ● No preference on traditional journals and OA journals ⊕ Preferring traditional journals ● The acceptance of OA in the field ● Open book <ul style="list-style-type: none"> ● Need OA support from the government ● Open research 	<p>The unrestricted accessibility of scholarly publications.</p>

Name	Description
<p>Openness</p> <ul style="list-style-type: none"> ● Openness <ul style="list-style-type: none"> ● Capitalism and knowledge sharing ● Having written policy on openness ■ IT and knowledge sharing <ul style="list-style-type: none"> ● Decrease going to library ● Objectives of researchers ● Ownership VS Authorship ● Restricted access showing the endeavor of researchers ● Participating in IRs <ul style="list-style-type: none"> ● Low participation ■ Motivation on participating in IRs <ul style="list-style-type: none"> ● Public interest ● Publicizing as a motivation ● Selective IR participation ● Time 	<p>The general environment of unrestricted accessibility of scholarly work in the scholarly society.</p>
<p>Participating in IRs</p> <ul style="list-style-type: none"> ● Participating in IRs <ul style="list-style-type: none"> ● Low participation ■ Motivation on participating in IRs <ul style="list-style-type: none"> ● Public interest ● Publicizing as a motivation ● Selective IR participation ● Time 	<p>The behaviour pattern of those participating in the IRs.</p>

Name	Description
<p>Perceived benefits</p> <ul style="list-style-type: none"> ● Perceived benefits <ul style="list-style-type: none"> ▣ IRs as a checking research management system <ul style="list-style-type: none"> ● Decreasing redundant jobs ● Improving the collection management and service ● Increasing research collaboration ▣ IRs as a preservation method <ul style="list-style-type: none"> ● CD-ROM ● Preserving all work ● Preserving cultural heritage for next generations ● Preserving journal articles ● Preserving manuscripts at university press ▣ Plagiarism <ul style="list-style-type: none"> ● Data mining ▣ Research gateway <ul style="list-style-type: none"> ⊕ Benefits of research gateway ● IRs as a community ● IRs as a corpus ● IRs as a KM ● Requiring more responsibilities from universities ● Save time and effort of managing theses ● Utilizing research outputs ▣ Showcase <ul style="list-style-type: none"> ● visualizing research ● Visualizing universities 	<p>The benefits of IRs which the stakeholders can perceive.</p>
<p>Perception on the term IR</p> <ul style="list-style-type: none"> ● Perception on the term IR <ul style="list-style-type: none"> ● Advocating IRs ● Be beneficial to the public more than uni members ● Digital collection ● Digital libraries ● Misunderstanding on IRs or CoP ● No effect till Open books ● Prefer university-based IRs ● Seems to be difficult to make it successful ● Showcase is not IR responsibility 	<p>The diversity of perceptions and understandings pertaining to IR.</p>

Name	Description
<p>Promotion and tenure system</p> <ul style="list-style-type: none"> ● Promotion and tenure system <ul style="list-style-type: none"> ● Assessment of academic performance ● Executives' interpretations of promoting and tenure system ● KPI ● No relationship between academic position and impact factor ● Performance Agreement ● Progress in Academic Career Path ● University expectations 	<p>The influence of the system of promotion and tenure upon IR participation.</p>
<p>Research behaviours</p> <ul style="list-style-type: none"> ● Research behaviours <ul style="list-style-type: none"> [-] ● Conducting research <ul style="list-style-type: none"> [+] ● Barriers of conducting research at the university ● Incentives for producing educational publications [+] ● Motivation on conducting research [+] ● Research collaboration [-] ● Disseminating and publicizing scholarly and research works <ul style="list-style-type: none"> ● Conflicts between publishing internationally and locally [+] ● Criteria for selecting journals [+] ● Disseminating postgraduate research ● Publicizing their research work ● Researchers' desire [-] ● How to get research funds <ul style="list-style-type: none"> [+] ● Funding sources [-] ● Managing research data <ul style="list-style-type: none"> ● Data backup ● Data sharing ● Importance of different versions ● Importance of raw data 	<p>The patterns of Thai faculty members in searching, conducting and disseminating their research projects.</p>
<p>Research outputs</p> <ul style="list-style-type: none"> ● Research outputs 	<p>Types of research output such as publications, videos, presentations, workshops, etc.</p>

Name	Description
<p>Scholarly recognition and reputation</p> <ul style="list-style-type: none"> <input type="radio"/> Scholarly recognition and reputation <input type="radio"/> Blog <input type="radio"/> Conference <input type="radio"/> Email (listserv) <input type="radio"/> Ignoring the academic reputation <input type="checkbox"/> Managing researcher profile <ul style="list-style-type: none"> <input type="radio"/> WebCV <input type="radio"/> Organization's website <input type="checkbox"/> Patent <ul style="list-style-type: none"> <input type="radio"/> Patent ownership <input type="radio"/> Performance <input type="radio"/> Personal connection <input type="checkbox"/> Publications <ul style="list-style-type: none"> <input type="checkbox"/> Journal papers <input type="radio"/> Radio <input type="radio"/> Social media <input type="checkbox"/> WebCV <ul style="list-style-type: none"> <input type="radio"/> Workloads to promote themselves 	<p>Communication channels assisting researchers in the same fields, as well as the public, recognize each other and promote their expertise amongst their colleagues.</p>

Name	Description
<p>Solutions</p> <ul style="list-style-type: none"> ● Solutions ● Centralized management information system ● Changing mindset ● Communicating_ Explaining positive impacts of IRs to university members ● Decentralization deposit system <ul style="list-style-type: none"> ● Decreasing workload ● Having lag time if a centralized management of research outputs ● Do not bring any change ● Educating colleagues about OA journals ● Facilitating researchers to deposit ● Give and take principle ● Increasing collaboration between funders and universities ● IT staff support ● Need more supportive staff ● One side fits all is not applicable ● Policy making ● Should have a research office ● Some funds to OA publishing from the university ● The characteristics or personaliy of the work owners ● Time consuming to make a project successful ● Training and workshops 	<p>Suggested methods of improving IRs.</p>
<p>Sustaining IR projects</p> <ul style="list-style-type: none"> ● Sustaining IR projects <ul style="list-style-type: none"> ● Supports from administrators ● Sustaining Scholar Bank 	<p>Practices to strengthen and give support to IR projects.</p>
<p>System for managing research grants</p> <ul style="list-style-type: none"> ● System for managing research grants <ul style="list-style-type: none"> ● NRPM 	<p>An information system or database for managing research projects and allocating research grants.</p>

Name	Description
<p>Academic publishers</p> <ul style="list-style-type: none"> Academic publishers <ul style="list-style-type: none"> Business model of journal publishers Catalog of published books Considering wide dissemination more than monetary profits Manuscript of books No worry about profits Non-profit journal publishers Nonprofit university press <ul style="list-style-type: none"> Administrative board of university press Aims to establish university press Authored by faculty members Copyright management of manuscripts at university press Non-profit press still needs some revenues Process of publishing a book Serving university's teaching and learning University press as a university-owned enterprise OA affects publishers' business Publications by university press Publishing a book Role of publishers <ul style="list-style-type: none"> Finding manuscripts for publishing journal The importance of printed format University as journal publishers 	<p>Brief history of establishing IRs.</p>
<p>Background of IRs</p> <ul style="list-style-type: none"> Background of IRs <ul style="list-style-type: none"> Gaining support from administrators Outsourcing Reasons for IR establishment <ul style="list-style-type: none"> Attempts to make research reports searchable, accessible, and utilized Lack of a centralized database Limited space Readiness Workflow like IRs 	<p>Brief history of establishing IRs.</p>

Name	Description
<p>International online databases</p> <ul style="list-style-type: none"> ● International online databases <ul style="list-style-type: none"> ● ISI database ● ScienceDirect 	<p>Online databases collect and provide access to full-text academic resources especially journal papers and e-books. University libraries usually pay annual subscription fees in order to get rights to access and use scholarly publications.</p>
<p>IR collections</p> <ul style="list-style-type: none"> ● IR collections <ul style="list-style-type: none"> ● Acquiring journal papers ● Audio records ● Clear-copyrighted work ● Depositing research data ● Digital local journal articles ● Ebook ● Hall of Fame ● In progress work ● INSTITUTIONAL WORKS ● Minutes ● Newsletter ● Only university-funded research output ● Photos ● Theses ● Too small number of research publications 	<p>Types of resources which are included in IRs and expected to be in IR collections.</p>
<p>IR committee</p> <ul style="list-style-type: none"> ● IR committee <ul style="list-style-type: none"> ▣ Lawyer involvement <ul style="list-style-type: none"> ● Consult with Legal Affair department at the university ● Not consulting a lawyer ● IR software <ul style="list-style-type: none"> ● DSpace ● Legal deposit <ul style="list-style-type: none"> ● Depositing to NLT ● No rule anymore on collecting theses ● No rule on mandating to deposit research reports at NLT ● Publishing Registration Act ● Universities are not government sectors 	<p>The composition of the IR project committee.</p>

Name	Description
<p>IR software</p> <ul style="list-style-type: none"> IR software <ul style="list-style-type: none"> DSpace 	<p>Software which each university uses for their IRs.</p>
<p>Legal deposit</p> <ul style="list-style-type: none"> Legal deposit <ul style="list-style-type: none"> Depositing to NLT No rule anymore on collecting theses No rule on mandating to deposit research reports at NLT Publishing Registration Act Universities are not government sectors 	<p>A legal requirement that Thai publishers submit copies of their publications to the national library. However, in Thailand, the National Library does not operate as a legal depository.</p>
<p>Libraries at NRUs</p> <ul style="list-style-type: none"> Libraries at NRUs <ul style="list-style-type: none"> Faculty library Providing useful resources for supporting research Role of librarians <ul style="list-style-type: none"> Developing skills and knowledge Librarians as research assistants Roles of libraries <ul style="list-style-type: none"> Active role Effects on libraries Libraries should be responsible for IRs Library as a place VS online visit Library as publisher Recognizing the role of library 	<p>Central libraries at three NRUs: Chulalongkorn, Mahidol, and Thammasat universities.</p>
<p>Mission of graduate school</p> <ul style="list-style-type: none"> Mission of graduate school 	<p>The specific duty of graduate schools to achieve their goals.</p>
<p>Multicampus university</p> <ul style="list-style-type: none"> Multicampus university 	<p>Universities may have many campuses. This organizational structure also affects the management, operation, and services of libraries at each university.</p>

Name	Description
<p>National Library</p> <ul style="list-style-type: none"> ● National Library ● Effects of changing organization chart on collecting resources from the university ● Must develop confidence in copyright management of electronic resources ● NLT has no right and power to determine IR establishment and management ● NLT in AEC ● NLT's vision ● Not care about redundant databases of published research outputs ● Public libraries can serve the communities ● Role of NLT 	<p>The National Library of Thailand: background, operation, and services.</p>
<p>National Research University</p> <ul style="list-style-type: none"> ● National Research University ● Advantages of being NRUs ● Changing policy from publications to utilization ● Chaning from RECEIVING CULTURE to PRODUCING CULTURE ● Expecting more research publications ● Increased pressure and challenges ● Increasing chance of getting research funds ● Indifference ● NRU should establish their IR (database) ● PROPAGADA ● Providing chances for universities to develop their research performance ● Quality of education ● RECEIVING CULTURE ● Research facility ● Research strategies at the university ● Should be research-based teaching and learning ● Should provide more grants ● Types of universities in Thailand ● University as a research producer and knowledge provider 	<p>The perspectives of university members towards the National Research University and the influence of being an NRU upon their responsibility.</p>
<p>Research Affairs</p> <ul style="list-style-type: none"> ● Research Affairs ● Help from research office at the faculty ● Providing the service of research management ● Research Affairs should be responsible for IRs 	<p>The central unit at the university is responsible for managing, monitoring, and servicing all research activities to provide a quality research environment and to support researchers.</p>

Name	Description
<p>Responsibilities of faculty members</p> <ul style="list-style-type: none"> ● Responsibilities of faculty members <ul style="list-style-type: none"> ● Balancing university ranking and social serving ● Doing research in different disciplines 	<p>The responsibilities of Thai faculty members can include teaching, researching, providing community services, and advising students.</p>
<p>Similar to IRs</p> <ul style="list-style-type: none"> ● Similar to IRs <ul style="list-style-type: none"> ⊕ BIODATA Database ● CHULA R2 ● Collection in institutional database ● DCMS ⊕ Expert database <ul style="list-style-type: none"> ● Institutions database ● MyPerformance ● Patent database ● Redundant to Google or publications databases ⊕ Too many redundant projects 	<p>Some databases/systems have functions and benefits similar to IRs.</p>
<p>Thailand National Research Repository</p> <ul style="list-style-type: none"> ● Thailand National Research Repository <ul style="list-style-type: none"> ● Checking redundant research projects ● Overload of research reports and theses in NRCT 	<p>The national IR is a gateway for national funded research outputs.</p>
<p>TNRR and NRUs' IRs</p> <ul style="list-style-type: none"> ● TNRR and NRUs' IRs <ul style="list-style-type: none"> ● Free software ● Win-win 	<p>The collaboration and data sharing between TNRR and NRUs' IRs.</p>

Appendix P: An example of an excerpt and codes

ปฏิกิริยาที่เห็นจาก Open Access อาจารย์คิดเห็นอย่างไร

ผมว่ามันเป็นโลกอุดมคติมากเลยครับ ที่จะทำอย่างนั้น แต่ว่าโลกของมนุษย์ที่อิงการสร้างเงิน และมีการถ่วงกันอยู่อะไรก็ว่าไรนั้น มันจะต้องมีการพิมพ์มี publisher มาสแกน ดังนั้นถ้าจะ open access จึงต้องมีการถ่วงกันดูภาพที่ลำบาก สำหรับสังคมไทย มันน่าจะเร็ววันนี้ละ บางทีก็แค่มีการเซ็น release ไว้ วิทยานิพนธ์และงานส่วนหนึ่งสามารถออนไลน์แล้ว เริ่มมากขึ้นแล้ว แต่อาจจะแบบแบบ คีย์านะ ซึ่งก็มี technology infrastructure ที่พร้อม

คลังเก็บสารสนเทศระดับสถาบัน หากมหาวิทยาลัยบังคับให้อาจารย์นำผลงานเข้า IR อาจารย์มีความเห็นอย่างไร

คือ ต้องไม่คิด copyright นะ ไม่คิดว่าจะเอางานไปไว้ สำหรับประเด็นการเก็บภาระ คงไม่น่าจะลำบากขนาดนั้นนะ เพราะต้องทำอยู่แล้วในแต่ละปี มันจะคิดจะอีกถ้ามี one stop shopping ไปเลย และเวลาประเมิน มหาลัยก็ไปดูจากตรงนั้น ไม่ต้องมาให้อาจารย์ทำซ้ำซ้อนอีก อาจารย์ควรทำครั้งเดียว โดยมหาลัยต้องจัดการลิขสิทธิ์ให้เรา หรือไม่ก็เอาไปรวมไว้ตรงฐานนั้น อะไรที่ open access ได้ก็ปล่อยไป อะไรไม่ได้ก็ทำลิงค์ไปยัง database นั้น ซึ่งมหาลัยก็ควร subscribe ทุกอย่างที่อาจารย์เอาผลงานไปลง หากมหาลัยไม่ได้ subscribe ก็ควรสมัครฐานให้เสียร้อย ส่วนคนนอกก็เข้าไม่ได้ก็ดูดิเนะครับ มหาลัยควรเอาข้อมูลจากฐานนั้นเลย ไม่ต้องคิดต่ออาจารย์ เพราะอาจารย์จะรับผิดชอบเอาข้อมูลเข้าเองอยู่แล้วและครั้งเดียวพอ

ของสมมติเป็นหน่วยงานที่รับผิดชอบ IR อันนี้หน่วยงานเฉพาะหรือยัง ความเป็นหน่วยงานอื่นหรือไม่ อย่างไร

ผมไม่กังวลว่าใครจะดูแลนะครับ แต่ก็เป็นบรรดาที่กลุ่ม เหมาะสมอยู่แล้วครับที่จะดูแลเรื่องนี้เพราะเป็น source จากนอกแต่ก็ออกนอกคือ ส่วนมากควรจะจัดการเรื่องลิขสิทธิ์และเรื่อง open access

1. Transcript in Thai

2. Each statement was coded with English labels.

คลังเก็บสารสนเทศระดับสถาบัน หากมหาวิทยาลัยบังคับให้อาจารย์นำผลงานเข้า IR อาจารย์มีความเห็นอย่างไร

คือ ต้องไม่คิด copyright นะ ไม่คิดว่าจะเอางานไปไว้ สำหรับประเด็นการเก็บภาระ คงไม่น่าจะลำบากขนาดนั้นนะ เพราะต้องทำอยู่แล้วในแต่ละปี มันจะคิดจะอีกถ้ามี one stop shopping ไปเลย และเวลาประเมิน มหาลัยก็ไปดูจากตรงนั้นไม่ต้องมาให้อาจารย์ทำซ้ำซ้อนอีก อาจารย์ควรทำครั้งเดียว โดยมหาลัยต้องจัดการลิขสิทธิ์ให้เรา

หรือไม่ก็เอาไปรวมไว้ตรงฐานนั้น อะไรที่ open access ได้ก็ปล่อยไป อะไรไม่ได้ก็ทำลิงค์ไปยัง database นั้น ซึ่งมหาลัยก็ควร subscribe ทุกอย่างที่อาจารย์เอาผลงานไปลง หากมหาลัยไม่ได้ subscribe ก็ควรสมัครฐานให้เสียร้อย ส่วนคนนอกก็เข้าไม่ได้ก็ดูดิเนะครับ มหาลัยควรเอาข้อมูลจากฐานนั้นเลย ไม่ต้องคิดต่ออาจารย์

เพราะอาจารย์จะรับผิดชอบเอาข้อมูลเข้าเองอยู่แล้วและครั้งเดียวพอ

An excerpt of Thai interview transcript

The same excerpt in English with codes.

Mandatory policy

If the university employs a mandatory deposit of your research outputs into the IR, what is your opinion on it?

Hmm...[the practice] should not infringe copyright laws. [I] do not mind to deposit my works [into the IR]. Considering extra workloads, it might not cause much inconvenience because [I] have to do [to collect and report my works] every year. It will be better if there is [IR working as] a one stop shopping. Then for the academic performance assessment, the university can get information from there [IR]. [The university] does not have to request information from the faculty again. The faculty should do this only one time. The university should be responsible for us to manage and clear copyright [if the university mandates us to deposit the works]. Or everything are deposited into [the IR] but only copyright-cleared works can be open[ly] access[ible]. If any copyrighted works are owned by other parties, we can provide links to other databases which the university should subscribe. [But] for the public, they can't access to those works as usual [due to no right to access]. The university should harvest data from online databases without contacting the faculty because the faculty will be responsible for depositing their works only once.

Copyright concerns

Copyright clearance

Decreasing redundant jobs

Workloads

Full-text availability and accessibility

Centralized management information system

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