Understanding XBRL Adoption Process and Adoption Type among Regulators: A Malaysian Evidence

Azleen Ilias[a], Erlane K Ghani[b], Zubir Azhar[c], [a]College of Business and Administration Universiti Tenaga Nasional Malaysia, [b]Faculty of Accountancy Universiti Teknologi MARA Malaysia, [c]School of Management Universiti Sains Malaysia. Email: azleens@uniten.edu.my; erlanekg@uitm.edu.my; zubirazhar@usm.my

Extensible Business Reporting Language (XBRL) has evolved over more than a decade and affects the financial reporting landscape worldwide. However, since its evolvement, XBRL has yet to be fully adopted around the world, particularly in Malaysia. This study aims at providing a better understanding on XBRL adoption by identifying the current state of XBRL adoption process and the type of adopters among the regulators in Malaysia. This study develops a framework by utilising the research framework developed by Rogers's (1983) adoption process. A case study approach consisting of interview with the regulators and thematic analysis were used. Based on the response of four regulators and documents analyses, this study found that the regulators are moving towards full XBRL adoption although slowly. Out of the four regulators, two regulators are considered early adopters whilst the remaining two regulators are an early majority. The findings of this study serve as a guideline for regulators and government agencies as well as contribute to the corpus of existing academic knowledge and literature.

Key words: *XBRL, adoption process, regulators, type of adopters, Malaysia.*

Introduction

The earlier form of financial reporting often involved preparation of the financial reports and subsequently communicated to different regulators and shared among different groups of users using various technologies from paper-based to sharing financial information through the internet in the form of digital financial reporting. In exchanging the information, the distribution of financial reporting had started with the printed financial statements and CD-ROMs, then distribution of financial reports through the internet. However, the electronic technologies such as Portable Document Format (PDF), Microsoft Word and Excel Spreadsheet (Lymer, Debreceny, Gray and Rahman, 1999) are often similar to the paper-based of printed annual reports (FASB, 2000). Another technology that is commonly used is the Hypertext Markup Language (HTML) that supports navigation and links between pages. However, HTML concerns more on presentation and graphics (Lymer et al., 1999) and the web pages are viewed in browsers (FASB, 2000).

Pollock and Papiernik (2001) however, argued that the digital technologies are not compatible across various computer programs. This means that the reporting technologies do not allow the system to process paper-based data into meaningful and useful information. Thus, preparers need to re-key data from paper-based financial reports into their system in order to process and manipulate data according to their needs and requirements. Often, the process of re-keying data into the system creates errors. Subsequently, digital technologies evolved into a meaningful way of reporting, which allowed data to be defined with specific meanings. This reporting technology is known as Extensible Business Reporting Language (XBRL) and it caters specifically for financial reporting. Hoffman (1999) suggested that XBRL could transform the traditional financial reporting to a higher level of financial reporting since it increases the quality of financial reporting characteristics. In addition, it transforms the traditional reporting process to a more sophisticated process using computer programs that understand financial reporting data. However, since its development in 1999, this technology has yet to be fully implemented around the world, particularly in Malaysia. Hence, it would be interesting to examine why such a Regulator scenario exists.

This study aims to examine the adoption of XBRL in Malaysia. Specifically, this study aims to understand the current state of the XBRL adoption in Malaysia from the perspective of the regulators. Subsequently, this study examines the type of adopter of the regulators. The findings of this study serve as a guideline for regulators and government agencies as well as contribute to the corpus of existing academic knowledge and literature. The next section, Section 2 presents the literature review related to this study. This is followed by Section 3 that explains the research design of this study. Section 4 provides the findings of this study. The last section, Section 5 summarises and concludes this study.

Literature Review

What is XBRL?

In the financial reporting literature, it has also defined XBRL by works of Doolin (2004) as well as Debreceny and Gray (2001). Most of these definitions defined XBRL as having two important elements, namely financial reporting and XML language. Specifically, these studies defined XBRL as a 'financial reporting concept', which comes from the eXtensible Markup Language (XML) used to transmit information through the internet (Bergeron, 2003; Hoffman, 2006; Piechocki and Servais, 2010). As an example, Bergeron (2003, p.15) defined XBRL as:

> *"An open independent platform, international standard for a timely, accurate, efficient and cost-effective electronic storage, manipulative, repurposing, and communication of financial and business reporting data"*

Adoption

Several studies have provided definitions of adoption in order to understand the concept of adoption in information technology. For example: Rogers (2003, p.177), on the other hand, defined adoption as the "*full use of an innovation as the best course of action available and rejection is a decision "not to adopt an innovation*". Several studies have examined XBRL adoption such as Doolin and Troshani (2007) in Australia, Mousa (2010) in the UK, Cordery, Fowler and Mustafa (2011) and David (2016) in New Zealand and Homayoun, Rahman and Bashiri (2011) in Malaysia. David (2016) found that despite the interest shown by New Zealand regulators to impose XBRL in 2000, none of the New Zealand organisations had formally adopted XBRL Other studies have examined the XBRL adoption process (Mousa, 2010) and XBRL type of adopters (Praditya, Sulastri, Bharosa and Janssen, 2016). However, XBRL adoption process and XBRL type of adopters have yet to be examined in Malaysia.

Adoption Process

Rogers (2003) suggested that the adoption process involves a process, in which an individual or other decision-making unit passes from acquiring knowledge of an innovation, such as XBRL, to form an attitude about an innovation, to a decision on whether to adopt or reject, to implement a new idea, and lastly, to confirm a decision. According to Rogers (2003), there are three phases in the adoption process, from the knowledge gathering phase until the confirmation to adopt an innovation phase. DePietro et al. (1990) also mentioned that the adoption process often involves awareness of the problem, deployment of the innovation as well as the adoption of commitment, implementation and routinisation. In addition, DePietro

et al. (1990) had indicated that Rogers' (1983) adoption process model is appropriate for investigating XBRL adoption process, which is divided into three phases: gathering knowledge and persuasion, decision making as well as implementation and confirmation.

Type of adopters

Rogers (1983) had also identified the types of adopters in XBRL adoption process. Type of adopters refers to the differences in the length of the adoption process. DePeitro et al., (1990) classified adopters into five categories according to the point of time they adopted the innovation relative to when they might actually have. Bergeron (2003) also identified five types of adopters in XBRL adoption process, namely innovator, early adopter, early majority, late majority and laggard.

Research Design

Case Selection

Based on the research objective, four regulators are the main focus when investigating the XBRL adoption process in Malaysia. This is because the regulators play the key role in expediting XBRL adoption such as in the US (Abdullah, Khadaroo and Shaikh, 2009). The selection of cases comprises of four regulators which are related to managing data (Regulator 1), submission of standard reporting (Regulator 2), statistical data in capital market (Regulator 3) and taxation analysis (Regulator 4) in this study.

The Case Study

The case study method has also been applied in the area of accounting information system by numerous studies (such as Chang and Jarvenpaa, 2005; Rosa and Caserio, 2013; Mousa, 2016; David, 2016). As in XBRL research, the researchers examined XBRL-related phenomena in its natural setting and gain an in-depth understanding of the nature and complexities of the adoption in regulator scenario (Mousa, 2010; David, 2016).

Data Collection

In this study, the researcher employed face-to-face interviews, whereby data collection was done directly with 16 respondents in four regulators from year 2014 until 2017. The interview used semi-structured in order to gather data. Meanwhile, regulators' documents that have been reviewed consist of useful information pertaining to the regulators' current development,

taxonomy and filling development for XBRL taxonomy. Finally, data has been coding using thematic analysis based on the regulators' experiences and document shared.

Findings and Discussion

XBRL Adoption Process in Malaysia

This section aims to provide answers to the first research question (RQ1) in this study, which is: "*What is the current state of the XBRL adoption process among regulators in Malaysia?*" This study used interviews and archival records concerning regulators in order to answer the first research question. It identified three phases in the XBRL adoption process, namely knowledge and persuasion, decision-making as well as the implementation and confirmation phases that have led to a change in the existing financial reporting practices by the Malaysian regulators.

This study found that the XBRL adoption process in Malaysia is a journey on XBRL that led to a change in the financial reporting landscape by the regulators. The XBRL adoption process began in 2009 by different regulators; thus, it has shown changes in their timeline and planning. The regulators started with different initiatives and objectives in relation to XBRL adoption with the aim of improving reporting as well as obtaining relevant and huge amounts of data. This study showed that XBRL adoption is still at the infancy stage as there is yet any evidence of corporate companies having adopted XBRL due to non-existence of mandatory adoption by regulators. This study also found that four regulators had shown interest in the possibility of XBRL adoption in Malaysia. The four regulators were Regulator 1, Regulator 2, Regulator 3 and Regulator 4. Two of these regulators, namely Regulator 1 and Regulator 3, had started a pilot project. Regulator 1 was the pioneer regulatory body that started to study and show progress in XBRL adoption followed by Regulator. At the same time, Regulator 2 and Regulator 4 had also taken some time to study on XBRL concept before deciding on whether to adopt XBRL.

Knowledge and Persuasion Phase

The first phase is the knowledge and persuasion phase. In this phase, knowledge concerning XBRL is exposed to regulators, which in turn attracts their interest in XBRL and drives them to adopt this technology in their organisation. The challenges posed by past financial reporting practices have encouraged regulators to show interest in understanding the concept and benefits of XBRL. This study found that regulators were more concerned on increasing awareness and knowledge in this phase, which could assist them in deciding whether to adopt XBRL. Specifically, the regulators were concerned about facing challenges when improving past

financial reporting practices and whether XBRL could overcome such challenges. The challenges include data collection and reporting. As stated in Regulator 1's presentation:

> *Before adoption of XBRL, the challenges such as timeliness of data, reporting burden and cost of doing business, increasing demand of data from users, frequent ad hoc system enhancements due to policy changes and adoption of FRS and efficient data collection processes* (Regulator's presentation, Regulator 1, 23-24 September 2010).

Similar findings were found in Regulator 3. For example, Regulator 3 had realised the challenges posed by past financial reporting practices related to data quality produced for the purpose of market use, which was in turn related to information asymmetry. In other words, they realised the issue about data quality, as discussed in their masterplan:

> *The quality of markets is also judged by how information asymmetry which a situation where one party has more information than the other party is addressed. It is not only important that there is adequate disclosure of information, but that the information is also easily available and accessible to all investors* (Strategic Masterplan, Regulator 3, April 2011)

Conversely, Regulator 2 was somewhat persuaded to learn about XBRL due to past financial reporting practices, particularly issues pertaining to managing databases and submission of documents. This is shown by a report in one of its internal documents prepared in 2014. The report wrote:

> *…… no integration of their six databases in their submission environments, the documents to lodge are entered manually which rise errors due to incorrect data entry, the core processes mostly on paper based which no real time data can be accessed and lack of timely and informative information to be supplied* (Internal Document, Regulator 2, 2014)

Regulator 4 also showed the same pattern as they started to show interest in XBRL due to the challenges of past practices on operational matters, particularly involving the preparation of tax audit analysis. When performing a tax audit, this study found the need for huge supporting documents and data needed to ensure data are aligned with the provided documents, as noted by Regulator 4:

> *We are always depending on the tax payers in ensuring our operation done but we have face difficulty when we need to request supporting documents for audit purpose. Prior to the audit procedure, we need to request financial data and*

documents. The problem is when there are taxpayers that follow our requirement and provide us with data and documents; there are tax payer that a bit difficult and do not provide because they claimed that they don't have time. If they did not give, it is okay, but we need the accuracy. This is because in doing audit, there is issue on confusing in their account even though we have look on the account. So, requesting supporting documents have make this sometimes such problem too when tax payers do not want to cooperate.

The above notation suggests that past practice experiences on tax auditing can be improved by adopting XBRL. This means that Regulator 4 understood the need for XBRL in order to improve documents for the audit process. This challenge could be reduced when there is cooperation with filers as Regulator 4 needs to produce accurate data, which can be done through XBRL. However, Regulator 4 needs to understand how XBRL can be adopted for both, tax and audit purposes.

In this phase, regulators gathered awareness and knowledge from international adopters on how XBRL can be adopted in Malaysia. In addition, Regulator 2 undertook some initiatives in early 2010 by learning from various jurisdictions, such as Companies House (UK), National Bank of Belgium (Belgium), Logius (Netherland) and ACRA (Singapore). There is evidence that Regulator 2 had taken the initiative to learn about XBRL from various jurisdictions prior to adopting XBRL. Among the four regulators, Regulator 2 had actively learned about XBRL and found suitable ways to adopt XBRL. Apart from knowledge gained from XBRL jurisdictions, the XBRL team from REGULATOR 2 also visited several countries to learn about XBRL, especially understanding XBRL adoption. In addition, Regulator 2 also pursued the opinions of international experts to seek the best XBRL adoption method. Such actions were due to the lack of local expertise on XBRL. The opinion seeking process was carried out over a span of time.

Decision-Making Phase

This is the phase where the regulators need to decide whether to adopt or reject XBRL and whether the adoption would be continued or discontinued. It could be rejected outright or rejected initially and later adopted. The decision to adopt XBRL is made by the organisation, whereby the individual's initiative in the respective organisation is based on the decision made by the management who has the authority to make official decisions, which is known as the authority innovation decision. As suggested by Rogers (2003), most innovation decisions are made by organisations, communities or other types of adopting units rather than individuals. In this case study, the adoption process was based on how the four regulators influence the decisions made.

As for the banking industry, Regulator 1 started its initiative to adopt XBRL in 2009 and the banking industry took the lead in XBRL reporting compared to other industries. Regulator 1 began adopting XBRL in 2009 through Integrated Statistical System (ISS). The purpose of ISS is for managing and harmonising data, standardising the reporting format and collecting real on-time data. This study found that regulators were enthusiastic to learn the impact of XBRL on data collection and reporting, which they eventually learned from experience by adopting XBRL. Regulator 1 had consulted third parties in efforts to understand the benefits of XBRL. Furthermore, Regulator 1 had indicated the desire to develop the Enterprise-wide Statistical Information Architecture (ESIA) that incorporates the use of XBRL. Regulator 1 can be considered a pioneer or early adopter of XBRL by embarking in XBRL, which focuses on statistical reporting in the banking industry. Furthermore, based on Internal Documents, Regulator 1 (July 2010) aimed to:

> *Create information that is reliable and predictable for reasons such as aiding in adhering to regulations, monetary and financial analysis, research, decision-making and to heighten operational efficiency.*

By adopting XBRL, the Internal Document (Regulator 1, July 2010) reported that Regulator 1 aims to:

> *Combine and consolidate all financial and economic statistical data that is present in the numerous databases within* Regulator *1 via a designed platform.*

In order to understand the adoption of XBRL, Regulator 1 did a study and reviewed past practices to ensure that improvements are possible by using XBRL. Regulator 1 was concerned with managing and using data. IT had taken the initiative to review the requirements for existing data processing and data management related to statistical and analytical systems, which in turn was related to the objective to adopt XBRL. The learning process adopted by past practices is useful for understanding how XBRL integrates with the current practice related to data management. Regulator 1 had also taken the initiative to learn from XBRL adopters pertaining to their experience to avoid any challenges or obstacles that might occur.

Regulator 3 is another organisation that undertook a pilot project in XBRL adoption. Regulator 3 is a regulator that manages trusts, securities and the derivatives market, which started to adopt XBRL in 2015, as mentioned in an internal source document:

> *The Malaysian Capital Market would have a filing and dissemination platform based on a secure website, courtesy of* Regulator *3* (Internal Document, Regulator 3, 30 November 2012).

Regulator 3 started with a pilot project called Private Retirement Regulator 3heme (PRS) and developed XBRL in stages. PRS is a starting point for adopting XBRL, with a view of full implementation in the future. This is because Regulator 3 intended to ensure that XBRL is used in the statistical and financial reporting chain and that XBRL reporting can be accepted by PRS companies. Based on the interview, Regulator 3 planned a pilot project as a form of preparation before starting with the bigger implementation. Regulator 3 mentioned as follows:

> Regulator *3 does not need a big bang approach like most people implements the whole industry or a big group of people because industry and public listed companies must be ready.*

The regulator's objective for adopting XBRL was to improve past practices regarding the financial reporting environment in Malaysia, which can improve the financial reporting supply chain:

> *To ensure that the financial reporting in Malaysia goes beyond the traditional paper-based formats, it is submitted that XBRL is the way forward in order to ensure that accessibility of information available to investors, regulators and the public at large is improved and enhanced. Which the submission for the past practice that come from the hardcopy and future practice through web filing or software filing* (Internal Document, Regulator 2, 7 March 2012).

Regulator 2 has a wide transformation program for IT infrastructure and the software ecosystem. Regulator 2 also mentioned that the decision to adopt XBRL had led to the formulation of objectives to adopt XBRL:

> *To implement XBRL for the reporting of financial statements to ensure that the financial reporting in Malaysia goes beyond the traditional paper-based formats* (MAICSA Annual conference 2013, 2 July 2013) and *the transformation journey to become a top tier registry and regulatory authority in the region. The regulator also embarking on a journey to reengineer its infrastructure with a new XBRL Financial Reporting platform.* (The Sun Daily, 7 December 2016).

In an attempt to improve past practices, Regulator 4 had established the objectives of XBRL adoption that focused on tax payers and regulators:

> *XBRL will encourage the submission the information of financial statement in digitalise format that in line with international XBRL standard, tax payers will able to prepare the standardise financial statement that can be used by every*

government agency and ensure that all data are related with every regulation (Internal Document, Regulator 4, 2015)

Companies need to comply with reporting regulations under the Companies Act 2016, which is regulated by Regulator 2 and currently not mandated with any mandatory XBRL reporting. Conversely, Regulator 4 also suggested that companies need to submit their tax return as filers for each type of company registered with Regulator 2. However, Regulator 1 saw different filers consisting of banking institutions and Regulator 3 had different filers from Public Listed Companies (PLCs), licensing, capital market and trust funds. Moreover, there is no evidence of voluntary reporting using XBRL although Regulator 2 had introduced various changes. Ilias and Ghani (2015) claimed that these changes had impacted the public listed companies that have not adopted XBRL. However, XBRL adoption in Malaysia has not been rejected or opposed entirely by companies, regulators, practitioners or users. This is because all four regulators mentioned earlier has moved towards XBRL adoption and agreed on the importance of adopting XBRL according with their own objectives.

Implementation and Confirmation Phase

In this phase, XBRL implementation is related to XBRL implementation development project and the initiative to realise the implementation of XBRL in each regulator. Each regulator has a different adoption style in order to attract XBRL adoption by filers as well as fulfil the objective of adopting XBRL. This level has an impact on regulators' XBRL implementation and regulators must determine the best way to initiate XBRL submission to achieve the objectives of XBRL, as mentioned in the decision-making level.

Regulator 1, as an early adopter for XBRL in Malaysia, has realised the need to adopt XBRL as the past practice of producing statistical analysis have indicated weaknesses. The organisation collected huge amounts of data on financial, monetary and economic statistics through a variety of statistical submission systems, hardcopies and other mediums, such as e-mails and CDs. Then, these data were processed and kept in various databases for analysis purposes. Past practices have shown the need for XBRL due to several weaknesses, such as of timeliness of data, reporting burden, business cost, increasing data demand by users as well as limitations on data consistency, accessibility and usability. Thus, XBRL is able to enhance efficiency of data collection processes and data management.

Regulator 1 has a timeline that is supposed to be achieved to ensure XBRL implementation in the future. A timeline needs to be created according to the organisation's capabilities and it needs to be achievable and realistic. Regulator 1 and filers' (banking institutions) willingness and readiness levels also affect XBRL's adoption and enforcement stages. This was noted by Regulator 1:

> *In developing this new reporting technology, the timeline must be adjusted and suitable with the current condition and realistic in achieving target.*

Regulator 3 had started a pilot project called Private Retirement Scheme (PRS) and developed XBRL in stages. PRS is a starting point for adopting XBRL, with a view of full implementation in the future because Regulator 3 intents to ensure that XBRL can be used in the statistical and financial reporting chain and is accepted by PRS companies. Regulator 3 believed that adoption after a pilot test would change the ecosystem and the market would accept XBRL. Based on the interview, Regulator 3 had planned to carry out a pilot project as a form of preparation before starting with the actual XBRL implementation. This is because Regulator 3 needs to ensure that the XBRL implementation ecosystem in Malaysia is be ready and accepted by filers. Regulator 3 started the adoption with the pilot project to determine the benefits that would surface in a short run. This style would provide better adoption opportunities in future, which then attracts their filers. Regulator 3 explained:

> *The industry must be matured and the eco system will start moving and change (Regulator 3). It may not be so good to implement it, there are XBRL stage that have some benefits, that is why we started a pilot project.*

They had carried out a pilot project to prepare for the actual XBRL implementation and how it could be accepted by the capital market environment. The internal document showed that the XBRL pilot project's main objective was to indicate conclusively whether XBRL could be used efficiently in the statistical and financial reporting chains and whether XBRL reporting can gain acceptance among PRS companies. Furthermore, the pilot project was an adoption style that influenced the acceptance of XBRL by Regulator 3's filers. Information gathered also shows that Regulator 3 was highly ambitious to implement XBRL in Malaysia to achieve the mission. Thus, the pilot study was Regulator 3's initiative to attract filers and prepare them for the implementation of XBRL because Regulator 3 did not want to create a challenge for the filers, as mentioned by Officer C1:

> *Since PRS is new and small in size, so we decided to do the pilot project on the private submission to Regulator 3. So, we have started mid last year, May 2015. Almost a year. At this moment just pilot so we (Regulator 3) do not want to push hard.*

After Regulator 3, another two regulators, namely Regulator 2 and Regulator 4, had prepared themselves for XBRL adoption but have not yet widely implemented XBRL. Regulator 2 had started to gain knowledge about XBRL since there were weaknesses in past practices, such as

greater human intervention. In the past, Regulator 2 had practiced the traditional paper-based formats, when financial statement submission was only through hardcopy version and the registration service division officers needed to key-in data into the system. Furthermore, Regulator 2 realised that XBRL was put into practical use in various parts of the countries and XBRL implementation was growing rapidly. Then, Regulator 2 began to actually understand the objective of adopting XBRL in order to appreciate the benefits of adoption, such as digitalised financial reporting, prompt and efficient use of financial data by consumers and promoting XBRL adoption as a nationwide format used by key agencies.

With XBRL adoption, Regulator 2 had agreed to the benefits gained by Regulator 2 itself and stakeholder companies, such as reducing time and costs while gathering information, facilitating the process of exchanging or sharing company information, the integrity of the source data through the validation process, facilitating the analysis of financial reports, enhancing corporate compliance since the accounting standards are embedded into the XBRL system and are capable of producing comprehensive data for industry analysis, which can be sold to stakeholders. Thus, the benefits identified by Regulator 2 through studies in various countries had motivated them to improve the reporting process for financial statements. Regulator 2 had a plan in improve their technology and infrastructure:

> *Regulator 2 are building the XBRL with the revamp of their technology and infrastructure and XBRL as the language format to be used for relevant information and data exchange. The common reporting format under XBRL will increase consistency and reliability of data exchange between organisations* (Internal Document, Regulator 2, 7 March 2012).

Regulator 2 had planned several stages of XBRL development and had changed the plan based on evidence. Regulator 2, as a regulator, had planned voluntary XBRL submission by 2016 and mandate it by 2020. Besides that, Regulator 2 had planned to voluntarily operationalise XBRL by 2017. Although Regulator 2 had changed its plan, its research on XBRL taxonomy development as well as provision of public awareness began in 2013. It struggled to move towards XBRL adoption after realising the need to adopt XBRL because it intended to ensure that information lodged with Regulator 2 was accurate and reliable. Regulator 2 intended to focus on digital financial reporting by using XBRL to ensure compliance with regulations under the Companies Act 1965 and the New Companies Bill.

Meanwhile, Regulator 4 is a regulator for tax computation and had started XBRL development in 2011, after doing some research on XBRL processes and experiences. It had developed its own XBRL committee in 2014 and envisioned XBRL adoption for tax computation as well as started developing XBRL and set its target as follows:

Since numerous entities such as tax regulators, stock exchange, government agencies and the banking sector, among other sectors, from Asia, Europe and America have been upbeat in using the XBRL, Regulator 4 had developed the XBRL project. Various languages with a common definition according to XBRL taxonomy are used to receive, translate, write and read financial information that is used by entities worldwide in collaboration with the XBRL. This format must have been established and authorised by International Financial Reporting Standards (IFRS) (Internal Document, Regulator 4, 2015).

Regulators were adamant to adopt XBRL in future even though there are several changes in their plans. There is a target date for completing XBRL development, which is by 2017. Regulator 4 aimed to adopt XBRL in order to streamline financial reporting and tax return submissions for improving analysis in the future. As noted by Officer L2:

We are positive to complete it by March 2017, we have target already, we need to do, if not, we need to answer and give reasons. Regulator 4 intended to be a tax administrator at par with the international level. This is In line with worldwide projections to improve XBRL usage when preparing financial statements among international tax administrators, stock exchange, government agencies, banking sectors in various industries in Asia, Europe and America (Regulator 4 Document, 2015).

In sum, this study found that Regulator 1 had identified how to adopt XBRL according to their strategic planning. Regulator 3 also carried out their own pilot project to determine how to implement XBRL. Then, Regulator 2 changed their infrastructure as they decided to adopt XBRL; while, Regulator 4 also started to adopt XBRL when they realised the need to achieve XBRL adoption.

TYPE OF ADOPTERS

This section aims to provide answers for the second research question (RQ2) in this study, which is, "*What are the XBRL adoption categories available for Malaysian regulators?* Regulators are the systemiser; hence, to understand their role as a systemiser, particularly in developing XBRL, there is a need to identify how they can be categorised according to type of adopters. The type of adopters could help in understanding regulators involved in developing XBRL, which could identify how they became aware of XBRL. The role of the adopter is important in ensuring that XBRL is developed. The regulators that adopt XBRL can come from different categories. The adopter categories are created by various factors that impact the adoption style. However, the adopters represent different Regulator scenarios due to their objective for adopting XBRL and adoption style.

Early Adopter

As mentioned earlier, the pioneer regulators who started the adoption initiative were Regulator 1 and Regulator 3. Both these regulators started to implement XBRL after some careful planning as well as realising the benefits of XBRL. This study found that Regulator 1 was the first regulator who took action to consider XBRL and lead the way for other regulators to follow suit in Malaysia. This is also related to the initiative to start XBRL adoption compared to other regulators in Malaysia. As noted by Regulator 1:

> *We are one of the first regulators adopting XBRL in Malaysia.*

As an early adopter in Malaysia, Regulator 1 also pursued opinions about developing the XBRL taxonomy as well as the submission process. They sort experts from abroad and had consultations in order to find suitable ways to implement XBRL. This is because Regulator 1 needed to identify opinions and advise that suits the requirements of banking institutions. Regulator 1 commented:

> *Past planning that has been exercises earlier to execution which is involved the benchmarking, meeting with important specialists and performed the cost-benefit analysis. For example, Regulator 1 have started in within year 2010 and 2011. Then, there is a large project started by Regulator 2 for entire system for XBRL. The regulator is quite advance in their thinking and so on and their knowledge.*

In ensuring the contribution of stakeholders, regulators need to plan the adoption style to attract filers to be ready to file and accept XBRL submissions. Thus, Regulator 3 started with a pilot project whose impact was evident based on the implementation. This was also supported by Regulator 3:

> *I can see that our journey. Slightly longer, but if looks at journey, like Country S, they started big bang. Put up systems very fast and go voluntary 5 years, anybody can make up the system. But, that is not the point. But the points are the adoption and Country S did not get until recently, they may have the systems, but not many people do. We did not want to go that journey. Do not benefits anyone. At least, get the attraction and otherwise, the systems are there and there are cost every year before you get used to it. Like maintenance cost, we learn from there.*

Regulator 3 can be considered as an early adopter even if the journey was slightly longer due to new technology implemented in Malaysia. Even though Regulator 3 was an early adopter,

it needs to play a role in managing Regulator 3's stakeholders, which would take a longer time to adopt, as noted by Regulator 3:

> *Even though the adoption is slow but we (*Regulator *3) are early adopter of the XBRL in Malaysia. XBRL is new and it is in need to manage with the Regulator 3's stakeholder.*

XBRL development in Malaysia is slightly delayed compared to other regulators and countries. The development initiated by Regulator 1 and Regulator 3 started with the implementation as an early adopter. This was mentioned by Regulator 1, as follows:

> *We are not started yet. XBRL has been used more than 100 regulators and more than 60 countries. In year 2012, Regulator 1 have started and they have changed 3 times on the taxonomy for improvement. In year 2015,* Regulator *3 have started for small project of PRS.*

Regulator 1 and Regulator 3 can also be considered as opinion leaderships, as both of these regulators are able to influence other regulators to choose XBRL as the preferred reporting format. Regulator 1 and Regulator 3, as early adopters, had set an example for Regulator 2 and Regulator 4. This study found that Regulator 1's XBRL development is a precedent that can be followed by three other regulators. Regulator 3 mentioned that:

> *The encounter by Regulator 1 can be considered as illustration to other regulators such Regulator 3, Regulator 4 and Regulator 2 in arrange to get ready well in creating the XBRL taxonomy as well as submission platform.*

Hence, Regulator 3 wished to determine how XBRL implementation could benefit the process of producing useful data. Even though this initiative was the regulator's own initiative, Regulator 3 was interested in developing the XBRL project by first implementing a small project. This has reported by Officer C1:

> *The decision to try is made by the management, the way REGULATOR 3 can benefit with the implementation of XBRL particularly for financial reporting and filing statically data to Regulator 3*

In sum, this study found that Regulator 1 could be considered as an early adopter based on Regulator 1's initiative to start XBRL adoption. Regulator 1 had started XBRL adoption and become an example for other regulators in Malaysia. This is because Regulator 1 had adopted XBRL even though there was a lack of adoption in Malaysia at that time. Regulator

1's XBRL adoption had also influenced Regulator 3 to adopt XBRL by carrying out a pilot implementation program.

Early Majority

Meanwhile, the other regulators, such as Regulator 2 and Regulator 4, had sort opinions from other adopters locally as well as outside Malaysia. Besides that, they can be considered as early majority before deciding to adopt XBRL. There is evidence that Regulator 2 sorted expert opinions that led to the adoption, followed by Regulator 4. However, based on their initiative to understand XBRL and how it can benefit both regulators and filers in Malaysia, they were categorised as early majority since both Regulator 2 and Regulator 4 have put a lot of effort in accessing information from various international adopters and jurisdictions. Moreover, there were efforts to adopt XBRL since Regulator 2 noticed that XBRL was already adopted worldwide. This study found that Regulator 2 had realised the need to adopt XBRL when it noticed that XBRL was adopted by various regulators. As mentioned by Regulator 2:

> *We have not started this as yet, but XBRL has been used by more than 100 regulators in more than 60 countries.*

Due to the benefits of XBRL adoption, regulators were keen to adopt XBRL. Regulators had struggled to develop XBRL even though it took a long time to develop. Even though the early majority were late in developing the format and their preparation took some time, both Regulator 2 and Regulator 4 had worked hard to successfully adopt XBRL. This happened when they took time to learn and meticulously chose the right method. Regulator 2 and Regulator 4 had taken more time to learn about XBRL development, especially from external sources and peer regulators. IT Officer O1 from Regulator 2 noted that:

> *There is pressure on the need to implement the XBRL among regulators within a few years from now. Regulator 2 and Regulator 4, they want to make it happened. Because the project has taken too long.*

There is supported by Regulator 4 noted that:

> *Regulator 2 take longer times maybe because of changes in the organisation, changes to the team, to the leaders and so on. Other than that, it depends because each regulator has its own legislation, on data complexity, their own political systems. They might face several factors and that is why it takes time.*

As Regulator 1 and Regulator 3 are considered early adopters, Regulator 2 and Regulator 4 can be considered as the early majority. Regulator 1, which was the first regulator to adopt XBRL,

had focused on new ideas and acted as an example for other regulators in Malaysia. Regulator 1 played its role to reduce uncertainty attached to XBRL adoption and influence the other three regulators to adopt. Meanwhile, Regulator 3 could also be considered as a XBRL adopter as it had tried to adopt XBRL by first initiating a pilot project. Regulator 2 and Regulator 4 could be considered as the early majority since they investigated past practices concerning XBRL implementation in other countries with reference to Regulator 1 and Regulator 3. Both Regulator 2 and Regulator 4 had taken a longer time to learn and identify XBRL implementation that fits the needs of regulators and filers.

This study found that Regulator 2 and Regulator 4 took a longer time to adopt XBRL as well as a longer time to learn about XBRL. This is also because they saw Regulator 1 and Regulator 3 as examples for XBRL adoption. Regulator 2 and Regulator 4 also needed a longer time as they had to determine how XBRL would suit their environment. Regulator 2 and Regulator 4 will achieve their goals when they have sufficient ideas that are communicated to the XBRL committee, either in Malaysia or internationally. Regulator 2 and Regulator 4 had recognised the benefits of XBRL and opportunities available if they make Regulator 1 and Regulator 3 their references in order to find a suitable way to adopt the XBRL in a Malaysian context.

Conclusion

This study aimed to understand the current state of XBRL adoption process among the regulators in Malaysia. The findings in this study showed that the regulators had agreed on the advantages of high-quality data produced by XBRL. Only when the regulators understood the benefits and importance of XBRL, they then identified strategies for XBRL adoption. This study found that both Regulator 1 and Regulator 3 had shown early signs of XBRL adoption, while Regulator 2 and Regulator 4 also planned to adopt XBRL once they had understood the benefits of XBRL. This study also showed that based on the adoption process initiated by the regulators, classification according to adopter categories for each regulator can be made as suggested by Rogers (1983). Regulator 1 and Regulator 3 were categorised as early adopters in which both regulators had some degree of opinion leadership when other potential adopters were looking for advice and information about XBRL adoption. They also acted as a role model for other adopters, especially Regulator 2 and Regulator 4. Conversely, Regulator 2 and Regulator 4 were the early majority in adopting new ideas as they were relatively late in adopting XBRL and took a longer time to understand the XBRL concept.

This study contributes to the corpus of literature in several ways. First, this study provides an understanding of the adoption process for the regulators. It could also differ from previous studies since XBRL has not been implemented widely by regulators, government agencies, filers, practitioners and end-users. This study found differences in the adoption stages among the regulators. Second, this study is distinct from the others. It is unique as it focuses on the

adoption process and its impact on four regulators representing the country. Furthermore, this study was a case study involving regulators who had transformed previous practices for preparing financial statements and other statements related to XBRL. This study examined the focus in the Malaysian context where XBRL has yet to be widely adopted. Regulators were interested in producing high-quality data to meet their needs as well as that of end-users. Hence, a study of this kind was the first to be carried out in Malaysia.

Acknowledgement

REFERENCES

Abdullah, A., Khadaroo, I., & Shaikh, J. (2009). Institutionalisation of XBRL in the US and UK. *International Journal Managerial and Financial Accounting*, X(Y), 1-13.

Bergeron, B. (2003). *Essentials of XBRL: Financial Reporting in the 21st Century.* Wiley.

Cordery, C. J., Fowler, C. J., & Mustafa, K. (2011). A solution looking for a problem: factors associated with the non-adoption of XBRL. *Pacific Accounting Review*, 2(1), 69-88.

David, J. (2016). The non-adoption of XBRL by professional and government organisations in New Zealand and its implications for stakeholders. 1-314.

Debreceny, R., & Gray, G. L. (2001). The production and use of semantically rich accounting reports on the Internet: XML and XBRL. *International Journal of Accounting Information Systems*, 2, 47-74.

Depietro, R., Edith, W., & Mitschell, F. (1990), The Context for Change: Organization, Technology and Environment.(1990). In Tornatzky, Louis G. & Mitchell, F.(Eds.), *The processes of technological innovation*. Lexington, Mass.: Lexington Books. 151-175

Doolin, B. (2004). Power and resistance in the mplementation of a medical management information system. *Information Systems Journal*, 14, 343-362.

Doolin, B., & Troshani, I. (2007). Organizational Adoption of XBRL. *Electronic Markets*, 17(3), 199-209. doi: https://doi.org/10.1080/10196780701503195

FASB (2000), Steering Committee Report Series, 2000. Business Reporting Research Project (BRRP). Electronic Distribution of Business Reporting Information. Financial Accounting Standards Board. Retrieved from http://www.fasb.org/cs/ContentServer?c=Document_C&pagename=FASB%2FDo cument_C%2FDocumentPage&cid=1175801856611

Hoffman, C. (1999): The XML Files, *Journal of Accountancy* 187 (5), 71-77.

Homayoun, S., Rahman, R. A., & Bashiri, N. (2011). Internet corporate reporting among public listed companies in Malaysia: An exploratory study. *African Jounal of Business Management* , 5(30), 11863-11873.

Lymer, A., Debreceny, R., Gray, G. L., & Rahman, A. (1999). *Business Reporting on the Internet.* A Report for the International Accounting Standard Committee. ISBN 0905625773.

Mousa, R. (2010). E-Government Adoption Process: XBRL Adoption in HM Revenue and Customs and Companies House. University of Birmingham.

Mousa, R. (2016). The evolution of electronic filing process at the UK's HM Revenue and Customs: The case of XBRL adoption. *eJournal of Tax Research*, 14(1), 206-234.

Pollock, K. S., & Papiernik, J. C. (2001). XBRL: A New Common Language for Business Information Reporting. *The Ohio CPA Journal*, 60(1), 38-41.

Praditya, D., Sulastri, R., Bharosa, N., & Janssen, M. (2016). Exploring XBRL-Based Reporting System: A Conceptual Framework for System Adoption and Implementation. *Conference on e-Business, e-Service and e-Society* (305-316). Switzerland: Springer International Publishing. doi: https://doi.org/10.1007/978-3-319-45234-0_28

Rogers, E. M. (1983). *Diffusion of Innovations* (3rd ed.)*.* New York: Free Press.

Rogers, E. M. (2003). *Diffusion of Innovations* (5th ed.). New York: Free Press.

Rosa, F. L., & Caserio, C. (2013). Are Auditors Interested in XBRL? A Qualitative Survey of Big Auditing Firms in Italy. 13-45.

INTERNAL DOCUMENTS

Internal Document, Regulator 2 (2014)
Internal Documents, Regulator 1 (July 2010)
Internal Document, Regulator 3 (30 November 2012).
Internal Document, Regulator 2 (7 March 2012).
Internal Document, Regulator 4 (2015)