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THE CLASSIFICATION OF INFORMATION AND COMMUNICATION TECHNOLOGY INVESTMENT IN FINANCIAL ACCOUNTING

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ABSTRACT

Financial accounting is well known in its responsibility for book keeping the organisational expenditure and the preparation of the financial statements. ICT investment has become important to investors and not reporting these investments on financial statement leads to misevaluation of the organisation market value. Moreover, the misclassification of ICT investment has been indicated, yet not investigated in the past researches. The unreported ICT investment and the misclassification of ICT investment could affect the measurement of ICT investment at firm level. By analysing the content of the financial statement for 86 firms listing in Australian Stock Exchange, this study explains how ICT investments were being classified with the other investment in financial reports from 2006 to 2010.

Differentiating between ICT asset and expense is an initial step into the understanding about the classification of ICT investment in financial accounting. The accounting standards requires the capitalisation conditions including future economic benefit, controllability, identifiability, existence, and reliability measurement to be justified for the expenditure before it can be capitalised as asset. The study use fuzzy set qualitative and comparative analysis (*fs*QCA) to analyse the information collected from the experts in the accounting fields. Base on *fs*QCA analysis, the study is able to shows that the factors considered by the organisation to differentiate ICT asset from ICT expense is beyond the requirement in definition of asset stated in the International Accounting Standards and the Australian Accounting Standards.

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1 INTRODUCTION

1.1 Information Communication Technology and Business Value

The investment in Information and Communication Technology (ICT) has been increased and adopted by both private sector and government globally. The amount of ICT investment was from $11,000 to $6 million in both private, non-profit organisations and government department in Australia (NOEI, 2003). ICT investment can be seen in various forms from buying personal computers, computer equipment to large investment in project for example, software development, online image printing, enterprise database and system, etc. The investment also can be seen in term of e-business, e-banking, and Human resource management System (Zhu et al., 2004, Aral et al., 2009, Chung and Paynter, 2002). At country level, the total trade of Information Technology including software was over $21 billion including export and import in 1996 and over $25 billion in 2000. Trading of Computer Equipment was $329 billion in 1995 and $ 501 billion in 2000(OECD, 2002). The global trade of ICT and its related product was around $500 billion in 2007(OECD, 2008).

Researches have been working on explaining the benefit that the organisation receives in return from the investment in ICT. Researchers and practitioners commonly called those benefits as the Information Technology Business Value (ITBV). ICT has been found to deliver different benefits to the organisation and those benefits include the intangible benefit, productivity, improve market share and

profitability. (Bharadwaj et al., 1999, Brynjolfsson et al., 2002, Poon and Davis, 2003, Aral et al., 2009).

The realisation of the benefit from ICT investment has been inconsistent. Spotted in (Brynjolfsson and Hitt, 1996), Loveman (1994) finds no correlation at all between IT investment and financial indicator of the organisation performance. After a while, Brynjolfsson and Hitt (1996) proved the positive return of IT investment and indicated the eradication of IT paradox. Later, Strassmann (1997) indicates there was no correlation between IT and firm profitability indicators such as ROA and ROE. In recent year, a recent study once again showed the existence of IT paradox (Lin and Shao, 2006).

Different issues related to mismanagement and mismeasurement of ICT investments and its benefit were indicated by researches as the root causes to IT paradox or the inconsistency of ITBV(Brynjolfsson and Yang, 1996). The synthesis from different researches related to the management of ICT investment has indicated that the failure to accurately measure and manage the ICT spending in the organisations can cause the IT paradox and other issues in managing ICT investment (Keil et al., 2000, Devaraj and Kohli, 2003, Wright and Capps, 2010). There are different difficulties in measuring ICT spending at firm levels.

1.2 Difficulties in measuring ICT investment

The inaccurate measure of ICT spending can affect the assessment of the benefit from ICT investment. This section provides the discussion about different difficulties in measuring ICT spending found in past researches. The difficulties of measuring ICT spending have been driven by the problems in using the self-report data, the

difficulties of using the independent report, and the inconsistent classification of ICT investment at firm level.

1.2.1 Issues in using self-reporting data

Researches indicated the problem of using the self-reported data of ICT spending. In past researches, data of ICT spending was collected from management survey that can be found in ComputerWorld, InformationWeek and Compustat Database. The accuracy of the information in these data sources depend on the individual who response the survey. The organisational managements who answer the survey might not be able to estimate the market value of computer. Furthermore, the survey might not be consistently responded by firms' management on the yearly basis. Researchers also have raised the issue that the database from ComputerWorld includes only the information about the ICT spending acknowledged by IT department of the organization. (Dewan and Min, 1997, Brynjolfsson and Yang, 1997, Bharadwaj et al., 1999)

Potentially, the self- reporting figure of ICT spending by firm's management does not include the spending wasted by them. The Standish Group suggests that only 32% of projects succeed, 44% are problematic and 24% fail (Wright and Capps, 2010). In more serious case, it is reported that 30% of IT projects are run away projects (Powell, 1992). Run away IT project is a type of IT project that is already failed, yet the organisation is still investing in it due to the project escalation. The project escalations occur when the people who are responsible for the project do not report the problem of the project to the organisation and their senior management. There are the strong evidences of IT project escalation (Nulden, 1996, Keil et al., 2000, Keil et al., 2003). Other recent researches also suggests the high rate of project failure and run-away projects(Tom and Len, 2008).

Four different psychological theories have been summarized as the drivers of the project escalation into self-justification theory, prospect theory, agency theory and approach theory (Keil et al., 2000). Self-justification theory in short is referred to the situation when people put their commitment to a course of action in order to justify their previous behaviour to the other. "The Prospect Theory posit that individual throw the extra money and resource after the bad". The Agency Theory explains the person afraid that it would lead them to lose their job or affect their professional decision if those person reports to his or her superior as the culture of his or her organisation tend to accept only the good news. The Approach avoidance theory can be viewed as the approach avoiding conflict that is caused by size of reward, the cost of withdrawal or the proximity. The detail and the evidences explain these theories can be found in (Nulden, 1996, Keil et al., 2000, Keil et al., 2003).

At last, there are strong evidences showing there is a high risk of failing to capture the accurate amount of ICT spending using the self-reported data from firm's management. Literatures indicate that the data sources above do not include the complete information of ICT spending at firm level. Using self-report data also has the reliability issues because it possibly includes only the positive spending by the organisation managements. There is a need for independent reports that include the reliable and accurate data of the organisational spending on ICT.

1.2.2 Difficulties in using the independent report

One of the independent and reliable sources of the firm's spending data is firm's Financial Report. The financial reports are considered as the reliable source of the financial information. These reports contain information of the organisational expenditure and the expenditure that are capitalised by the organisation. The

financial reports are normally audited before being published to shareholder, investors and share market.

Rarely, researches have used financial reports as the data source to measure ICT spending across firms. It could be because the information about firm's spending on ICT is hardly found in these reports. Chalalai, (2008) identified that there were only 178 of 2,224 firms listed in Australian Stock Exchanges (ASX) reported ICT investment in their financial statements in 2007. Coincidently, The problem of unreported ICT spending in financial statements was stated in (Henderson et al., 2010).

1.2.3 Inconsistent classification problem

Even with the independent reports, the measure of ICT spending at firm level can be significantly inaccurate when ICT spending is misclassified by firms. The difficulties to accurately measure ICT spending due to the misclassification of ICT investment was raised in chapter 4 of (OECD, 2004). Partially, ICT spending can be classified with non-ICT spending by firms. This misclassification could result the hidden ICT cost problem in ITBV research, for example (Brynjolfsson and Hitt, 1996).

1.3 Research motivation

The motivation of the current study is driven by the difficulties in measuring ICT spending discussed earlier. First, using the self-report data in measuring ICT spending for researches could face the high risk of inaccurate and incomplete counting of ICT spending. For independence reports, ICT expenditure has been indicated by past researches to be under reported in the financial statements. The study suspect that either independent reports or survey based data source could face

the inaccurate measure of ICT spending due to the misclassification of ICT spending at firm level.

Rarely, researches have been found to investigate deeper into the misclassification of ICT investment at firm level. The classification and the definition of ICT investment from the organisation point of view could be different from ICT practitioners. For example, the expenditure on purchasing a personal computer can be included as the expenditure on Office Equipment because the computer is being used for the office work. Different perception on the definition of ICT investment could result in different classification of ICT investment. Firm could report ICT investment in financial report but in different forms and with different descriptions. Further investigation into the classification of ICT investment in the organisation is required.

1.4 Objective of the research

This research attempts to understand deeper into the classification of ICT investment in financial accounting. Financial accountant is generally responsible to record the organisation spending and prepare of financial statements. The classification of ICT investment needs to be understood from the accounting angle. This study is trying to achieve the following objectives:

- Perform the content analysis on the financial statements published in the Australian Stock Exchange (ASX) for 5 annual accounting periods, 2006 to 2010. Firm were selected based on criteria developed in Chalalai (2008) by selecting firms that reported IT investments in the financial statements in 2007.
- Understand the importance of the accounting standards for differentiating the ICT asset from the ICT expense in the organisation. The information from the

accounting experts was collected and analysed with fuzzy set-theoretic Qualitative Analysis (*fs*QCA) to explain two research propositions:

1. The ease of justifying the capitalisation conditions explains the frequent capitalisation of diverse ICT product and service.
2. The difficulty of justifying the capitalisation conditions explains the frequent expense of diverse ICT product and service.

The capitalisation conditions defined in the second objective of the study are the capitalisation conditions found in the accounting standards as the requirement for the asset recognition. These capitalisation conditions include: Future economic benefit, controllability, identifiability, existence, and reliability measurement.

2 LITERATURE REVIEW

This chapter describes the theoretical background for this study. The literature review was built on the related International Accounting Standards (IAS) and Framework, the Australian Accounting standards (AAS), Accounting literatures and the literatures in Information Technology (IT). At first, mainly base on the accounting standards and literatures, the literature review describes the definition and concepts that can be used for differentiating asset from expense in financial accounting. Secondly, the inconsistency of the definition and classification of ICT investments is being discussed from the literature in IT. At last, the literatures review focuses on the difficulties of justifying the high level capitalisation conditions and the organisation behaviour in the capitalisation of ICT products and services.

2.1. Definition of Asset in Financial Accounting:

The discussion on the conditions that define asset is mainly base on the accounting standards since they reflect the common sense of the general accounting practice. To strengthen the theoretical knowledge, the discussion also includes the identified literatures that are related to each high level capitalisation conditions. Little research literatures have been found to be related to the financial reporting and accounting of ICT investment.

Base on the accounting framework, "Framework for the Preparation and Presentation of Financial Statements" in the International Accounting Standard Board (IASB) of the International Financial Reporting Standard Foundation (IFRS), "An asset is a resource controlled by the entity as a result of past events and from which future economic benefits are expected to flow to the entity". This definition is found in

same definition has been incorporated into the "Framework for the Preparation and Presentation of Financial Statements" of the Australian Accounting Standard Board (AASB). In this definition, the entity is referred to firm or the organisation.

In the definition above, "Result of the past event" shall not be considered as the main characteristic to distinguish the asset from expense. Expense is also resulted from the past event. It is commonly understood in the accrual financial accounting practice that expense will be recorded once the service or product has been delivered to the purchaser. Therefore, two criteria, which are "Future economic benefit", "Control" shall be the main criteria to differentiate the asset from the expense of the organisation.

There are also the other criteria being used to differentiate the asset from the expense. The main high level criteria spotted from IASB, AASB, and literatures are "Separable", "identifiable" and "existence". In practice, capitalisation threshold is another criterion that is practically used by the organisation. Each of these criteria will be discussed in this literature review.

2.1.1 Future economic benefit

In AASB Framework compiled in 2009, Paragraph 53, "The future economic benefit embodied in an asset is the potential to contribute, directly or indirectly, to the flow of cash and cash equivalents to the entity. The potential may be a productive one that is part of the operating activities of the entity. It may also take the form of convertibility into cash or cash equivalents or a capability to reduce cash outflows, such as when an alternative manufacturing process lowers the costs of production."(CPA, 2009).

However it is difficult to precisely count or describe what can be considered as the future economic benefit in the definition above, it can be said that an expenditure item can be an asset if the organisation can relate that expenditure to “produce or increase of cash inflow into the organisation” or “reduce of cash outflow from the organisation” in the future. Base on the explanation in AASB framework, the benefit of the asset can also be the ability to be used with the other asset in the production of goods and services that are sold by the entity, being able to be exchanged for the other assets, being able to be used to settle the organisation liability, or the other benefit to the owner of the organisation. The benefit can also be the increase in productivity, sale and revenue. All of these benefits can all be related to “produce or increase of cash inflow into the organisation” or “reduce of cash outflow from the organisation”.

“Future economic benefit” is a characteristic that an asset, both physical and intangible, must have. The term “Future economic benefit” is stated in most of the standards that are related to the recognition of the expenditure as the asset or the subclass of asset. In the Australian Accounting Standard AASB 116 and the International Accounting Standard IAS16, the expenditure must have the “future economic benefit” before it can be recognised as the Property Plant and Equipment (PP&E). Similarly, this is applied to the Intangible Asset according to the Australian Accounting Standard AASB138 and the International Accounting Standard IAS38.

The importance of the term “future economic benefit” for the asset capitalisation can be seen in real practice through the literatures in the accounting field. Found in(Bott, 2000), the capitalisation is preferred when the organisation feel certain about the future economic benefit of the investment. Base on Wyatt (2005), the asset is capitalised by firm management base on the management ability to appropriate the

benefit from the asset. Wyatt (2005) has also identified that the faster the organization could measure the benefit from a technology investment, the higher rate that the investment will be capitalised. Quoted from (Atallah and Khazabi, 2005) "firm expense a larger portion of R&D when the benefits occur in the long-run and capitalizing a larger portion when the benefits occur in the short-run".

2.1.2 Controllable

The expenditure item cannot be capitalised when it cannot be controlled by the organisation. In the paragraph 49 of "Framework for the Preparation and Presentation of Financial Statements" compiled in 2009 stated that "An asset is a resource controlled by the entity as a result of past events and from which future economic benefits are expected to flow to the entity"(CPA, 2008, CPA, 2009, CPA, 2010).

Found in the accounting standards IAS38 paragraph 13 and AASB138 paragraph 13, "An entity controls an asset if the entity has the power to obtain the future economic benefits flowing from the underlying resource and to restrict the access of others to those benefits". The expenditure on staff training cannot be capitalised by the organisation as per recommended in the AASB138 and IAS38. It is because the organisation has no control over the benefit expected from this type of expenditure. The trained employee might leave any time, and the organisation cannot guarantee that the employee will provide the benefit as expected after the training. (CPA, 2008, CPA, 2009, CPA, 2010, IFRS, 2011c)

In accounting standards IAS38 and AASB138, the existence of the legal rights allows the organisation to control over the asset while there could be the other way used by the organisation to control over the asset and its future economic

benefit(CPA, 2008, CPA, 2010, CPA, 2009, IFRS, 2011c). Wyatt (2005) found that the ability of firm to appropriate the benefit expected from the investment of the technology when "(1) the technology is science-based and complex; (2) information about the firm's investments is already in the public domain; and (3) firms are engaged in more innovation and rent-seeking". From this paper, these three conditions were classified as the conditions to increase the property rights of the organisation over the asset. The property rights allow the organisation to control the flow of the benefit from the assets by protecting them from being accessed by others.

2.1.3 Identifiability

The asset and its future economic benefit must be identifiable. The accounting standards includes "identifiability" as the characteristic of the intangible asset and "separable" is included as part of the definition of the "identifiability". According to AASB 138 Intangible Asset, the future economic benefit embodied in the asset has to be identifiable. Described in AASB 138 paragraph 12, "Asset is identifiable if it either: is separable, i.e is capable of being separated or divided from the entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, identifiable asset or liability, regardless of whether the entity intends to do so; or arises for contractual or other legal rights, regardless of whether those rights are transferable or separable from the entity or from other rights or obligations". (CPA, 2008, CPA, 2010, CPA, 2009)

Tollington and Lui (1998) argued that "Separable" shall be the natural characteristic to define an intangible asset rather than focus on just the term future economic benefit. "Separable" is also needed to define one asset from another for physical asset such as Property Plant and Equipment (PP&E). For instance in AASB 116

paragraph 58 and IAS 16 paragraph 58, “Land and buildings are separable assets and are accounted for separately, even when they are acquired together.”

The condition that an asset must be identifiable in order to be capitalised should be considered as a capitalisation condition and the required characteristic of an asset even though it is only mention in the accounting standards for intangible asset, IAS38 and AASB138. This is because the separable is needed to separate one asset from another in general. Asset is identifiable when it is separable.

2.1.4 Existence

The organisation cannot report the expenditure as asset if they cannot prove the existence of the asset for that expenditure. According to the accounting standards IAS1, IAS16, IAS38, AASB101, AASB116 and AASB138, the assets of the organisation have to be reported in the financial statements if exist(CPA, 2008, CPA, 2010, CPA, 2009, IFRS, 2011c). In the Australian Auditing Standards ASA 500, the existence of asset shall be asserted to match with the reported balance(AUASB, 2011). Normally, the reported amount of asset and expense is audited before the financial statement of the organisation is published.

The organisations cannot capitalise the expenditure as an asset when they cannot prove the existence of the asset from that expenditure. For instance, the investment of the internal project, for example software development, the entity cannot recognise that expenditure as the asset if that expenditure incurs in the research phase of the project. As per explanation from the accounting standards IAS38 and AASB138, the organisation generally cannot demonstrate the existence of the intangible asset that will generate probable future economic benefits in research phase (IFRS, 2011c, CPA, 2008, CPA, 2010, CPA, 2009).

The existence of asset can be proved differently depend on the type of asset. For Physical Asset, physical forms can be used for proving the existence of asset. According to Australian Auditing Standards ASA500, physical inspection validate the existence of the tangible asset (AUASB, 2011). Based on the international accounting framework, which is also adopted by AASB, the physical form could validate the existence of the Property Plant and Equipment (CPA, 2008, CPA, 2010, CPA, 2009).

For the intangible asset, there is no clear prescription on how to certify its existence without the interpretation from different paragraphs in the accounting standards and auditing standards. As per understanding from IAS38 and AASB138, the existence of the intangible can be proven by the inspection the supporting documents such as the copyrights, patents, legal document representations right of ownership of the organisation over the asset(CPA, 2008, CPA, 2010, CPA, 2009, IFRS, 2011c).

2.1.5 Reliability measurement

Prescribed in AASB Framework for the Preparation and Presentation of Financial Statements, the expenditure can be capitalised if it results the asset with the cost or value that can be measured with reliability. Measure reliability is a criterion required from both Physical Asset and Intangible Asset. For PP&E, IAS16 Paragraph 7 and AASB116 Paragraph 7 recommend that "The cost of an item of property, plant and equipment shall be recognised as an asset if, and only if: (b) the cost of the item can be measured reliably". Similar recommendation for intangible asset can also be found in the accounting standards IAS38 and AASB138 (IFRS, 2011c, CPA, 2008, CPA, 2010, CPA, 2009).

The value of the asset on the balance sheet reflects the amount of cash or cash equivalent that firm's accessible market is willing to pay for that asset. The value is different during its useful life. The reliability measurement on the value of asset is important and it is more appropriate to understand how the value of the asset is measured at the initial recognition periods and within the operating period of the asset.

At the initial recognition state, the value of the asset, both physical and intangible asset, can be measured at the cost. Spotted in IAS16 paragraph 6, AASB116 paragraph 6, IAS38 paragraph 8, and AASB38 paragraph 8, cost of the asset is "the amount of cash or cash equivalents paid or the fair value of the other consideration given to acquire an asset at the time of its acquisition or construction or, where applicable, the amount attributed to that asset when initially recognised".

Asset can occur from more than one business transaction, so does its cost. For example, to acquire a new PC for a staff, the organisation could perform several transactions. Those transactions could include requesting quote from supplier, purchase ordering, receiving the product, processing the payment. All those transactions create cost such as cost for the staff to participant in the process, the cost for the product itself, VAT or GST, and the cost of shipping the product.

Not every cost of every transaction in the example above can be included as the cost of asset. The cost of physical and intangible asset includes only the direct cost. Spotted in the accounting standards IAS16 paragraph 16 and AASB116 paragraph 16, the cost that can be included as the cost of Property Plant and Equipment is "any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by

management"(CPA, 2008, CPA, 2010, CPA, 2009, IFRS, 2011b). The similar phrase is also specified in IAS38 paragraph 27 and AASB138 paragraph 27 as "any directly attributable cost of preparing the asset for its intended use" to be the requirement for the cost to be included as the cost of the Intangible Asset(IFRS, 2011c, CPA, 2010).

Base on the IAS38 and AASB138, before the organisation can capitalise the asset generated from in house research and development project, the organisation need to be able to separate the cost incurred in the project into two stages, research stage and the development stage, otherwise all the cost are treated as the cost incurred in the research stage. All the cost in research stage is required to be treated as expense. These standards generalise that the organisation cannot prove the existence of asset with the probable of the future economic benefit in the research phase. In the development phase, the expenditure can be recognised as asset if the cost allocated to the asset can be measured reliably.

Base on the discussion above, there are a few key points need to be understood around the reliability of measurement of the asset cost that reflects its value on the balance sheet. First, only the direct cost can be included as the asset cost. The direct cost is referred to the cost that directly makes the asset into the condition of bringing the future economic benefit to the organisation. The direct cost to the asset has to be measured reliably by the organisation. At last, the organisation need to prove how reliable is its measurement for the asset cost.

There are some conditions that the cost of the asset is not available when the organisation received the asset. In these conditions, Australian Accounting Standards recommend that asset can also be measured at fair value. Based on the interpretation from IAS16, IAS38, AASB116, and AASB138, Fair value reflects the value of the

asset that is given by the available market (IFRS, 2011b, IFRS, 2011c, CPA, 2010). A software asset reported on the balance sheet with the book value of $300 would give the organisation $300 unit of cash or cash equivalent. $300 is the future economic benefit of the software. Therefore, "Reliability measurement" should also include to reliability of measurement on the future economic benefit that is promised to be delivered by the asset.

2.1.6 Capitalisation Thresholds

The expenditure would not be capitalised by the organisation even though it has the criteria discussed in section 2.1.1 to 2.1.6. This is because it does not exceed a particular amount of monetary unit. This amount of monetary unit is called the capitalisation threshold. For instance, the survey of 200 CPAs done in (Sanders et al., 1994)identified that at the median, software was capitalised if the cost exceeded 300 dollars, and hardware was capitalised if the cost exceeded 400 dollars.

The capitalisation threshold is established by the organisation with the use of the materiality threshold (Gann, 1997). IAS1 paragraph 7 describes "Material Omissions or misstatements of items are material if they could, individually or collectively; influence the economic decisions that users make on the basis of the financial statements. Materiality depends on the size and nature of the omission or misstatement judged in the surrounding circumstances. The size or nature of the item, or a combination of both, could be the determining factor."(IFRS, 2011a). In stock market, Heitzman et al. (2010) showed that the material information could alter the investor decision on the stock price.

2.2. The classification of investment in Financial Accounting

The preparation of the financial statement needs to be complied with the accounting standard. Described in the Auditing Standard ASA200, "the objective of an audit of a financial report is to enable auditor to express an opinion as to whether the financial report is prepared, in all material respects, in accordance with an applicable financial reporting framework"(AUASB, 2009). Accounting framework and standards published by IFRS is adopted worldwide. Almost all of the standards and frameworks produced by IFRS are also adopted by AASB. Therefore, understanding the classification regulation in the accounting standards is a medium to understand classification of general investment from the accounting angle. Figure 2.1 is a demonstration of the classification of asset and expense that was organised base on the interpretation of the accounting standards from both IAS and AASB (IFRS, 2011a, CPA, 2010, CPA, 2008, CPA, 2009).

In figure 2.1, differentiating whether expenditure shall be recorded either as asset or expense shall be considered at the initial stage of the classification procedure. In IAS 1 and AASB 1 There are five categories of information that need to be reported in financial. They are "(a) asset, (b) liability, (c) equity, (d) income or expense, (e) contribution by and distribution to owner in their capacity as owners and (f) cash flow". The standard also specifies that the information described earlier is required to be reported in the element of the financial statements. The elements of the financial statements include Balance Sheet, Income Statement, and Statement of Change in Equity, Cash Flow Statement and The Note to Financial Statement.

Base on the accounting frameworks, asset should be report on balance sheet, while expense shall be reported on the income statements. If the expenditure meets the

capitalisation criteria to be recognized it shall be capitalised and included as the balance sheet reporting items; otherwise, it needs to be recorded as an expense and be reported in the Income Statement. (CPA, 2008, CPA, 2009, CPA, 2010)

Both IAS and AASB specify different categories of asset that shall be reported as the main class/line items on the balance sheet. Two line items, Property Plant and Equipment (PP&E) and Intangible Asset are possibly related to IT and required to be reported as line items or the main class of asset on a balance sheet. PP&E is required to be reported on the balance sheet by AASB 101, IAS 16, and AASB 116. Based on IAS 16 and AASB116, PP&E is the asset that has the physical substance. Intangible Asset is another main class of asset required by AASB 101, IAS 38, and AASB 138. According to IAS 38 and AASB 138, Intangible Asset is the asset that is non-cash and without physical substance. Apart from the specified two line items above, firms can create additional classes with any descriptions that are relevant for decision-making and according to the nature of the operating activities of firm.

Based on IAS1 and AASB101, the subclass of asset shall be reported on the note to financial statements if not reported on balance sheet. For the subclass of PP&E, PP&E under the construction is spotted to be a subclass of PP&E that specified by the accounting standard IAS16 and AASB116 to be reported by firms. For the subclass of Intangible Asset, IAS38 and AASB138 require firms to report separately the intangible asset acquired separately, intangible asset acquired through business combination, and internal generated intangible asset. Other than the subclass of asset mentioned earlier, both IAS and AASB allow firms to create and report any additional subclass of asset following the aggregation rules in the accounting standards.

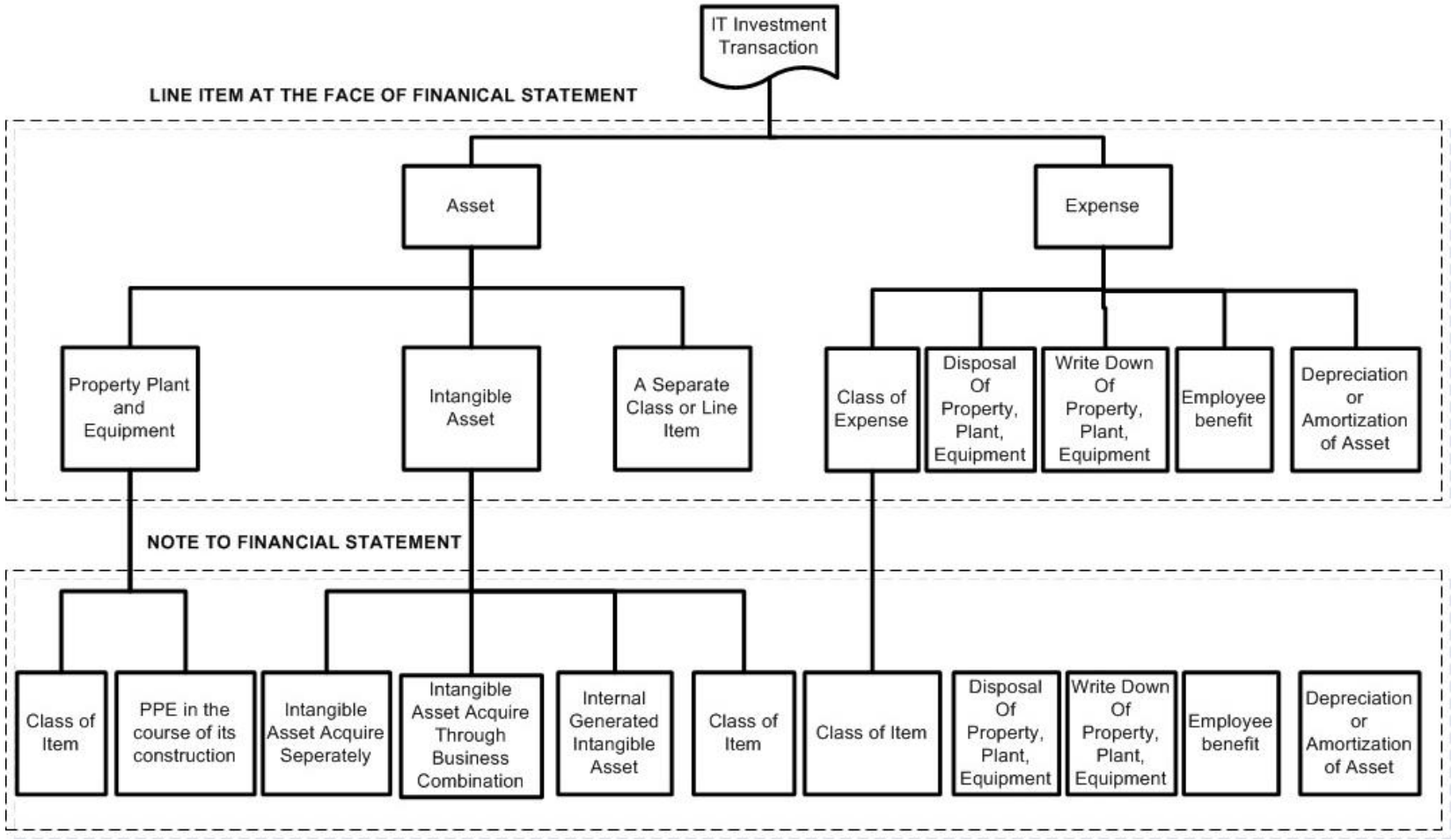

Figure 2.1 diagrams illustrating the accounting standards classification of asset and

Accounting standards also require firms to report specific classes and subclasses of expense on Income Statements and Note to Financial Statements. In figure 2.1, the interpretation from the accounting standards IAS1, AASB101, IAS 16, and AASB116 required firm to report the expense from the disposal of PP&E and the written down PP&E. IAS1 and AASB101 also require firms to report the organisation expense on employee benefit, for example salary and wages. IAS16, AASB116, IAS38, AASB138 also require firm to report depreciation and amortisation of asset. These items are required to be reported on the note to financial statement if they are not reported on the income statement. The organisation can follow the aggregation rules in the accounting standards to create and report additional class and subclass of expense.

2.3 ICT Investment in ICT point of view

In Section 2.1 and 2.2, the definition of asset and the classification of general investment from the accounting angle were discussed. In this study, defining ICT expenditure is also a must. Practically, it is still unclear about the definition of ICT investment. For example, would a printer be considered as the expenditure of computer hardware or the expenditure of office equipment?

2.3.1 ICT investment definition

The definition of ICT expenditure is varied by looking at how past researches in ITBV measured the ICT spending of the organisation. ITBV researchers collected information about firms spending on ICT items and included those spending in the ICT variable construct for their researches. What to be included in ICT variable construct are different among researches. Table 2.1 provides the comparison of the

variable construct of ICT spending which reflects the measurement of ICT spending in the past papers.

(Weill, 1992) measured IT investment by using the amount of firm ICT expenditure. (Brynjolfsson and Yang, 1997) used data from IIC and described ICT variable as the purchase value of computer equipment and PCs. (Tam, 1998), studied IT investment in Asia using data from ACD, constructed IT investment variable by aggregating the spending on PC, Terminal, and Central Processor.(Bharadwaj et al., 1999) included IS Staff, Hardware, Software and Data Communication.

(Dewan and Min, 1997, OseiBryson, 2004, Lin and Shao, 2006) used the IDG Survey as the data source and measured the ICT investment by including the computer capital and 3 times of IS Labor. Among these three papers, at detail level, (OseiBryson, 2004) included Terminal in IT variable construct while the other did not. Also, software was described to be included into the measure of ICT spending in (Bharadwaj et al., 1999, Thatcher and Oliver, 2001) and (Yu et al., 2006) while it was not included in (Brynjolfsson and Yang, 1997).

(Thatcher and Oliver, 2001) measured IT investment by including hardware, software, Client/server system, internet, intranet, and system such as DDS, ES. (Yu et al., 2006)'s IT investment element included PC, Workstation, servers, mainframes, peripheral devices, software, local and wide area network, and telecommunication. (Lin, 2009) used various data sources and measured IT investment by including the IT spending element Computer Capital (Hardware + Software) plus 3 times IS Labor.

Research	IT Investment construct	Other Variable Construct
(Dewan and Min, 1997)	Computer Capital + 3 X IS Labour	Non-IT capital: net value of property plant and equipment, inventories, value investment, intangibles.
(Brynjolfsson and Yang, 1997)	Total Purchase of Computer Equipment	Property Plant and Equipment, other asset
(Tam, 1998)	PC, Terminal, and Central Processor	
(Bharadwaj et al., 1999)	IS Staff, Hardware, Software and Data Communication	R&D Expenditure, Advertising expenditure
(Kun Shin et al., 2001)	IT Announcement	Firm size: Total Asset, Non-Computer Capital
(Thatcher and Oliver, 2001)	Hardware, software, Client/server system, internet, intranet, and system such as DDS, ES	F Fixed costs of overhead
(Marville, 2007)	IT Stock	Regular Capital, Labor
Complementarities Study		
(Lin and Shao, 2006)	Computer Capital + 3 X IS Labour	Non-computer capital, non-IS labour
(Yu et al., 2006)	PC, Workstation, servers, mainframes, peripheral devices, software, local and wide area network, and telecommunication	
(Shin, 2006)	IS budgets / Selling and general administrative expense.	Selling Administrative expense
(Tallon, 2007)		
(R.Ramirez et al. 2010).	Total value of IT capital stock, including mainframe and mini computers, PCs, local area networks, disk drives, tape drives, dummy terminals, etc.	Other capital; Property, Plant, and Equipment; Labour expense.

Table 2.1 Summary of the measurement of ICT spending of the past researches

The differences in the measurement of ICT investment can be due to the preference of the terms usage to describe an element of ICT investment. For example, PC and workstation could be used interchangeably. Another explanation to differences could be the availability of data in the data source that the researchers used. (Dewan and

Min, 1997, OseiBryson, 2004, Lin and Shao, 2006) used the same data source and had similar measure of IT investment variable.

2.3.2 Classification of ICT investment

Even though particular guidelines have been developed to enhance the accurate classification and definition of ICT investment, it is still difficult to have a complete and accurate measure ICT investment at firm level. Pointed out by the authors in the chapter 4 of (OECD, 2004), the classification of ICT Investment shall be classified reflectively into IT Equipment, Communication equipment, software and services, yet in practice the differences continue across firm and country. They also mentioned, practically, the processor embedded in aircraft would not be seen as IT.

ICT Investment classification at Aggregate level	
(OECD, 2009)	(ABS, 2006)
1. Computers and peripheral equipment 2. Communication equipment 3. Consumer electronic equipment 4. Miscellaneous ICT components and goods 5. Manufacturing services 6. Business and productivity software and licensing services 7. Information Technology consultancy and services 8. Telecommunication services 9. Leasing or rental services for ICT equipment 10. Other ICT services	1. Computer Hardware 2. Telecommunication Asset 3. Computer Software – Packaged 4. Computer Software – Customised 5. Computer Software – Own Account 6. Computer Services 7. Telecommunication Services 8. Wolesale and retail trade margins

Table 2.2 Comparison of OECD and ABS classification.

Organisation for Economic Co-operation and Development (OECD) has worked on the classification and definition framework for ICT product and services. Australia Bureaux of Statistic (ABS) has also published the classification and definition framework for ICT product and services. The comparison of the classification frameworks published by both organisations showing that the classification of ICT

products and services in (OECD, 2009) is different from the classification of ICT satellite account from (ABS, 2006). Table 2.2 compares the ICT investment classification in (OECD, 2009) to the classification in (ABS, 2006).

2.4 Difficulties in financial accounting for ICT investment

The discussion below is the result of the literature reviews from both IT and accounting angle. First, the review gives the insight into different issues explaining the non-capitalisation of ICT asset. This allows us to potentially provide the answers to different researches including (Brynjolfsson and Yang, 1997, Yang et al., 2002, Corrado et al., 2007) about why ICT asset is not capitalised by financial accounting of the organisation. Secondly, by conceptually applying the accounting standard to the ICT product and services categorized by (ABS, 2006), it allows us to potentially understand how firms' accountants classify each category of ICT products and services in the financial report.

2.4.1 Difficulties of justifying the capitalisation conditions:

Previously, the literature review identified the capitalisation conditions from the accounting literatures that could impact the capitalisation of the investment. The definition of ICT investment has also been discussed from the IT literatures. The following discussion focus on the issue related to the application of each capitalisation conditions for ICT investment.

a) Future economic benefit

An expenditure items can be capitalised if and only if the organisation can prove the future economic benefit of that item. It is difficult for some of the ICT asset. For IT, there is normally the time lag before the organisation can realise the benefit from the investment. Evidence suggests that the lag is between 2 to 6 years. This is relatively

long and the benefits from IT investment are therefore less certain.(Bharadwaj et al., 1999, Brynjolfsson and Yang, 1997, Dewan and Min, 1997, Im et al., 2001, Tam, 1998, Shin, 2006, Weill, 1992). The difficulties of justifying the future economic benefit from ICT investment could leads to fewer capitalisations and more expense of ICT investment.

b) Controllability

In the perception IT or IS literatures, the asset arising from IT investment are more than computer machine. Those asset such as knowledge and new improved business process, also contribute to the economic growth of firm and are considered by IS/IT practitioner as the intangible asset (Yang et al., 2002, Corrado et al., 2007). Yang et al., (2002) concluded that investor and stock market give value to the firm's intangible asset arising from IT investment more than other assets. Corrado et al., (2007) pointed out that intangible such as the knowledge capital has been ignored by the financial accounting practice at firm level.

In financial accounting, intangible asset such as knowledge asset cannot be capitalised due to the lack of the organisation controllability over this type of assets. For instance, there can be training going on in the IT project investment. According to IAS38 and AASB 138, the expenditure on the training activities cannot be capitalised. This is because the organisation does not have control over the future economic benefit from skill is trained to staff. The skilled worker can leave the organisation anytime.

c) Reliability measurement

To measure the value of asset, the accounting standards recommend the historical cost method and fair value method. For the historical costing method, the assets are

valued by the sum of cost of the transactions that are directly attributable to create the asset. However, the value capitalised and reported in the financial statements shall reflect its market value, which is also its fair value.

Stressing deeper into the accounting standards about the value of asset, the organisation shall also be able to quantify the future benefit of the assets into the monetary unit. In the accounting standards, the value of the asset reflects the future economic benefit of the asset. The future economic benefit defines in the accounting standards is the reduction of the outflow of cash or cash equivalent, and the increase of the inflow of the cash or cash equivalent to the organisation. The asset with $300 value report on the balance sheet would give the organisation $300 if it is being sold at the time of reporting.

Either with historical cost or fair value, it is still difficult to provide the reliability measure over the value of ICT assets. The difficulty of being able to quantitatively measure the benefit from IT investment has been in debate of IT Literatures. Early researches in ITBV use the traditional method such as ROA and ROI to quantify the value of IT investment (Strassmann, 1997). Later, researchers suggested the value of IT investment can be intangible and cannot be measured with just the financial measure (Hitt and Brynjolfsson, 1998, Jon-Adrild Johannessen, 1999, Willcocks and Graeser, 2005).

It is sometimes difficult to quantify the value of IT investment economically because IT sometimes has indirect impact to the organisation financial performance. Base on (Lee, 2001), there is an indirect and complex causal relationship between IT and the organisational profitability. Rivard et al., (2005) showed that IT increases the profitability of the organisation by supporting the organisational asset. Wu et al

(2005) found that IT alignment and advancement positively mediating by supply chain capabilities increase the market performance and financial performance of the organisation. (Shin, 2006) indicated that IT doesn't have direct impact on gross margin but through organisational strategic direction.

It is also problematic to measure the value of ICT asset during its useful life. The organisations need to perform the revaluation of the asset overtimes after the asset has been capitalised. The value of asset with the finite useful life will be depleted overtimes, therefore, the asset need to be depreciated or amortised. Traditional methods spotted in the accounting standards are straight line method, diminishing and unite of production. This is indicated in IAS 38 and AASB 138. (IFRS, 2011c, CPA, 2008, CPA, 2010, CPA, 2009)

The use of the traditional method for the revaluation of software overtimes is not right (Mordechai and Ilanit, 2007) . Instead of losing its value over time, software is enhanced through time of use, and its value becomes more enhanced accordingly. Consistently, different studies have suggested that the value from IT investment become stronger overtimes along with the organisations adjustments and learning (Willcocks and Lester, 1996, Hitt and Brynjolfsson, 1998).

Mordechai and Ilanit, (2007) suggested a model for calculating value of software overtimes. The value is referred to as the "intrinsic value" or "fair value" preferred by accounting. The concept behind the model is that software, also a system, may contain a lot of modules. Those modules can be used to fulfil different business transactions, for example, calculating the interest rate. Therefore, each software modules has its own benefit of use and contributes to organizational economic benefit differently. These modules may be replaced or changed overtimes, therefore

the value of the whole software would be different overtime accordingly. It is not always increased or decreased in value. Thus, the traditional amortization method in financial accounting cannot reflect the value of the software.

d) Identifiability

Section 1 suggests "separable" is an important criterion for asset capitalisation. In accounting standards, asset is identifiable when it is separable. Implicitly, the asset should still deliver the economic benefit reported on the balance sheet after being separated from the organisation. It is hard for IT asset to keep delivering the benefit or value consistently after being separated from the organisation that owned it.

The benefit of IT investment is quite depends different organisational factors. (Lee, 2001) IT will not make a positive impact on the organisational profitability if there are not any favourable complementary conditions. It needs well management and planning; and not every company is able to deliver that. (Yu et al., 2006) and (Shin, 2006) have shown that the organisation get different level of benefits base on different complementarity of IT investment and the organisation strategy. For instance, ITBV is higher for multi focus firms than single focus firms(Tallon, 2007).

It requires time for the organisation to create and adjust different organisational factors to gain the benefit from IT. For instance, it would take 2.71 years for ERP adoption to release the value (Aral et al., 2009). This is because the organisation needs times to make adjustment on the organisation complementary factors, for example human resource, organisation capabilities and business strategy(Aral and Weill, 2007). It is impossible that the value of ICT investment is the same after being separated to its new owner.

2.4.2 Conceptual application of accounting standards to ICT investment

From the earlier researches, there can be the inconsistent classification of ICT asset and expense on the financial statements. Chalalai (2008) suggested that only 8% of ASX listed firms report ICT investment in their 2007 financial reports. It was informed by (Henderson et al., 2010) that ICT asset have been unreported in the financial statements. Before concluding about the unreported ICT investment in financial report, we should reconsidered about the hidden cost problems, which stated in (Brynjolfsson and Hitt, 1996), that IT expenditure was hidden in non IT expenditure. The aggregation rules in the accounting standards can be conceptually applied for the classification of ICT investment and provides the explanation to the hidden ICT cost problem.

Quoted from IAS1 and also found in AASB101, "An entity shall present separately each material class of similar items. An entity shall present separately items of a dissimilar nature or function unless they are immaterial"(CPA, 2010, IFRS, 2011a). "Nature or function" and "Materiality" become the important factors explaining the financial reporting and classification in financial accounting.

a) Classification by Nature and function

In section 2.2, there are two main line items recommended in the accounting standards as the mandatory items to be reported in the financial statement. Those line items are Property Plant and Equipment (PP&E) and Intangible Asset. ICT product and services has similar characteristics to the asset that can be classified into these two line items.

The items described in "Computer Hardware" category and "Telecommunication assets" category by (ABS, 2006) can be categorized as PP&E of an organisation.

There are a lot of recommendations in IAS16 and AASB116 for defining PP&E, but only few shall be considered after the items already pass the requirement to be the organisational asset. First, the item shall have the "physical substance". Second, it should be used more than one accounting period. The items in "Computer Hardware" and "Telecommunication assets" naturally have the physical substance.

"Computer Software" in (ABS, 2006) can be considered as Intangible Asset in the accounting context. In addition to the criteria to be an asset, the main criterion to be an intangible asset is "the items without physical substance". The "Computer software-package", "Computer software-own account", "Computer software-customised" are intangible and without physical substance. Consistently, (Nomura, 2004) suggested that software shall be classified under intangible asset.

"Computer Services" in (ABS, 2006) includes the items that can be classified as either Intangible Asset or Expense. For instance, the expenditure on "Customised software services and solution" in "Computer Service" category could be partially capitalised as intangible asset, while it can also be partially recorded as expense. Other services in this category could be more recorded as Expense excepts when these services are necessary to create the asset that meet the criteria discussed in section 1. For the same nature, "Telecommunication services" could be more recorded as Expense.

ICT asset can be classified and aggregated with the other organisational asset because of their similar functionality in the organisation. For instance, IAS16 and AASB116 define PP&E "are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes"(IFRS, 2011b, CPA, 2010). Similarly, IAS38 and AASB138 also defined the function of the intangible

similar to PP&E(CPA, 2010, IFRS, 2011c). IT investment has been found to provide similar functions including supporting organisational production and services. Due to the similarity in function and nature, "Computer Hardware" and "Telecommunication" can be classified as PP&E which was considered as non-IT asset by researches (Dewan and Min, 1997, Brynjolfsson and Yang, 1997, Ramirez et al., 2010).

b) Materiality

Section 1 introduced the definition and the relationship between "materiality" and the capitalisation threshold. Apart from this relationship, "materiality" plays an important role for the aggregation and classification of asset and expense in financial statements. Firm has to separately classify and report the class, subclass or line items of asset or expense that are material. Therefore, if IT asset or expense is not material, it can be classified with non IT asset or expense that performs similar function in the organisation. For example, ICT could be classified as either PP&E, Intangible asset, or operating expense.

Quantitatively, a line item of asset or expense is material if its value or its amount exceeds a particular amount, which is calculated from a certain ratio of the base amount. Mentioned in the Accounting Standards AASB 1031 "Materiality", the base amounts can be the amount of income, asset and revenue(CPA, 2010). (Eilifsen et al., 2005), who summarized the accounting literatures from 1982 to 2005, shows that firm normally use the percentage of income as the materiality threshold while the other use the percentage of revenue and/or asset. The materiality threshold is between 0.01 to 0.025 % of asset and 0.1 to 0.2 of pre-tax income(Cho et al., 2003).

Materiality can be varies depend on different factors. Different choice of the base amounts would give different materiality threshold. Secondly, materiality threshold also depends on who define the threshold. Materiality threshold defined by the investor is very low compare to what is in practice(Cho et al., 2003). Materiality threshold planned by user tend to be the lowest while auditor materiality threshold is between user and preparer(Eilifsen et al., 2005).

Third, the materiality threshold can varies according to firm size. (Eilifsen et al., 2005) point out that for the large firm, auditor has the high materiality threshold than auditor in small firm. Also, (Heitzman et al., 2010, Lo, 2010) supports that firm size explain materiality threshold to separately report the information about a particular expenditure.

2.5 Summary of Literature Review

Accounting standards and research literatures suggest five criteria that expenditure would be capitalised. These five criteria are the high level capitalisation conditions and include “Future economic benefit”, “Identifiability”, “controllability”, “existence”, and “reliability measurement”. In addition to these high level capitalisation conditions, the capitalisation threshold is another condition that is practically used in the accounting practice. Any of these criteria have their own impact on the organisation decision and ability to capitalise the investment.

According to the interpretation from the accounting standards, differentiating if an expenditure item is an asset or an expense is the initial step of classification. The classification of the investment at the financial reporting level has also been discussed in the literature. In addition, there are certain classes and subclasses of asset and expense recommended by accounting standards to be reported on different

element of the financial statements. Beside the specified class and subclass, firm can follows the aggregation rule in the accounting standards to create additional classes and subclasses.

At the IT side, there are the inconsistency of classification and definition of ICT investment. Researchers have measured ICT investment differently. An item has been included in some researches while it has not been included in the other researches. The literature also shows what researches considered as ICT and non ICT. For example, PP&E and Operating Expense are not considered as ICT. At last, two classification frameworks, (OECD, 2009) and (ABS, 2006), are found as the classification standards that define ICT investment.

To initially understand the organisation classification ICT investment, the literature review fatherly focus on the capitalisation of ICT investment. Researchers in IT have suggested that some ICT asset has not be capitalised by the firm's financial accountant. The literature review shows that the certain types of ICT investment are difficult to meet the requirement in the accounting standards to be capitalised.

The criteria mentioned in the accounting standards are important for the capitalisation conditions if the failure to fulfil those criteria lead to the expense of ICT investment. However, there could be the other factors that supersede the asset definition and lead to the inconsistency in the capitalisation of ICT product and service. In practice, the organisation can consider the other factors to expense ICT investment. For instance, capitalisation threshold is another factor indicated by literatures. The relevancy of the accounting standards for the capitalisation of ICT investment should be questioned.

3 RESEARCH METHODOLOGIES

This chapter divides the description of the research methodologies into two parts. At the preliminary stage of research, the study attempts to understand the ICT classification at firm level from the financial reporting angle. At the second stage of research, semi structure interview and set theoretic were employed in the investigation into the association between the high level capitalisation conditions and the organisation behaviour in capitalising and expensing ICT product and service.

Section 3.1 describes the research methodology implementing to serve the purpose of the preliminary stage of research. The information about ICT classification was collected through the content analysis on the annual reports of the ASX listing firms published in five different accounting periods. The information was than extracted and analysed.

Section 3.2 details the procedures used in the second stage of research. The expert in the accounting fields were interviewed about the justification of each high level capitalisation conditions for each category of ICT product and service. The information was then analysed with Fuzzy set-theoretic Qualitative Comparative Analysis (*fs*QCA) to verify if the ease and the difficulties of justifying the high level capitalisation conditions lead to capitalisation and expense of diverse ICT product and service.

3.1 Preliminary Research on Firm Classification of ICT investment

3.1.1 Previous Research of ICT classification

Chalalai (2008) suggested that there were only 178 of 2,224 Australian firms reported IT expenditure in their financial statements up to 2007. This indication was based on the information collected from the annual reports in FINANLYSIS.COM. FINANALYSIS.COM is known to store the annual reports of the listed firms in Australian Stock Exchanges (ASX).

In the preliminary stage of this research, we attempt to understand how ICT has been classified by the organisation from the financial reporting angle. We examined the content of financial reports of ICT reported firms published in five different accounting periods from 2006 to 2010. The data collection was strongly enhanced by the understanding of the investment classification in the accounting standards.

3.1.2 Capturing ICT classification

a) Data sources

FINANALYSIS.COM and DatAnalysis Premium are the main data source for the preliminary stage of research. FINANALYSIS.COM became unavailable during the progress of study, but the data collected from this data source has been partially analysed and published in (Kim et al., 2011). DatAnalysis has been used instead of FINANLYSIS.COM during the study. DatAnalysis can be accessed through the electronic library in the website of University of Sydney. It is capable of providing the annual reports the same as FINALYSIS.COM. Extra data sources, including the company public website and ASX website, have been used in case the complete five years annual reports of the target firms were not available in our main data source.

ASX codes and the name of the target firms were used as the keyword to search for the annual reports from the data sources.

b) Information of ICT classification

To capture firms' classification behaviour of ICT investment, the following information about each reported item in the annual reports of every targeting firm was collected:

- Term or description of the reported item for ICT investment
- ASX code and name of the company reporting the item.
- Level of the aggregation and classification themes (Class and subclass)
- Location of the reported items(BS, IS, and Note)
- Reported amount of each items in monetary unit.
- Financial year of the annual reports.
- Other related information in the accounting policies (including the depreciation method used for depreciation the software asset)

i) Term or description

ICT classification frameworks published in (ABS, 2006) has been used as the references to identify the descriptive terms of ICT product and service. As stated in the literature review, the definition of ICT product and services is varies. The target firms are the ASX listing firms. (ABS, 2006) would be the best choice as the reference for the keywords to search for ICT reported item on the financial statements.

ii) Firm

ASX code and full name of the organisation were also collected. ASX codes listed in (Chalalai, 2008) were used to search for firms in our main data sources. The full

name of the organisation was also used interchangeably with ASX code to search for the annual reports of the organisation through the organisations' public website and Australian Stock Exchange Web site. The annual reports of some firms were not available in the main data sources. Also, some organisations have made change to their name.

iii) Aggregation and classification of ICT investment

We search for the ICT descriptive terms through different elements of financial statements to identify the reported ICT asset and expense. The item was considered as the main class of the items if it was spotted on Balance sheet (BS) or Income statement(IS). Informed by the literature review of accounting standards and frameworks, the main class or the line items of the asset should be reported on the Balance Sheet, and the main class or the line items of expense should be reported on the Income Statement.

The item was considered as the subclass to the line items when it was found to be reported and sub classified in the note of the financial statement to a particular line items on Balance Sheet or Income Statement. Informed by the accounting standards and framework, the subclasses of asset and expense should be aggregated and reported on the note of financial statement if not reported on BS or IS.

Figure 3.1 demonstrates the diagram summarized the classification of the asset and expense base on the accounting standards and framework. The diagram in figure 3.1 was drawn base on the interpretation of different paragraphs in different related standards published in (CPA, 2008, CPA, 2009, CPA, 2010). It reflects both International Accounting Standards and Australian Accounting Standards. This

diagram facilitates the identification of reported ICT asset and expense on the financial statements. The detail about this diagram has been discussed in chapter 2.

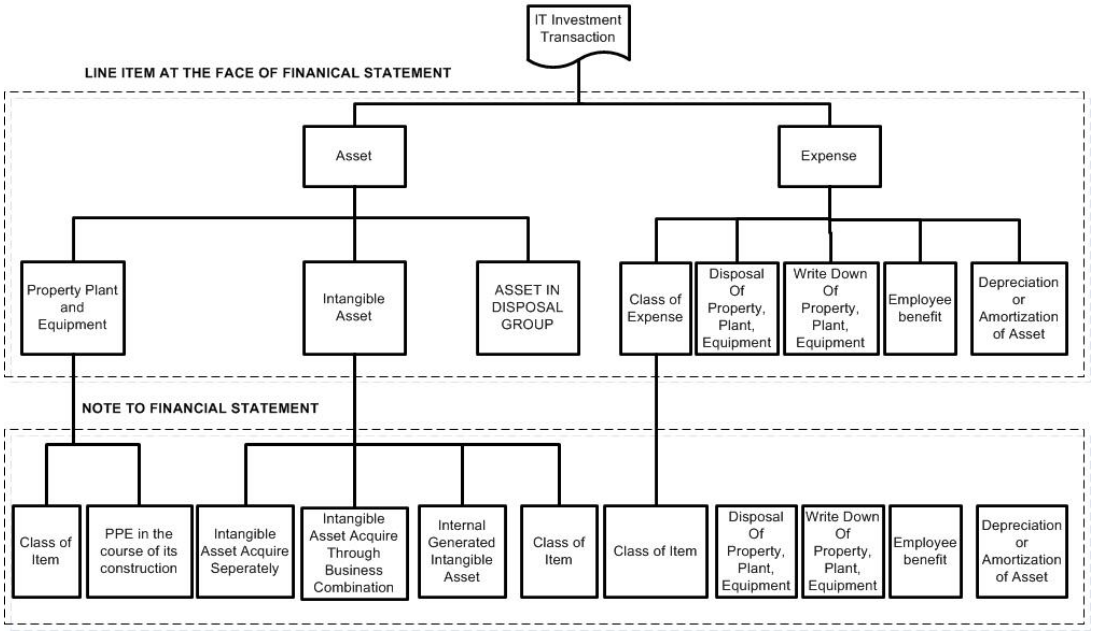

Figure 3.1 diagrams illustrating the accounting standards classification of asset and expense.

iv) Reported amount and the financial Period

The financial period of the financial reports and the reported amount of the reported items in monetary unit were also collected. The reported amount in monetary unit could facilitate the data collection when firms make changes to their disclosure of the reporting items. For instance, ICT could be reported as a subclass of asset or expense in one annual period and be reported as the main class of asset and expense in the later periods. Also, the description for each class of asset and expense can be changed for different financial years. The accounting standards and frameworks recommend firms to report the items on the financial report with the comparative format. This requires firm to also report the amount of each reported items in the previous period of the current period in comparative format with the current period in

the current period financial statements. Therefore, the reported amount in the monetary unit was used to track the changes of the reporting behaviour.

v) Other information

We also read the note to the accounting policies in every downloaded annual report. This note gives the information about the reported items including the regulation and the accounting policies, the descriptive definition, the measurement, and the depreciation policies of assets. Therefore, including this information from this note into the data collection might not be necessary yet would add the value to the collected data for future usage.

3.1.3 Capturing Procedure of ICT classification:

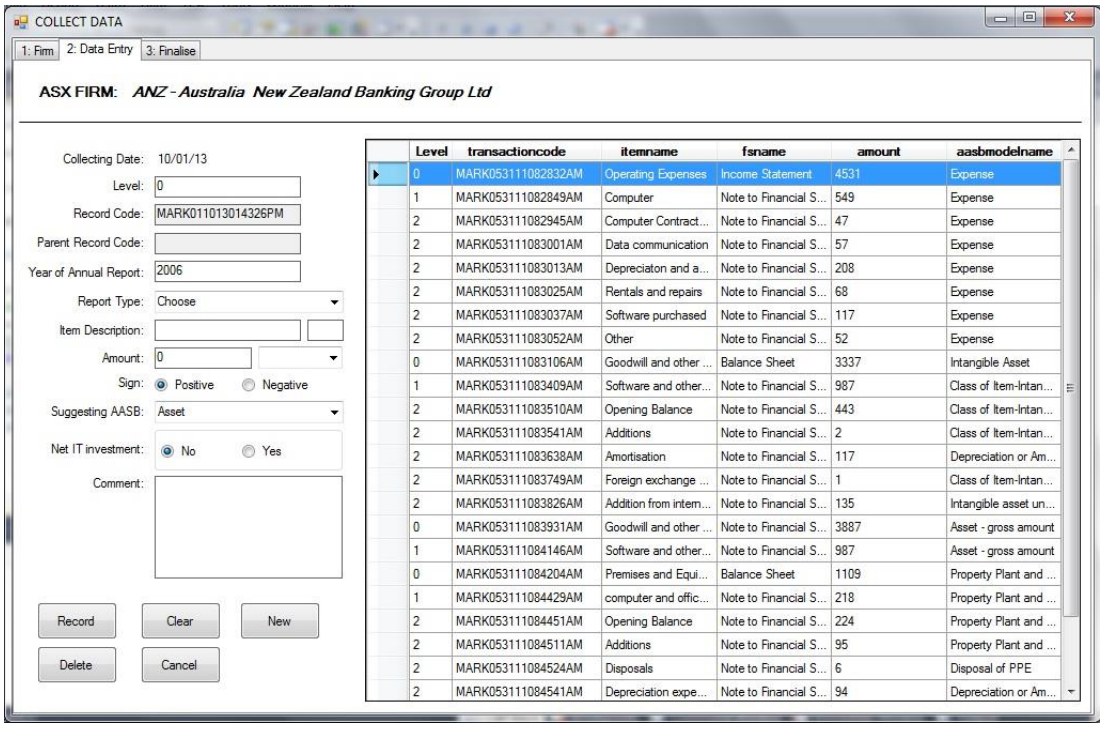

Figure 3.2 Snapshot of the computer software built for data collection

A small software application has been implemented by using VB.net and SQL database**.** The purpose of using this small application is to facilitate and keep the consistency of data collection. The annual reports of the organisation published in

five different accounting periods, 2006 to 2010, were downloaded. The contents of each annual report was analysed carefully to identify the information described in the section 3.1.2. The necessary information was highlighted and entered simultaneously into the software. The collected data was stored in the SQL database through the software.

At the beginning of data entry procedure, the ASX code and the year of annual reports were selected from the interface of the software in figure 3.2 according to the information of firms on annual reports. The information about the target firm including ASX code, firm name, and Industry code were stored in the database prior to the data entry. Full name of the firm can be verified through the interface. After verifying the name and ASX code, we proceed to step 2. In step 2, the data entry was locked for only the ASX code that was selected in first step.

In second step, the line items or the main class of the asset/expense that contains ICT asset and expense were recorded first. The software note this main class of item as level 0 which indicates the highest level of the reported item. The type of financial statement, “Balance Sheet”, “Income Statement” or “Note to Financial Statements” was chosen respectively for the type of statements where the reported item was found.

The same procedures described above were followed for every reported item that contains ICT from the high level (main class) to the lowest level (subclass) of the reported item, from BS and IS to “Note to Financial Statement”. The software automatically generated the level of the reported item continuously, starting from 0, and stored into the database. If ICT was recorded first, the software automatically generated the level 0 for that recorded item. At the end, the dataset stored in the SQL

database was extracted into the Excel Spread sheet to analyse the classification of ICT asset and expense of the organisation. The results are indicated in chapter 4. List of firms included in the analysis can be found in the Appendix 1.

3.2 Second Stage of Research - The study of ICT capitalisation

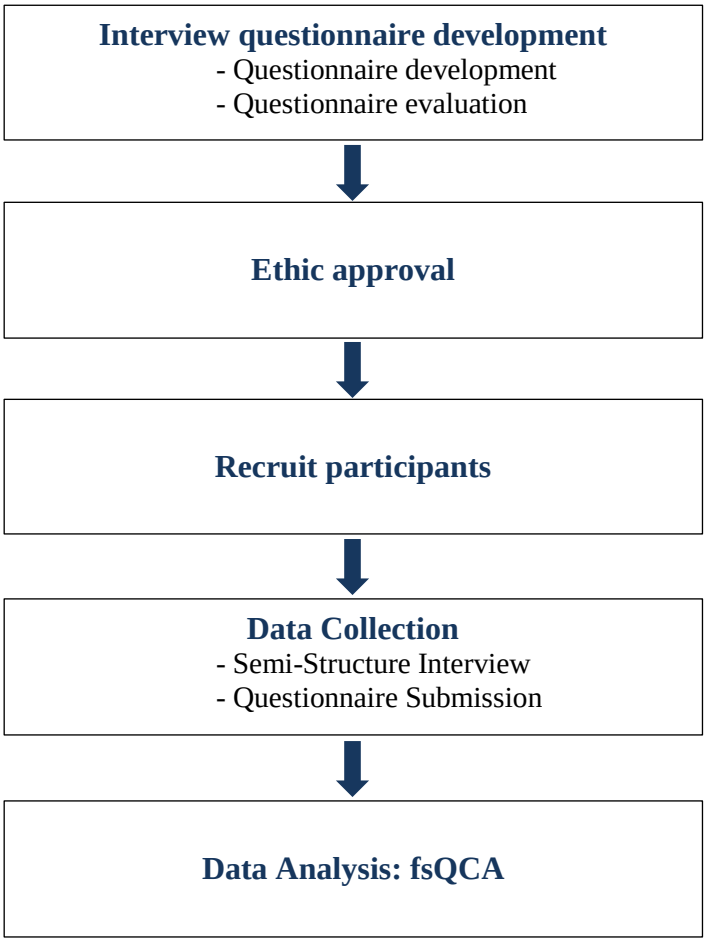

Figure 3.3 Method overview

3.2.1 Theoretical Background on Semi-Structure Interview

A semi-structure was used in this study to collect data from the experts. In research, interview is a conversation that is initially directed by the researchers to explore the knowledge from the respondents who are normally the experts in the investigating area(Mingers, 2003, Hanson et al., 2011). The use of the interview is to gain rich information from a small set of subject(Tenenberg and McCartney, 2008).

The characteristic of the interview depends on the level of the freedom of choice on the topic for the discussion between the interviewer and the interviewee (Beck and Perry, 2008). Generally, the interview can be structured, unstructured, and semi-structured. “Structured interview is the mode of choice when the interviewer knows what he or she does not know and can therefore frame appropriate questions to find it out, while the unstructured interview is the mode of choice when the interviewer does not know what he or she doesn’t know and must therefore rely on the respondent to tell him or her (Lincoln & Guba, 1985, p)”(Westbrook, 1994).

The semi-structure interview is in between. In semi-structured interview, the researchers initially spend time to do initial researches in the field of study to extract the knowledge about working domain, and use those knowledge to probe the questionnaires in the interview for a deeper investigation(Wood, 1997, Gugiu and Rodríguez-Campos, 2007). The existing literatures, the survey data, and the practical experience are being used for learning about the domain of the investigation and used for constructing a list of the interview questionnaires (Zhu et al., 2004, Gugiu and Rodríguez-Campos, 2007, Tenenberg and McCartney, 2008). The list of the interview questionnaire is then used as a framework and a checklist to define the relevant topics for the discussion (Hanson et al., 2011).

Interview has been used previously by IT business value researchers. (Weill, 1992) conducted telephone and on-site interviews with the organisation managements to explore the relationship between IT investment and the organisational performance. (Devaraj and Kohli, 2003) performed the field interview with managers to assess their expert opinion on appropriate lags of IT investment. (Wu et al., 2005) also used the information from the interview with manager and professional to study

relationship between IT investment, organisation supply chain, and the organisation performance.

3.2.2 Interview Questionnaires Development

a) Questionnaires Development

In this study, we used semi-structured interview to investigate the expert opinion on the capitalisation of diverse ICT investment. The theoretical background from both accounting and IT were used to frame the developed questionnaires for the interview.

Diverse ICT investment here is referred to different categories of ICT product and service adopted from the classification framework in (ABS, 2006). Using (ABS, 2006) helps us to cope with the inconsistent definition of ICT which has been discussed in the literature review. The classification framework in (ABS, 2006) also has smaller categories of ICT than the classification framework in (OECD, 2009). Table 3.1 shows the description of the ICT products and services in each category used for developing the semi structure interview.

The literature review probes our research to focus on the difficulties and the importance of each capitalisation conditions at the high level. Future economic benefit, Identifiability, existence, controllability and the reliability measurement are suggested by the literature review to be the high level conditions in the accounting standards that could impact the capitalisation decision. Firms could also give different weight to the importance of each condition while they are making the decision to capitalise and expense a particular ICT expenditure.

IT Product Category	Descriptions
1. Computer Hardware	Multiple-user computers: - Mainframe, mini, and super-computers - Computer file servers and other multiple-user computer hardware Personal computer: Laptops, notebooks, personal digital assistants (palm tops/hand-held electronic organiser) and similar portable computers. - PCs and similar desktop computers. - Other personal computers. Computer peripherals and consumables - Laser and other printing/plotting systems. - Other peripherals (including monitors, keyboards, computer mice, joysticks and other pointing devices, scanners, bar-code readers, web cameras, computer speakers and microphones, drives, burners) - Consumables (including removable storage media) - Other computer parts and accessories
2. Computer Software	Packaged Software
3. Computer Services	Customised software services and solution - Web site design - Other internet applications - Other customised software services Software maintenance services Other computer consultancy services Hardware installation, repair and maintenance services Data processing services Information storage and retrieval services Other computer services Whole ICT business function (bundled services)
4. Telecommunication Equipment and Communication Cables	Telephone and telegraphic equipment (including electrical line, electronic switchboards, communication servers, modem equipment, telephones, teleprinters and telephone facsimile machines): - Carrier telephone and telegraph equipment - Main exchange switching equipment - Electronic switchboards: - Processor or micro processor - Other electronic switchboards n.e.c. - Data modem equipment/multiplexors - Telephones (exclude radio-telephony such as mobile, cellular and car phones), Mobile, cellular and car phones, Teleprinters and telephone facsimile machines, Other telephone and telegraph equipment (exclude parts), CB and other mobile radio transceiving equipment - Radio reception apparatus and other fixed premises radio transceiving equipment,Relays and relay sets for radio, telephone and telegraphic equipment - Satellite equipment - Other communication equipment and parts Insulated wire, cable and optical fibre for computers/communication purposes: - Coaxial cable, Twisted pair cable - Optical fibre cable, Other wire/cable
5. Telecommunication Services	- Basic telephony services, Mobile and paging services Short messaging services (SMS) - Other mobile and paging services - Data and text services - Other telecommunication services, Intercarrier charges

Table 3.1 Definition and classification of ICT adopted from (ABS, 2006)

The developed questionnaires focus on ICT classification from (ABS, 2006) and the justification of high level capitalisation conditions. The association between five high level capitalisation conditions and the firm capitalisation behaviour for different types of ICT product and services are the topic framing the questionnaires for the semi structure interview in this study.

b) Questionnaires evaluation:

A draft version of the questionnaires was developed and sent for review. The reviewers include the supervisor of this research, two lecturers from the University of New South Wales and two experts in the accounting fields. The two experts in the accounting fields were also the participants for the main interview. The reviewers were asked to provide feedback after their evaluation on the questionnaires. The questionnaires were refined. The final versions of the questionnaires are in the Appendix 2.

3.2.3 Ethics Approval

This research study sought for the ethical approval from the Human Research Ethics Committee (HREC), University of Sydney. The ethical approval needs to be done when the research involve with the human subjects. The ethical approval is means to ensure that the research procedure will not harm any participants in any forms.

To comply with HREC, the study followed different principles for conducting our research. The participants are informed about their rights to withdraw from the studies, the rights to agree or disagree with the use of audio recorder during the interview, and the rights to verify and correct the interview transcripts. These and other required ethical appliances are means to protect the interviewee and were included in the research invitation letter, participation information statement (PIS),

the consent form. The research studies also included the consent form for the interviewee to express their consent about their rights and duties in this study. No information from the interviewee was included in the study without the signature of the participants over the consent form.

We respectfully followed the procedure as we stated in the invitation letter to ensure that the participation is totally voluntary and can be withdrawn at any time without affecting the participants. Some of information related to the participant and the employer of the participants was collected during the studies. The participants were also informed about how these identities would be protected.

Because the study involves the experts in Cambodia and outside Australia, the ethic approval request for the certified translation of all the public documents including the interview questionnaires. These documents were certified translated into Cambodian language by a translation professional company in Cambodia. The certificate and the statutory declaration of the correct translation from the professional translator were submitted to HREC.

3.2.4 Recruit Participants

We chose to follow the purposeful selection of the participants. The purposeful sampling is the key principal of qualitative researches (Forman et al., 2008). Instead of randomly selecting the subjects or cases, the purposeful sampling aims to select the subjects or case that are considered as the available source of the rich information within the domain of research. In this research, a case is an expert in financial accounting.

The potential participant defined for this study is the expert in financial accounting. Only the accounting experts who have two years working experiences or more are

invited to participate in this study. The working experience must be in bookkeeping or managing the accounting information in the organization that use ICT products or services. The accounting experts also include the participants who have gone through either Certified Public Accountant (CPA) qualification or Association of Chartered Certified Accountants (ACCA) qualification. This requirement has been included in the study outline.

Initially, the personnel from within the professional network of the researchers were identified as the potential participants. Those are the accounting experts in private firms and the management of General Department of the National Treasury (GDNT) in Cambodia. The study outline and the draft version of the questionnaires were sent to them. They were invited to provide the evaluation of the questionnaires. The feedbacks were collected. The questionnaires were adjusted following the discussion with the research supervisor on the given feedback. The participants were also asked to suggest the other experts that have the characteristic described in the study outline. The suggested participant were then included into the list of the potential participants for the official study.

In the official study, a package of the official version of the invitation documents was sent to the potential participants by emailed. In this package, we included an invitation letter to the research study, a study outline, the final version of the questionnaire, a participant information statement (PIS), and a consent form. The hard copies of these documents were also delivered to the potential respondent when requested. In the invitation letter, the respondents are asked to contact the researchers within 14 days after receiving the invitation, if they are willing to participate in the study. In practice, it took longer to receive the acceptance from each participant and few follow up email and phone call have been done.

In a special circumstance, the study needed to follow the Cambodian government administration procedure to get the permit for conducting the research study in the General Department of the National Treasury (GDNT), Cambodia, and its affiliation. GDNT is a central public financial accounting unit for the Royal Government of Cambodia. The package of the invitation documents, including the Cambodian translated version, were submitted to the head of the General Department for the approval. The details of the study were discussed with the general director and the management team of the General Department.

The discussions lead us to do research with GDNT affiliating private firm instead. This is because the scale of the government financial system is too large for the study. The management of the national chart of account (COA) involve the other government units outside GDNT. A permit of conducting the interview, the official acknowledgement and the request of conducting the study from the General Head Departments, and the invitation documents were sent by GDNT's administrating department to chief executive director of the affiliating company. We successfully received the permit to conduct the researches in that affiliating firm after a period of time. We were than introduced to a chief financial manager of the firm for the research. All of the documents mentioned earlier are included in the Appendix 3.

3.2.5 Face-to-face interview

It is a preference of this study to conduct the face-to-face interview with the subject. Field interviews in Cambodia were conducted. After receiving the acceptance, each participant was contacted to arrange for the date/time and location for the interview. The participants were also given the choice to do telephone interview. The interview is expected to last for 1 hour and 30 min. The participants were encouraged to

prepare their answered on the questionnaire booklet, which was sent to them with the invitation package, before the interview date.

During the interview, good practices suggested by prior researches have been followed. The audio recorder was used when permitted by the participant. Wood (1997) suggests using the audio recorder to capture the complete information for later analysis without interrupting the interview. Keeping the interview flowing is important (Westbrook, 1994). (Hanson et al., 2011) also added that audio recording decreases the likelihood of bias toward frequent or emotionally intense comments, because even rare comments are captured for review. Using audio recorder allows the interviewer to take note only the key important terminologies that can be the topic required for further questioning in a given chance during the interview session (Wood, 1997). After the interview, the recorded interview were transcribed and sent to the participants for the verification. The participants are allowed to correct any error if needed.

I have conducted the interviews with 3 different participants. The real interview lasted longer than expected. The participants also allowed us to see some related documents for example, Chart of Accounting and Asset list. 2 participants prepared their answer on the questionnaire booklet and allows for the audio recording. 1 participant allowed doing the field interview without the use the audio recording. Respecting the rights of the participants is an obligation of this study to comply with the HREC.

3.2.6 Questionnaire and answer submission

2 of participants choose to submit their answer through hand writing in the questionnaire booklet instead of being interviewed. This is because of the nature of

their work does not allow them to arrange time for the interview session. Moreover, some questions are beyond the knowledge of the participants due to the scale of the financial accounting system in firm. The participants also needed to discuss with their colleague and review the related documents to get the information for the questionnaires. The design of the questionnaire booklet allowed the participants to collect the information base on their own way and submit their answer in the questionnaire booklet.

3.3 Qualitative Comparative Analysis (QCA)

3.3.1 History of fsQCA

Charles Ragin and programmer Kriss Drass were the first who developed the Qualitative Comparative Analysis (QCA) technique in late 1980. QCA techniques have been adopted by researches to study the causal relationship between one or more combination of conditions and the outcome. Three techniques of QCA have been developed . Crip set QCA can be used when the conditions and outcome are dichotomous. Multi-value QCA allows for multi value conditions, but the outcome must be dichotomous in value. The fuzzy set QCA (*fs*QCA) is the advanced QCA technique that allows the conditions and the outcome to take multi-value.(Rihoux and Ragin, 2009)

3.3.2 fsQCA application

This study adopted *fs*QCA techniques in (Ragin, 2008) and (Rihoux and Ragin, 2009). Rihoux and Ragin (2009) recommended that this technique can be used in researches with small n number of cases from 5 to 15. In this study, there were only limited amount of experts participated in the semi-structure interview. Therefore, *fs*QCA is proper for this research.

*fs*QCA can be used to analyse the casual relationship between the conditions and the outcome in a research proposition. In this study, *fs*QCA is used to give the explanation to two research propositions:

1. The ease of justifying the capitalisation conditions explains the frequent capitalisation of diverse ICT product and service.

2. The difficulty of justifying the capitalisation conditions explains the frequent expense of diverse ICT product and service.

In the first preposition, the conditions measure the experience of the participants on the ease of justifying the capitalisation conditions when they are making decision to capitalise the expenditure in a particular category of ICT product and service. The outcome measures the experience of the participants on how frequent the expenditure in a particular category of ICT product and service has been capitalised in their organisation. The outcome is coded as O represents the frequent capitalisation and the conditions are coded as follow:

- A_1 represents the ease of justifying the future economic benefit.
- A_2 represents the ease of justifying the identifiability.
- A_3 represents the ease of justifying the existence.
- A_4 represents the ease of justifying the controllability.
- A_5 represents the ease of justifying the reliability measurement.

In the second proposition, the conditions measure the experience of the participants on the difficulty of justifying the capitalisation conditions for the expenditure in a particular category of ICT product and service. The outcome measures the experience of participants on how frequent the expenditure of a particular type of

ICT product and service has been recorded as expense in their organisation. The outcome is coded as O^{-} represents the frequent expense and the conditions are coded as follow:

- a_1 represents the difficulty of justifying the future economic benefit.
- a_2 represents the difficulty of justifying the identifiability.
- a_3 represents the difficulty of justifying the existence.
- a_4 represents the difficulty of justifying the controllability.
- a_5 represents the difficulty of justifying the reliability measurement.

During the interview and in the questionnaire booklet, the participants were asked to range the level of the difficulties of justifying each capitalisation condition for a certain type of ICT products. The rating is ranged from very easy for very difficult. Also, the participants were asked to rate how often they experience the capitalisation and expense of a particular type of ICT product and service. The rating is ranged from 1 for Never to 5 for Always.

The *fs*QCA software and the procedure suggested by (Ragin, 2008) were used for the calibration of the rating value of the conditions and the outcome into fuzzy score. Rihoux and Ragin, (2009) recommended that it is the good practice to use the *fs*QCA software to calibrate the value in raw data into the fuzzy score.

For calibration of the conditions in the first proposition, the fuzzy score 0.05 represent very difficult (Fully out of the membership of the ease of justification), 0.50 present the cross over point, and 0.95 represent the very easy (Fully in of the membership of the ease of justification). For the outcome of the first proposition, 0.05 represent never (fully out of frequent capitalisation), 0.50 represent sometime

(cross over point), and 0.95 represent always (fully in degree of membership of frequent capitalisation).

In contrast, for the conditions in the second proposition, the fuzzy score 0.05 represent the very easy (fully out of the membership of the difficulty), 0.50 represent the neither easy nor difficult (neither in nor out of the membership of the difficulty), and 0.95 represent very difficult (fully in the membership of the difficulty). For the outcome of the second proposition, 0.05 represent never (fully out of the membership of frequent expense), 0.50 represent sometime (cross over point), and 0.95 represent always (fully in degree of membership of frequent expense).

For both propositions, we performed two consistency analyses on the relationship between the conditions and the outcome. Two consistency analyses include the consistency analysis of the necessary condition or the causal combination of the conditions for the outcome; and the consistency analysis of the sufficient condition or the causal combination of the conditions for the outcome. However, before the consistency analysis can be done, two following procedures must be performed.

The first procedure is recommended by (Rihoux and Ragin, 2009). Only the relevant conditions or causal combinations shall be included into the consistency analysis. For each individual condition, cases with the degree membership of each condition greater than 0.5 will be considered as relevant. For the causal combination of the condition, the degree of membership of the condition for each case is calculated using the fuzzy set operation, login AND, which take the lowest score among the score of the conditions in the causal combination. Base on the formula adopted from (Rihoux and Ragin, 2009) would give X_i, degree of membership of the causal

combinations (A_1, A_2, A_3, A_4, A_5), and x_i the degree of membership of the causal combinations (a_1,a_2, a_3, a_4, a_5) as follow:

- X_i= min(A_1,A_2, A_3, A_4, A_5)
- x_i = min(a_1,a_2,a_3,a_4,a_5)

After identifying the relevant condition or causal combination of conditions, the analysis of the subset relationship between the conditions/causal combination of condition and the outcome shall be analysed(Ragin, 2008). This analysis is used to identify if the condition has the superset relationship or the subset relationship with the outcome. If X is the subset of the outcome Y, ($X \leq Y$), X is the sufficient condition for Y. If X has the superset relationship with the outcome Y, ($Y \leq X$), X is the necessary condition for Y. The definition of necessary condition and sufficient condition are cited as follow:

- In term of fuzzy logic membership score, X is a necessary condition of Y if $Y \leq X$. X is a necessary condition for Y if X is always present when Y occurs. Y does not occur in the absence of X. The absence of X is sufficient for the absence of Y. The presence of the condition X does not guarantee the presence of the outcome Y.(Braumoeller and Goertz, 2000).
- X is a sufficient condition for Y if X is a subset of Y or $X \leq Y$ in term of fuzzy logic(Ragin, 2008).

Found in (Ragin, 2008), XY plot in *fs*QCA software is a tool that facilitate the identification of necessary condition and sufficient condition. The degree of membership of the condition and the outcome of the relevant condition can be plotted and the type of the subset relationship can be seen base on the pattern of the

plot. Figure 3.3 demonstrates how the pattern of the plot tells if a condition is sufficient or necessary for the outcome.

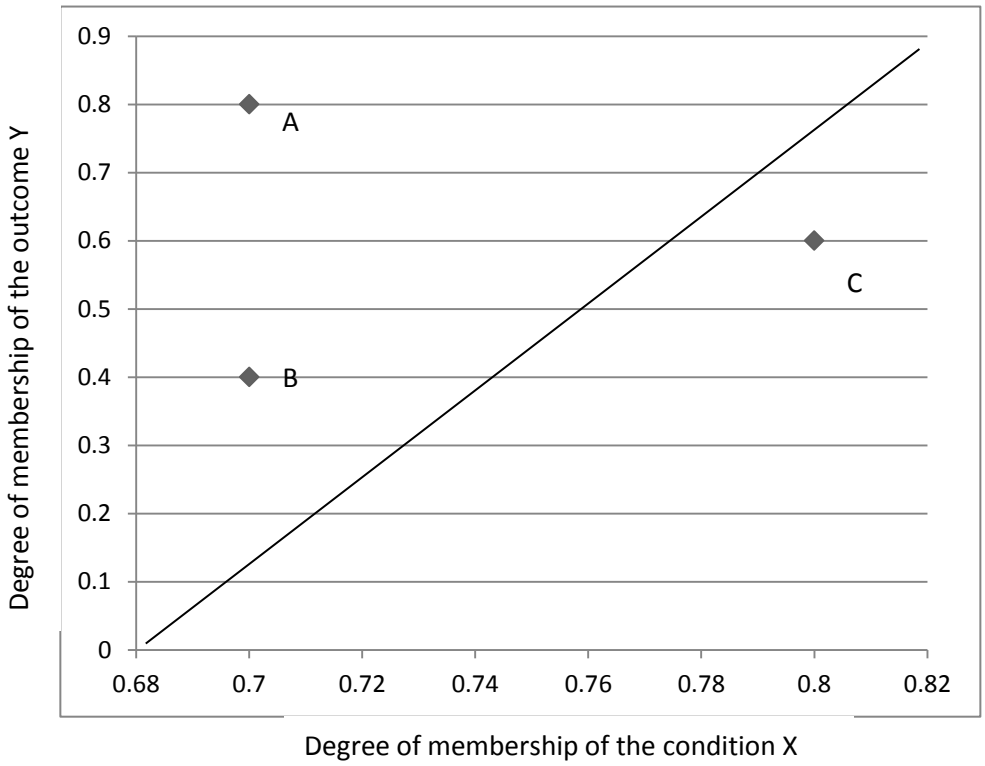

Figure 3.4 The example of XY plot demonstrating the subset relationship

If the cases are more on or above the main diagonal of the plot, the conditions or the causal combination of the conditions are the subsets of the outcome. In this case, the conditions or the causal combination is the sufficient condition for the outcome. In Figure 3.3, case A and case B indicate that the condition X_A and X_B are the subset of their corresponding Y. X_A and X_B are the sufficient conditions for the outcome Y.

In contrast, if the cases are more at the bottom of the main diagonal of the plot, the conditions or causal conditions are the superset of the outcome Y. This indicates that the condition is the necessary for the outcome. In Figure 3.3, case C indicates that condition X_c is a superset of the outcome, Y_c. X_c is a necessary condition for the outcome Y_C.

After the type of the subset relationship has been defined, the consistency analysis can be performed on the relevant cases to verify if the identified subset relationship is consistent. Adopting from (Ragin, 2008; Rihaux & Ragin, 2009), we derive equation for two consistency analyses as below:

- $Consistency(Oi \leq Xi) = \sum(\min(Xi, Oi))/\sum Oi$ (1)
- $Consistency(Xi \leq Oi) = \sum(\min(Xi, Oi))/\sum Xi$ (2)

The equation (1) measures the consistency of the necessary condition, Xi as the superset of Oi (Oi ≤Xi). The equation (2) measures the consistency of the sufficient condition, Xi as the subset of Oi (Xi ≤Oi) . min(Xi,Oi) takes the minimum value resulting from the comparison between the degree of membership of the conditions (Xi) or causal combinations (Xi) and the membership score of the outcome Oi. These two equations are used in the analysis of both proposition (1) and (2) of this study.

The result of the consistency analysis base on the two equations above were translated depend on the type of the subset relationship. If the conditions or the causal combination of conditions has the superset relationship (necessary condition) with the outcome O, equation (1) shall be used in the first place, and equation (2) shall be translated as the coverage. If the necessity consistency score pass the threshold, 0.75 as recommended by (Rihaux and Ragin, 2009), the necessary condition is consistent. If the coverage score is greater than the threshold, 0.75, the necessary condition is considered as relevant or non-trivial.

If the conditions or the causal combination of conditions has the superset relationship (sufficient condition) with the outcome O, Consistency (Xi ≤Oi) will be identified, and Consistency(Oi ≤Xi) will be considered as the coverage. The coverage indicates

how important the sufficient condition is. If the coverage pass the threshold, 0.75, the sufficient condition is chosen as important for the outcome.

In addition to fsQCA analysis, to provide further contextual explanations of the cases, we incorporated the other information collected from the interviewee into the result of the analysis. The other information is about the matters behind the difficulties of justifying each capitalisation condition and how the experts justify each capitalisation conditions for each category of ICT product and service. These information and fsQCA analysis provided a deeper insight into the result of research analysis.

4 RESULT AND ANALYSIS

4.1 Financial reporting of ICT investment

Financial reports of 110 target firms have been examined. Only 86 firms were included for the final analysis. The 24 firms were omitted from the study because we were not able to find the annual reports of those firms for complete 5 year periods, 2006 to 2010. The list of 86 firms that were included in this study can be found in appendix 1.

The details of the financial reports were investigated for how firm ICT was classified and reported continuously from 2006 and 2010. Additional descriptions, classification patterns, and treatments of ICT investment across 86 firms were also found. This section describes the results of the data collection in three sub-sections. The first sub-section shows the description and the classification of ICT asset reported on financial statements of the sample firms. The second sub-section shows the depreciation method that firms were using for software asset from 2006 to 2010. The third sub-section shows how IT expenses were being described and classified by firms from 2006 to 2010.

4.1.1 Financial Reporting of ICT assets

15 different descriptions were found to be used on the balance sheet of the sample firms to describe the line items/main class of asset that contained ICT. Those line items were recognised as related to Intangible Assets and Property Plant and Equipment of the organisation. Figure 4.1 shows the percentage of firms that were using particular descriptions to describe the main class of asset in average from 2006 to 2010. On BS, only 2% of 86 firms were reporting ICT asset separately and were

using ICT related description “Intangible Asset – Software” to describe the main class of ICT asset on BS.

Nine descriptions were related to Intangible Assets that firms are required to treat and measure using AASB 138 Intangible Asset. Intangible Asset was the commonly used description by 34% of the 86 firms from 2006 to 2010. A complete list of the identified line items, class and sub class of ICT asset and expense can be found in the appendix 4.

Three different descriptions of the line items on BS were related to Property Plant and Equipment that shall be measured with the accounting standards IAS 16 and AASB 116 Property Plant and Equipment. Within those three descriptions, “Property Plant and Equipment” were being the most commonly used description by 29% of 86 firms in average from 2006 to 2010.The number of firms using each description changed between 2006 and 2010 due to particular descriptions were not found in one or any of the reporting periods of this study. There were firms that did not report, changed their description, or changed the classification patterns in particular years.

ICT asset that were found on “Note to financial statements” as the subclass of the line items mentioned earlier and are listed at the lower part of Figure 4.1. 58 ICT related descriptions of ICT asset were found from 86 firms’ annual report between 2006 and 2010. It was not possible to classify these descriptions according to the classification of ICT in (OECD, 2009) or ICT Satellite Account in (ABS, 2006). For example: it was not possible to determine whether the asset described as “Computer” was hardware or software. The most commonly used descriptions were “Software”, “Computer Software”, and “Computer Equipment”. These three descriptions were being used on averages by 19%, 20% and 15% of 86 firms between 2006 and 2010.

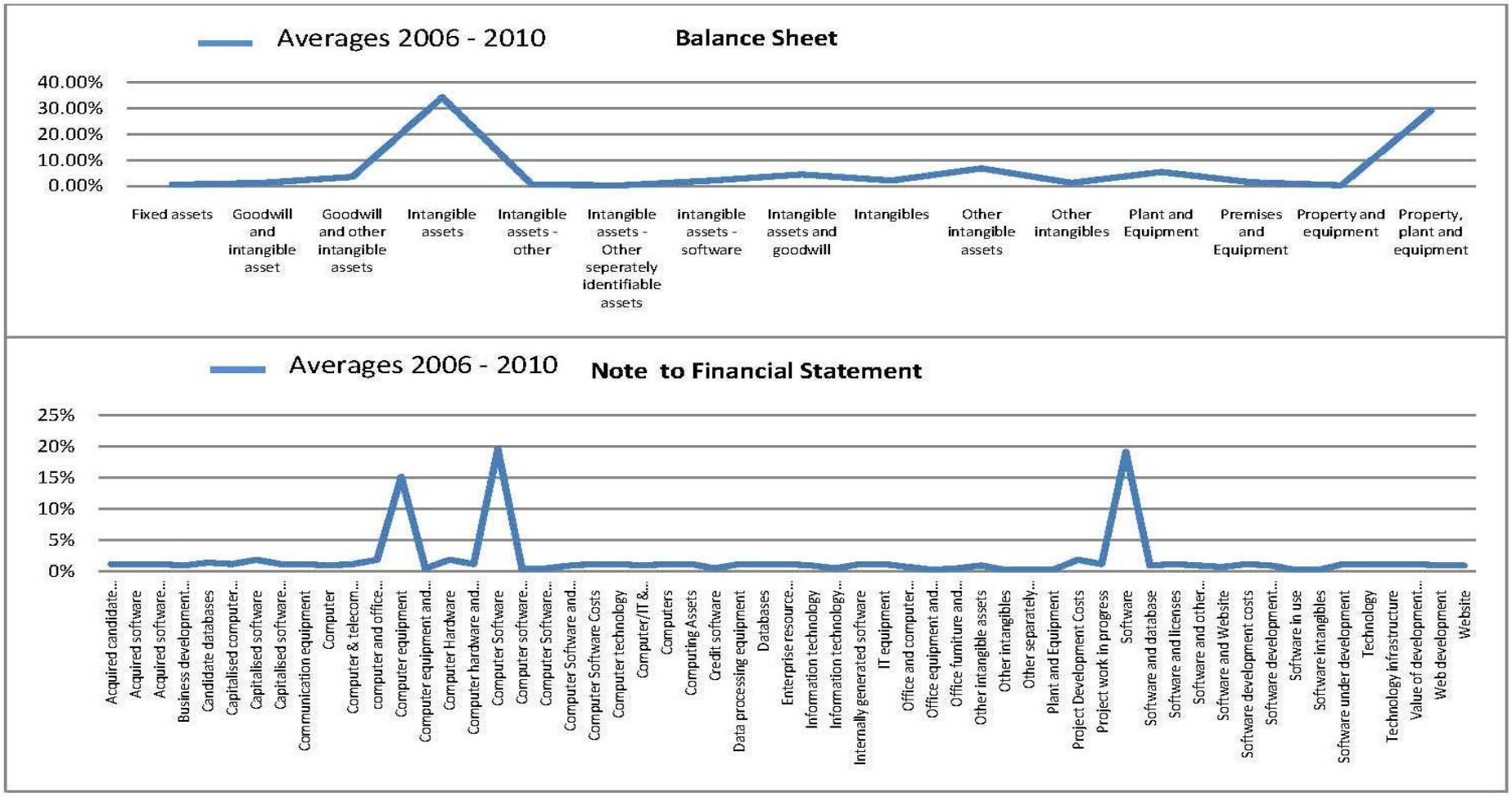

Figure 4.1 Classification of ICT Expense on the Balance Sheet

The detail of the accounting policies disclosed in “Note to Significant Account” in each the annual report were also examined. We clearly identified that there were 26 firms incurred and classified their internal developed software as the asset represented by one of the description in figure 4.1 at the note level. There were 5 firms out 86 found to report the software asset under the development described using the description Project Development Cost , Project In Progress, Software, Software under development, and Web development.

From the data on Balance Sheet and The Note to Balance Sheet Item, we could understand that most of ICT asset were being classified under “Property Plant and Equipment” and “Intangible Asset”. By grouping the similar description, from 2006 to 2010, in average, 63% of 86 firms were classifying ICT asset under Intangible Asset; and 38% of 86 firms were classifying ICT asset under Property Plant and Equipment in the financial periods between 2006 and 2010.

4.1.2 Amortisation of Software

In addition to the classification of ICT assets, the information about how firm were depreciating their ICT asset especially software asset over its useful life was also collected during the data collection. The accounting policies in the Note to the Significant Account of each firms’ annual report were closely scrutinized. Table 4.1 shows the depreciation methods that the 86 firms included in our data collection were using for the software assets from 2006 to 2010.

In Table 4.1, 1% of firms in 2006 and 2 % from 2007 to 2010 were found to disclose that they were using the diminishing method to measure the value of over its useful life. The percentage of firms that were using the straight-line method to evaluate the value and the useful life of software assets were between 56% and 58% within the financial period 2006 to 2010. Also, 1% of firms from 2007 to 2010 reported that

they used both straight-line and diminishing method for depreciating the software asset.

It is about 41% of 86 firms in 2006, 2007, 2009, and 2010 and 39% of 86 firms in 2008 that the information about depreciation method used for software asset were not found. Among these unreported firms, there were also firms that ICT asset were not found to be reported on the financial statements and were reporting only the ICT expense on the financial statements from 2006 to 2010.

Amortisation methods	**2006**	**2007**	**2008**	**2009**	**2010**
Diminishing Method	1%	2%	2%	2%	2%
Straight line	58%	56%	58%	56%	56%
Straight line + Diminishing Method	0%	1%	1%	1%	1%
NA and Expense Only	41%	41%	39%	41%	41%
Number of Firms	86				

Table 4.1 Amortisation method used by firms in relation to software assets

4.1.3 Firm classification of IT Expenses

On the Income Statement of 86 firms, from 2006 to 2010, 56 different descriptions were found to represent the line items/main class of expense that contained ICT expenses. As shown in the Figure 4.2, the amount of firms that were using each description is varies. For the high, “Depreciation and Amortisation Expense”, “Operating Expense”, and “Other expense” were the most commonly used descriptions by 16%, 8%, and 9% on average of firms across the 5 years periods respectively.

At the lower levels, on the Note to Financial Statements, 79 descriptions were used to represent ICT expenses. The amount of firms that were using each description is from 1% to 2% of 86 firms in average from 2006 to 2010. There were also the differences in the amount of firm usage for each description between each accounting period.

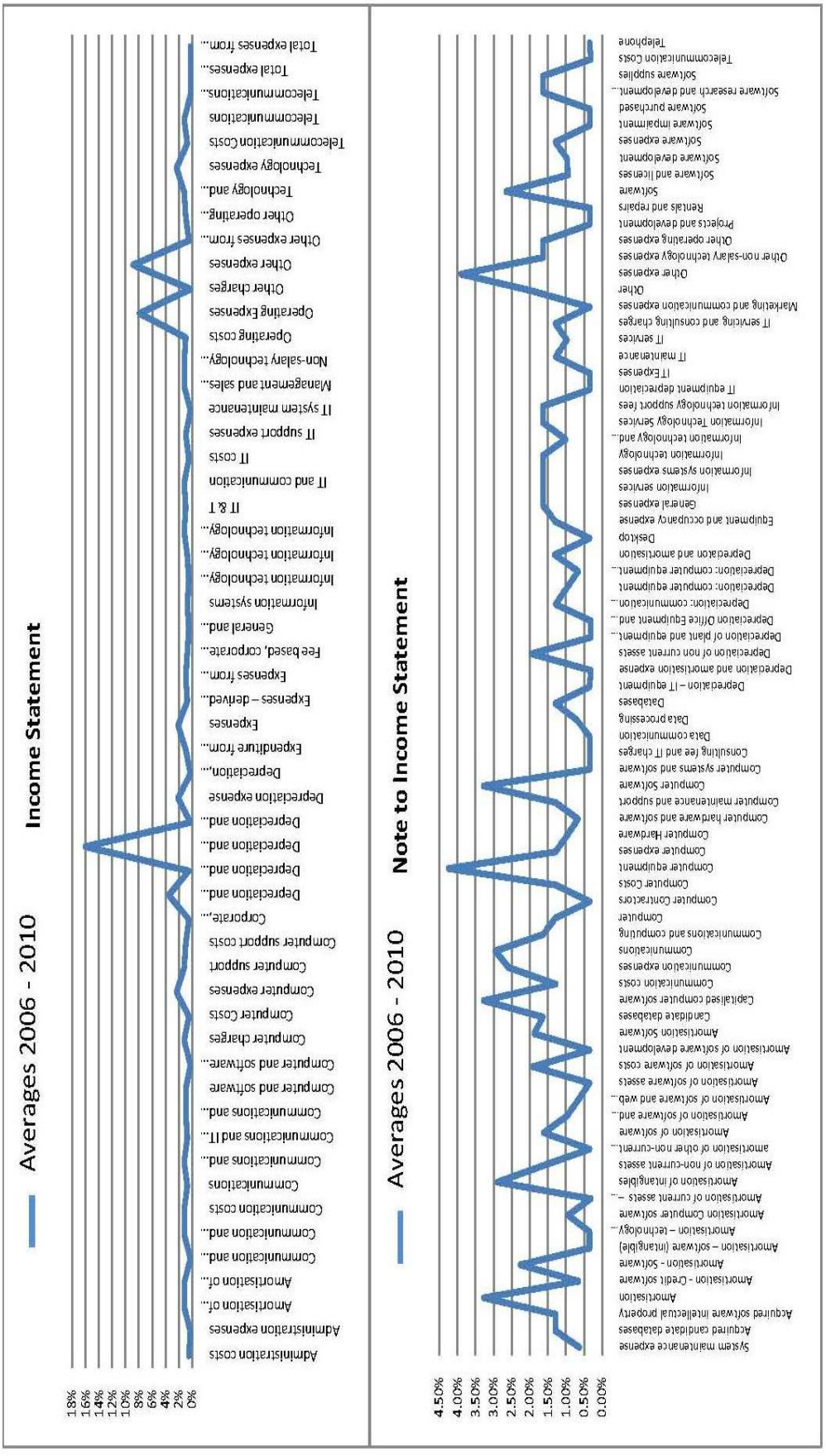

Figure 4.2 Reporting of ICT expenses on the Incomes Statement or Notes to

Firms did not consistently report those expenses or changed the description of ICT expense within the 5 periods. In summary, by classifying the descriptions base on non-IT and IT related, 43% of 86 firms were not classifying IT expenses separately at the highest levels of the financial statements and were aggregating ICT expenses with the other type of expenses.

4.2 Respondents Profile

At the second stage of the study, we received the acceptance for conducting the the study from five participants. They were from different organisations. Two participants agreed to be interviewed and audio recorded. One participant permitted the conduct of the interview without audio recorded. The other two participants submitted their response through the questionnaire booklet without going through the interview. The information about the participants has been collected and is described below. Table 4.2 provide the summary of the information of each participant and the organisation they were currently working at the time of the study. The real identity of the organisations and the participants cannot be disclosed in this thesis in order to comply with the ethical approval for HREC.

At the time of the study, the organisations of all the participants were using the accounting policies complying with International Accounting Standards (IAS). The participants in the official interviews are in Cambodia. The participants were asked to confirm verbally in advance to the interview if their accounting policies is complying with International Accounting Standards (IAS) of IFRS. Generally, the private organisations in Cambodia are adopting International Accounting Standards for their accounting policies. The literature review shows that majority the accounting standards in AASB are also adopted from the IAS of IFRS. Therefore, the

accounting principles in the concern of this study are consistent for both AASB and IAS.

Exp_1 is a Regional Finance Officer for South East Asia for his current employer. He has worked in accounting relating fields for 4 years and 9 months. He has gone through the professional level of ACCA exam. He has completed a Bachelor degree of Business Administration and Accounting. His current employer is a global organisation with the head quarter in Denmark.

Exp_2 is a Financial Manager. He has working experience with one of the big four auditing firms for more than 2 years. He has gone through the ACCA certified exam. He has completed a bachelor degree in Accounting. At the date of the interview, he is working as a financial manager in a security company. This company is using the financial accounting policy that is complying with the International Accounting Standards.

Exp_3 is a Deputy Manager, Accounting and Finance for a private gasoline company in Cambodia. He has 14 years working experience in accounting and finance. He received a Cambodian government certification as a senior officer. His has indicated that the annual reports are published according to the International Accounting Standards. The annual spending of ICT is 1% of the gross sale.

Exp_4 is a financial analyst. She used to work for a big four auditing firms. She is currently working in an international consulting firm. She has 2 years and 9 months working experience in finance and accounting. She completed Bachelor degree of administration. She has indicated that the annual ICT budget is 15% of the annual total budget. The organisation that she is currently under-employed set the capitalisation threshold for the ICT asset, 50 USD.

Exp_5 is a Chief Financial Officer. He has 10 years working experience in accounting and finance. He is a certified ACCA professional accounting. He has also completed Bachelor of Accounting. The organisation is currently provides consultant service and wide range of high-quality medicines, over-the-counter drugs, hospital supplies and medical equipment He indicated that his organisation spend on ICT less than 1% of annual total spending. The capitalisation threshold for ICT asset in his current organisation is 100 USD.

Participant	**Occupation**	**Working Experience**	**Education Qualification**	**IT annual spending/total spending (%)**	**Capitalisation Threshold for ICT**
Exp_1	Regional Finance Officer for South East Asia	4 years 9 months	- Bachelor of Business Administration and Accounting - ACCA professional level candidature	2%	NA
Exp_2	Finance Manager	More than 2 years	- Bachelor of Accounting - ACCA professional level candidature	NA	100 USD
Exp_3	Deputy Manager Accounting and Finance	14 years	Government certification of senior officer	1% of sale	NA
Exp_4	Financial analyst	2 years 9 months	Bachelor degree of administration	15% of annual total budget	50 USD
Exp_5	Chief Financial Officer	10 years	- Bachelor of Accounting - ACCA certification	Less than 1%	100 USD

Table 4.2 The summary of the participant and the participants' organisation

4.3 *fs*QCA analysis on Capitalisation Factors

The literature reviews has informed that "future economic benefit", "identifiability", "existence", "controllability" and "reliability measurement" are the conditions that defined an asset. Literature review also suggested that the difficulty to justify these

capitalisation conditions lead to the expense of ICT products and services. Therefore, this study conducted the *fs*QCA analyses to explain the following research propositions:

1. "The ease of justifying the capitalisation conditions explains the frequent capitalisation of diverse ICT product and service."

2. "The difficulty of justifying the capitalisation conditions explains the frequent expense of diverse ICT product and service."

In the first proposition, the conditions are the ease of justifying the capitalisation conditions. Stated in Chapter 3, we used the following variables to represent each condition in *fs*QCA analysis of the first proposition:

- A1 represents the ease of justifying the future economic benefit.
- A2 represents the ease of justifying the identifiability.
- A3 represents the ease of justifying the existence.
- A4 represents the ease of justifying the controllability.
- A5 represents the ease of justifying the reliability measurement.

In the second proposition, the conditions are the difficulty of justifying the capitalisation conditions. Stated in Chapter 3, we used the following variables to represent each condition in *fs*QCA analysis of the second position:

- a1 represents the ease of justifying the future economic benefit.
- a2 represents the ease of justifying the identifiability.
- a3 represents the ease of justifying the existence.

- a4 represents the ease of justifying the controllability.
- a5 represents the ease of justifying the reliability measurement.

To measure the difficulty level of justifying each capitalisation conditions, we asked the experts to indicate how difficult it is to justify each of capitalisation conditions including “future economic benefit”, “identifiability”, “existence”, “controllability” and “reliability measurement” for the ICT product and service described in each category from (ABS, 2006). The respondents were asked to choose their answer from the multiple choice answers which are “Very easy”, “Easy”, “Neither easy nor difficult”, “Difficult”, “Very Difficult”. The answer from the experts indicate their rating about the difficulty level to justify each capitalisation conditions and were coded with the value between 1 and 5 (1 = Very difficult, 4 = Difficult, 3 = Neither easy nor difficult, 4 = Easy, 5 = Very easy).

For the first proposition, the outcome is represented by fuzzy variable "O". “O” stands for the outcome “frequent capitalisation” and measures how often an expert experience the capitalisation of ICT product and service in a particular category in their organisations. The participants were asked to answer base on the multiple choice answer (“Never”, “Not often”, “Sometimes”, “Often”, “Always”). Their answer were coded with the value between 1 and 5 (1 = Never, 2 = Not often, 3 = Sometimes, 4 = Often, 5 = Always).

For the second proposition, the outcome is represented by fuzzy variable "O^{-}". “O^{-}” stand for “frequent expense” and measures how often a particular experts experience the expense of ICT product and service in a particular category in his or her organisation. To measure the outcome O^{-} in the second proposition, the participants were asked to indicate how often the ICT product and service in each category was

recorded as expense base on their experience. Similar to the first proposition, the second proposition has the multiple choices answer including “Never”, “Not often”, “Sometimes”, “Often”, “Always”. The answer from the experts were be coded with the value between 1 and 5 (1 = Never, 2 = Not often, 3 = Sometimes, 4 = Often, 5 = Always).

Table 4.3 categorizes the experts' response for each category of ICT product and service. The first column lists five categories of ICT product and service. These categories include Computer hardware, computer software, computer service, Telecommunication equipment and communication cable, and telecommunication service. The second column lists the experts who participated in this study. There were five experts. The identities of the experts were coded with the prefix "Exp_" and numerical number. The fourth column, O, lists the experts’ response to the question measuring the outcome in the first proposition. The fifth column, “O^{-}", lists the experts’ response to the question measuring the outcome in the second propositions.

For a demonstration, in table 4.3, the first row has O=3, O^{-} =3, A1=3, A2=4, A3=4, A4=5, and A5=3. The values in the first row are based on the response of the participant "Exp_1". Exp_1 indicated that he sometimes experience the capitalisation of ICT product and service in Computer Hardware, O = 3. He also indicated that he sometimes experience the expense of ICT product and service in Computer Hardware, O^{-} = 3. Exp_1 indicated that it is "neither easy nor difficult" to justify the future economic benefit (Condition A_1=3) for Computer hardware. His responses for Computer hardware are "very easy" to justify the identifiability (A_2=4), "very easy" to justify the controllability (A_3=4), "very easy" to justify the controllability"(A_3=4), and "neither easy nor difficult" to justify the reliability measurement (A_5=3).

ICT Category	Participants	O	O^{-}	A_1	A_2	A_3	A_4	A_5
Computer Hardware	Exp_1	3	3	3	4	4	4	3
	Exp_2	5	0	5	5	5	5	5
	Exp_3	4	3	5	5	5	5	5
	Exp_4	4	2	5	5	4	5	3
	Exp_5	4	3	2	3	4	5	4
Computer Software	Exp_1	3	3	3	4	4	4	3
	Exp_2	2	3	5	5	5	5	5
	Exp_3	5	1	5	5	5	4	5
	Exp_4	4	2	3	2	2	3	3
	Exp_5	4	4	2	1	1	2	4
Computer Services	Exp_1	3	3	2	2	4	4	2
	Exp_2	1	4	1	3	5	5	5
	Exp_3	1	5	1	1	1	2	2
	Exp_4	1	5	1	1	1	1	1
	Exp_5	2	4	2	2	1	4	4
Tel. Equipment and Communication Cables	Exp_1	2	4	2	4	4	4	4
	Exp_2	1	5	5	5	5	5	5
	Exp_3	4	2	5	5	5	5	5
	Exp_4	4	2	3	4	4	4	4
	Exp_5	4	3	4	3	4	4	4
Tel. Services	Exp_1	1	5	1	1	5	2	1
	Exp_2	1	5	5	5	5	5	5
	Exp_3	1	5	1	1	1	2	2
	Exp_4	1	5	2	2	2	2	2
	Exp_5	3	2	2	1	2	4	3

Table 4.3 Expert indication of the difficulty to justify the capitalisation conditions and the outcome (Conditions: A_1= "Future economic benefit", A_2= "Identifiability", A3 = "Existence", A4= "Controllability", "Reliability measurement")

4.3.1 Calibration of the experts' opinion

In order to perform the *fs*QCA analysis for both research propositions in this study, the value of O, O^{-}, A1, A2, A3, A4, and A5 in Table 4.3 were calibrated into fuzzy score using the procedure suggested in (Ragin, 2008). The data in Table 4.3 was imported into *fs*QCA software. In *fs*QCA software, the outcome variables and conditions variables were calibrated with the following expression:

calibration(x, n1,n2,n3)

x is the variable that need to be calibrated. In this study, the variable that needs to be calibrated are O, O^{-}, A1, A2, A3, A4, and A5. *n1*, *n2*, *n3* define the rules for the calibration. *n1* is the minimum value representing the fuzzy membership that is "Fully out of the membership of the condition or causal condition". *n2* is the value at the cross over point that is "neither in nor out of the membership of the condition or the causal combination". *n3* is the maximum fuzzy score that represent "Fully in the membership of the condition or the causal combination". In our study, n1 = 0.05, n2 = 0.50, n3 = 0.95 were used as the calibration rules. The results of the calibration of the outcome and the conditions for both research propositions are in Table 4.4.

For the calibration of the outcome O, the fuzzy score 0.05 is correspond to the expert's response "1 or Never", (Fully out of the membership of the outcome O, "frequent capitalisation"). 0.50 is the fuzzy score at the cross over point, "neither in nor out of the membership of the condition or the causal combination", and equivalent to the expert's response "3 or Sometimes". 0.95 is the fuzzy score for fully in of the membership of the outcome O, "frequent capitalisation" and equivalent to expert's response "5 or Always".

For the outcome O^{-}, the fuzzy score 0.05 is equivalent to the expert's response "1 or Never" or fully out of the membership of the outcome O, "frequent expense". 0.50 is the fuzzy score at the cross over point or "neither in nor out of the membership of the condition or the causal combination", and equivalent to the expert's response "3 or Sometimes". 0.95 is the fuzzy score which indicate fully in of the membership of the outcome O, "frequent expense" and equivalent to expert's response "5 or Always".

For calibration of the conditions A_1, A_2, A_3, A_4, and A_5 the study also used the calibration rules (0.05, 0.5, and 0.95). For each condition Ai (i = 1 to i=5), 0.05 is the

fuzzy score that indicate fully out of the membership of condition Ai, "the ease of justifying the capitalisation condition", and is equivalent to the experts response "1 or Very difficult" for the condition Ai. 0.5 is the fuzzy score that indicates "neither in nor out of the membership of the condition Ai, which is equivalent to the expert's response "3 or neither easy nor difficult". 0.95 is the fuzzy score for "fully in the membership of the condition Ai" and is equivalent to the expert's response "5 or very easy".

The fuzzy score for the conditions a_1, a_2, a_3, a_4, and a_5 were computed using the negation operation in fuzzy set theoretic. The negation is computed with the following formula:

$$X^{-} = 1 - X$$

In this study, X is the fuzzy score of A_1, A_2, A_3, A_4, and A_5. In contrast to A_1, A_2, A_3, A_4, and A_5 which measure the ease of justifying the capitalisation conditions including "future economic benefit", "identifiability", "existence", "controllability" and "reliability measurement", the conditions a_1, a_2, a_3, a_4, and a_5 measure the level of the difficulty to justify the capitalisation conditions. a_1, a_2, a_3, a_4, and a_5 are respectively the X^{-} of A1, A_2, A_3, A_4, and A_5. Therefore, a_1, a_2, a_3, a_4, and a_5 are respectively the negation of A1, A_2, A_3, A_4, and A_5 (a_1 = 1- A_1, a_2=1-A_2, a_3=1-A_3, a_4=1-A_4, $a_5 = 1 - A_5$).

Table 4.4 shows the original value and the calibrated fuzzy score of the conditions and the outcome generated by *fs*QCA software. For illustration, the participant "Exp_2" indicated that he always experience the capitalisation of ICT product and service in Computer Hardware. He also indicated that he never experienced the expense of ICT product and service in Computer Hardware. For his case in

Computer Hardware, O is originally equal to 5 and O⁻ is originally equal to 1. Using the calibration expression "*calibrate (O, 0.05, 0.50, 0.95)*", O is equal to 0.95 in fuzzy score (Fully in the membership of the outcome O). Using the calibration expression "*calibrate (O⁻, 0.05, 0.50, 0.95)",* O⁻ = 1 was converted to O⁻ = 0.05 (Fully out the membership of the outcome O⁻).

For the asset arising from the expenditure of ICT product and service described in Computer Hardware , the participant "Exp_2" indicated that it is very easy to justify the future economic benefit, very easy to justify the identifiability, very easy to justify the existence of asset, very easy to justify the controllability, and very easy to justify reliability measurement. In his case, the original values of conditions in Table 4.3 are A_1 = 5, A_2=5, A_3=5, A_4=5, and A_5 = 5. After the calibration, A_1 = 0.95, A_2=0.95, A_3=0.95, A_4=0.95, and A_5 = 0.95 in Table 4.4.

In the case of Exp_2, the fuzzy membership score of conditions in the second proposition are 0.05 for a_1, 0.05 for a_2, 0.05 for a_3, 0.05 for a_4, and 0.05 for a_5. The fuzzy membership score of conditions a_1, a_2, a_3, a_4, and a_5 are computed with the negation operations. For instance, a_1=0.05 is the result of the negation operation of condition A_1 (1- 0.95 = 0.05).

ICT categories	Participants	Outcomes				Conditions															
		Original		*Fuzzy Score*		Original					*Fuzzy Score (A_i, $a_i = 1 - A_i$)*										
		O	O^{-}	O	O^{-}	A_1	A_2	A_3	A_4	A_5	A_1	a_1	A_2	a_2	A_3	a_3	A_4	a_4	A_5	a_5
Computer Hardware	Exp_1	3	3	0.50	0.50	3	4	4	4	3	0.50	0.50	0.82	0.18	0.82	0.18	0.82	0.18	0.50	0.50
	Exp_2	5	1	0.95	0.05	5	5	5	5	5	0.95	0.05	0.95	0.05	0.95	0.05	0.95	0.05	0.95	0.05
	Exp_3	4	3	0.82	0.50	5	5	5	5	5	0.95	0.05	0.95	0.05	0.95	0.05	0.95	0.05	0.95	0.05
	Exp_4	4	2	0.82	0.18	5	5	4	5	3	0.95	0.05	0.95	0.05	0.82	0.18	0.95	0.05	0.50	0.50
	Exp_5	4	3	0.82	0.50	2	3	4	5	4	0.18	0.82	0.50	0.50	0.82	0.18	0.95	0.05	0.82	0.18
Computer Software	Exp_1	3	3	0.50	0.50	3	4	4	4	3	0.50	0.50	0.82	0.18	0.82	0.18	0.82	0.18	0.50	0.50
	Exp_2	2	3	0.18	0.50	5	5	5	5	5	0.95	0.05	0.95	0.05	0.95	0.05	0.95	0.05	0.95	0.05
	Exp_3	5	1	0.95	0.05	5	5	5	4	5	0.95	0.05	0.95	0.05	0.95	0.05	0.82	0.18	0.95	0.05
	Exp_4	4	2	0.82	0.18	3	2	2	3	3	0.50	0.50	0.18	0.82	0.18	0.82	0.50	0.50	0.50	0.50
	Exp_5	4	4	0.82	0.82	2	1	1	2	4	0.18	0.82	0.05	0.95	0.05	0.95	0.18	0.82	0.82	0.18
Computer Services	Exp_1	3	3	0.50	0.50	2	2	4	4	2	0.18	0.82	0.18	0.82	0.82	0.18	0.82	0.18	0.18	0.82
	Exp_2	1	4	0.05	0.82	1	3	5	5	5	0.05	0.95	0.50	0.50	0.95	0.05	0.95	0.05	0.95	0.05
	Exp_3	1	5	0.05	0.95	1	1	1	2	2	0.05	0.95	0.05	0.95	0.05	0.95	0.18	0.82	0.18	0.82
	Exp_4	1	5	0.05	0.95	1	1	1	1	1	0.05	0.95	0.05	0.95	0.05	0.95	0.05	0.95	0.05	0.95
	Exp_5	2	4	0.18	0.82	2	2	1	4	4	0.18	0.82	0.18	0.82	0.05	0.95	0.82	0.18	0.82	0.18
Tel. Equipment and Communication Cables	Exp_1	2	4	0.18	0.82	2	4	4	4	4	0.18	0.82	0.82	0.18	0.82	0.18	0.82	0.18	0.82	0.18
	Exp_2	1	5	0.05	0.95	5	5	5	5	5	0.95	0.05	0.95	0.05	0.95	0.05	0.95	0.05	0.95	0.05
	Exp_3	4	2	0.82	0.18	5	5	5	5	5	0.95	0.05	0.95	0.05	0.95	0.05	0.95	0.05	0.95	0.05
	Exp_4	4	2	0.82	0.18	3	4	4	4	4	0.50	0.50	0.82	0.18	0.82	0.18	0.82	0.18	0.82	0.18
	Exp_5	4	3	0.82	0.50	4	3	4	4	4	0.82	0.18	0.50	0.50	0.82	0.18	0.82	0.18	0.82	0.18
Tel. Services	Exp_1	1	5	0.05	0.95	1	1	5	2	1	0.05	0.95	0.05	0.95	0.95	0.05	0.18	0.82	0.05	0.95
	Exp_2	1	5	0.05	0.95	5	5	5	5	5	0.95	0.05	0.95	0.05	0.95	0.05	0.95	0.05	0.95	0.05
	Exp_3	1	5	0.05	0.95	1	1	1	2	2	0.05	0.95	0.05	0.95	0.05	0.95	0.18	0.82	0.18	0.82
	Exp_4	1	5	0.05	0.95	2	2	2	2	2	0.18	0.82	0.18	0.82	0.18	0.82	0.18	0.82	0.18	0.82
	Exp_5	3	2	0.50	0.18	2	1	2	4	3	0.18	0.82	0.05	0.95	0.18	0.82	0.82	0.18	0.50	0.50

Table 4.4 the calibration of the expert's indication

4.3.2 Ease of justifying the capitalisation condition and ICT capitalisation

This section describes the analysis of necessary and sufficient condition in *fs*QCA to explain the proposition 1 "The ease of justifying the capitalisation conditions explains the frequent capitalisation of diverse ICT product and service.". The purpose of the analysis in this section is to identify if there are any necessary or sufficient causal combinations of all the conditions (A_1, A_2, A_3,A_4,A_5) that explain the outcome O using the procedure described in Chapter 3, Section 3.3.2. The relevant causal combinations were identified. The type of subset relationship between the causal combinations and the outcome were analysed. The consistency analyses of the necessity and sufficiency of the relevant causal combination were performed base on the type of subset relationship between each relevant causal combination and the outcome.

Table 4.5 shows the distribution of the fuzzy membership score for each condition and the causal combinations derived from Table 4.4. The column X_i in Table 4.5 lists the membership score of each causal combination of the conditions, A_1, A_2, A_3, A_4, A_5. This was calculated using the fuzzy set operation, Min (A_1,A_2,A_3,A_4,A_5). In the first row, the response of participant (Exp_1) had the fuzzy score of the condition A_1 = 0.5, A_2 = 0.82, A_3 = 0.82, A_4 = 0.82, A_5 = 0.5, thus the score of the membership of the causal combination (A_1,A_2,A_3,A_4,A_5) is 0.5, Min (A_1=0.5,A_2=0.82,A_3=0.82, A_4=0.82,A_5=0.5). The column Min(X_i,O_i) is the minimum membership score of two value X_i and O_i. For example, in the first row, Min(X_i,O_i) = 0.5 is the minimum of X_i = 0.5 and O_i=0.5. Min(X_i, O_i) was used for the consistency analysis later in this section.

Table 4.6 shows the distribution of cases across the causal combinations, Set-theoretic consistency of causal combination as subsets of "frequent capitalisation of ICT product and service" outcome and Set-theoretic necessity consistency of causal combination as supersets of "frequent capitalisation of ICT product and service" outcome. Each condition was converted to crisp set value, 0 and 1. The conditions with the fuzzy score greater than 0.5 was considered as in the set and was given the value 1 in crisp set, otherwise, the condition was considered as out of the set and was given the value 0 in crisp set.

In Table 4.6, the results of the conversion from fuzzy set to crisp set of the conditions are listed in their corresponding columns A_1 to A_5. The score was grouped together if they had the same combination of the causal conditions. The number of cases identified for each causal combination are listed the 6^{th} column, "N of case with the membership in causal combination". For demonstration, we found that there are 7 cases that have $A_1 = 1$, $A_2 = 1$, $A_3 = 1$, $A_4 = 1$, and $A_5 = 1$.

The necessity consistency score for each causal combination as the superset of the outcome is listed in the 6^{th} column of Table 4.6. The measure of the sufficiency, the consistency score with subset relation of the outcome is listed in the 7^{th} column of Table 4.6. In Table 4.6, there was only one causal combination identified and calculated for the necessity and sufficiency consistency. That combination is $A_1*A_2*A_3*A_4*A_5$ which has $A_1 = 1$, $A_2 = 1$, $A_3 = 1$, $A_4 = 1$, and $A_5 = 1$.This combination is relevant because it has at least one case that has X_i greater than 0.5 membership, therefore, it is considered as relevant combination of conditions.

N	ICT Category	Participants	A_1	A_2	A_3	A_4	A_5	O	X_i, Membership in corners of vector space formed by causal conditions	$Min(X_i,O_i)$
1	Computer Hardware	Exp_1	0.5	0.82	0.82	0.82	0.5	0.5	0.5	0.5
2		Exp_2	0.95	0.95	0.95	0.95	0.95	**0.95**	**0.95**	0.95
3		Exp_3	0.95	0.95	0.95	0.95	0.95	**0.82**	**0.95**	0.82
4		Exp_4	0.95	0.95	0.82	0.95	0.5	0.82	0.5	0.5
5		Exp_5	0.18	0.5	0.82	0.95	0.82	0.82	0.18	0.18
6	Computer Software	Exp_1	0.5	0.82	0.82	0.82	0.5	0.5	0.5	0.5
7		Exp_2	0.95	0.95	0.95	0.95	0.95	**0.18**	**0.95**	0.18
8		Exp_3	0.95	0.95	0.95	0.82	0.95	**0.95**	**0.82**	0.82
9		Exp_4	0.5	0.18	0.18	0.5	0.5	0.82	0.18	0.18
10		Exp_5	0.18	0.05	0.05	0.18	0.82	0.82	0.05	0.05
11	Computer Services	Exp_1	0.18	0.18	0.82	0.82	0.18	0.5	0.18	0.18
12		Exp_2	0.05	0.5	0.95	0.95	0.95	0.05	0.05	0.05
13		Exp_3	0.05	0.05	0.05	0.18	0.18	0.05	0.05	0.05
14		Exp_4	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
15		Exp_5	0.18	0.18	0.05	0.82	0.82	0.18	0.05	0.05
16	Tel. Equipment and Communication Cables	Exp_1	0.18	0.82	0.82	0.82	0.82	0.18	0.18	0.18
17		Exp_2	0.95	0.95	0.95	0.95	0.95	0.05	0.95	0.05
18		Exp_3	0.95	0.95	0.95	0.95	0.95	0.82	0.95	0.82
19		Exp_4	0.5	0.82	0.82	0.82	0.82	0.82	0.5	0.5
20		Exp_5	0.82	0.5	0.82	0.82	0.82	0.82	0.5	0.5
21	Tel. Services	Exp_1	0.05	0.05	0.95	0.18	0.05	0.05	0.05	0.05
22		Exp_2	0.95	0.95	0.95	0.95	0.95	**0.05**	**0.95**	0.05
23		Exp_3	0.05	0.05	0.05	0.18	0.18	0.05	0.05	0.05
24		Exp_4	0.18	0.18	0.18	0.18	0.18	0.05	0.18	0.05
25		Exp_5	0.18	0.05	0.18	**0.82**	0.5	0.5	0.05	0.05

Table 4.5 the fuzzy-set membership of cases in causal combination of conditions (ease of justifying the capitalisation conditions) and the outcome (frequent capitalisation of ICT product and service)

A_1	A_2	A_3	A_4	A_5	N of Case with the membership in causal combination	Necessity consistency with superset relation vis-à-vis the outcome (N = 25 in each assessment)	Consistency with subset relation vis-à-vis the outcome (N = 25 in each assessment)	Outcome code (base on the consistency score)
1	1	1	1	1	7	0.97	0.57	0
0	1	1	1	1	2	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
1	1	1	1	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
0	1	1	1	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
0	0	1	1	1	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
0	1	1	1	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
0	0	0	1	1	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
1	0	1	1	1	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
0	0	1	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
0	0	0	1	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
0	0	0	0	1	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
0	0	1	1	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
0	0	1	1	1	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
0	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
0	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
0	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
0	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
0	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder

Table 4.6 Distribution of cases across causal combinations and set-theoretic consistency of causal combinations (ease of justifying the capitalisation conditions) as subset of frequent capitalisation

Figure 4.3 shows the type of subset relationship between the causal combination (A_1*A_2 *A_3*A_4*A_5) and the outcome O. XY plot indicates that the causal combination (A_1*A_2 *A_3*A_4*A_5) is more a superset of outcome O. The causal combination has more cases at the lower rights of the main diagonal. Thus, the consistency of the necessary condition was considered important. The result of the sufficiency consistency analysis was translated as **the coverage**, which measured the trivialness of the necessary condition of the causal combination.

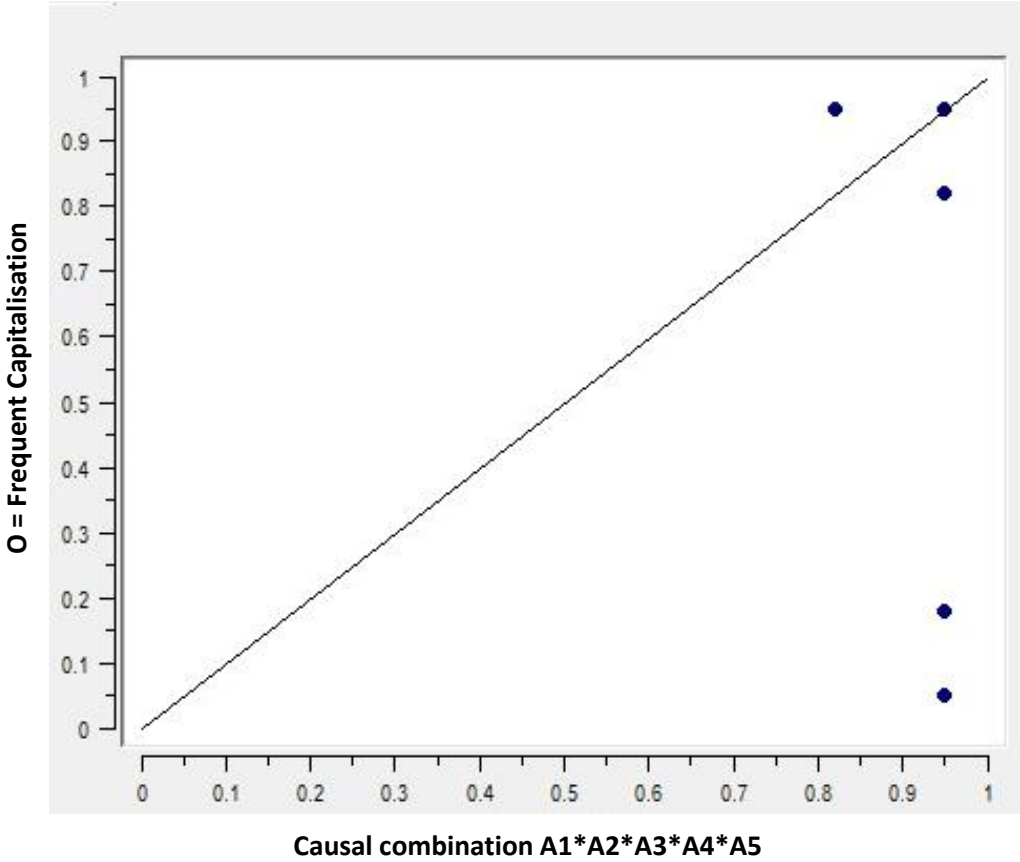

Figure 4.3 Fuzzy subset relation between the causal combination, A1*A2*A3*A4*A5, and the outcome O

In Table 4.6, the causal combination (A_1*A_2 *A_3*A_4*A_5) has the necessity consistency equal to 0.97 which is greater than the threshold value, 0.75. It has the sufficient consistency (coverage) score equal to 0.57 which is less than the threshold value 0.75. The outcome of the consistency analysis for this causal combination is

coded as 0. The consistency analysis indicated that (A_1*A_2*A_3*A_4*A_5) was a trivial necessary causal combination.

The rest of the causal combinations were dropped from the consistency analysis, and their consistency outcome was considered as the remainder. These cases were noted with "too few cases with scores > 0.5" in 7th column and 8th column of Table 4.6. From Table 4.6, there was no solution for the capitalisation of ICT product and service because there was no combination that had the consistency outcome equal to 1. The only one relevant causal combination (A_1*A_2*A_3*A_4*A_5) was a trivial necessary causal combination.

A deeper analysis using the same procedure above for each category of ICT product and service was also done. Table 4.7 demonstrates the result of the consistency analysis for the necessary and sufficient causal combination for each causal combination in each ICT category. The organisation of Table 4.7 is similarly to Table 4.6. The different is the number of cases for the each assessment dropped from 25 cases to 5 cases for each analysis. The cases were categorised for each ICT category. All the casual combination that did not have at least one case with the membership scores greater than 0.5 was dropped from the consistency analysis and coded as the remainder in the outcome column.

ICT categories	A_1	A_2	A_3	A_4	A_5	N of Case with the membership in causal combination > 0.5	Necessity consistency with subset relation vis-à-vis the outcome (N = 5 in each assessment)	Sufficiency Consistency with subset relation vis-à-vis the outcome (N = 5 in each assessment)	Outcome code (base on the consistency score)
Computer Hardware	0	1	1	1	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	1	1	1	1	1	2	1.00	0.93	1
	1	1	1	1	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	0	0	1	1	1	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
Computer Software	0	1	1	1	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	1	1	1	1	1	2	0.88	0.56	0
	0	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	0	0	0	0	1	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
Computer Services	0	0	1	1	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	0	0	1	1	1	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	0	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	0	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	0	0	0	1	1	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
Tel. Equipment and Communication Cable	0	1	1	1	1	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	1	1	1	1	1	2	1.00	0.46	0
	0	1	1	1	1	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	1	0	1	1	1	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
Tel. Services	0	0	1	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	1	1	1	1	1	1	1.00	0.05	0
	0	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	0	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	0	0	0	1	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder

Table 4.7 Distribution of cases across causal combinations and set-theoretic consistency of causal combinations of conditions (ease of justifying the capitalisation conditions) as subset of the outcome (frequent capitalisation) for different ICT category

Table 4.7 shows that the causal combination (A_1*A_2*A_3*A_4*A_5) which has A_1 = 1, A_2 = 1, A_3 = 1, A_4 = 1, and A_5 = 1 in Computer Hardware passes the consistency threshold 0.75. This causal combination has the perfect score of necessity consistency score equal to 1.00. This causal combination also has the sufficient consistency score or the coverage equal to 0.93. This causal combination of the conditions was coded as consistent (outcome = 1) and a non-trivial necessary causal combination for the outcome O.

In the Computer Software, Telecommunication Equipment and Communication Cable, Telecommunication Service, the casual combination (A_1*A_2*A_3*A_4*A_5) has more than one case with the fuzzy membership score greater than 0.5.The consistency of the necessity for this causal combination scores 0.88 in computer software, 1.00 in Telecommunication Equipment and Communication cable, and 1.00 in Telecommunication service. In these three categories, this causal combination of conditions passed the consistency threshold (0.75) and was considered as a necessary causal combination of conditions.

Even thought, in Computer software, Telecommunication Equipment and Cable, Telecommunication service category the casual combination (A_1 = 1, A_2 = 1, A_3 = 1, A_4 = 1, and A_5 = 1) was considered as a necessary causal combination of the conditions, it was trivial. The coverage score was 0.56 for Computer Software category and 0.46 Telecommunication equipment and Cables categories and 0.05 for Telecommunication Services. Thus, the result of the consistency analysis conclude that the causal combination of (A_1*A_2*A_3*A_4*A_5) was necessary for the frequent capitalisation outcome but trivial. There were not any relevant causal combinations for Computer Service.

In summary, the analysis in this section indicates that the causal combination (A_1*A_2*A_3*A_4*A_5) is necessary and trivial for the outcome O for the general ICT product and service, Computer Software, Computer Service, Telecommunication Equipment and Communication Cable, and Telecommunication Service. For general ICT product and service and the ICT categories mentioned earlier, the ease of justifying every conditions "Future economic benefit", "Identifiability", "Existence", "Controllability", and "Reliability Measurement" does not guarantee the capitalisation of ICT product and service. For Computer Hardware, it is important (necessary and relevant) for the outcome O. The experts capitalised Computer Hardware frequently because all of the capitalisation conditions were easy to justify for this particular ICT category.

4.3.3 Difficulties of justifying the capitalisation condition and ICT expense

The second proposition of this study is "the difficulty of justifying the capitalisation conditions explains the frequent expense of diverse ICT product and service." The difficulties of justifying the capitalisation conditions "Future economic benefit", "Identifiability", "Existence", "Controllability", and "Reliability Measurement" are respectively represent by the fuzzy variable "a_1", "a_2", "a_3", "a_4" and "a_5". The outcome is $\mathbf{O}^{\sim}$, "frequent expense of ICT product and service". Table 4.8 shows the fuzzy score of the conditions, the outcome, and the membership score of each causal combination.

Table 4.8 shows the distribution of the fuzzy membership score for the conditions "a_1", "a_2", "a_3", "a_4" and "a_5" and the outcome $\mathbf{O}^{\sim}$. $\mathbf{x_i}$ are the fuzzy membership score of each causal combinations of the conditions "a_1", "a_2", "a_3", "a_4" and "a_5" across the cases. In Table 4.8, there are 4 cases with strong membership score of the causal

combination. Those are the cases from the response of the "Exp_3" and "Exp_4" for "Computer service" and "Telecommunication Service". By grouping the cases with the same relevant causal combinations, the study identified only one relevant causal combination that explains the frequent expense of ICT product and service in general. This causal combination has $a_1 = 1$, $a_2 = 1$, $a_3 = 1$, $a_4 = 1$, and $a_5 = 1$ and can be written as (a_1*a_2*a_3*a_4*a_5). There were no other causal combinations identified in this analysis.

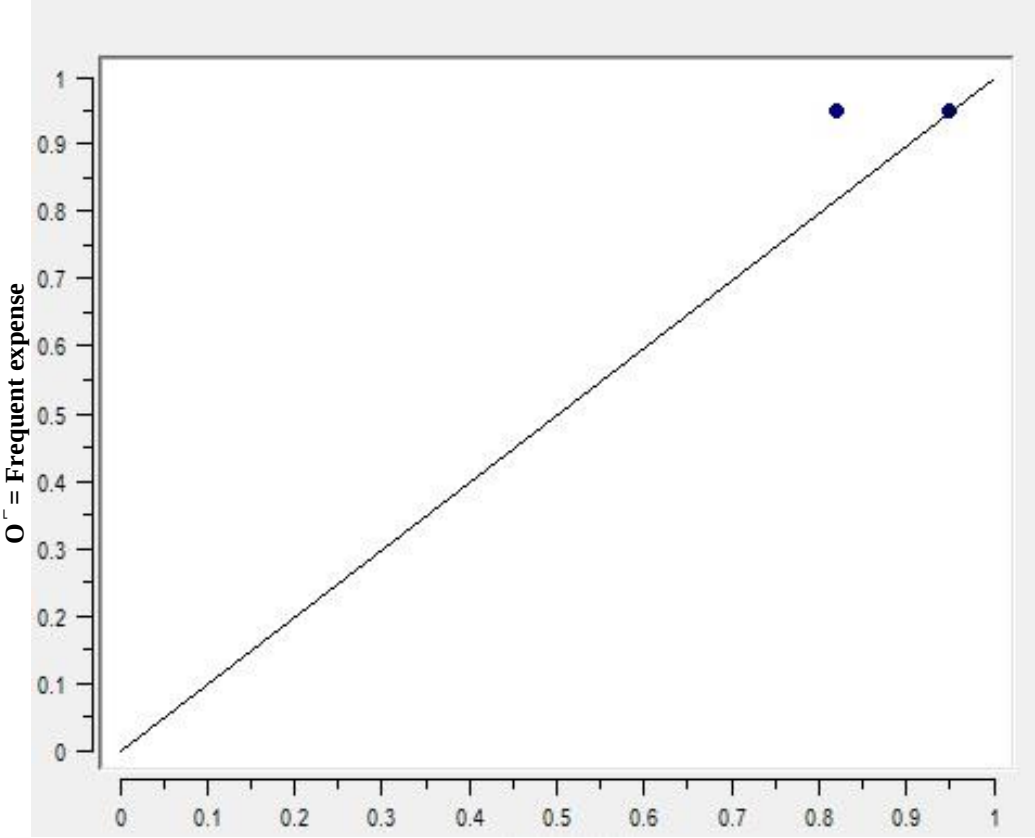

Figure 4.4 Fuzzy subset relation between the causal combination a1*a2*a3*a4*a5 and the outcome O⁻, frequent expense

N	ICT categories	Participants	a_1	a_2	a_3	a_4	a_5	$O^{\sim}$	x_i, Membership in corners of vector space formed by causal conditions	Min(x_i, $O^{\sim}_i$)
1	Computer Hardware	Exp_1	0.5	0.18	0.18	0.18	0.5	0.5	0.18	0.18
2		Exp_2	0.05	0.05	0.05	0.05	0.05	0.01	0.05	0.01
3		Exp_3	0.05	0.05	0.05	0.05	0.05	0.5	0.05	0.05
4		Exp_4	0.05	0.05	0.18	0.05	0.5	0.18	0.05	0.05
5		Exp_5	0.82	0.5	0.18	0.05	0.18	0.5	0.05	0.05
6	Computer Software	Exp_1	0.5	0.18	0.18	0.18	0.5	0.5	0.18	0.18
7		Exp_2	0.05	0.05	0.05	0.05	0.05	0.5	0.05	0.05
8		Exp_3	0.05	0.05	0.05	0.18	0.05	0.05	0.05	0.05
9		Exp_4	0.5	0.82	0.82	0.5	0.5	0.18	0.5	0.18
10		Exp_5	0.82	0.95	0.95	0.82	0.18	0.82	0.18	0.18
11	Computer Services	Exp_1	0.82	0.82	0.18	0.18	0.82	0.5	0.18	0.18
12		Exp_2	0.95	0.5	0.05	0.05	0.05	0.82	0.05	0.05
13		**Exp_3**	0.95	0.95	0.95	0.82	0.82	0.95	**0.82**	**0.82**
14		**Exp_4**	0.95	0.95	0.95	0.95	0.95	0.95	**0.95**	**0.95**
15		Exp_5	0.82	0.82	0.95	0.18	0.18	0.82	0.18	0.18
16	Telecommunication Equipment and Communication Cables	Exp_1	0.82	0.18	0.18	0.18	0.18	0.82	0.18	0.18
17		Exp_2	0.05	0.05	0.05	0.05	0.05	0.95	0.05	0.05
18		Exp_3	0.05	0.05	0.05	0.05	0.05	0.18	0.05	0.05
19		Exp_4	0.5	0.18	0.18	0.18	0.18	0.18	0.18	0.18
20		Exp_5	0.18	0.5	0.18	0.18	0.18	0.5	0.18	0.18
21	Telecommunication Services	Exp_1	0.95	0.95	0.05	0.82	0.95	0.95	0.05	0.05
22		Exp_2	0.05	0.05	0.05	0.05	0.05	0.95	0.05	0.05
23		**Exp_3**	0.95	0.95	0.95	0.82	0.82	0.95	**0.82**	**0.82**
24		**Exp_4**	0.82	0.82	0.82	0.82	0.82	0.95	**0.82**	**0.82**
25		Exp_5	0.82	0.95	0.82	0.18	0.5	0.18	0.18	0.18

Table 4.8 the fuzzy-set membership of cases in causal combination conditions (difficulty of justifying the capitalisation condition) and the outcome $O^{\sim}$, "frequent expense of ICT product and service"

In table 4.9, there is only one relevant causal combination (a_1*a_2*a_3*a_4*a_5) that has cases with the causal combination membership score greater than 0.5. This causal combination passes threshold value, 0.75, of the sufficiency consistency with the perfect sufficiency consistency score, 1.00. It also has coverage greater than 0.75. Its consistency outcome was coded as consistent (Outcome = 1).

a_1	**a_2**	**a_3**	**a_4**	**a_5**	**N of Case with the membership in causal combination > 0.5**	**Necessity consistency with subset relation vis-à-vis the outcome (N = 25 in each assessment)**	**Sufficiency Consistency with subset relation vis-à-vis the outcome (N = 25 in each assessment)**	**Outcome code (base on the consistency score)**
1	1	1	1	1	4	0.90	1.00	1
1	1	1	1	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
1	1	1	0	0	3	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
1	1	1	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
0	1	1	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
1	1	0	0	1	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
1	0	0	0	0	3	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
1	1	0	1	1	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
0	0	0	0	0	12	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder

Table 4.9 the fuzzy-set membership of cases in causal combination conditions (difficulty of justifying the capitalisation condition) and the outcome, "frequent expense" for general ICT product and service.

In Figure 4.4, XY plot of the cases for the causal combination (a_1*a_2*a_3*a_4*a_5) are located above the main diagonal. XY plot indicates that the causal combination (a_1*a_2*a_3*a_4*a_5) is the sufficient condition for the outcome $\mathbf{O}^{-}$. The consistency analysis for sufficient condition of this causal combination was considered important. The consistency analysis of necessary condition was considered as the coverage. This causal combination had the sufficiency consistency and the coverage greater

than 0.75. Therefore, the causal combination (a_1*a_2*a_3*a_4*a_5) was considered as the relevant and sufficient for the outcome $O^{\sim}$.

A deeper analysis of necessity and sufficiency consistency of the casual combinations of conditions a_1,a_2,a_3,a_4,a_5 for the outcome $O^{\sim}$, "frequent expense" ,was also done for each category of ICT product and service. Table 4.10 demonstrates the distribution of cases across causal combinations, Set-theoretic consistency of causal combination as subsets of outcome $O^{\sim}$, and Set-theoretic necessity consistency of causal combination as supersets of outcome $O^{\sim}$ for each category of ICT product and services. By categorising the experts' response according for each ICT category, the number of cases included in one assessment for each category of ICT is N=5.

In Table 4.10, there is only one relevant causal combination was identified. This relevant causal combination has $a_1 = 1$, $a_2 = 1$, $a_3 = 1$, $a_4 = 1$, and $a_5 = 1$ and can be written as (a_1*a_2*a_3*a_4*a_5). The causal combination (a_1*a_2*a_3*a_4*a_5) can only be found in "Computer service" and "Telecommunication service". There was none of this causal combination or other causal combinations that have cases with the membership score of the causal combination greater than 0.5 in other categories of ICT product and service. The irrelevant causal combinations were dropped from the analysis and coded as "remainder" in the outcome.

ICT categories	a_1	a_2	a_3	a_4	a_5	N of Case with the membership in causal combination > 0.5	Necessity consistency with subset relation vis-à-vis the outcome (N = 5 in each assessment)	Consistency with subset relation vis-à-vis the outcome (N = 5 in each assessment)	Outcome code (base on the consistency score)
Computer Hardware	0	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	0	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	0	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	0	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	1	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
Computer Software	0	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	0	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	0	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	0	1	1	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	1	1	1	1	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
Computer Services	1	1	0	0	1	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	1	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	1	1	1	1	1	2	0.93	1.00	1
	1	1	1	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
Tel. Equipment and Communication Cables	1	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	0	0	0	0	0	4	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
Tel. Services	1	1	0	1	1	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	0	0	0	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder
	1	1	1	1	1	2	0.86	1.00	1
	1	1	1	0	0	1	Too few cases with scores > 0.5	Too few cases with scores > 0.5	Remainder

Table 4.10 the fuzzy-set membership of cases in causal combination conditions (difficulty of justifying the capitalisation condition) and the frequent expense for different category of ICT product and service.

In Computer Service and Telecommunication Service, the causal combination (a_1*a_2*a_3*a_4*a_5) is relevant and sufficient for the outcome $O^{\neg}$, "frequent expense". In computer service, this causal combination has perfect sufficiency consistency score, 1.00 and strong coverage, 0.93. Also in Telecommunication service, the same causal combination has perfect sufficiency consistency score, 1.00 and strong coverage score, 0.86. Therefore, the consistency outcome of this causal combination was coded as consistent (outcome = 1) in both Computer Service and Telecommunication Service.

The result of the analysis in this section indicates that the causal combination (a_1*a_2*a_3*a_4*a_5) is important to explain the outcome $O^{\neg}$. For general ICT product and service, the analysis found that this causal combination is sufficient and relevant for the outcome $O^{\neg}$. For different categories of ICT product and service, the causal combination (a1*a2*a3*a4*a5) is sufficient and relevant for the outcome $O^{\neg}$ of Computer Service and Telecommunication service. The experts that experience the difficulty of justifying all capitalisation conditions "Future economic benefit", "Identifiability", "Controllability", "Existence", and "Reliability measurement" also experience the frequent expense general ICT product and service, Computer Service and Telecommunication Equipment.

4.4 fsQCA analysis for each individual capitalisation factor

This section describes the analysis of the subset relationship between each individual conditions and the outcome for both propositions ("A_1 and O, A_2 and O, A_3 and O, A_4 and O, A_5 and O" and "a_1 and $O^{\neg}$, a_2 and $O^{\neg}$, a_3 and $O^{\neg}$, a_4 and $O^{\neg}$, a_5 and $O^{\neg}$"). This section also incorporates the interviewee's response about the justification of

the each capitalisation conditions into the result of the *fs*QCA analysis. The detail responses collected from the interview and the questionnaires are in Appendix 6.

The subset relationship analysis shows that the condition A1, A2, A3, A4, and A5 are individually necessary for the outcome O. Also, every condition a_1, a_2, a_3, a_4, and a_5 is individually the necessary for the outcome $O^{\sim}$. These indications are based on the XY Plot that can be found in the Appendix 5.

	Ease of justifying Capitalisation conditions (Ai) vs Frequent Capitalisation(O)					**Difficulty of justifying capitalisation conditions, (ai) vs Frequent Expense ($O^{\sim}$)**				
	A_1	**A_2**	**A_3**	**A_4**	**A_5**	**a_1**	**a_2**	**a_3**	**a_4**	**a_5**
General ICT product and Service										
Nec	**1.00**	**1.00**	**1.00**	**0.99**	**1.00**	**0.87**	**0.79**	**0.79**	**1.00**	**0.94**
Suf	0.65	0.61	0.59	0.59	0.60	**0.99**	**0.98**	**0.98**	**0.91**	**0.93**
Computer Hardware										
Nec	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	0.61	-	-	-	-
Suf	**0.91**	**0.84**	**0.90**	**0.85**	**0.95**	**1.00**	-	-	-	-
Computer Software										
Nec	**1.00**	**1.00**	**1.00**	**0.92**	**1.00**	**1.00**	0.56	0.56	**1.00**	-
Suf	0.59	0.60	0.60	0.58	0.72	**1.00**	**1.00**	**1.00**	**1.00**	-
Computer Service										
Nec	-	-	**1.00**	**1.00**	**1.00**	**0.90**	**0.91**	**0.95**	**1.00**	**0.88**
Suf	-	-	0.31	0.26	0.13	**1.00**	**1.00**	**1.00**	**0.93**	**0.95**
Telecommunication Equipment and Communication cable										
Nec	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	-	-	-	-
Suf	0.62	0.53	0.62	0.62	0.62	**1.00**	-	-	-	-
Telecommunication Service										
Nec	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**0.82**	**0.79**	**0.75**	**1.00**	**1.00**
Suf	0.05	0.05	0.05	0.31	0.05	**0.96**	**0.96**	**0.94**	**0.86**	**0.91**

Table 4.11 the consistency analysis of necessity and sufficiency of each individual condition.

Base on the XY plot in the Appendix 5, the cases for every conditions and their respective outcome were more located at the lower right side of the main diagonal of the plot. The conditions for both capitalisation and expense were more likely the superset of the outcome. The consistency analysis of the necessary condition was considered important. The consistency analysis of the sufficient condition was treated as the coverage. The result of the analysis is shown in Table 4.9.

In Table 4.11, the conditions A_1, A_2, A_3, A_4, and A_5 are individually trivial necessary for the outcome O of general ICT product and service. For general ICT product and service, the necessary consistency score of each individual condition, A_1 to A_5, score perfectly between 0.99 and 1.00. Also, the coverage for all conditions is below 0.75. Therefore, these necessary conditions are individually trivial for the outcome O.

In contrast, the consistency analysis shows that the condition a_1, a_2, a_3, a_4, and a_5 are individually important to explain the frequent expense of ICT product and service. In Table 4.11, the consistency analysis for necessary condition of all the conditions (a_1 to a_5) for their respective outcome O^{-} have the value greater than 0.75. The coverage analysis also indicate that all the condition have the coverage greater than 0.75 and are relevant for the outcome O^{-}.

4.4.1 Justification for ICT future economic benefit

For ICT product and service in general, the future economic benefit is not important to explain the frequent capitalisation of ICT product and service. The consistency analysis of necessary condition A_1 is 1.00; and its coverage is 0.65. Condition A_1 is a trivial necessary condition for the outcome O. The ease of justifying the future economic benefit is necessary but cannot guarantee the frequent capitalisation of ICT in general.

For Computer Hardware, the justification of the future economic benefit is important but not necessary for the frequent expense of the expenditure items in this category. The consistency of necessary condition and coverage of condition A_1 are respectively 1.00 and 0.99. For the expense of Computer Hardware, the condition a_1 has the consistency of necessary condition, 0.61, which is below 0.75.

The ease of justifying this capitalisation condition alone is trivial necessary for the capitalisation of ICT product and service in Computer software, Computer Service, and Telecommunication Equipment and Communication Cable. For these ICT categories, the consistency of the necessary condition, A_1 (the ease of justifying the future economic benefit), is all equal to 1.00 but the coverage of the condition A_1 is less than 0.75.

Most of the respondents indicate that it is easy to justify the future economic benefit for Computer Hardware, Computer Software, and Telecommunication Equipment and Communication Cable. No technical justification method was indicated from the experts on how to justify this condition for ICT asset. The realisation of the benefit is driven by the personal judgment. By physically seeing the items are being used for the everyday working activities in the organisation, the benefit is realized.

In contrast, the difficulty to justify the future economic benefit is important to explain the frequent expense of ICT product and service in general. a_1 has the consistency of necessary condition equal to 0.87 and the coverage equal to 0.99. The result indicates that the difficulty to justify the future economic benefit alone is necessary and important to explain the frequent expense of ICT in general.

For Computer Software, Computer Service, and Telecommunication Cable and Telecommunication Service, the difficulty of justifying the future economic benefit alone was found to be relevantly necessary for the frequent expense. The necessary consistency of the necessary condition, a_1 (the difficulty of justifying the future economic benefit) and the coverage of a_1 are both above 0.75.

There are the indications from experts about when it is difficult to justify the future economic benefit of the ICT products and service. It is difficult when the expenditure

items are more related to or used in the organisation unit which generate cash outflow rather than the cash inflow, for example operation or administrative department,. The difficulty is also occurred when the items need to be together with the other items to provide the benefit.

The respondents also gave the comments about the difficulty to justify the future economic benefit of the ICT product and service in computer services and telecommunication services. One respondent stated that there is no trace of asset after the expenditure of this item occurred. Another issues indicated by the experts was the lack of technical knowledge to validate if the services would create the asset or the additional future economic benefit on the existing asset. Most of the respondents stated that the expenditure in these categories is always recorded as expense.

4.4.2 Justification for the identifiability of ICT asset

Base on the result in Table 4.11, the ease of justifying the "Identifiability" alone is trivially necessary for the capitalisation of general ICT products and services, while the difficulties of justifying this condition alone is important in explaining the frequent expense of general ICT products and services. The consistency of necessity of the condition A_2 is perfectly score at 1.00, while the coverage of A_2 is 0.61. The condition a_2 is a relevant and necessary condition with the consistency of necessity score equal to 0.87 and the coverage of a_2 is equal to 0.99.

For each ICT category, the analysis shows that the ease of justifying the "identifiability" alone is important to explain the frequent capitalisation of "Computer Hardware". The necessity consistency score of A_2 is 1.00 and the coverage of A_2 is 0.84. Both consistency indicators are above 0.75, thus, the condition A_2 is a relevant necessary condition to explain the outcome O, "the

frequent capitalisation". For Computer Software, and Telecommunication Equipment and Communication Cable, the ease of justifying the condition "identifiability", A_2, is trivial necessary for the outcome O, "the frequent capitalisation".

The difficulty of justifying the "identifiability", a2, is important to explain the frequent expense of Computer Services and Telecommunication Service. For "Computer Service", the condition a_2 has the consistency score of necessity equal to 0.91, and the coverage of the condition is 1.00. For Telecommunication Service, the condition a_2 has the necessity consistency score equal to 0.79 and the coverage score equal to 0.96. The consistency test shows that the condition a_2 is a relevant necessary condition to explain the outcome, frequent expense of Computer Service and Telecommunication Service.

There is not any consistency test for the condition, a_2, for the expense of Telecommunication equipment and Communication Cable. There is not enough case with the membership score of this condition greater than 0.5. Also, none of the consistency analysis was done for the condition, a_2, versus the outcome O^{-} for Computer Hardware because there is lack of case with the membership score greater than 0.5.

Base on experts, there are the circumstances that allow the ease of justifying the identifiability of the ICT asset, especially in Computer Hardware, Computer Software, and Telecommunication Equipment and Cable. Experts indicate that the tangibility of the items provide the ease for the justification. Also, the item is easy to justify for its identifiability when there is the active market that allows the organisation to measure the cost. One interviewer indicated when the expenditure is

computer hardware is being difficult to justify for the identifiability of asset as below:

> *"In certain situation where there is no active market to value the fair value of the assets. To justify this criterion, we can only use the invoice. When we purchase any items, we ask the supplier to separate the cost of each item so we can verify which items and its cost. The item with small cost would be recorded as expense."*

The tax invoice is commonly indicated by experts as a tool that can be used to justify the identifiability of ICT asset in Computer Hardware, Computer Software, and Telecommunication Equipment. For Computer Software, the software license and contract can also be used for the justification.

The difficulties of justifying the asset identifiability for some categories of ICT were indicated. It is difficult to justify the identifiability of software asset because this item is intangible. It is even more difficult for the self-developed software that is found in Computer Service category of ICT product and service. Respondent "Exp_3" commented about the difficulty in justifying the identifiability for Computer Service:

> *"The nature of this expenditure is complicated. For example, some equipment will be used in different projects after one project finish. The allocation of cost is very hard. If the allocation of cost is done in advance then it is easy identify the cost of asset. After the research and development success, the cost can be capitalised."*

For Telecommunication Service, all of the experts indicated that Telecommunication Service is always recorded as expense. They also indicated that it is very difficult to

justify the identifiability of the asset from the expenditure in this category. Respondent "Exp_5" pointed out that there is no trace of the asset after the expenditure.

4.4.3 Justification for the existence of ICT asset

The ease of justifying the existence of asset is necessary but trivial to explain the outcome O, "frequent capitalisation", of general ICT product and service. Condition A_3 has the necessity consistency score 1.00. The necessary condition A_3 is trivial because its coverage is equal to 0.65. This necessary condition is not important to explain the capitalisation of ICT product and service in general.

For Computer Hardware, the ease of the justifying the "Existence" (A_3) is important (necessary and relevant) to explain the frequent capitalisation (O). The consistency of necessary condition A_3 is 1.00, and coverage of this necessary condition is 0.90. For Computer Software, Computer Service, Telecommunication Equipment and Communication Cable, and Telecommunication Service, the ease of justifying the existence (A_3) is necessary but trivial for the frequent capitalisation (O). For these ICT categories, the necessity consistency of A_3 is 1.00. The coverage is below 0.75.

The difficulty of justifying the "Existence", condition a_3, alone is important to explain the frequent expense (O^{-}) of general ICT product and service. The test of the consistency of the condition, a3, as the superset of the outcome, O^{-}, indicates the necessity consistency score equal to 0.79 and the coverage equal to 0.98. The condition a_3 alone is relevant and necessary condition to explain the outcome (O^{-}) for the general ICT product and service.

The difficulty of justifying the capitalisation condition, a_3, is found to be important in explaining the frequent expense of Computer Service and Telecommunication

Service. For Computer Service, the consistency test shows that the necessity consistency of condition a_3 is equal to 0.95, and the coverage for the necessary condition a_3 is equal to 1.00. For the telecommunication services, the necessity consistency of condition a_3 is equal to 0.75 with coverage equal to 0.94.

The study cannot explain whether or not the difficulty of justifying the existence (a_3) is necessary for the frequent expense of computer hardware. This is also applied to Telecommunication Equipment and Communication Cable. This is because the condition **(a_3)** has no case with the membership score of this condition greater than 0.5 for Computer Hardware and Telecommunication Equipment and Communication Cable.

It is easier to justify the existence of the asset in Computer Hardware, Computer Software, and Telecommunication Equipment and Communication Cable. Indicated by most of the experts, the ICT products described in Computer Hardware and Telecommunication Equipment and Communication Cable are tangible. The experts also indicated that their organisations use asset list and tagging system to locate and verify the existence of these ICT assets physically. For computer software, respondent, Exp_2 said:

> *"Easy to check if it is working. Usually there is the CD. The software can be installed and seen any time to check the existence of the software."*

For Computer Service, Respondent, Exp_1, answered that it is easy to justify the existence of asset. He stated:

> *"Every time the software needs to be customised, we raise the issue form to the vendor. After the customization process complete, we can see the customised module of the software."*

For Computer service, the other respondents commonly indicate that the expenditure in this category is recorded as Expense. Respondent, Exp_2, pointed that:

> *"We don't have any experience to capitalise the cost of asset arising from this services. The software purchased is outsourced. And for services, it is hard to find the evidence to prove the existence of asset."*

4.4.4 Justification for the controllability of ICT asset:

For general ICT product and service, the ease of justifying the condition "Controllability", condition A_4, is trivially necessary for the frequent capitalisation, (O). A_4 has the consistency of necessary condition for the outcome O equal to 0.99. A_4 is trivial with its coverage score 0.59.

For different ICT categories, Table 4.9 shows that the ease of justifying the controllability alone is relevant and necessary for the frequent capitalisation of "Computer hardware", but trivial and necessary for the frequent capitalisation for other type of ICT product and service. For Computer Hardware, the necessity consistency A_4 is equal to 1.00, and A_4 is not trivial because the coverage of A_4 is 0.85. For the other categories of ICT product and service, A_4 is necessary but trivial for the outcome O.

The difficulty of justifying the controllability, a_4, is important (relevant and necessary) to explain the frequent expense (O^{-}) of general ICT product and service. For general ICT product and service, a_4 has the consistency score equalling to 1.00 and the coverage score equalling to 0.91. Both consistency scores of the condition a_4 are above 0.75, the cut off threshold.

For different ICT categories, the difficulty of justifying the controllability, condition a_4, is individually important for the frequent expense of Computer software, Computer service, and Telecommunication service. The consistency of necessary condition, a_4, is equal to 1.00 for Computer Software, Computer Service, and Telecommunication Service. The coverage of condition a_4 is equal to 1.00 for computer software, 0.93 for computer service, and 0.86 for telecommunication service. For these three ICT categories, the consistency analysis supports the argument that the condition, a_4, is relevant and necessary for the outcome (O^{-}). For Computer Hardware and Telecommunication Equipment, the consistency analysis of necessary condition on the condition a_4 was not done because there were no cases with the membership score of this condition greater than 0.5.

For experts, the proofs of purchase are important to justify the controllability of ICT asset in the organisation. Indicated by the experts, the proofs of purchase include tax invoice under the organisation identity and the contractual agreement are being used to prove the organisation controllability on the asset in Computer hardware, Telecommunication equipment and Communication cable. Participant, Exp_4, stated

> *"The purchase receipt is the proof of purchase and ownership."*

The asset list and the asset tag are also used for controlling asset. The answer from the expert "Exp_3" is quoted:

> *"Using the asset list and asset tag to control the asset. The asset list includes its name, location, value, and name of the users"*

Similarly, the participant, Exp_4 answered:

> *"We have the asset list and asset tag. The code used for tagging is defined by the organisation for each office/department of the organisation."*

For Computer software, the experts have indicated that the contractual agreement is important to prove the control and the ownership of the organisation over the asset. Exp_1 indicated that:

> "*For the big software that we recognised as asset, we have contractual agreement to justify the control over the assets. We are confident with the vendor and the usefulness of the asset. The vendor of the software is the big firm, for instance Microsoft*"

Also, the Exp_3 indicated the way to keep control over the future benefit of software asset as below:

> *"Going on usage of software. Training from (software provider[1]) based on the contact agreement. We also lay out a lot of condition in the contract agreement with (software provider[1]) to make sure that the support and maintenance is going on."*

For Computer service and Telecommunication service, the expenditure is commonly recorded as expense. Base on the experts, it is difficult to justify the existence of asset. For computer service, Exp_2 said that

> *"Same as what we said earlier, we are lack of experience on capitalising any asset arising from the expenditure in this category."*

[1] The identity of the software provider was omitted due to the ethical compliance

4.4.5 Justification for the reliability measurement of ICT asset

The ease of justifying the reliability measurement, condition A_5, is trivially necessary to explain the frequent capitalisation, O, for general ICT product and service. The condition A_5 has the necessity consistency equalling to 1.00 and has the coverage equalling to 0.60. In contrast, the difficulty of justifying this capitalisation condition is important for the frequent expense of general ICT product and service. The condition a_5 has the consistency necessity equalling to 0.94 and has the coverage equalling to 0.93.

For each ICT categories, the condition A_5, "ease of justifying the reliability measurement", is important to explain the outcome O, the frequent capitalisation, for Computer Hardware. For this category, both the necessity consistency (1.00) and the coverage (0.95) are above the threshold, 0.75. For the other categories, A_5 is trivially necessary for the outcome O. For the other categories, the consistency of necessary condition for A_5 is above 0.75 but the coverage for condition, A_5 is less than 0.75. The coverage of condition A_5 is 0.72 for Computer Software, 0.13 for Computer Service, 0.62 for Telecommunication Equipment and Communication Cable, and 0.05 for Telecommunication Service.

For different ICT categories, the necessity consistency of the condition a_5 is 0.88 for Computer service and 1.00 for Telecommunication service. The coverage of condition a_5 is 0.95 for Computer Service and 0.91 for Telecommunication Service. The condition a_5 is relevant and necessary for the frequent expense of Computer Service and Telecommunication Service.

The consistency analysis of the condition a_5, "the difficulty of justifying the reliability measurement" and the outcome O^{-}, "the frequent expense", was done only

for Computer service and Telecommunication service. The other categories do not have case with the membership score of condition a_5 greater than 0.5.

For the justification of the reliability measurement of the ICT asset in Computer Hardware, Computer Software, Computer Service, and Telecommunication Equipment and Communication Cable, tax invoice from the supplier is used for measuring the cost of ICT product and service. Indicated by Exp_1, there are circumstances where the measurement of cost is beyond the tax invoice. For Computer Hardware, Exp_1 indicated:

"For the items we purchase by ourselves, we can measure the cost through the invoice. The costs of the brand new items are also easy to be measured. Some assets received from donation need to be measure with the fair value method. If the items have the active market within the business environment, we can evaluate the cost base on the active market. Some items, that is very high tech and difficult to find the active market, we meet the difficulty to measure the cost."

For Computer Software, Exp_1 said:

> *"For the asset that we already paid in the beginning of the purchase, it is easy to measure the cost. But we are difficult to justify the cost incurred afterward as the cost of asset (i.e installation, consultancy services, etc)"*.

Also for Computer Software, the participant, Exp_3 indicated the invoice is used for measuring the cost and:

> *"The payment is made base on the stage of development. The payment is recorded into the class that has the nature as the Accounting payable. The payment is recorded as asset when development is finished."*

Not many participants provide detail response to the justification of the reliability measurement for the cost of the asset from Computer service. For Computer Service, Exp_1 indicated that it is neither easy nor difficult to justify this condition and:

"It is hard to distinguish with cost should be included."

4.5 Summary of Analysis

This chapter describes the analysis in the study on the classification of ICT investment in Financial Accounting. The early stage of the study, the information about ICT classification in the annual report of 86 ASX firms was collected and analysed. At the second stage of research, the study used *fs*QCA analysis on the information collected from the experts to explain two research propositions described in section 4.3.1.

At the first stage of research, the content analysis of the financial statements showed that ICT investment was being classified with non-ICT investment from 2006 to 2010. Majority of firms in our sample were classifying physical ICT asset under Property Plant and Equipment. These ICT assets can be recognised as the ICT products in Computer Hardware and Telecommunication Equipment and Communication Cables that were categorised by (ABS,2006). Also, the non-physical ICT assets including software and software development were being classified under the line items known as Intangible Asset. This study also indicated that the traditional accounting method such as diminishing method and straight-line were being used by majority of firms to amortise the software asset from 2006 to 2010.

The second stage of the study investigated the association between the difficulty of justifying the capitalisation conditions in the accounting standards and the capitalisation/expense behaviours of the organisation. A set of questionnaires related to the justification of each condition for the capitalisation of the expenditure in each ICT categories were asked to the experts. There were 5 experts participated in the study. The experts were from the organisations that use the accounting standards from IAS.

In the analysis, there were 5 cases in *fs*QCA for each category of ICT and 25 cases in *fs*QCA for general ICT product and service. Base on the literature reviews, 5 is the minimum number of cases that is allowed by *fs*QCA analysis. The information collected from the experts was calibrated into fuzzy score for *fs*QCA analysis. *fs*QCA analysis helped the study to explain two research propositions.

The first research proposition is "The ease of justifying the capitalisation conditions explains the frequent capitalisation of diverse ICT product and service." In regarding this proposition, the study found that ease of justifying the capitalisation conditions "future economic benefit", "identifiability", "existence", "controllability", and "reliability measurement" are necessary but cannot explain the frequent capitalisation of ICT product and service neither individually nor in term of causal combination (A_1*A_2*A_3*A_4*A_5). The causal combination (A_1*A_2*A_3*A_4*A_5) is necessary but trivial for the outcome O. The analysis on the individual relationship between each condition and the outcome shows that the ease of justifying every capitalisation condition individually is important to explain the frequent capitalisation for Computer Hardware, but trivial necessary for the frequent capitalisation of ICT product and service in general and the other categories.

Base on the theory of the necessary conditions, the study concludes that the ease of justifying any or all 5 capitalisations in the accounting standards does not guarantee the capitalisation of ICT product and service in general, except for Computer Hardware and Computer Service. For Computer Service, there are not any causal combinations that are relevant for the consistency analysis of necessary or sufficient condition for the outcome.

The second proposition in this study is "The difficulty of justifying the capitalisation conditions explains the frequent expense of diverse ICT product and service." The study identified that the difficulty of justifying the capitalisation conditions "future economic benefit", "identifiability", "existence", "controllability", and "reliability measurement" is important to explain the frequent expense of ICT product and service in general, Computer Service, and Telecommunication Service. For general ICT, Computer Service, and Telecommunication Service, the causal combination (a_1*a_2*a_3*a_4*a_5) is the sufficient and relevant for the outcome O^{-}, "frequent expense". The analysis for each individual condition a_1, a_2, a_3, a_4, a_5 shows that individually the condition a_1, a_2, a_3, a_4, a_5 are necessary and relevant to explain the outcome O^{-}. Base on the theory of sufficient and necessary conditions, the study conclude that the difficulty of justifying every capitalisation conditions together explain the frequent expense of ICT product and service in general, in Computer Service, and in Telecommunication Service.

In the result of the analysis of each individual condition, there were only two capitalisation conditions important to explain the frequent expense of ICT product and service in each category. The difficulties of justifying the future economic benefit alone is necessary and relevant to explain the frequent expense Computer Software, Computer Service, Telecommunication Equipment and Communication

Cable, and Telecommunication Service. Also, the difficulty of justifying controllability alone is necessary and relevant for the frequent expense of Computer Software, Computer Service, and Telecommunication Service.

The comparison between the distribution of the membership score in O and the fuzzy membership score in O^{-} showed that Computer Hardware, Computer Software, and Telecommunication Equipment and Communication Cable are often capitalised more than Computer Service and Telecommunication Service. In the *fs*QCA analysis, the ease of justifying capitalisation conditions in the accounting standards is not enough to explain the capitalisation, but the difficulty of justifying these conditions guarantee the expense of ICT. The experts also provided the information about the justification and the difficulties of justifying different capitalisation for different ICT categories. Chapter 5 gives the discussion based on findings from this study.

5 DISCUSSION AND INTERPRETATION

5.1 ICT investment from financial accounting view

5.1.1 Financial Reporting and Accounting Classification of ICT

The materiality concepts and voluntary concepts have warned us that what is recorded or classified might not be reported in the financial reports. The reverse is also possible. To verify the result from the first stage of the study, the study also collected the information about the classification of ICT asset and expense from the interview with the expert and the inspection of the organisational chart of account (COA). In our questionnaires booklet we asked to the participant:

> *"Name the header account (Class) and detail account (subclass) that you or your organisation's accountant use for bookkeeping the transaction of purchasing ICT product or services described in Appendix A?"*

For ICT asset, Table 5.1 shows the class and the sub class of asset in COA used by the organisation of each participant. The header account is the main class of asset which is equivalent to the line item on the face of the financial statement. The detail account is the subclass to the line item.

Only one participant has his organisation classifying ICT asset separately at the highest level of the COA and used "Information and Communication Technology" to describe that main class of ICT asset. The organisations of the other four participants used the header account with the descriptions such as "Fix asset" and "Property Plant and Equipment". Exp_5 indicated that his organisation uses "Fix asset" for the description of the line items that contains "Computer Hardware" as the subclass; and

use “Intangible asset” to describe the line items that contains “Computer software” subclass.

Participants	Header Account	Detail Account
Exp_1	-Information and Communication Technology	NA
Exp_2	-Property and Equipment	-Office Equipment -Computers and IT equipment
Exp_3	-Fix asset	-Information System and Electronic
Exp_4	-Property Plan and Equipment	-Computer Equipment
Exp_5	-Fix asset -Intangible Asset	-Computer hardware -Computer Software

Table 5.1 Classification of ICT asset in COA of the experts

At the lowest level, we identified the detail account that can be easily identified as ICT used by the organisation of the participant to record the ICT asset. Among all the participants, Exp_2 indicated that there are also the items described in the ICT products and services of (ABS, 2006) recorded under the detail account, “Office Equipment”.

Participants	Header Account	Detail Account
Exp_1	Communication Cost	IT Cost, Consultant Cost, End-user meeting Cost
Exp_2	Repair and maintenance	NA
Exp_3	Operating Expense	Repair and maintenance expense
Exp_4	Maintenance cost	Service maintenance
Exp_5	IT expense and administration	NA

Table 5.2 Classification of ICT expense in COA of the experts

For ICT expense, Table 5.2 shows the header accounts and the detail accounts that are being used for recording ICT expense in the organisation of the participants. The participants show that the expense in ICT product and services are being classified with other expense. For instance, participant, Exp_3, showed that his organisation record the expenditure of ICT product and services under the detail account, “repair and maintenance”, and the header accounting “Operating Expense”.

In summary, the classification of the assets identifying during the field interviews gave similar result to the preliminary stage of the research. For asset, at the high level, ICT asset was being classified under PP&E and Intangible Asset. At the detail level, we can still see that ICT asset was being classified under non-ICT asset class. For expense, the classification of ICT expense in the COA collected from the participants is also similar to the classification of ICT expense in the financial report of ASX listing firms.

5.1.2. The importance of ICT investment in financial reporting

In financial accounting, the information will be reported in such a way that is relevant for the economic decision of user of the financial statements. The materiality concept defines the management responsibility to ensure that the material item is being reported separately. The voluntary disclosure concept posits that the management will report even the immaterial information if it would bring positive impact to the investor's evaluation of the organisational performance and position. Learning from these two concepts, ICT asset and expense shall be reported separately if they are found to be important for the public especially the investors.

The accounting standards IAS1 and AASB101 also show that the aggregation of the items has to be done base on their materiality. The materiality concepts, the voluntary disclosure, and the aggregation rules in the accounting standards give us the conclusion that the item will be aggregated and reported depend on the level of materiality of that item. The location of the reporting is also material. The most material items will be reported separately on the face of the financial statement. The less material items will be reported separately on the note of financial statement and aggregated with the items base on the similarity of function and nature.

The result in chapter 4 section 4.1 shows ICT asset was being reported on the Note of the Financial Statement by most of the 86 firms. Other non ICT asset was also reported at the same level of the financial statements. These ICT asset and non-ICT asset were aggregated and were reported under two common line items. These two common line items are related to "Property Plant and Equipment" and the "Intangible Asset". The materiality, voluntary disclosure, aggregation rules in the accounting standards shows that the level of separate disclosure is equivalent to the level of the importance of the reporting items. The interpretation of the result of this study indicates that ICT asset was being considered as important as the other organisational asset from the financial accountant's point of view.

5.1.3. Nature and function of ICT investment in Financial Accounting

a) Nature and function of ICT asset

The result from the preliminary stage of this research can give the explanation to the role and the nature of ICT asset and ICT expense in the organisation. The aggregation of the asset and expense has to be done base on the similarity in function and nature. This aggregation rules are recommended in both IAS and AASB. The sample firms in this study were operating their accounting policies according the Australian Accounting Standards.

We found that majority of firms were classifying ICT asset under two line items, "Property Plant and Equipment", PP&E and "Intangible Asset". PP&E is described by the accounting standards IAS16 and AASB116 as the asset that the organisation used to support the operation, production, and services to its customer. Also, "Intangible Asset" is defined in the accounting standards to have similar role in the organisation. Base on the past researches in ITBV, ICT investment were also found

to provides similar support for the organisation. The similarity in the organisational functionality can be an explanation to why the ICT assets were being classified under PP&E and Intangible Asset from 2006 to 2010.

The similarity between the nature of ICT and the nature of PP&E can also be the cause for the organisations in our study to classify ICT under PP&E. We identified that 38% of firms in average from 2006 to 2010 were classifying the ICT asset under PP&E. Also, we found that "computer hardware", "computer equipment", and surprisingly "computer software" were the most used descriptions for those ICT asset. Except computer software, computer equipment and computer hardware can be found in the "Computer Hardware" Category in the classification framework of (ABS, 2006). Naturally, the physical substance is the nature of the ICT product and services in "Computer Hardware", "Telecommunication Equipment and Communication Cable". In accounting standards, PP&E is the asset with the physical substance.

ICT assets were also found to be reported under Intangible Asset by 63% firms in average from 2006 to 2010. The descriptive terms used by the organisation to describe these ICT assets are related to software and software development. Software and software development are the ICT products and services described in "Computer software" and "Computer service" category in (ABS, 2006).

It is reasonable that software were being classified by the firm as the intangible asset. The intangible asset is prescribed by the accounting standards as the non-monetary asset and without physical substance. Software is without physical substance by nature. Therefore, the role and the nature of the software asset can be the same as the intangible asset.

b) Nature and function of ICT expense

Over one third of firms in our sample were classifying IT expense under non-IT expense. “Depreciation and Amortisation Expense”, “Operating expense” and “other Expense” are the highly found line items on the income statement. These line items contain ICT expense sub classified and reported in the note to financial statements.

ICT expenses were found to be reported under Operating Expense on the income statement. These ICT expense including Information Technology Services, computer maintenance, data communication and processing charge, and so on are commonly related to ICT services. Base on the aggregation rules in the accounting standards, we can interpret the result of the study that firms are considering ICT expense as part of their operating expense.

We also found that ICT expenses were being classified under “Depreciation and Amortisation Expense”. These are the depreciation of ICT asset that were being capitalised by firms. Generally, the ICT asset would be depreciated over time as the non-ICT asset, and the depreciation of those ICT assets would be recorded and reported as Expense. The depreciation of ICT assets of the sample firms in our study were being aggregated with the depreciation of the other asset and reported under the same line items, “Depreciation and Amortisation Expense”.

5.2 Issues of the current financial accounting for ICT

One can argue that financial statements are not specialised for reporting ICT investment. The accounting standards prescribe that the financial statements are the general purpose financial statements for the general users. The investor and the shareholders are included as the general users described in the accounting framework. The investor needs the information in financial statements to assess the

value of firm for trading purposes in the stock market. The shareholders need the information on financial statements for assessing the performance of firms' management and the ability of firm in returning on their investment. These are being described in the accounting standards and frameworks.

In contrast to the conservative view in the accounting standards and frameworks about the general purpose financial statements, firms' financial statements provide quite limited information for the investor in the age of Information Technology. It is strongly supported that there is the need of the separate disclosure for ICT investment for the investors. Henderson et al. (2010) identified that the information about ICT expenditure explained the firm's future performance and not reporting ICT expenditure to the investor caused the mispricing on firm market value. In Chapter 3, there are also strong evidences from past researches in ITBV that shows the positive association between IT investment and organisation market value.

In strategic management, the analysis methods for assessing and evaluating the organisation ICT investment for strategic purposes majorly requires the separate measure of ICT investment. The expenditure of ICT investment needs to be separated from non-ICT investment. For instance, in Chapter 3, ICT expenditure needs to be separated from PP&E, Intangible Asset, and Operating expense.

This study strongly indicates that ICT asset and expense were highly being classified with non-ICT asset and non-ICT expense even at the recording level. The definition of ICT products and service is different between Financial Accounting and ICT researchers/practitioners. The evidence from this study also suggests that organisations currently do not have clear definition of ICT investment to separate the component of ICT expenditure from the other type of expenditure. For example, this

study found that ICT expenditure was being classified in Office Equipment. Hidden IT cost problem in the concern of the past research highly exists. Therefore, the risk of mismeasuring ICT investment at firm level is high for the practitioners to use the information from Financial Accounting and Financial Reports to measure ICT investment for either researching or management purposes.

5.3 Capitalisation of ICT product and services

The result of the study shows that Computer Hardware, Computer Software, and Telecommunication Equipment and Communication Cable are being capitalised more often than being expensed. Also, the organisation expenses more of Computer Services and Telecommunication Services. In the calibration of the conditions and the outcome for frequent capitalisation, the fuzzy score 0.5 indicates the cross over point or neither in nor out of the membership. When the score move closer to 0.05, the conditions is more fully out of the membership. The closer to 0.95 refer to more in the membership.

In fsQCA of our study, the fuzzy variable O measures the frequent capitalisation of ICT product and service. In Computer Hardware, Computer Software, and Telecommunication equipment and communication cable, there are more cases with the fuzzy score of the outcome O greater than 0.5. Also, for frequent capitalisation of ICT product and service in these categories, the study does not experience the lack cases for the relevant causal condition and causal combinations. In contrast, we experience the lack of cases with the membership in the causal condition and causal combination greater than 0.5 for frequent expense of ICT product and service in these three categories. This can be seen in Table 4.8 and Table 4.9.

The organisation of experts participated in this study expense Telecommunication Service and Computer Service more often than capitalise. The fuzzy score of the outcome O of most cases in Computer Service and Telecommunication Service are far less than 0.5. Also, there are no relevant conditions or causal combinations that are associated with the frequent capitalisation of Telecommunication service and Computer service. This is because there are lack of cases that allows us to identify the relevant causal condition and causal combination for the frequent capitalisation in these two ICT categories.

In fsQCA analysis, the study experienced the lack of cases with the membership in the relevant conditions for the frequent capitalisation of Computer Service. Table 4.5 indicates that there are 0 cases with the membership in the relevant causal combination greater than 0.5 in Computer Service. Also, Table 4.9 also shows the lack of case for two causal conditions, future economic benefit and identifiability, which does not allow for the consistency analysis of the necessary condition for the frequent capitalisation of Computer Service.

5.4 Importance of asset definition for ICT capitalisation

Literatures and the accounting standards suggest that asset should have required characteristic including “future economic benefit”, “identifiability”, “controllability”, “existence”, and “reliability measurement”. These conditions are considered as the high level capitalisation conditions, and the ease of justifying these conditions should lead to frequent capitalisation of ICT product and service. The result of this study indicated that these high level capitalisation conditions are necessary but not enough to explain the capitalisation of ICT product and service.

The result of *fs*QCA without categorizing cases according to ICT categories explains that all high level capitalisations conditions either in combination or individually were necessary but trivial to explain the frequent capitalisation of ICT product and service. After categorizing the cases according to the category of ICT product and service, the ease of justifying the capitalisation conditions in combination of all the conditions was also necessary but trivial for the frequent capitalisation of ICT product and service in all categories except Computer Hardware. Also, each condition alone was individually trivial and necessary for the frequent capitalisation of all ICT categories except Computer Hardware.

A condition is necessary for the outcome if it always occur when the outcome occurs, but its occurrence does not guarantee the outcome. Therefore the result of the analysis can be interpreted in this way. The organisations consider justifying all the high level capitalisation conditions when attempting to capitalise the ICT product and service as asset. But the justification of these conditions does not guarantee that firm would capitalise the ICT product and service as asset. There can be the other criteria that could impact the firm capitalisation decision.

The analysis for the necessary conditions for the frequent capitalisation of different ICT categories indicates that the causal combination of all the conditions together is important for frequent capitalisation of Computer Hardware. The analysis for each high level capitalisation condition individually also indicates that being able to justify each individual capitalisation conditions is important for frequent capitalisation of Computer Hardware. Therefore, the result can be interpreted that failing to justify only one capitalisation condition would result in non-capitalisation of ICT product and service in Computer Hardware.

The result of the fsQCA for the frequent capitalisation of general ICT product and service is different from the result of fsQCA for the frequent capitalisation of ICT product and service in each category. The difference indicates that the organisations consider capitalisation factors differently for different category of ICT product and service. For the capitalisation decision of computer hardware, organisation simply takes the definition of asset in accounting framework into the consideration. For the capitalisation of ICT product and service in the other categories, there can be additional factors that could impact the decision making to capitalise.

5.5 Importance of asset definition for ICT expense

The justification of the high level capitalisation defined in this study is important for the frequent expense of ICT product and service in overall. The causal combination of all the conditions has the sufficiency relationship with the outcome. Base on the consistency analysis, the difficulty of justifying all the high level capitalisation conditions combining together is relevantly sufficient to explain the frequent expense of general ICT product and service.

The theory of the sufficient condition posits that the absence of the sufficient condition lead to the absence of the outcome. The presence of the sufficient condition guarantees the presence of outcome. For general ICT product and service, we can interpret the result of this study that firms facing the difficulties of justifying all five capitalisation conditions, future economic benefit, identifiability, controllability, existence, and reliability measurement frequently expense ICT product and service.

For each ICT category, the capitalisation condition defined in the accounting standards are important to explain the frequent expense of Computer Service and

Telecommunication service. The causal combination (a_1*a_2*a_3*a_4*a_5) is also sufficient for the frequent expense of Computer Service and Telecommunication Service. Base on the theory of the sufficient condition, the difficulty of justifying the high level capitalisation conditions all together lead to the expense of ICT product and service in Computer service and Telecommunication service.

Unlike the causal combination, each condition individually has the necessity relationship for the frequent expense of ICT product and service. For general ICT categories, the consistency analysis shows that each condition individually is relevant and necessary to explain the outcome, the frequent expense of ICT product and service. For each ICT category, each capitalisation condition is relevant and necessary for the frequent expense of Computer Service, and Telecommunication Service. We can say that the difficulties of justifying each capitalisation conditions individually is important to explain the frequent expense of overall ICT product and service, computer service and telecommunication service. Firms would record ICT expenditure in Computer Service and Telecommunication Service as expense because their accountants experience the difficulties to justify one or any of the capitalisation conditions.

We can interpret that firm that experience the frequent expense of ICT product and service also experience the difficulties of justifying the capitalisation conditions. The difficulties of justifying any of the capitalisation conditions defined in this study would lead to the expense of ICT product and service. It is an indication about the importance of asset definition in the accounting standards for the expensing of ICT product and service.

5.6 Other consideration for capitalisation of ICT

Based on the discussion in Section 5.4, the capitalisation conditions including future economic benefit, identifiability, controllability, existence, and reliability measurement, cannot provide the complete explanation to the capitalisation of ICT asset in the organisation. Being able to justify all or any of these conditions would not guarantee the capitalisation of ICT investment. The literatures also inform that the capitalisation threshold is another condition other than the condition in the accounting standards that is used in the organisation for the capitalisation of asset. Based on the information from experts, the capitalisation threshold and the other additional factors also play parts in defining an ICT asset of the organisation.

Base on the indication from the expert, the duration and the cost of the asset also impact the capitalisation decision. When the cost of item is too small, ICT will be recorded as expense. This indicates the use of the capitalisation threshold. Base on the indication from experts, the capitalisation threshold for ICT asset is between 50USD and 100USD. The other two experts did not give any indication of how much is the capitalisation threshold for the capitalisation of ICT asset; however, they still indicated that the item is normally recorded as expense if its cost is too small. In addition to the capitalisation threshold, the useful life of the asset is also taken into account for the organisation consideration of whether ICT expenditure shall be capitalised. Base on the expert opinion, the item that can be used in the organisation more than one accounting period will be capitalised.

5.7 Organisations' assertion of ICT asset

5.7.1 Future Economic benefit

Future economic benefit is a necessary condition for the capitalisation of ICT product and service in our research study. Even though, justifying this condition alone won't allow for the capitalisation of ICT product and service, it is good to know how the organisation asserts this capitalisation criterion. Three participants have provides extra information when they chose to answer "easy" to justify the future economic benefit for different categories of ICT product and service. Base on their responds, the future economic benefit of ICT asset can be justify in the following situation:

- It easy to perceive the benefit that can be related to the increase of cash inflow to the organisation or the reduction of the cash of the outflow from the organisation.
- There is the acknowledgement of the investment and the benefit throughout the management team in advance of the investment.

For the participants, it is easy to justify the benefit of Computer Hardware, Telecommunication Equipment and Cable, and Computer Software that are acquired with one purchase transaction. For Computer Hardware and Telecommunication Equipment, the justification for the future economic benefit become difficult for the subsequent expenditure to the existing asset, especially for the small expenditure such as the replacement parts or maintenance. For software, the additional subsequent expenditure for customizing or adding additional modules to the existing software asset is also difficult to be justified for its future economic benefit. For

computer service, the participants are unsure if the additional subsequent expenditure could bring additional benefits that can be considered as additional asset.

5.7.2 Identifiability

Identifiability is another capitalisation criteria suggested in the accounting standards and literatures as the characteristic of the asset. The result of our analysis shows that justifying this criterion is necessary, but no sufficient, to explain the frequent capitalisation of ICT product and service. Based on the information given by the participants, to assert the identifiability of an asset, its value must be definable.

As indicated by the respondents, the value of asset is easier to be defined when it is purchased by the organisation. ICT product and service included in Computer Hardware, Computer software and Telecommunication Equipment and Cable is not hard to justify for its identifiability. Normally, for Computer Hardware and Telecommunication Equipment and Cable, the organisation uses the tax invoice as the reference of its value. The tangible nature of these items enhances the ease to justify for its identifiability. For Computer Software, if tax invoice is not available, the amount of payment to the software license is considered as the value of asset.

In special circumstance, the organisation uses the fair value method to define the value of asset. When the cost of the ICT asset is not available at the time of acquisition, the organisation needs to identify the asset value in an available market. A participant has indicated that his organisation need to assess the value of an item in the accessible market, when the item is acquired from donation and the tax invoice is not available.

There are circumstances when the identifiability of asset is difficult to justify for ICT product and service. It is difficult when the items are acquired in bundle or with more

than one purchase transactions, for example software development. For ICT product and service that are purchased in bundle, it is difficult to justify the identifiability of each item when the price of each item is not separated by the supplier in the tax invoice. The participants in our study have a problem to justify the identifiability of the software asset when it is purchased or already installed in bundle with Computer Hardware (Desktop).

For Computer Service, identifiability is difficult to be justified, and the professional expertise is required. Base on (ABS,2006), the software development is included in computer service category. The participants indicated that it is required strong experience to capitalise the asset arising from the expenditure in this ICT category. It is difficult to make a clear judgement if the service could bring an identifiable asset or additional identifiable asset to the organisation.

The difficulty of justifying the identifiability of asset is also related to the problem in the cost allocation. Quoted from a participant, "The nature of this expenditure is complicated. For example, some equipment will be used in different projects after one project finish. The allocation of cost is very hard. If the allocation of cost is done in advance then it is easy identify the cost of asset". In term of project, the cost allocation to the asset should be done in advance. Therefore, the separate value of each identifiable asset can be defined easier, and the identifiability of asset can be justified accordingly.

5.7.3 Existence

Existence is another criterion suggested by the accounting standards and found as a necessary condition for the frequent capitalisation of ICT asset. The existence can be easily justified when the asset can be seen physically in use. It is easy to justify the

existence of Computer Hardware and Telecommunication Equipment and Cables. The participants indicated that asset list and asset tag are being used to help asserting the existence of ICT asset. The asset list includes the information about the ICT asset in the organisation. The asset list includes the name of the asset, location, value and the asset tag. The asset tag is a unique identification that is attached to each existing asset. For software asset, the existence of Compact Disc and contractual agreement, licence are the proof of ownership and can be used to prove the asset existence.

5.7.4 Controllability

The organisation has to be able to prove its controllability over the assets that are reported on its financial statements. This is a necessary condition that explains the frequent capitalisation of ICT asset in our analysis. It is also a requirement stated in the accounting standards. Base on the expert indication, supporting documents is important to justify the controllability of an asset. The supporting documents that represent the proof of ownership include tax invoice, official receipts, are used to prove the organisational controllability over the ICT asset in Computer Hardware and Telecommunication Equipment and cable. In addition, most of the experts indicated that the asset list and the asset tag were being used to control the asset.

Base on the discussion in literature review, the controllability is not only about controlling the asset, but also controlling over the future economic benefit flowing from the asset. For the asset arising from the expenditure of the ICT product and service in Computer Software and Computer Service, the contractual agreement plays an important role to allow organisation having control over the benefit flowing from the asset. For instance, the organisation can lay out the conditions in the contractual agreement for the service provider to provide the ongoing training to

staffs. The ongoing training would enable the organisation capability to keep the benefit flowing from the asset.

5.7.5 Reliability measurement

The accounting standards recommend that the asset can be capitalised if its value can be measured reliably. The participant has indicated that it is easy to justify the reliability of the measurement for the cost of asset in Computer Hardware, Computer Software, and Telecommunication equipment and communication cable. For these categories of ICT product and service, the organisations use the supporting documents including tax invoice and contractual agreements as the tool measure the cost.

Base on the participant's experience, the difficulties of measuring the asset cost occurs when the fair value of the asset cannot be defined. Indicated by one of our participants, this problem can occur for the item that is too new and high tech to the region that the organisation is operating.

The difficulties of measuring the asset value also incurs in software development. Participant is difficult to decide if certain expenditure such as installation, consultancy and the other subsequent cost shall be included into value of capitalised asset. The capitalisation of the expenditure items described in Computer Software and Computer Service categories of ICT product and service are difficult for the experts.

5.8 The reflection the research methodology

There were certain issues incur in the procedures of this research and they should be addressed for the benefit of the future research. First, it was difficult to get the

acceptance for the interview from the experts in the accounting fields. Second, the complexity of the accounting classification policies in the organisation is beyond our expectation. One individual or an accountant cannot give enough information for our investigation. Third, we notified during our field study that the experts in accounting fields have the difficulties in identifying ICT product and service. Based on the research experience, the following procedure should have been done:

- Performing content analysis on the financial statements of firms to identify the ICT incentive firms and their classification of ICT asset and expense.
- Analyse the Chart of Account (COA) and Asset List of the ICT incentive firms to identify the detail classification of ICT asset and expense at recording level.
- Perform the interview with experts in the ICT incentive organisation on the classification ICT asset and expense identified from COA and Asset list.

In the current study, we also collected the information from the annual report of ASX listing firms to get a brief understand of ICT classification at firm level at the preliminary stage of the study. To get deeper understanding into the classification of ICT investment, we proposed that the firms included in the preliminary stage of the study should be also included for the field interview in the second stage. Financial statements is also a public financial report as well as the data source that does not required any complicated procedure to access, for example, Ethic approval in our study.

The content analysis of the financial statements can let us identify the ICT incentive firms and gives us the abstract on the classification of ICT investments of the organisation. It should already well-understood from literatures as well as this study

that ICT is important for firms who reports ICT investment on their financial statements. The ICT reported firms have more experience on classifying ICT investment in financial accounting. We suggested that these are the type of firms that should have been invited for the detail investigation on the topic at the second stage of this study.

At the second stage of our study, we conducted the field interviews with the experts and use the classification of ICT product and service in (ABS, 2006) to describe ICT to the experts. ICT product and service were described to experts for every set of questionnaires because literature has informed us about the variation of the ICT definition. The experts are the accounting experts might have limited knowledge on ICT product and service. We also notified this problem during our field interview. However, our current procedure does not require the accountants or the participants that knows much about ICT product and service; it was time consuming.

The investigator should identified and self-classify the existing ICT asset and expense in the organisation. The detail analysis of the organisation chart of account (COA) and the asset list should be done in advance to the interview with the experts. By doing this, only the existing ICT asset and expense are included in the interview that allow the investigator to have more time focusing on collecting the information about the classification and capitalisation ICT from experts.

In our study, we found that an accountant cannot answer all the related questionnaires. Based on our experience, the classification of asset and expense and the capitalisation policies are not decided by the accountant only. The interview should be done with any related personnel who involve in decision making in organising the organisational COA. Based on our experience, the experts in senior

financial management level could provide more information regarding the classification of investment in financial accounting.

At the end of the study, the analysis can be performed. We used *fs*QCA analysis to verify if the justifications of high level capitalisation conditions explain the organisation capitalisation and expense of ICT expenditure. Theoretically, *fs*QCA allows for the analysis with small n cases, 5 cases. Yet, based on the experience with the current methodology implemented in this study, getting more cases shall be recommended.

It was difficult to get the commitment from the organisation to participate in the study. The accounting information is considered as sensitive for the organisation. Also, it is required length of time to get acceptance for the interview, and the participants might not be able to make much time for the interview due to the nature of their work. In our study, we only get low rate of the participants. The improvement to the research methodology is required for the future researches.

5.9 Summary of the discussion

The study collected the information from the annual reports of 86 firms who were being listed in ASX from 2006 to 2010. The result shows that expenditure in ICT investment was being classified with the expenditure of other investment. ICT asset were commonly found to be reported under two common line items, PP&E and Intangible Asset. ICT expenses were also found to be reported under non-ICT expense such as Operating expense and administrative expense.

In the second stage this study, it was identified that the classification of ICT asset and expense in Chart of Account (COA) of every participant's organisation were similar to the classification of ICT asset and expense in the financial statements of

ASX listing firms. The result from both stage of research strongly suggests that ICT expenditure is not consistently separated from the other expenditure at firm levels. The definition of ICT investment is unclear from the reporting level to recording level of financial accounting. It is a concern of this study and previous if the current firms' behaviour in classifying the ICT investment in financial accounting is relevant for the future management of the organisation as well as the investors.

Differentiating between ICT asset and expense is an initial step to understand the classification of ICT investment; which means we need to understand the capitalisation of ICT investment before taking any further step. 5 experts in financial accounting participated in the study to provide information about ICT classification and capitalisation in their organisations. The *f*sQCA were used to analyse the expert's responses and shows that being able to justify any or all the capitalisation conditions including future economic benefit, identifiability, existence, controllability, and reliability measurement are necessary but not sufficient to guarantee the capitalisation of ICT product and service, , except for Computer Hardware. This result indicates that there could be the other factors that impact the capitalisation decision.

The capitalisation threshold and the useful life of items were identified to have impact the capitalisation conditions of ICT asset. This is consistent to what has been suggested in the literature review. Even though, few experts did not clearly indicate the capitalisation threshold being used in their organisation, all experts showed that the ICT expenditure will be recorded as expense if the amount of the expenditure is too small. Few experts also pointed out that the items will not be recorded as asset if it cannot deliver the benefit more than one accounting period.

The study also found that firms frequently expense ICT product and service when any or all of the capitalisation conditions defined in the accounting standards are difficult to be justified. In term of a causal combination of all conditions, the difficulties of justifying all the capitalisation conditions are consistently sufficient for the frequent expense of ICT product and service. For each individual condition, the difficulties to justify any of the capitalisation conditions are necessary and relevant for the frequent expense of ICT product and service.

Computer hardware, Computer software, and Telecommunication equipment and Communication Cable are easy to justify for the definition of asset and are more capitalised by the organisations. The capitalisation conditions are easier for justification when the items in these categories are acquired separately and in one purchase transactions. For computer hardware and telecommunication equipment, their future economic benefit, identifiability, and existence are easier to be justified because of the tangibility characteristic of these items. For Computer Software, the justification of the future economic benefit is easy when the managements realise about its current usage in the organisation. Proof of ownership including tax invoice, contractual agreement, and licenses helps to justify the identifiability, the existence, the controllability, the reliability measurement of ICT asset. Asset list and asset tags also play an important role for the justification of the controllability and the existence of the ICT asset.

Computer Service and Telecommunication service have often been expensed by the organisation of our participants. For the expenditure in these categories, it is highly difficult for the experts to justify the capitalisation conditions defined in the definition of asset of accounting standards. *fs*QCA in our study showed that the difficulties to justify any or all of the capitalisation conditions in the accounting

standards is necessary and relevant to explain the expense of these categories. In addition, the calibration of the fuzzy score for the outcome O, frequent capitalisation of ICT product and service, shows that O score distributed at lower than 0.5 which indicated that cases for computer service and telecommunication service were almost not fully in the membership of frequent capitalisation.

Base on the indication from the experts, there are circumstances that allow for easier justification of capitalisation conditions for ICT investment. For large ICT investment, the investment and the benefits shall be considered and acknowledged by the management team in advance. The cost allocation to the asset shall also be done in advance. Professional expertise is required to capitalise large ICT investment such as project.

In this chapter, we proposed that the detail analysis on the organisational COA and asset list shall have been done in advance to the interview. Instead of focusing the questionnaire for every categories of ICT product and service in (ABS, 2006), the questionnaires shall have focused on the existing ICT asset and expense in the organisation. Also, the interview should have been done with not only one experts but any experts that involve in organising the accounting policies and COA. In our current study, it was identified that the senior financial management team were the best candidates for the interview in regarding the classification of ICT investment in financial accounting.

6 CONCLUSION, LIMITATION, AND FUTURE RESEARCH

6.1 Conclusion

This study is an initial investigation about the accounting classification of ICT investment. The analysis of the annual reports of 86 firms published in five subsequent accounting periods, 2006 to 2010, showed that ASX listing firms were classifying the ICT expenditure with the other type of expenditure at the financial reporting levels. In Financial Accounting, ICT expenditure can be an asset or expense in the organisation. ICT asset were commonly classified as PP&E and Intangible asset, and ICT expense were commonly found as part of Operating Expense. The investigation into the chart of account (COA) of the organisations in Cambodia that follow IAS accounting standards similar to the ASX listing firms showed similar pattern of ICT classification.

The explanations about the current classification of ICT investment in the financial accounting of firms in this study were included in this thesis. ICT expenditure is not separately classified by the organisations because the nature and function of ICT expenditure in the organisation are similar to other type of expenditure. Also, separate classification of ICT expenditure in Financial Report is depending on how important ICT investment is comparing to the other type of investment.

The classification of ICT investment of firms in our study can create different issues. First, it incurs hidden ICT cost in firm level data. Hidden ICT cost in firm level data is a problem for practitioners who require separate measure of ICT investment. Researches in IT have developed different techniques that can be the tools for strategic management of ICT investment in organisation. Those techniques required

separate measure of ICT investment. Therefore, currents classification of ICT investment can also affect the organisation's management of its ICT investment which is critical for the success of the organisation. At last, the current classification of ICT investment in Financial Accounting provides limited information about ICT investment to the organisational management and investors in the information age.

Understanding when ICT expenditure would be capitalised or expensed by firms is an initial step to understand the classification of ICT investment. Consistently suggested by literatures and the accounting standards from IFRS, the organisations are required to fulfil 5 capitalisation conditions to capitalise the expenditure. These five conditions are the high level capitalisation conditions and include future economic benefit, identifiability, existence, controllability, and reliability measurement. The difficulties of justifying these conditions should leads to the expense of ICT product and service. This has become the topic for the investigation at the later stage of this study.

Five experts in finance and accounting from the organisations that have the accounting policies complying with IAS participated in this study. Experts were asked to rate how often he or she experienced the capitalisation and expense of ICT product and service in different categories described in (ABS, 2006). Experts were also asked to rate the difficulty level of justifying each capitalisation conditions for each category of ICT product and service. The information regarding the justification of every condition for each ICT categories have been collected. The information collected from the experts was analysed using different techniques in *fs*QCA. The consistency analyses of necessary condition and sufficient condition were applied to study the association between the difficulties of justifying each capitalisation

conditions and the frequent capitalisation/expense of ICT product and service in each category.

The study found that Computer Hardware, Computer Software, and Telecommunication Equipment and cables are easier to justify for the capitalisation conditions in the accounting standards and frequently be capitalised by firms. Computer Service and Telecommunication service are more often recorded as expense. We also found that the capitalisations conditions in the accounting standards are necessary but not sufficient to explain the capitalisation of ICT product and service in every category except Computer hardware. It shows that firm considered additional conditions other than the accounting standards for the capitalisation of ICT expenditure all categories except Computer Hardware. Being identified during the interview, the capitalisation threshold and the useful life of the items can be the other criteria. In contrast, the five capitalisation conditions are sufficient to explain the frequent expense of ICT product and service, especially Computer service and Telecommunication service.

The result at the later stage of the study indicated that the capitalisation of the ICT asset is beyond the accounting standards. Capitalising physical ICT asset is simple. The difficulties occur when the ICT assets are acquired in bundles, through services and in term of large investment. The research also highlights different issue and different justifications for criteria in the accounting standards to capitalise different type of ICT expenditure.

The result of the study is not mean to create any negative view of the accounting practices of ICT investment. Instead, the result of the study can positively contribute to research and development in both fields. It helps to inform IT researchers to pay

more attention to the hidden ICT cost problem when using firm level data to measure ICT investment at firm level. This study also provides a cross understanding on the measurement and the classification ICT investment to the partitioners in both IT and accounting fields. Accountants are generally responsible for recoding the expenditure when it occurs. The ITBV researchers generally need the accurate measure of ICT investment and develop different methodologies that help firms to evaluate and manage ICT investment strategically. The strategic managements for successful ICT investment can be strengthen if the practitioners in IT and accounting work together. At last, this study contributes to both IT and accounting fields informatively and indicates different direction for future researches and development.

6.2 Limitation

The result of this research study shall be used with the consideration of several significant limitations. First, this study had lower rates of the acceptance from the experts in accounting fields for the investigation at the later stage of the study. Only five participants accepted the invitation and only three participants allowed for the interviews. The accounting information is sensitive for firms. Furthermore, the experts were naturally busy with their working schedules. Our analysis is depends on the strength of *fs*QCA analysis that theoretically allows for five cases analysis.

Another limitation is that the questionnaires for the experts were repetitive and too long to be done in one interview session. The questionnaire booklet was used to collect the information from the experts who did not allow for the interview. Also, one expert in an organisation could only provide limited information for this study due to the complexity of the accounting policies on the classification of investment. In our study, two participants submitted the respond through the questionnaire

booklets due to the need to review the organisation's documents and consulting with their colleague.

Last but not least, the participants and the organisation participates in our study were in Cambodia, a developing country. The organisations in Cambodia have less experience on ICT investment than the organisation in the developed country for example, Australia. The experts who are the participants in this study had difficulties to identify if the items the researchers interviewed about are ICT. The description of the ICT product and service in each category from (ABS, 2006) were used to describe the ICT product and service defined for each questionnaire to the experts.

6.3 Future research

Identifying the relevant and sufficient conditions for different classification of ICT investments shall be proposed as a future research. This future research should also include the capitalisation of ICT investment. This is because differentiating between ICT asset and ICT expense is also part of classification procedure. Base on the current study, we believe that are surely many other factors have not been found as the conditions that leads to certain classification of ICT investment.

To identify the relevant and sufficient conditions for different classification of ICT investment, we suggest the improvement to the methodology of this research. We partially recommend that the existing ICT asset and ICT expense shall be identified in advance to the interview with the experts. To identify the existence ICT asset and expense, the detail analysis on COA and asset list of the organisation can be done. All related personnel who involve the decision in organisation capitalisation policies shall be identified and invited to participate in the study. By adopting the proposed procedure, we hope to spend less time required for each interview session and more

chance get the participation from more experts from many more organisations than the current study. Financial auditor shall also be included in this future research because they are the professional who generally review the correctness of the financial reports before being published.

The result of this future research can be used for developing the framework for classifying the ICT investment. It can also improve our understanding on how the organisation valuing their various ICT assets. Valuing ICT asset is important for today organisation since ICT has become more critical for the success of the organisation. At last, this future research can benefit future investors in valuing ICT asset of the organisation.

Another future research can use the collected data in the current study to assess whether the reported ICT asset and expense can alter the share value of the organisations. Not much information in this study was drawn out from the collected data except the description of ICT classification in the firm's annual report. The collected data include other information such as the book value and gross value of ICT asset, and the amount of ICT expense. This information can be used to serve for future research mentioned earlier. The positive result of this research shows that the reported ICT asset and expense does impact the investor decision. It would act as a motivation to the organisation and their accountants to classify and report ICT asset and expense in their organisation appropriately and separately.

APPENDICES

Appendix 1: List of sample firms (86 Firms)

ASXCODE	COMPANY NAME	SECTOR (*GICS Classification)
AEI	Aeris Environmental Ltd	Industrial
AEK	Anatolia Energy Limited	Materials
AEM	Artist & Entertainment Group Limited	Consumer Discretionary
AKK	Austin Exploration Limited	Energy
ALB	Albidon Limited	Materials
ALL	Aristocrat Leisure Limited	Consumer Discretionary
AMB	Ambition Group Limited	Industrial
AMP	AMP Limited	Financials
ANZ	Australia & New Zealand Banking Group Ltd	Financials
ARU	Arafura Resources Limited	Materials
ASX	ASX Limited	Financials
AVE	Aevum Limited	Health Care
AYR	Alloy Resources Limited	Materials
BEN	Bendigo and Adelaide Bank Limited	Financials
BOQ	Bank of Queensland Limited	Financials
BXB	Brambles Limited	Industrial
CAA	Capral Limited	Materials
CAH	Catalpa Resources Limited	Materials
CBA	Commonwealth Bank of Australia	Financials
CCP	Credit Corp Group Limited	Financials
CGF	Challenger Limited	Financials
CGM	Cougar Metals NL	Materials
CIL	Centrebet International Limited	Consumer Discretionary
CIX	Calliden Group Limited	Financials
CMG	Chandler Macleod Group Limited	Industrial
CMV	CMA Corporation Limited	Industrial
CND	Clarius Group Limited	Industrial
CNI	Centuria Capital Limited	Financials
COH	Cochlear Limited	Health Care
COI	Comet Ridge Limited	Energy
COU	Count Financial Limited	Financials
CRE	Crescent Gold Limited	Materials
DRK	Drake Resources Limited	Materials
EDE	Eden Energy Limited	Energy
EQT	Equity Trustees Limited	Financials
FLT	Flight Centre Limited	Consumer Discretionary
FPA	Fisher & Paykel Appliances Holdings Limited	Consumer Discretionary
FPS	Fiducian Portfolio Services Limited	Financials
FXL	FlexiGroup Limited	Financials
HAV	Havilah Resources NL	Materials
HGG	Henderson Group PLC	Financials
HJB	Hamilton James & Bruce Group Limited	Industrial
HSK	Heemskirk Consolidated Limited	Materials

HST	Hastie Group Limited	Industrial
HZL	Healthzone Limited	Health Care
IAG	Insurance Australia Group Limited	Financials
ICS	ICSGlobal Limited	Health Care
IFL	IOOF Holdings Limited	Financials
IMF	IMF (Australia) Ltd	Financials
IMI	IM Medical Ltd	Health Care
ITD	ITL Limited	Health Care
KAM	K2 Asset Management Holdings Limited	Financials
KAR	Karoon Gas Australia Ltd	Energy
LKO	Lakes Oil NL	Energy
LME	L&M Energy Limited	Energy
MDG	Medtech Global Limited	Health Care
MMS	McMillan Shakespeare Limited	Industrial
MOC	Mortgage Choice Limited	Financials
MQG	Macquarie Group Limited	Financials
MST	Metal Storm Limited	Industrial
NAB	National Australia Bank Limited	Financials
NAE	New Age Exploration Limited	Energy
NHC	New Hope Corporation Limited	Energy
NXS	Nexus Energy Limited	Energy
OEC	Orbital Corporation Limited	Consumer Discretionary
OIL	Optiscan Imaging Limited	Health Care
OMI	OMI Holdings Limited	Health Care
PFG	Prime Financial Group Limited	Financials
PPT	Perpetual Limited	Financials
PRG	Programmed Maintenance Services Ltd	Industrial
PTB	PTB Group Limited	Industrial
RHG	RHG Limited	Financials
SHC	Sunshine Heart, Inc	Health Care
SKE	Skilled Group Limited	Industrial
SNO	Snowball Group Limited	Financials
SUN	Suncorp Group Limited	Financials
SXY	Senex Energy Limited	Energy
TAH	Tabcorp Holdings Limited	Consumer Discretionary
TRG	Treasury Group Limited	Financials
TWO	Talent2 International Limited	Industrial
TWR	Tower Limited	Financials
UCW	UnderCoverWear Limited	Consumer Discretionary
UGL	UGL Limited	Industrial
WBC	Westpac Banking Corporation	Financials
WCL	Westside Corporation Limited	Energy
WEB	Webjet Limited	Consumer Discretionary

Note: GICS = Global Industry Classification Standards

Appendix 2: Interview documents

THE UNIVERSITY OF SYDNEY

RESEARCH INTEGRITY
Human Research Ethics Committee
Web: http://sydney.edu.au/ethics/
Email: ro.humanethics@sydney.edu.au

Address for all correspondence:
Level 6, Jane Foss Russell Building - G02
The University of Sydney
NSW 2006 AUSTRALIA

Ref: [SA/KFG]

24 January 2012

Dr Simon Poon
Senior Lecturer
School if Information Technologies
Faculty of Engineering & IT
The University of Sydney
Email: simon.poon@sydney.edu.au

Dear Dr Poon

Thank you for your correspondence dated 12 and 24 January 2012 addressing comments made to you by the Human Research Ethics Committee (HREC) Low Risk Executive Committee.

On 20 January 2012 the Chair of the HREC considered this information and approved your protocol entitled **"The classification of Information and Communication Technology Investment (ICT) in Financial Accounting"**.

Details of the approval are as follows:

Protocol No.: **14442**

Approval Date: **20 January 2012**

First Annual Report Due: **31 January 2013**

Authorised Personnel: **Dr Simon Poon**
Mr Sereyvuth Kim

Documents Approved:

Document	Version Number	Date
Letter of Invitation	Version 2	24/01/2012
Participant Information Statement	Version 2	12/01/2011
Participant Consent Form	Version 2	12/01/2011
Questionnaires	Version 2	12/01/2012
Safety Protocol signed 16/01/2012	Version 1	15/01/2012

HREC approval is valid for four (4) years from the approval date stated in this letter and is granted pending the following conditions being met:

Special Condition/s of Approval

- It is a condition of approval that independently certified translations of the public documents are forwarded to the Ethics Office prior to distribution.

Manager Human Ethics
Dr Margaret Faedo
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E: margaret.faedo@sydney.edu.au

Human Ethics Secretariat:
Ms Karen Greer T: +61 2 8627 8171 E: karen.greer@sydney.edu.au
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THE UNIVERSITY OF SYDNEY

School of Information Technologies
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DR SIMON POON
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PARTICIPANT CONSENT FORM

I, ...[PRINT NAME], give consent to my participation in the research project

TITLE: The classification of Information and Communication Technology (ICT) investment in Financial Accounting

In giving my consent I acknowledge that:

1. The procedures required for the project and the time involved have been explained to me, and any questions I have about the project have been answered to my satisfaction.

2. I have read the Participant Information Statement and have been given the opportunity to discuss the information and my involvement in the project with the researchers.

3. I understand that being in this study is completely voluntary – I am not under any obligation to consent.

4. I understand that my involvement is strictly confidential. I understand that any research data gathered from the results of the study may be published however no information about me will be used in any way that is identifiable.

5. I understand that I can withdraw from the study at any time, without affecting my relationship with the researcher(s), the University of Sydney, or my employer now or in the future.

6. I understand that I can stop the interview at any time if I do not wish to continue, the audio recording will be erased and the information provided will not be included in the study.

7. I consent to:

- Audio-recording YES ☐ NO ☐
- Receiving Feedback YES ☐ NO ☐

If you answered YES to the "Receiving Feedback" question, please provide your details i.e. mailing address, email address.

Feedback Option

Address: _____

_____

Email: _____

.....
Signature

.....
Please PRINT name

.....
Date

THE UNIVERSITY OF SYDNEY

School of Information Technologies
Faculty of Engineering and IT

ABN 15 211 513 464

DR SIMON POON
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Classification of Information and Communication Technology (ICT) Investment in Financial Accounting

PARTICIPANT INFORMATION STATEMENT

(1) What is the study about?

You are invited to participate in a study of examining the classification of ICT Investment in Financial Accounting Practice. The goal of this study is to increase our understanding of the accounting practices in financial reporting and the capitalization of ICT investments in firms.

(2) Who is carrying out the study?

The study is being conducted by SEREYVUTH KIM, Research Student will form the basis for the degree of Master of Philosophy in IT at The University of Sydney under the supervision of Dr. Simon Poon.

(3) What does the study involve?

- The study involves interviews and survey questionnaires. The investigator will also use the audio recording if necessary and will let you know in advance. The recorded audio will be transcribed and the transcript will be sent to you for your final review and correction.
- The location of the interview is based on your agreement and the investigator.
- A set of questionnaire is provided together with the invitation email. You are encouraged to read and draft your answer. The investigator will contact you to organise a time/date at your convenience to carry out a telephone (or face-to-face) interview. The information we aim to collect is your past experience and knowledge in relation to the accounting practice in book keeping the Information and Communication Technology Investment.
- You can be assured that any information that is obtained in connection with this study and that can be identified with you and your organisation will remain confidential. Information will be disclosed only with your permission. Any data published from this project will be solely for research purposes and all result will be published in such a way that you cannot be identified.

(4) How much time will the study take?

The interview will take approximately 1 hour and 30 minutes.

(5) Can I withdraw from the study?

Being in this study is completely voluntary - you are not under any obligation to consent and - if you do consent - you can withdraw at any time without affecting your relationship with The University of Sydney, the investigators, and your employer. You may stop the interview at any time if you do not wish

to continue, the audio recording will be erased and the information provided will not be included in the study.

(6) Will anyone else know the results?

All aspects of the study, including results, will be strictly confidential and only the researchers will have access to information on participants A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.

(7) Will the study benefit me?

We cannot and do not guarantee or promise that you will receive any benefits from the study.

(8) Can I tell other people about the study?

You are free to discuss about this study with the other.

(9) What if I require further information about the study or my involvement in it?

When you have read this information, SEREYVUTH KIM will discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact SEREYVUTH KIM, Co-Investigator, skim4385@uni.sydney.edu.au.

(10) What if I have a complaint or any concerns?

Any person with concerns or complaints about the conduct of a research study can contact The Manager, Human Ethics Administration, University of Sydney on +61 2 8627 8176 (Telephone); +61 2 8627 8177 (Facsimile) or ro.humanethics@sydney.edu.au (Email).

This information sheet is for you to keep

Dr Simon Poon BSc PhD MPH *Sydney*, MEM Grad Cert Math Sci *UTS*, CPL *BAe*
Senior Lecturer, Postgraduate Coursework Director, School of Information Technologies
Faculty of Engineering and IT

24th January 2012

Invitation Letter to participate in the research study:
The Classification of Information and Communication Technology (ICT) Investment in Financial Accounting

Dear potential participant,

You are invited to participate in a study examining the classification of ICT Investment in Financial Accounting. The goal of this study is to increase our understanding of financial reporting and capitalization of ICT investments in firms. You, a recognised accounting professional, are cordially invited to contribute to this endeavour because of your expertise in expenditure classification and reporting in financial accounting.

If you agree to participate in this study, we will carry out an interview as described below.

1. We will contact you to organise a time/date at your convenience to carry out a telephone (or face-to-face) interview.
2. During our interview, an audio recorder will be used to capture our conversation. The recorded audio will be transcribed and the transcript will be sent to you to review at a later date. The outline of the study and the questions that are related to the interview are attached with this invitation letter. The duration of the interview will not exceed 1hr and 30 minutes.

You can be assured that any information that is obtained in connection with this study and that can be identified with you will remain confidential. Information will be disclosed only with your permission. Any data published from this project will be solely for research purposes and all results will be published in such a way that you cannot be identified.

The attachments with this invitation letter are the outline of the study, and the questionnaire for the interview. If you decide to participate in this study, please contact Dr Simon Poon (simon.poon@sydney.edu.au), or Mr Sereyvuth Kim (skim4385@uni.sydney.edu.au) within the next 14 days after receiving this invitation letter. We look forward to hearing from you.

Yours sincerely,

Simon Poon

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ABN 15 211 513 464
CRICOS 00026A

Version 2 – **24 January 2012**

SECTION A VERSION 1

Q1. Personal Information of respondent

a. Last name:		**b. First Name:**	
c. Email:			
d. Current Job:			
e. The current employer (Organization Name):			
f. Location of the current employer(Country):			
g. Working Experience in Accounting:	**Please "✓": ☐ No ☐ Yes , for the duration of: YEAR___ MONTH**		
h. Highest Qualification in Accounting	**1**		
	2		

Q2. Do you know how much does your organization spend on Information and Communication Technology (ICT) in average for the last five years?

Answer: _____Percentage of annual total budget.

Q3. Do you or your company accountant record the cost of purchasing ICT products or services separately?

Answer (Please "✓ "): ☐ Never ☐ Not often ☐ Sometimes ☐ Often ☐ Always

Q4. When does your organization accountant record the cost of purchasing on ICT separately for non-ICT expenditure?

Answer:

Q5. How do you identify whether the cost incurred are from ICT?

Answer:

Q6. Could you please give the name of the header account (class) and detail account (subclass) that you or your organization's accountant use for bookkeeping the transaction of purchasing ICT product or services described in Appendix A?

Answer:

For Asset:
For Expense:

Q7. Does your organization use the capitalization threshold as the criterion for Asset capitalisation in General? *(For example: if the cost of computer is more than $300 (capitalisation threshold), it would be capitalised as Asset)*

Answer (Please "✓ "): ☐Yes ☐No (if the answer is No, please skip question Q8 and Q9 of this section

Q8. What is the capitalization threshold for Asset in general?

Answer: _____

Q9. What is the capitalization threshold for IT Asset? If it is the same as general asset, please answer the same amount?

Answer: _____

S1.1. Computer Hardware-Asset versus Expense

Figure 1.1: Investment Item in Computer Hardware (ABS,2006)
Multiple-user computers: - Mainframe, mini, and super-computers - Computer file servers and other multiple-user computer hardware Personal computer: - Laptops, notebooks, personal digital assistants (palm tops/hand-held electronic organiser) and similar portable computers. - PCs and similar desktop computers. - Other personal computers. Computer peripherals and consumables - Laser and other printing/plotting systems. - Other peripherals (including monitors, keyboards, computer mice, joysticks and other pointing devices, scanners, bar-code readers, web cameras, computer speakers and microphones, drives, burners) - Consumables (including removable storage media) Other computer parts and accessories

Q1. How often do you classify the cost of the item described in **Figure 1.1** as **Asset**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q2. How often do you classify the cost of the item described in **Figure 1.1** as **Expense**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q3. **From the criteria given in the Table 1.1 below**, how important are they to you and your organization's decision to differentiate whether the cost of the item described in **Figure 1.1** shall be classified in Asset against Expense?

ANSWER: By using the following benchmark:

1- Unimportant
2- Slightly unimportant
3- Neither Important nor unimportant
4- Slightly Important
5- Important

Please fill the number from **1 to 5** (each number represents the level of importance of the criteria) into COLUMN-C of **Table 1.1** to indicate how important each criterion is:

TABLE 1.1

Col. A Factor	**COLUMN-B Predefine-criteria to decide whether to classify as asset or to classify as expense**	**COLUMN-C Level of Importance**
a.	**Whether there are the future economic benefit from the item or not?**	
b.	Whether there are enough evidences to show that **the asset is identifiable or not?**	
c.	Whether there are enough evidences to show **the existence of asset or not?**	
d.	Whether there are enough evidences to show that organizational **has control over the asset and its future economic benefit or not?**	
e.	**Whether the cost of asset arising from the transactions can be measured reliably or not?**	
f.	**Whether the cost of asset is bigger than capitalization threshold or not?**	

Q4. Do you use any important criteria or technique other than the criteria mentioned above?

ANSWER: ☐ **No** ☐ **Yes** (please write those criteria in **COLUMN-B** and 1 to 5 to indicate the level of important for each criteria in **COLUMN-C** of the table below)

Col. A Factor	COLUMN-B Other-criteria to decide whether to classify as asset or to classify as expense	COLUMN-C Level of Important

S1.2. Computer Hardware-Property Plant and Equipment (PP&E) versus Intangible Asset

Figure 1.2: Investment Item in Computer Hardware (ABS,2006)

Multiple-user computers:
- Mainframe, mini, and super-computers
- Computer file servers and other multiple-user computer hardware

Personal computer:
- Laptops, notebooks, personal digital assistants (palm tops/hand-held electronic organiser) and similar portable computers.
- PCs and similar desktop computers.
- Other personal computers.

Computer peripherals and consumables
- Laser and other printing/plotting systems.
- Other peripherals (including monitors, keyboards, computer mice, joysticks and other pointing devices, scanners, bar-code readers, web cameras, computer speakers and microphones, drives, burners)
- Consumables (including removable storage media)

Other computer parts and accessories

Q5. How often do you classify the cost of the investment item in **Figure 1.2** as **PP&E**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q6. How often do you classify the cost of the investment item in **Figure 1.2** as **Intangible Asset**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q7. From the criteria given in the Table 1.2 below, how important are they to you and your organization's decision to differentiate whether the cost of the item described in **Figure 1.2** shall be classified in PP&E or Intangible Asset?

ANSWER: By using the following benchmark:

1- Unimportant
2- Slightly unimportant
3- Neither Important nor unimportant
4- Slightly Important
5- Important

Please fill the number from **1 to 5** (each number represents the level of importance describe above) into **COLUMN-C** of **Table 1.2** to indicate how important each criterion is:

TABLE 1.2

Col. A Factor	COLUMN-B Predefine-criteria to decide whether to classify as PPE or to classify as Intangible Asset	COLUMN-C Level of Importance
a.	The asset has the physical form	
b.	It is non-monetary asset	

c.	The legal rights over the asset such as (patent, copyright)	
d.	It serves similar function in the organisation	

Q8. Do you use any other important criteria other than the criteria mentioned above?

ANSWER: ☐ **No** ☐ **Yes** (please write those criteria in **COLUMN-B** and 1 to 5 to indicate the level of important for each criteria in **COLUMN-C** of the table below)

Col. A Factor	**COLUMN-B Other-criteria to decide whether to classify as PPE or to classify as Intangible Asset**	**COLUMN-C Level of Important**

S2.1. Computer Software-Asset versus Expense

Figure 2.1: Investment Item in Computer Software (ABS,2006)
- **Packaged Software**

Q9. How often do you classify the cost of the investment item in **Figure 2.1** as **Asset**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q10. How often do you classify the cost of the investment item in **Figure 2.1** as **Expense**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q11. From the criteria given in the Table 2.1 below, how important are they to you and your organization's decision to differentiate whether the cost of the item described in **Figure 2.1** shall be classified in Asset or in Expense?

ANSWER: By using the following benchmark:

1- Unimportant
2- Slightly unimportant
3- Neither Important nor unimportant
4- Slightly Important
5- Important

Please fill the number from **1 to 5** (each number represents the level of importance of each criterion) into COLUMN-C of **Table 2.1** to indicate how important each criterion is:

TABLE 2.1		
Col. A Factor	**COLUMN-B Predefine-criteria to decide whether to classify as asset or to classify as expense**	**COLUMN-C Level of Importance**
a.	**Whether there are the future economic benefit from the item or not?**	
b.	Whether there are enough evidences to show that **the asset is identifiable or not?**	
c.	Whether there are enough evidences to show **the existence of asset or not?**	
d.	Whether there are enough evidences to show the organizational **control over the asset and its future economic benefit or not?**	
e.	**Whether the cost of asset arising from the transactions can be measured reliably or not?**	
f.	**Whether the cost of asset is bigger than capitalization threshold or not?**	

Q12. Do you use any other important criteria other than the criteria mentioned above?

ANSWER: ☐ **No** ☐ **Yes** (please write those criteria in **COLUMN-B** and 1 to 5 to indicate the level of important for each criteria in **COLUMN-C** of the table below)

Col. A Factor	COLUMN-B Other-criteria to decide whether to classify as asset or to classify as expense	COLUMN-C Level of Important

S2.2. Computer Software-Property Plant and Equipment (PP&E) versus Intangible Asset

Figure 2.2: Investment Item in Computer Software (ABS,2006)
- **Packaged Software**

Q13. How often do you classify the cost of the investment item in **Figure 2.2** as **PP&E**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q14. How often do you classify the cost of the investment item in **Figure 2.2** as **Intangible Asset**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q15.From the criteria given in the Table 2.2 below, how important are they to you and your organization's decision to differentiate whether the cost of the item described in **Figure 2.2** shall be classified in PP&E or in Intangible Asset?

ANSWER: By using the following benchmark:

1- Unimportant
2- Slightly unimportant
3- Neither Important nor unimportant
4- Slightly Important
5- Important

Please fill the number from **1 to 5** (each number represents the level of importance describe above) into **COLUMN-C** of **Table 2.2** to indicate how important each criterion is:

TABLE 2.2		
Col. A Factor	**COLUMN-B Predefine-criteria to decide whether to classify as PPE or to classify as Intangible Asset**	**COLUMN-C Level of Importance**
a.	The asset has the physical form	
b.	It is non-monetary asset	
c.	The legal rights over the asset such as (patent, copyright)	
d.	It serves similar function in the organisation	

Q16. Do you use any other important criteria other than the criteria mentioned above?

ANSWER: ☐ **No** ☐ **Yes** (please write those criteria in **COLUMN-B** and 1 to 5 to indicate the level of important for each criteria in **COLUMN-C** of the table below)

Col. A Factor	COLUMN-B Other-criteria to decide whether to classify as PPE or to classify as Intangible Asset	COLUMN-C Level of Important

S3.1. Computer Services-Asset versus Expense

Figure 3.1: Investment Item in Computer Services (ABS,2006)
Customised software services and solution - Web site design - Other internet applications - Other customised software services Software maintenance services Other computer consultancy services Hardware installation, repair and maintenance services Data processing services Information storage and retrieval services Other computer services Whole ICT business function (bundled services)

Q17. How often do you classify the cost of the item in **Figure 3.1** as **Asset**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q18. How often do you classify the cost of the item in **Figure 3.1** as **Expense**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q19. From the criteria given in the Table 3.1 below, how important are they to you and your organization's decision to differentiate whether the cost of the item described in **Figure 3.1** shall be classified in Asset against Expense?

ANSWER: By using the following benchmark:

1- Unimportant
2- Slightly unimportant
3- Neither Important nor unimportant
4- Slightly Important
5- Important

Please fill the number from **1 to 5** (each number represents the level of importance describe above) into **COLUMN-C** of **Table 3.1** to indicate how important each criterion is:

TABLE 3.1

Col. A Factor	COLUMN-B Predefine-criteria to decide whether to classify as asset or to classify as expense	COLUMN-C Level of Importance
a.	**Whether there are the future economic benefit from the item or not?**	
b.	Whether there are enough evidences to show that **the asset is identifiable or not?**	
c.	Whether there are enough evidences to show **the existence of asset or not?**	
d.	Whether there are enough evidences to show the organizational **control over the asset and its future economic benefit or not?**	
e.	**Whether the cost of asset arising from the transactions can be measured reliably or not?**	
f.	**Whether the cost of asset is bigger than capitalization threshold or not?**	

Q20. Do you use any other important criteria than the criteria mentioned above?

ANSWER: ☐ **No** ☐ **Yes** (please write those criteria in **COLUMN-B** and 1 to 5 to indicate the level of important for each criteria in **COLUMN-C** of the table below)

Col. A Factor	COLUMN-B Other-criteria to decide whether to classify as asset or to classify as expense	COLUMN-C Level of Important

S3.2. Computer Services-Property Plant and Equipment (PP&E) versus Intangible Asset

Figure 3.2: Investment Item in Computer Services (ABS,2006)
Customised software services and solution - Web site design - Other internet applications - Other customised software services Software maintenance services Other computer consultancy services Hardware installation, repair and maintenance services Data processing services Information storage and retrieval services Other computer services Whole ICT business function (bundled services)

Q21. How often do you classify the cost of the item in **Figure 3.2** as **PP&E**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q22. How often do you classify the cost of the item in **Figure 3.2** as **Intangible Asset**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q23.From the criteria given in the Table 3.2 below, how important are they to you and your organization's decision to differentiate whether the cost of the item described in Figure 3B shall be classified in PP&E or in Intangible Asset?

ANSWER: By using the following benchmark:

1- Unimportant
2- Slightly unimportant
3- Neither Important nor unimportant
4- Slightly Important
5- Important

Please fill the number from **1 to 5** (each number represents the level of importance describe above) into **COLUMN-C** of **Table 3.2** to indicate how important each criterion is:

TABLE 3.2		
Col. A Factor	**COLUMN-B Predefine-criteria to decide whether to classify as PPE or to classify as Intangible Asset**	**COLUMN-C Level of Importance**
a.	The asset has the physical form	
b.	It is non-monetary asset	
c.	The legal rights over the asset such as (patent, copyright)	
d.	It serves similar function in the organisation	

Q24. Do you use any other important criteria than the criteria mentioned above?

ANSWER: ☐ **No** ☐ **Yes** (please write those criteria in **COLUMN-B** and 1 to 5 to indicate the level of important for each criteria in **COLUMN-C** of the table below)

Col. A Factor	COLUMN-B Other-criteria to decide whether to classify as PPE or to classify as Intangible Asset	COLUMN-C Level of Important

S4.1. Telecommunication Equipment and Communication Cables –Asset versus Expense

Figure 4.1: Investment Item in Telecommunication Equipment and Communication Cables (ABS,2006)

Telephone and telegraphic equipment (including electrical line, electronic switchboards, communication servers, modem equipment, telephones, teleprinters and telephone facsimile machines):

- Carrier telephone and telegraph equipment
- Main exchange switching equipment
- Electronic switchboards:
- Processor or micro processor
- Other electronic switchboards n.e.c.
- Data modem equipment/multiplexors
- Telephones (exclude radio-telephony such as mobile, cellular and car phones)
- Mobile, cellular and car phones
- Teleprinters and telephone facsimile machines
- Other telephone and telegraph equipment (exclude parts)
- CB and other mobile radio transceiving equipment
- Radio reception apparatus and other fixed premises radio transceiving equipment
- Relays and relay sets for radio, telephone and telegraphic equipment
- Satellite equipment
- Other communication equipment and parts

Insulated wire, cable and optical fibre for computers/communication purposes:

- Coaxial cable
- Twisted pair cable
- Optical fibre cable

Other wire/cable

Q25. How often do you classify the cost of the item in **Figure 4.1** as **Asset**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q26. How often do you classify the cost of the item in **Figure 4.1** as **Expense**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q27.From the criteria given in the TABLE 4.1 below, how important are they to you and your organization's decision to differentiate whether the cost of the item described in **Figure 4.1** shall be classified in Asset against Expense?

ANSWER: By using the following benchmark:

1- Unimportant
2- Slightly unimportant
3- Neither Important nor unimportant
4- Slightly Important
5- Important

Please fill the number from **1 to 5** (each number represents the level of importance describe above) into **COLUMN-C** of **Table 4.1** to indicate how important each criterion is:

TABLE 4.1		
Col. A Factor	**COLUMN-B Predefine-criteria to decide whether to classify as asset or to classify as expense**	**COLUMN-C Level of Importance**
a.	**Whether there are the future economic benefit from the item or not?**	
b.	Whether there are enough evidences to show that **the asset is identifiable or not?**	
c.	Whether there are enough evidences to show **the existence of asset or not?**	
d.	Whether there are enough evidences to show the organizational **control over the asset and its future economic benefit or not?**	
e.	**Whether the cost of asset arising from the transactions can be measured reliably or not?**	
f.	**Whether the cost of asset is bigger than capitalization threshold or not?**	

Q28. Do you use any other important criteria than the criteria mentioned above?

ANSWER: ☐ **No** ☐ **Yes** (please write those criteria in **COLUMN-B** and 1 to 5 to indicate the level of important of each criteria in **COLUMN-C** of the table below)

Col. A Factor	**COLUMN-B Other-criteria to decide whether to classify as asset or to classify as expense**	**COLUMN-C Level of Important**

S4.2. Telecommunication Equipment and Communication Cables - PP&E versus Intangible Asset

Figure 4.2: Investment Item in Telecommunication Equipment and Communication Cables (ABS,2006)

Telephone and telegraphic equipment (including electrical line, electronic switchboards, communication servers, modem equipment, telephones, teleprinters and telephone facsimile machines):

- Carrier telephone and telegraph equipment
- Main exchange switching equipment
- Electronic switchboards:
- Processor or micro processor
- Other electronic switchboards n.e.c.
- Data modem equipment/multiplexors
- Telephones (exclude radio-telephony such as mobile, cellular and car phones)
- Mobile, cellular and car phones
- Teleprinters and telephone facsimile machines
- Other telephone and telegraph equipment (exclude parts)
- CB and other mobile radio transceiving equipment
- Radio reception apparatus and other fixed premises radio transceiving equipment
- Relays and relay sets for radio, telephone and telegraphic equipment
- Satellite equipment
- Other communication equipment and parts

Insulated wire, cable and optical fibre for computers/communication purposes:

- Coaxial cable
- Twisted pair cable
- Optical fibre cable

Other wire/cable

Q29. How often do you classify the cost of the item in **Figure 4.2** as **PP&E**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q30. How often do you classify the cost of the item in **Figure 4.2** as **Intangible Asset**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q31.From the criteria given in the Table 4.2 below, how important are they to you and your organization's decision to differentiate whether the cost of the item described in **Figure 4.2** category shall be classified in PP&E or in Intangible Asset?

ANSWER: By using the following benchmark:

1- Unimportant
2- Slightly unimportant
3- Neither Important nor unimportant
4- Slightly Important
5- Important

Please fill the number from **1 to 5** (each number represents the level of importance describe above) into **COLUMN-C** of **Table 4.2** to indicate how important each criterion is:

TABLE 4.2		
Col. A Factor	**COLUMN-B Predefine-criteria to decide whether to classify as PPE or to classify as Intangible Asset**	**COLUMN-C Level of Importance**
a.	The asset has the physical form	
b.	It is non-monetary asset	
c.	The legal rights over the asset such as (patent, copyright)	
d.	It serves similar function in the organisation	

Q32. Do you use any other important criteria than the criteria mentioned above?

ANSWER: ☐ **No** ☐ **Yes** (please write those criteria in **COLUMN-B** and 1 to 5 to indicate the level of important for each criteria in **COLUMN-C** of the table below)

Col. A Factor	**COLUMN-B Other-criteria to decide whether to classify as PPE or to classify as Intangible Asset**	**COLUMN-C Level of Important**

S5.1. Telecommunication Services-Asset versus Expense

Figure 5.1: Investment Item in Telecommunication Services (ABS, 2006)
- Basic telephony services - Mobile and paging services - Short messaging services (SMS) - Other mobile and paging services - Data and text services - Other telecommunication services - Intercarrier charges

Q33. How often do you classify the cost of the item in **Figure 5.1** as **Asset**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q34. How often do you classify the cost of the item in **Figure 5.1** as **Expense**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q35.From the criteria given in the Table 5.1 in below, how important are they to you and your organization's decision to differentiate whether the cost of the item described in **Figure 5.2** shall be classified in Asset against Expense?

ANSWER: By using the following benchmark:

1- Unimportant
2- Slightly unimportant
3- Neither Important nor unimportant
4- Slightly Important
5- Important

Please fill the number from **1 to 5** (each number represents the level of importance describe above) into **COLUMN-C** of **Table 5.1** to indicate how important each criterion is:

TABLE 5.1		
Col. A Factor	**COLUMN-B Predefine-criteria to decide whether to classify as asset or to classify as expense**	**COLUMN-C Level of Importance**
a.	**Whether there are the future economic benefit from the item or not?**	
b.	Whether there are enough evidences to show that **the asset is identifiable or not?**	
c.	Whether there are enough evidences to show **the existence of asset or not?**	
d.	Whether there are enough evidences to show the organizational **control over the asset and its future economic benefit or not?**	
e.	**Whether the cost of asset arising from the transactions can be measured reliably or not?**	
f.	**Whether the cost of asset is bigger than capitalization threshold or not?**	

Q36. Do you use any other important criteria than the criteria mentioned above?

ANSWER: ☐ **No** ☐ **Yes,** (please write those criteria in **COLUMN-B** and **1** to **5** to indicate the level of important for each criteria in **COLUMN-C** of the table below)

Col. A Factor	**COLUMN-B Other-criteria to decide whether to classify as asset or to classify as expense**	**COLUMN-C Level of Important**

S5.2. Telecommunication Services - PP&E versus Intangible Asset

Figure 5.2: Investment Item in Telecommunication Services (ABS, 2006)
- Basic telephony services - Mobile and paging services - Short messaging services (SMS) - Other mobile and paging services - Data and text services - Other telecommunication services - Intercarrier charges

Q37. How often do you classify the cost of the item in **Figure 5.2** as **PP&E**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q38. How often do you classify the cost of the item in **Figure 5.2** as **Intangible Asset**?

ANSWER: ☐ Never ☐ Not often ☐ Sometime ☐ Often ☐ Always

Q39.From the criteria given in the Table 5.2 below, how important are they to you and your organization's decision to differentiate whether the cost of the item described in **Figure 5.2** shall be classified in PP&E or in Intangible Asset?

ANSWER: By using the following benchmark:

1- Unimportant
2- Slightly unimportant
3- Neither Important nor unimportant
4- Slightly Important
5- Important

Please fill the number from **1 to 5** (each number represents the level of importance describe above) into **COLUMN-C** of **Table 5.2** to indicate how important each criterion is:

TABLE 5.2		
Col. A Factor	**COLUMN-B Predefine-criteria to decide whether to classify as PPE or to classify as Intangible Asset**	**COLUMN-C Level of Importance**
a.	The asset has the physical form	
b.	It is non-monetary asset	
c.	The legal rights over the asset such as (patent, copyright)	
d.	It serves similar function in the organisation	

Q40. Do you use any other important criteria than the criteria mentioned above?

ANSWER: ☐ **No** ☐ **Yes** (please write those criteria in **COLUMN-B** and 1 to 5 to indicate the level of important for each criteria in **COLUMN-C** of the table below)

Col. A Factor	**COLUMN-B Other-criteria to decide whether to classify as PPE or to classify as Intangible Asset**	**COLUMN-C Level of Important**

SECTION B VERSION 1

S1. Computer Hardware

Figure 1. Description of the investment Item in Computer Hardware (ABS, 2006)
Multiple-user computers: - Mainframe, mini, and super-computers - Computer file servers and other multiple-user computer hardware Personal computer: - Laptops, notebooks, personal digital assistants (palm tops/hand-held electronic organiser) and similar portable computers. - PCs and similar desktop computers. - Other personal computers. Computer peripherals and consumables - Laser and other printing/plotting systems. - Other peripherals (including monitors, keyboards, computer mice, joysticks and other pointing devices, scanners, bar-code readers, web cameras, computer speakers and microphones, drives, burners) - Consumables (including removable storage media) Other computer parts and accessories

1. **The asset arising from the expenditure must have the future economic benefit in order to be capitalised.**
   a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in Figure 1?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

   b. If your answer is from **3 to 5**, please explain why it is difficult?

   c. If your answer is form 1 to 2, please explain how do you justify this criterion

2. **The asset arising from the expenditure has to be identifiable in order to be capitalised.**
   a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in Figure 1?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

   b. If your answer is from **3 to 5**, please explain why it is difficult?

   c. If your answer is form 1 to 2, please explain how do you justify this criterion

3. There must be **the existence of asset** arising from the expenditure in order for the asset to be capitalised?
   a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in Figure 1?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

   b. If your answer is from **3 to 5**, please explain why it is difficult?

   c. If your answer is form 1 to 2, please explain how do you justify this criterion

4. **The future economic benefit embodied in the asset** has to be **controllable** by the organization in order to be capitalised**?**
   a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in figure 1?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

   b. If your answer is from **3 to 5**, please explain why it is difficult?

   c. If your answer is form 1 to 2, please explain how do you justify this criterion

5. **The cost of asset** arising from the expenditure has to be **measured reliably**?
   a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in figure 1?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

   b. If your answer is from **3 to 5**, please explain why it is difficult?

c. If your answer is form 1 to 2, please explain how do you justify this criterion

S2. Computer Software

Figure 2. Description of the investment Item in Computer Software (ABS, 2006)
Packaged Software

6. **The asset arising from the expenditure must have the future economic benefit in order to be capitalised.**
   a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in Figure 2?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

   b. If your answer is from **3 to 5**, please explain why it is difficult?

   c. If your answer is form 1 to 2, please explain how do you justify this criterion?

7. **The asset arising from the expenditure has to be identifiable in order to be capitalised.**
   a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in figure 2?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

   b. If your answer is from **3 to 5**, please explain why it is difficult?

   c. If your answer is form 1 to 2, please explain how do you justify this criterion?

8. There must be **the existence of asset** arising from the expenditure in order for the asset to be capitalised?
   a. Do you feel it is difficult to justify this criterion to capitalise the expenditure on the item described in Figure 2?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

   b. If your answer is from **3 to 5**, please explain why it is difficult?

   c. If your answer is form 1 to 2, please explain how do you justify this criterion

9. **The future economic benefit embodied in the asset** has to be **controllable** by the organization in order to be capitalised**?**
   a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in figure 2?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

   b. If your answer is from **3 to 5**, please explain why it is difficult?

   c. If your answer is form 1 to 2, please explain how do you justify this criterion

10. **The cost of asset** arising from the expenditure has to be **measured reliably**?
   a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in figure 1A?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

   b. If your answer is from **3 to 5**, please explain why it is difficult?

   c. If your answer is form 1 to 2, please explain how do you justify this criterion

S3. Computer Services

Figure 3. Description of the investment Item in Computer Services (ABS, 2006)
Customised software services and solution - Web site design - Other internet applications - Other customised software services Software maintenance services Other computer consultancy services Hardware installation, repair and maintenance services Data processing services Information storage and retrieval services Other computer services Whole ICT business function (bundled services)

11. **The asset arising from the expenditure must have the future economic benefit in order to be capitalised.**
    a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in Figure 3?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

    b. If your answer is from **3 to 5**, please explain why it is difficult?

    c. If your answer is form 1 to 2, please explain how do you justify this criterion

12. **The asset arising from the expenditure has to be identifiable in order to be capitalised.**
    a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in figure 3?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

    b. If your answer is from **3 to 5**, please explain why it is difficult?

    c. If your answer is form 1 to 2, please explain how do you justify this criterion

13. There must be **the existence of asset** arising from the expenditure in order for the asset to be capitalised?
    a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in Figure 3?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

    b. If your answer is from **3 to 5**, please explain why it is difficult?

    c. If your answer is form 1 to 2, please explain how do you justify this criterion

14. **The future economic benefit embodied in the asset** has to be **controllable** by the organization in order to be capitalised**?**
    a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in figure 3?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

    b. If your answer is from **3 to 5**, please explain why it is difficult?

    c. If your answer is form 1 to 2, please explain how do you justify this criterion

15. **The cost of asset** arising from the expenditure has to be **measured reliably**?
    a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in figure 3?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

    b. If your answer is from **3 to 5**, please explain why it is difficult?

    c. If your answer is form 1 to 2, please explain how do you justify this criterion

S4. Telecommunication Equipment and Communication Cables

Figure 4. Description of the investment Item in Telecommunication Equipment and Communication cables (ABS, 2006)
Telephone and telegraphic equipment (including electrical line, electronic switchboards, communication servers, modem equipment, telephones, teleprinters and telephone facsimile machines): - Carrier telephone and telegraph equipment - Main exchange switching equipment - Electronic switchboards: - Processor or micro processor - Other electronic switchboards n.e.c. - Data modem equipment/multiplexors - Telephones (exclude radio-telephony such as mobile, cellular and car phones) - Mobile, cellular and car phones - Teleprinters and telephone facsimile machines - Other telephone and telegraph equipment (exclude parts) - CB and other mobile radio transceiving equipment - Radio reception apparatus and other fixed premises radio transceiving equipment - Relays and relay sets for radio, telephone and telegraphic equipment - Satellite equipment - Other communication equipment and parts Insulated wire, cable and optical fibre for computers/communication purposes: - Coaxial cable - Twisted pair cable - Optical fibre cable Other wire/cable

16. **The asset arising from the expenditure must have the future economic benefit in order to be capitalised.**
    a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in Figure 4?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

    b. If your answer is from **3 to 5**, please explain why it is difficult?

    c. If your answer is form 1 to 2, please explain how do you justify this criterion

17. **The asset arising from the expenditure has to be identifiable in order to be capitalised.**
    a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in Figure 4?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

    b. If your answer is from **3 to 5**, please explain why it is difficult?

    c. If your answer is form 1 to 2, please explain how do you justify this criterion

18. There must be **the existence of asset** arising from the expenditure in order for the asset to be capitalised?
    a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in Figure 4?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

    b. If you answer is from **3 to 5**, please explain why it is difficult?

    c. If you answer is form 1 to 2, please explain how do you justify this criterion

19. **The future economic benefit embodied in the asset** has to be **controllable** by the organization in order to be capitalised**?**
    a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in Figure 4?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

    b. If your answer is from **3 to 5**, please explain why it is difficult?

    c. If your answer is form 1 to 2, please explain how do you justify this criterion

20. **The cost of asset** arising from the expenditure has to be **measured reliably**?

a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in Figure 4?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

b. If your answer is from **3 to 5**, please explain why it is difficult?

c. If your answer is form 1 to 2, please explain how do you justify this criterion

S5. Telecommunication Services

Figure 5. Description of the investment Item in Telecommunication Services (ABS, 2006)
- Basic telephony services - Mobile and paging services, Short messaging services (SMS) - Other mobile and paging services - Data and text services, Other telecommunication services, Intercarrier charges

21. **The asset arising from the expenditure must have the future economic benefit in order to be capitalised.**

a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in Figure 5?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

b. If your answer is from **3 to 5**, please explain why it is difficult?

c. If your answer is form 1 to 2, please explain how do you justify this criterion

22. **The asset arising from the expenditure has to be identifiable in order to be capitalised.**

a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in figure 5?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

b. If your answer is from **3 to 5**, please explain why it is difficult?

c. If your answer is form 1 to 2, please explain how do you justify this criterion

23. There must be **the existence of asset** arising from the expenditure in order for the asset to be capitalised?

a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in Figure 5?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

b. If your answer is from **3 to 5**, please explain why it is difficult?

c. If your answer is form 1 to 2, please explain how do you justify this criterion

24. **The future economic benefit embodied in the asset** has to be **controllable** by the organization in order to be capitalised**?**

a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in figure 5?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

b. If your answer is from **3 to 5**, please explain why it is difficult?

c. If your answer is form 1 to 2, please explain how do you justify this criterion

25. **The cost of asset** arising from the expenditure has to be **measured reliably**?

a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in figure 5?

Answer: ☐ 1.Very Easy ☐ 2.Easy ☐ 3.Neither Easy nor Difficult ☐4. Difficult ☐ 5.Very Difficult

b. If your answer is from **3 to 5**, please explain why it is difficult?

c. If your answer is form 1 to 2, please explain how do you justify this criterion

Appendix 3: Other research documents

Below is the letter from Head of General Department of National Treasury, Cambodia to a participant's organisation. This letter was written to request the permission to conduct the research study. The identity was deleted due to the ethical compliance.

ព្រះរាជាណាចក្រកម្ពុជា
ជាតិ សាសនា ព្រះមហាក្សត្រ

ខ្ញុំបាទឈ្មោះ: **គីម សិរីមុឌ្ឍ** ជាប្រធានការិយាល័យថ្នាក់សរុបនៃនាយកដ្ឋានពត៌មានវិទ្យា អគ្គនាយកដ្ឋានរតនាគារជាតិ នៃក្រសួងសេដ្ឋកិច្ចនិងហិរញ្ញវត្ថុ។

សូមគោរពជូន
អ្នកឧកញ៉ា អគ្គនាយកក្រុមហ៊ុន [redacted]

តាមរយៈ:
ឯកឧត្តមប្រតិភូរាជរដ្ឋាភិបាលទទួលបន្ទុកជាអគ្គនាយក នៃអគ្គនាយកដ្ឋានរតនាគារជាតិ

កម្មវត្ថុ: សំណើសុំចុះកម្មសិក្សាស្រាវជ្រាវទៅលើប្រធានបទ " ការធ្វើចំណាត់ថ្នាក់គណនីសម្រាប់វិនិយោគទុនផ្នែកព័ត៌មានវិទ្យាក្នុងគណនេយ្យហិរញ្ញវត្ថុ"

ជូនភ្ជាប់: -លិខិតអញ្ជើញចូលរួមសិក្សាស្រាវជ្រាវពីលោកសាស្ត្រាចារ្យ **សាយម៉ុន ឌួន** សាកលវិទ្យាល័យស៊ីដនីជាភាសាអង់គ្លេសនិងបកប្រែជាភាសាខ្មែរ
-សេចក្តីសង្ខេបពីការសិក្សាស្រាវជ្រាវជាភាសាអង់គ្លេសនិងបកប្រែជាភាសាខ្មែរ
-សំនួរព្រៀងសម្រាប់ប្រើប្រាស់ក្នុងបទសំភាសន៏ជាមួយគណនេយ្យករជំនាញ

នយដូចបានជម្រាបជូនក្នុងកម្មវត្ថុនិងឯកសារយោងខាងលើ ខ្ញុំបាទសូមអនុញ្ញាតិជម្រាបជូនអ្នកឧកញ៉ាមេត្តាជ្រាបថា ខ្ញុំបាទកំពុងបន្តការសិក្សាថ្នាក់បណ្ឌិតផ្នែកព័ត៌មានវិទ្យានៅ សាកលវិទ្យាល័យស៊ីដនី ប្រទេសអូស្ត្រាលី ហើយជាផ្នែកមួយនៃការសិក្សាថ្នាក់បណ្ឌិតនេះតម្រូវឱ្យខ្ញុំបាទធ្វើការប្រមូល ទិន្នន័យដោយ:

- ពិនិត្យឯកសារពាក់ព័ន្ធទៅនឹងចំណាត់ថ្នាក់គណនីរួមមាន មាតិកាគណនីនិងបញ្ជីទ្រព្យសម្បត្តិ
- ធ្វើបទសំភាសន៏ជាមួយគណនេយ្យករជំនាញ
  ឬអ្នកដែលមានការយល់ដឹងពីការធ្វើចំណាត់ថ្នាក់គណនីរបស់ក្រុមហ៊ុន។

ខ្ញុំបាទសូមសន្យាថា រាល់ទិន្នន័យទាំងអស់ដែលប្រមូលបានគឺសម្រាប់ប្រើប្រាស់ក្នុងការសិក្សាស្រាវជ្រាវនេះតែមួយគត់ ហើយរាល់ព័ត៌មានដែលនឹងត្រូវផ្សព្វផ្សាយនឹងត្រូវបានកែសម្រួលក្នុងទម្រង់ដែលអត្តសញ្ញាណរបស់ក្រុមហ៊ុននិងបុគ្គលិករបស់ក្រុមហ៊ុនមិនត្រូវបានគេស្គាល់ ។

សេចក្តីដូចបានជម្រាបជូនក្នុងកម្មវត្ថុខាងលើ សូមអ្នកឧកញ៉ាមេត្តាអនុញ្ញាតិអោយខ្ញុំបាទអនុវត្តន៏ការសិក្សាស្រាវជ្រាវដូចដែលបានជម្រាបជូនខាងលើនៅក្នុងក្រុមហ៊ុន [redacted] ដោយអនុគ្រោះ។

សូមអ្នកឧកញ៉ា មេត្តាទទួលនូវគារវកិច្ចដ៏ខ្ពង់ខ្ពស់បំផុតអំពីខ្ញុំបាទ។

រាជធានីភ្នំពេញ, ថ្ងៃទី ០៦ ខែ ៧ ឆ្នាំ ២០១២
ប្រតិភូរាជរដ្ឋាភិបាលទទួលបន្ទុកជាអគ្គនាយក
នៃអគ្គនាយកដ្ឋានរតនាគារជាតិ
បានឃើញ និង ឯកភាព
ហត្ថលេខា
ហ៊ីវ សុវណ្ណ

រាជធានីភ្នំពេញ, ថ្ងៃទី០៦ ខែកក្កដា ឆ្នាំ២០១២
ប្រធានការិយាល័យថ្នាក់សរុប
ហត្ថលេខា
គីម សិរីមុឌ្ឍ

Appendix 4: List of reported ICT Asset Class and Expense

Appendix 4 shows the description of line items, class and subclass of asset and expense that contain to ICT Investment.

a) Line item of asset containing ICT on balance sheet:

N.	a) Line item of asset containing ICT on balance sheet	Number of reported firm in each financial year 20XX				
		06	07	08	09	10
1	Fixed assets	1	2	1	1	1
2	Goodwill and intangible asset	0	2	1	1	1
3	Goodwill and other intangible assets	3	3	3	3	3
4	Intangible assets	27	35	36	37	32
5	Intangible assets - other	0	0	0	1	1
6	Intangible assets - Other separately identifiable assets	1	0	0	0	0
7	intangible assets - software	1	2	2	2	2
8	Intangible assets and goodwill	4	4	4	4	3
9	Intangibles	2	6	5	4	3
10	Other intangible assets	8	8	8	7	6
11	Other intangibles	1	1	1	1	1
12	Plant and Equipment	2	3	9	8	8
13	Premises and Equipment	2	1	1	1	1
14	Property and equipment	1	0	0	0	0
15	Property, plant and equipment	24	31	25	23	23

b)Subclass of asset containing ICT on the note to financial statement:

N.	b) Subclass of asset containing ICT on the note to financial statement	Number of reported firm in each financial year 20XX				
		06	07	08	09	10
1	Acquired candidate databases	1	1	1	1	1
2	Acquired software	1	1	1	1	1
3	Acquired software intellectual property	1	1	1	1	1
4	acquisition of SFE	0	1	0	0	0
5	Acquisition of subsidiaries	1	0	0	0	0
6	Additions	2	2	2	2	1
7	Amortisation	1	1	2	1	1
8	Amortisation charge	1	0	0	0	0
9	Amortisation expense	0	1	0	1	1
10	Business development software	0	1	1	1	1
11	Candidate databases	1	1	2	1	1
12	Capitalised computer software	1	1	1	1	1
13	Capitalised software	2	3	3	2	2
14	Capitalised software development costs	1	1	1	1	1
15	Communication equipment	1	1	3	3	3
16	Computer	1	1	1	0	1
17	Computer & telecom equipment	1	1	1	1	1
18	computer and office equipment	2	1	1	2	2

N.	b) Subclass of asset containing ICT on the note to financial statement	Number of reported firm in each financial year 20XX				
		06	07	08	09	10
19	Computer equipment	14	14	18	13	13
20	Computer equipment and software	1	1	0	0	0
21	Computer Hardware	0	2	2	2	2
22	Computer hardware and software	1	1	1	1	1
23	Computer Software	21	22	20	18	18
24	Computer software (Adelaide)	0	0	0	1	1
25	Computer Software (Purchased)	0	0	1	1	0
26	Computer Software and Infrastructure projects	1	1	1	1	0
27	Computer Software Costs	1	1	1	1	1
28	Computer technology	1	1	1	1	1
29	Computer/IT & Telecommunication equipment	1	1	1	0	1
30	Computers	1	1	1	1	1
31	Computing Assets	1	1	1	1	1
32	Credit software	0	0	0	1	1
33	Data processing equipment	1	1	1	1	1
34	Databases	1	1	1	1	1
35	Design Technology	0	0	1	1	0
36	Development Costs	0	0	1	1	0
37	Disposals and write-offs	0	1	0	0	1
38	Enterprise resource planning system	1	1	1	1	1
39	Information technology	0	0	2	1	1
40	Information technology development	0	0	0	1	1
41	Internally generated software	1	1	1	1	1
42	IT & Telecommunication equipment	0	0	0	1	0
43	IT equipment	1	1	1	1	1
44	Lease equipment and software	0	1	1	1	1
45	Office and computer equipment	0	0	1	1	1
46	Office equipment and computers	0	1	0	0	0
47	Office furniture and computer equipment	0	1	1	0	0
48	Opening Balance	2	2	2	2	2
49	Other intangible assets	1	1	1	1	0
50	Other intangibles	0	0	0	0	1
51	Other separately identifiable assets	0	1	0	0	0
52	Plant and Equipment	0	1	0	1	0
53	Project Development Costs	1	2	2	2	1
54	Project work in progress	1	1	1	1	1
55	Purchased and capitalised software	0	0	2	2	2
56	Purchased software and other intangibles	1	1	0	0	0
57	Software	13	23	21	23	19
58	Software and database	0	1	1	1	1
59	Software and licenses	1	1	1	1	1
60	Software and other intangible assets	1	1	1	1	0
61	Software and Website	0	0	1	1	1
62	Software development costs	1	1	1	1	1
63	Software development expenditure	1	1	1	1	0
64	Software in use	0	0	0	0	1
65	Software intangibles	1	0	0	0	0

N.	b) Subclass of asset containing ICT on the note to financial statement	Number of reported firm in each financial year 20XX				
		06	07	08	09	10
66	Software under development	0	1	1	1	2
67	Technology	1	1	1	1	1
68	Technology infrastructure	1	1	1	1	1
69	Value of development software	1	1	1	1	1
70	Web development	1	1	1	1	0
71	Website	1	2	2	2	2

c) Line item of expense containing ICT on the income statement:

N	c) Line item of expense containing ICT on the income statement	Number of reported firm in each financial year 20XX				
		06	07	08	09	10
1	Administration costs	1	0	1	0	0
2	Administration expenses	0	0	0	0	1
3	Administrative expenses	0	1	1	0	0
4	Amortisation and depreciation expense	1	1	1	0	0
5	Amortisation of acquired intangible assets	1	1	1	1	1
6	Amortisation of intangibles	0	1	1	1	1
7	Amortisation of software development	1	1	1	1	1
8	Communication and information system	0	0	0	0	1
9	Communication and technology	1	1	1	1	1
10	Communication costs	1	2	2	2	2
11	Communications	0	1	1	1	0
12	Communications and computing	1	1	1	1	1
13	Communications and IT expense	1	1	1	0	0
14	Communications and MIS expenses	0	1	1	1	1
15	Computer and software	1	1	0	1	1
16	Computer and software expenses	0	1	0	0	0
17	Computer charges	1	1	1	1	1
18	Computer Costs	1	1	0	0	0
19	Computer expenses	2	2	2	2	2
20	Computer support	1	1	1	1	1
21	Computer support costs	1	1	1	1	0
22	Computers and communications expense	0	1	1	1	1
23	Corporate, administration and other expenses	1	1	0	0	0
24	Depreciation and amortisation	1	0	0	0	0
25	Depreciation and amortisation and impairment	1	0	0	1	0
26	Depreciation and amortisation expense	11	15	15	16	13
27	Depreciation and amortisation expenses and impairment	0	0	0	0	1
28	Depreciation expense	1	3	3	3	3
29	Depreciation, amortisation and impairment	0	1	0	0	0
30	Depreciation and amortisation	1	3	4	5	2
31	Expenditure from ordinary activities	1	1	1	1	0
32	Expenses	3	3	3	3	1

N	c) Line item of expense containing ICT on the income statement	Number of reported firm in each financial year 20XX				
		06	07	08	09	10
33	Expenses – derived from operating activities	0	1	1	1	0
34	Expenses from continuing operations	0	1	1	1	1
35	Fee based, corporate and other expenses	0	0	1	1	1
36	General and administration expenses	0	0	0	1	1
37	Information systems	0	1	1	1	0
38	Information technology & Telecommunications costs	1	0	0	0	1
39	Information technology and communications costs	0	1	1	1	0
40	Information technology expenses	2	2	1	1	1
41	IT & T	1	1	1	1	0
42	IT and communication	1	1	1	1	1
43	IT costs	0	0	0	1	1
44	IT support expenses	0	1	1	1	1
45	IT system maintenance	1	0	0	0	0
46	Management and sales expenses	1	1	1	1	1
47	Non-salary technology expenses	1	1	1	1	1
48	Operating costs	0	1	1	1	1
49	Operating Expenses	6	9	9	8	8
50	Other charges	0	0	1	0	0
51	Other expenses	10	8	8	7	6
52	Other expenses from ordinary activities	0	0	0	1	1
53	Other operating expenses	0	1	1	1	1
54	Technology	0	1	1	1	1
55	Technology and communication expenses	1	1	1	1	1
56	Technology expenses	2	2	2	2	2
57	Telecommunication Costs	0	0	1	1	1
58	Telecommunications	1	1	1	1	1
59	Telecommunications expense	0	0	1	1	1
60	Total expenses excluding interest	0	0	1	0	0
61	Total expenses from ordinary activities excluding interest	0	1	0	0	0

d) Subclass of expense containing ICT on the note to financial statement

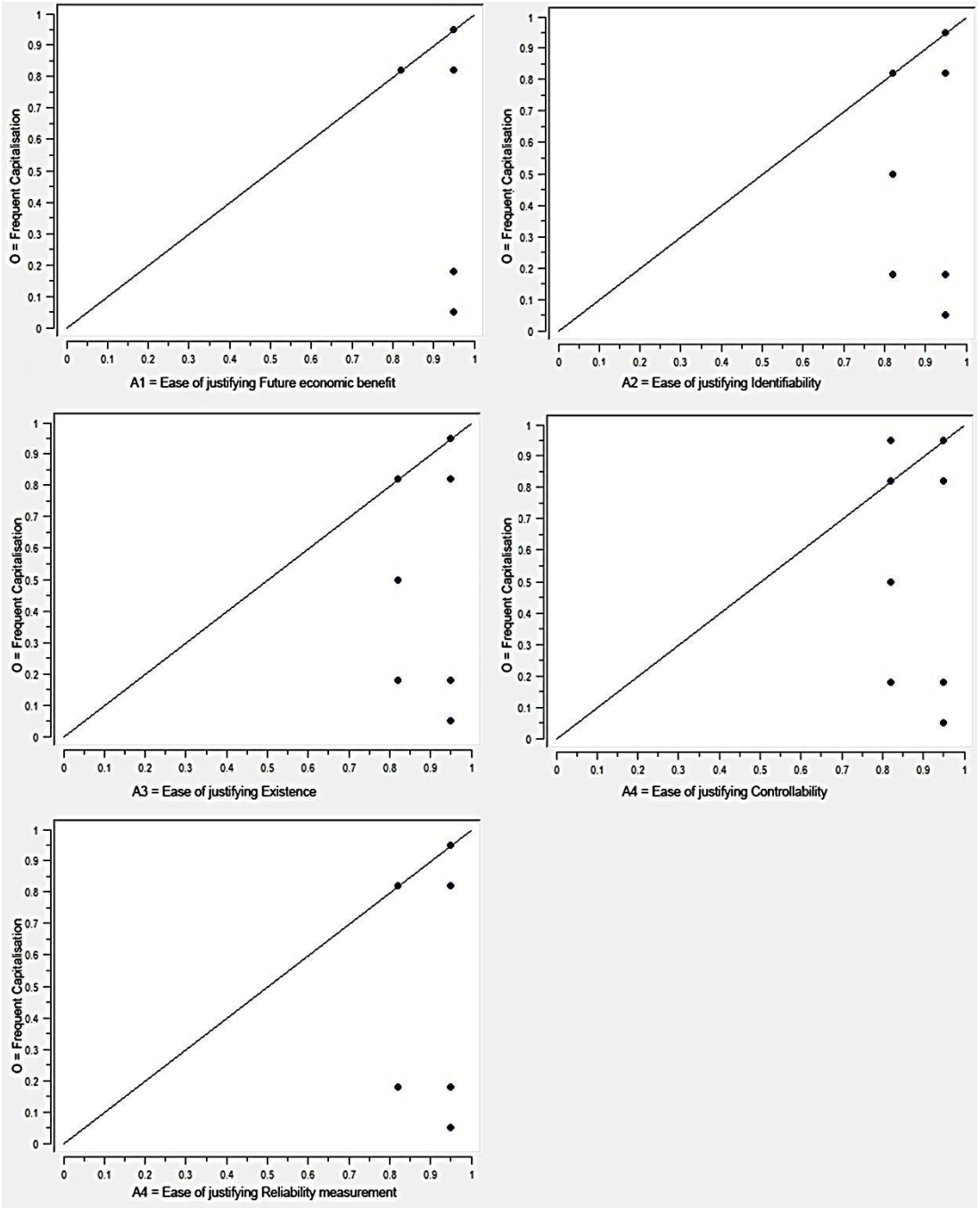
N	d) Subclass of expense containing ICT on the note to financial statement	Number of reported firm in each financial year 20XX				
		06	07	08	09	10
1	Non-salary technology expense	0	1	1	0	0
2	System maintenance expense	0	1	1	0	0
3	Acquired candidate databases	0	1	1	1	1
4	Acquired software intellectual property	0	1	1	1	1
5	Amortisation	1	2	2	2	3
6	Amortisation - Credit software	0	0	0	1	1
7	Amortisation - Software	0	2	1	2	2
8	Amortisation – software (intangible)	1	0	0	0	0
9	Amortisation – technology infrastructure (intangible)	1	0	0	0	0
10	Amortisation Computer software	1	2	2	3	0

N	d) Subclass of expense containing ICT on the note to financial statement	Number of reported firm in each financial year 20XX				
		06	07	08	09	10
11	Amortisation of current assets – website	0	1	0	0	0
12	Amortisation of intangibles	1	1	1	2	1
13	Amortisation of non-current assets	2	2	2	2	1
14	amortisation of other non-current assets - website	1	0	0	0	0
15	Amortisation of software	1	2	2	2	1
16	Amortisation of software and infrastructure projects	1	1	1	0	0
17	Amortisation of software and web development	0	0	0	1	1
18	Amortisation of software assets	1	0	0	0	0
19	Amortisation of software costs	0	1	2	2	1
20	Amortisation of software development	1	0	0	0	0
21	Amortisation Software	0	2	2	2	0
22	Candidate databases	1	1	1	1	1
23	Capitalised computer software	2	2	2	2	2
24	Communication costs	1	1	1	1	0
25	Communication expenses	1	2	2	2	1
26	Communications	2	1	2	2	2
27	Communications and computing	1	1	1	1	1
28	Computer	1	1	1	1	0
29	Computer and communications	1	1	1	1	0
30	Computer Contractors	0	0	0	0	1
31	Computer Costs	0	1	1	1	1
32	Computer equipment	2	3	2	3	3
33	Computer expenses	1	1	1	1	0
34	Computer Hardware	0	0	1	1	1
35	Computer hardware and software	1	1	0	0	0
36	Computer maintenance and support	1	1	1	1	0
37	Computer Software	2	2	2	2	2
38	Computer systems and software	1	0	0	0	0
39	Consulting fee and IT charges	0	0	0	0	1
40	Data communication	0	0	0	0	1
41	Data processing	2	0	0	0	0
42	Databases	1	1	1	1	0
43	Depreciation – IT equipment	1	0	0	0	0
44	Depreciation and amortisation expense	0	0	0	1	0
45	Depreciation of lease equipment and software	0	1	1	1	1
46	Depreciation of non current assets	1	1	2	1	1
47	Depreciation of plant and equipment and amortisation of computer software	0	0	1	0	0
48	Depreciation of web sites	0	1	1	1	1
49	Depreciation Office Equipment and computers	0	1	0	0	0
50	Depreciation: communication equipment	0	1	1	1	1
51	Depreciation: computer equipment	0	1	0	1	1
52	Depreciation: computer equipment and software	1	0	1	0	0
53	Depreciation and amortisation	0	0	1	1	2
54	Desktop	1	0	0	0	0

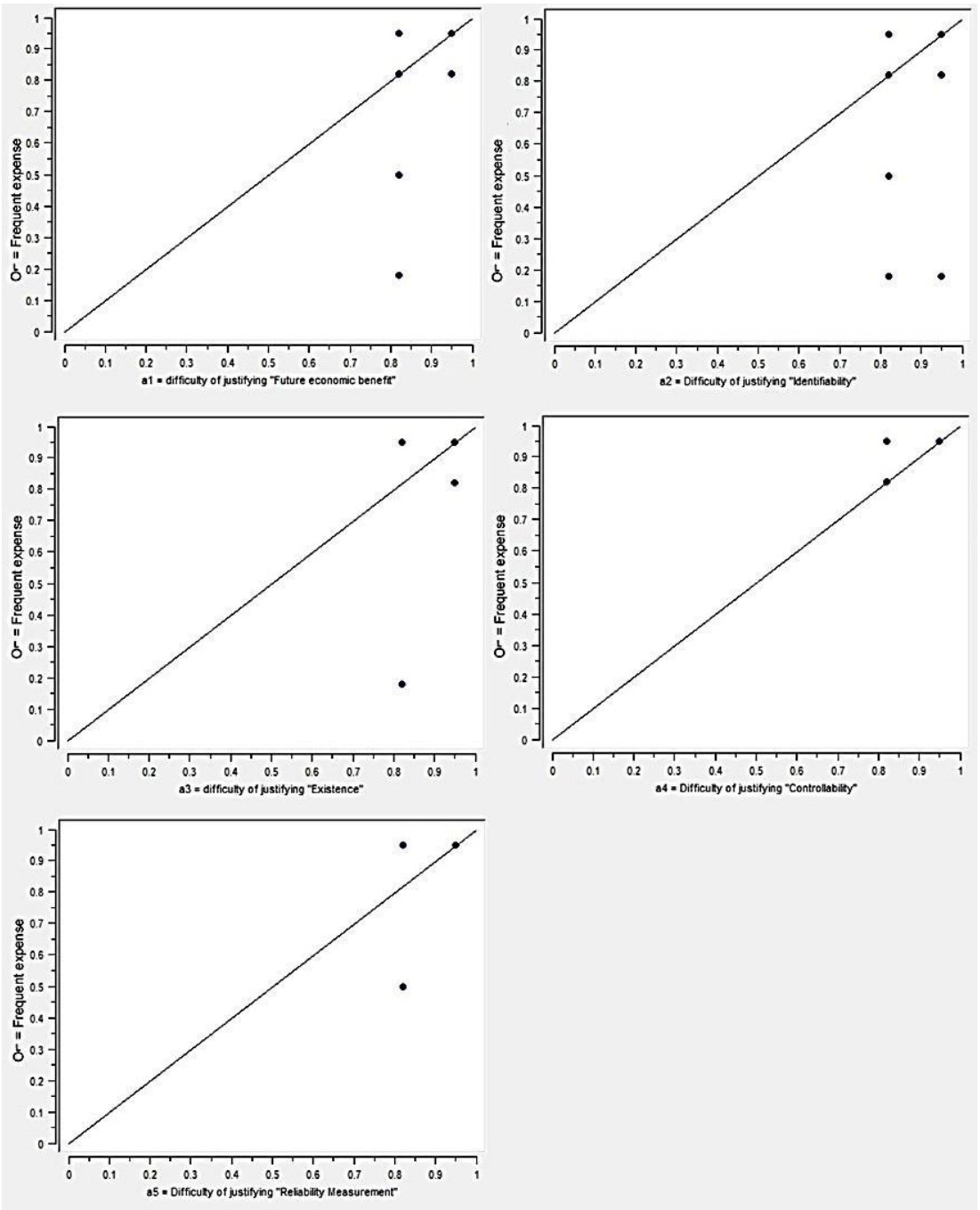
N	d) Subclass of expense containing ICT on the note to financial statement	Number of reported firm in each financial year 20XX				
		06	07	08	09	10
55	Equipment and occupancy expense	1	1	1	1	0
56	Information services	1	1	1	1	1
57	Information systems expenses	1	1	1	1	1
58	Information technology	1	1	1	1	1
59	Information technology and communications expenses	1	1	0	0	1
60	Information Technology Services	1	1	1	1	1
61	Information technology support fees	1	1	1	1	1
62	IT and Telecommunication costs	0	0	1	1	1
63	IT equipment depreciation	1	0	0	0	0
64	IT Expenses	0	0	0	0	1
65	IT maintenance	0	1	1	1	1
66	IT services	1	0	1	1	0
67	IT servicing and consulting charges	1	1	1	1	0
68	IT system conversion discrepancies written off	1	0	0	0	0
69	Marketing and communication expenses	0	0	0	0	1
70	Other	0	0	0	0	1
71	Other expenses	2	2	3	3	2
72	Other non-salary technology expenses	1	1	1	1	1
73	Other operating expenses	1	1	1	1	1
74	Projects and development	1	0	0	0	0
75	Rentals and repairs	0	0	0	0	1
76	Software	3	1	2	1	1
77	Software and licenses	0	1	1	1	0
78	Software development	0	1	1	0	1
79	Software expenses	1	1	1	1	0
80	Software impairment	0	0	0	0	1
81	Software purchased	0	0	0	0	1
82	Software research and development costs expensed	1	1	1	1	1
83	Software supplies	1	1	1	1	1
84	Telecommunication Costs	0	1	0	0	0
85	Telephone	0	0	0	0	1
86	Website	0	1	1	0	0

Appendix 5: XY Plot of the relevant conditions

a) XY Plot shows the superset relationship between each causal condition A_1, A_2, A_3, A_4, A_5 and their corresponding outcome O



b) XY Plot shows the superset relationship between each causal condition a_1, a_2, a_3, a_4, a_5 and their corresponding outcome O^{-}



Appendix 6: Interviewees' Response

Below is the interviewee 's response included in the analysis of this study. The other irrelevant questions have not been included.

Participant Exp_1:

- *Current Job: Regional Finance Officer for South East Asia*
- *The current employer (Organization Name): Danish Red Cross*
- *Location of the current employer: Denmark*
- *Working Experience in Accounting: Yes (4 Years, 9 Months)*
- *Highest qualification: Professional Level of ACCA; Bachelor of Business Administration, Accounting*

Q2.Do you know how much does your organisation spend on ICT in average for the last 5 years?

Answer: 2%

Q3.Do you or your company accountant record the cost of purchasing ICT products or services separately?

Answer: Sometimes

Q4.When does your organisation accountant record the cost of purchasing on ICT separately from non-ICT expenditure?

Answer: There is no particular guideline. The classification is based on the judgement of the management.

Q5. How do you identify whether the cost incurred are from ICT?

Answer: When the management perceived that the cost incurred is related to IT equipment and services.

Q6. Name the header account (Class) and detail account (subclass) that you or your organisation's accountant use for bookkeeping the transaction of purchasing ICT product or services described in Appendix A?

Answer:

For asset: Information and Communication Technology(Header Account)

For expense: Communication Cost. Subclass: IT Cost, Consultant Cost, End user meeting Cost

Q7. Does your organisation use the capitalization threshold as the criterion for Asset capitalisation in General?

Answers: No, We base on different circumstance. Often, the company write off the purchase as expenses except it is the big purchase, for example 5 million. This organisation is a bit different from the other organisation.

Q8. What is the capitalisation threshold for Asset in general?

Answers: NA

Q9. What is the capitalisation threshold for IT asset?

Answers: All the computers are recorded as Expense unless it is the contractual purchase or the big spending on software

{The below are Exp_1's Responses to Questionnaire in Section B, S1.1 Computer Hardware – Asset Versus Expense in the questionnaires booklet}

Q1. How often do you classify the cost of the item described in figure 1.1 as Asset?

Answer: Sometimes

Q2. How often do you classify the cost of the item described in Figure 1.1 as Expense ?

Answer: Sometimes

S1.Q4. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: Yes, The useful life is longer than one accounting period. The important level is 5.

{The below are Exp_1's Responses to Questionnaire in Section B, S2.1 Computer Software – Asset Versus Expense. in the questionnaires booklet}

Q5. How often do you classify the cost of the investment item in Figure 2.1 as Asset?

Answer: Sometimes

Q6. How often do you classify the cost of the investment item in Figure 2.1 as Expense?

Answer: Sometimes

Q8. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_1's Responses to Questionnaire in Section B, S3.1 Computer Services – Asset Versus Expense. in the questionnaires booklet}

Q9. How often do you classify the cost of the investment item in Figure 3.1 as Asset?

Answer: Sometimes

Q10. How often do you classify the cost of the investment item in Figure 3.1 as Expense?

Answer: Sometimes

Q12. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: Yes, 1.Whether it extends the useful life of the asset. The important level is 5. 2.Whether it adds additional economic benefit of the asset. The important level is 5.

{The below are Exp_1's Responses to Questionnaire in Section B, S4.1 Telecommunication Equipment and Communication Capbles– Asset Versus Expense.in the questionnaires booklet}

Q13. How often do you classify the cost of the investment item in Figure 4.1 as Asset?

Answer: Not often, Everything in this category is normally written off as expense since the amount is small.

Q14. How often do you classify the cost of the investment item in Figure 4.1 as Expense?

Answer: Often

Q16. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_1's Responses to Questionnaire in Section B, S5.1 Telecommunication Services– Asset Versus Expense.in the questionnaires booklet}

Q17. How often do you classify the cost of the investment item in Figure 5.1 as Asset?

Answer: Never

Q18. How often do you classify the cost of the investment item in Figure 5.1 as Expense?

Answer: Always

{The below are Exp_1's Responses to Questionnaires in Section C of the questionnaires booklet}

{Answered for Computer Hardware}

1. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}*?

Answer: 3. neither easy nor difficult, sometimes it is difficult to justify the future economic benefit, in short, cash inflow, for example, dock station and monitor screen for office use. These are just the complements but not mandatory for working activities.

2. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in Figure 1?

Answer: Easy, In certain situation where there is no active market to value the fair value of the assets. To justify this criterion, we can only use the invoice. When we purchase any items, we ask the supplier to separate the cost of each item so we can verify which items and its cost. The item with small cost would be recorded as expense.

3. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}*?

Answer: Easy, in a simple organisation like Danish Red Cross, the existence of asset is not difficult to identify. Example, computer hardware can be seen and located physically and through the asset list. Tagging is being used.

4. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. a. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}*?

Answer: Easy, we have contractual agreement or invoice in place to justify that we have full control of the assets.

5. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{Computer Hardware}*?

Answers: Neither Easy nor Difficult. For the items we purchase by ourselves, we can measure the cost through the invoice. The costs of the brand new items are also easy to be measured. Some assets received from donation need to be measure with the fair value method. If the items have the active market within the business environment, we can evaluate the cost base on the active market. Some items, that is very high tech and difficult to find the active market, we meet the difficulty to measure the cost.

{Answered for Computer Software}

6. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Software}*?

Answer: Neither Easy nor Difficult. Not all software we purchased would be considered to provide the benefit to the organisation. For example, sometimes a particular type of software is not required, yet the head quarter buys it. We did not perceive any benefit.

7. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Software}*?

Answer: Easy

8. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Software}*?

Answer: Easy. Asset listing

9. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Software}*?

Answer: Easy. For the big software that we recognised as asset, we have contractual agreement to justify the control over the assets. We are confident with the vendor and the usefulness of the asset. The vendor of the software is the big firm, for instance Microsoft.

10. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{Computer Software}*?

Answer: Neither easy nor Difficult. For the asset that we already paid in the beginning of the purchase, it is easy to measure the cost. But we are difficult to justify the cost incurred afterward as the cost of asset (i.e installation, consultancy services, etc).

{Answered for Computer Service}

11. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Service}*?

Answer: Difficult. Sometimes it is hard to justify this services provides additional economic benefit to the organisation, or in short, how to identify future economic benefit.

12. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Service}*?

Answer: Difficult. The services we purchase are normally in package. It is difficult to identify how much is the cost of services such as consultation, staff shall be allocated into the cost of building asset for example software. Sometimes, the asset cannot be identifiable at the beginning of the development. Yet, at the middle of the development, the asset can be seen by the management. The costs of the incurred transactions are partly recorded as expense.

13. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Service}*?

Answer: Easy. Every time the software needs to be customised, we raise the issue form to the vendor. After the customization process complete, we can see the customised module of the software.

14. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Service}*?

Answer: Easy. We have the contractual agreement as evidence of control.

15. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{Computer Service}*?

*Answer: 4. neither easy nor difficult.*It is hard to distinguish with cost should be included.

{Answered for Telecommunication Equipment and Communication Cables }

16. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *Telecommunication Equipment and Communication Cables }*?

Answer: Difficult. It is hard to justify if it gives the future economic benefit. The cost is too small. Not really important for the main corporate activities.

17. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *Telecommunication Equipment and Communication Cables }*?

Answer: 2. Easy.We base on tax invoice.

18. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *Telecommunication Equipment and Communication Cables }*?

Answer: 2. Easy. tangible

19. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *Telecommunication Equipment and Communication Cables }***?**

Answer: 2. Easy. We have the asset list to control the asset.

20. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *Telecommunication Equipment and Communication Cables }***?**

Answer: 2. Easy. Invoice from supplier.

{Answered for Telecommunication Service}

21. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Service}?*

Answer: 5.Very Difficult

22. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Service}?*

Answer: 5.Very Difficult. It is intangible. Hard to distinguish whether the item has been used for the business or the personal activities.

23. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Service}?*

Answer: 1. Very Easy. c. Contractual agreement from the service provider.

24. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Service}?*

Answer: 4. Difficult. It is hard to control if the services are being used for the work related activities.

25. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described *{Telecommunication Service}?*

Answer: 5.Very Difficult

Participant Exp_2:

- *Current Job: Finance Manager*
- *The current employer (Organization Name): G4S*
- *Location of the current employer: Cambodia*
- *Working Experience in Accounting: Yes*
- *Highest qualification: ACCA certified exam (F1, 2, 3, 4, 7); Bachelor of Accounting*

Q2.Do you know how much does your organisation spend on ICT in average for the last 5 years?

Answer: Don't know

Q3.Do you or your company accountant record the cost of purchasing ICT products or services separately?

Answer: Often

Q4.When does your organisation accountant record the cost of purchasing on ICT separately from non-ICT expenditure? Q5. How do you identify whether the cost incurred are from ICT?

Answer: There is either the contract or invoice included with each purchase. The price of the asset and expenses is recorded based on the contract and invoice. The organisation uses the personnel judgement to define whether the item is ICT.

Q6. Name the header account (Class) and detail account (subclass) that you or your organisation's accountant use for bookkeeping the transaction of purchasing ICT product or services described in Appendix A?

Answer :For asset: Property and Equipment -> Office Equipment; Property and Equipment -> Computers and IT equipment.For expense: Repair and maintenance (this includes Kaspersky software)

Q7. Does your organisation use the capitalization threshold as the criterion for Asset capitalisation in General?

Answers: Yes

Q8. What is the capitalisation threshold for Asset in general?

Answers: USD 100

Q9. What is the capitalisation threshold for IT asset?

Answers: USD 100

{The below are Exp_2's Responses to Questionnaire in Section B S1.1 Computer Hardware – Asset Versus Expense in the questionnaires booklet}

Q1. How often do you classify the cost of the item described in *{Computer Hardware}* **as Asset?**

Answer: Always

Q2. How often do you classify the cost of the item described in *{Computer Hardware}* **as Expense ?**

Answer: Never

Q4. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_2's Responses to Questionnaire in Section B S2.1 Computer Software – Asset Versus Expense in the questionnaires booklet}

Q5. How often do you classify the cost of the investment item in Figure 2.1 as Asset?

Answer: 2.Not often. Because the company only buy Peachtree Accounting Software and one time only.

Q6. How often do you classify the cost of the investment item in Figure 2.1 as Expense?

Answer: 3.Sometimes.Kaspersky software were bought and considered as expense, the cost only 10 dollars.

Q8. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_2's Responses to Questionnaire in Section B S3.1 Computer Services – Asset Versus Expense in the questionnaires booklet}

Q9. How often do you classify the cost of the investment item in *{computer services}* **as Asset?**

Answer: Never. The company outsources of all its IT services including software development.

Q10. How often do you classify the cost of the investment item in *{computer services}* **as Expense?**

Answer: Often

Q12. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_2's Responses to Questionnaire in Section B S4.1 Telecommunication Equipment and Communication Cables– Asset Versus Expense in the questionnaires booklet}

Q13. How often do you classify the cost of the investment item in {*Telecommunication Equipment and Communication Cables}* **as Asset?**

Answer: Never.Everything in this category is normally written off as expense since the amount is small.

Q14. How often do you classify the cost of the investment item in {*Telecommunication Equipment and Communication Cables}* **as Expense?**

Answer: Always

Q16. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_2's Responses to Questionnaire in Section B S5.1 Telecommunication Services– Asset Versus Expense in the questionnaires booklet}

Q17. How often do you classify the cost of the investment item in *Telecommunication Services* **as Asset?**

Answer: Never

Q18. How often do you classify the cost of the investment item in *Telecommunication Services* **as Expense?**

Answer: Always

Q20. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_2's Responses to Questionnaire in Section C of the questionnaires booklet}

1. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}***?**

Answer: 1.Very Easy. It's not difficult to see the future economic benefit from the item, computer. We know directly and it is common that computer can be used for three years in this country. I know directly that its nature is fix asset. Base on the experience, we can see these items provide benefit to firm and the nature of this item is not complicated.

2. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}***?**

Answer:1.Very Easy. The nature of the computer is not complicated. We can identify the computer directly when we purchase.

3. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}***?**

Answer: 1.Very Easy. This type of asset can be seen easily. We use tag and the asset lists to manage the asset, its location and prove the existence of the asset (physical and book).If we want to see if there is the asset exist in the class, we can search directly for the tag number in the asset list.

4. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}***?**

Answer: 1.Very Easy. c. Using the asset list and asset tag to control the asset. The asset list includes its name, location, value, and name of the users.

5. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{Computer Hardware}***?**

Answers: 1.Very Easy. c Base on the tax invoice and cash receipt provided by the supplier.

6. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Software}***?**

Answer: 1.Very Easy. I really has no idea when the software is going to be crack. But normally, the software, for example, Peachtree accounting software can be used in our company for two years already. If it can be used more than one accounting period.

7. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Software}***?**

Answer: 1.Very Easy

8. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Software}***?**

Answer: 1. Very Easy. Easy to check if it is working, CD. The software can be installed and seen any time to check the existence of the software.

9. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Software}***?**

Answer: 1.Very Easy. We have the "Asset List" to control.

10. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{Computer Software}***?**

Answer: 1.Very Easy. Base on the tax invoice and cash receipt provided by the supplier of the equipment.

11. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Services}***?**

Answer: 5.Very Difficult. It is not an easy task. We need someone experience for this task. For me, it is very difficult. Inexperience is the main reason for my answer. We don't know whether which cost and what short of documents to prove that the cost should be included as cost asset.

12. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Services}***?**

Answer: 3.Neither Easy Nor Difficult. The nature of this expenditure is complicated. For example, some equipment will be used in different projects after one project finish. The allocation of cost is very hard. If the allocation of cost is done in advance then it is easy identify the cost of asset. After the research and development success, the cost can be capitalised.

13. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Services}***?**

Answer: 1. Very Difficult. We don't have any experience to capitalise the cost of asset arising from this services. The software purchased is outsourced. And for services, it is hard to find the evidence to prove the existence of asset.

14. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Services}***?**

Answer: 1.Very Difficult. Same as what we said earlier, we are lack of experience on capitalising any asset arising from the expenditure in this category.

15. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{Computer Services}***?**

Answer: 1.Very Difficult

16. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Equipment and Communication Cables}***?**

Answer: 1.Very Easy. We said it provide future economic benefit because we use them more than one year, it would be capitalised.

17. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Equipment and Communication Cables}***?**

Answer: 1.Very Easy

We base on tax invoice and it is normally stated clearly the items and its cost in the invoice.

18. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the

cost of purchasing the item described in *{ Telecommunication Equipment and Communication Cables}***?**

Answer: 1. Very Easy. It can be seen, located and tagged.

19. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{ Telecommunication Equipment and Communication Cables}***?**

Answer: 1.Very Easy. We use asset list to control the asset.

20. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{ Telecommunication Equipment and Communication Cables}***?**

Answer: 1.Very Easy. The cost of the items are normally stated in the tax invoice from the supplier.

21. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Services}***?**

Answer: 1.Very Difficult

22. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Services}***?**

Answer: 1.Very Difficult

23. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Services}***?**

Answer: 1. Very Difficult

24. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Services}***?**

Answer: 1.Very Difficult. We use asset list to control the asset.

25. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{Telecommunication Services}***?**

Answer: 1.Very Difficult

Participant Exp_3:

- *Current Job: Deputy Manager Accounting and Finance*
- *The current employer (Organization Name): SOK KONG IMPORT EXPORT CO., LTD*
- *Location of the current employer: Cambodia*
- *Working Experience in Accounting: 14 years*
- *Highest qualification: Certificate of Honour Officer.*

Q2.Do you know how much does your organisation spend on ICT in average for the last 5 years?

Answer: 1% of Sale

Q3.Do you or your company accountant record the cost of purchasing ICT products or services separately?

Answer: Always

Q4.When does your organisation accountant record the cost of purchasing on ICT separately from non-ICT expenditure? Q5. How do you identify whether the cost incurred are from ICT?

Answer: We have particular guideline by IT department to inform the accounting that the item is part of IT. The first purchase in package usually be recorded as assets. Small purchase will be expense.

Q6. Name the header account (Class) and detail account (subclass) that you or your organisation's accountant use for bookkeeping the transaction of purchasing ICT product or services described in Appendix A?

Answer: For asset: Fix asset -> Class 2 Information System and Electronic. For expense: Operating Expense -> Repair and maintenance expense

Q7. Does your organisation use the capitalization threshold as the criterion for Asset capitalisation in General?

Answers: No

Q8. What is the capitalisation threshold for Asset in general?

Answers: NA

Q9. What is the capitalisation threshold for IT asset?

Answers: No sure. Usually, it would be recorded as asset if the useful life of the item is larger than two years.

{The below are Exp_3's Responses to Questionnaire in Section B S1.1 Computer Hardware – Asset Versus Expense in the questionnaires booklet}

Q1. How often do you classify the cost of the item described in *{Computer Hardware}* **as Asset?**

Answer: Often

Q2. How often do you classify the cost of the item described in *{Computer Hardware}* **as Expense ?**

Answer: Sometimes

Q4. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: Yes. We also follow tax regulation. If the useful life is less than 12 months, we would considered the purchase as the accrued expense, and expenses through each month. If the useful life is larger than 12 months, it will be recorded as asset.

{The below are Exp_2's Responses to Questionnaire in Section B S1.1 Computer Software – Asset Versus Expense in the questionnaires booklet}

Q5. How often do you classify the cost of the investment item in *{Computer Software}* **as Asset?**

Answer: Always

Q6. How often do you classify the cost of the investment item in *{Computer Software}* **as Expense?**

Answer: Never

Q8. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_2's Responses to Questionnaire in Section B S3.1 Computer Services – Asset Versus Expense in the questionnaires booklet}

Q9. How often do you classify the cost of the investment item in ***{****Computer Services}* **as Asset?**

Answer: Never

Q10. How often do you classify the cost of the investment item in ***{****Computer Services}***as Expense?**

Answer: Always. It is because the company does not earn income from IT.

Q12. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

*{The below are Exp_3's Responses to Questionnaire in Section B S4.1 Telecommunication Equipment and Communication Cables– Asset Versus Expense in the questionnaires booklet}***.**

Q13. How often do you classify the cost of the investment item in ***{****Telecommunication Equipment and Communication Cables}* **as Asset?**

Answer: Often

Q14. How often do you classify the cost of the investment item in ***{****Telecommunication Equipment and Communication Cables}* **as Expense?**

Answer: Not often. In case of small purchase, it will be recorded as expense.

Q16. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_3's Responses to Questionnaire in Section B S5.1 Telecommunication Services– Asset Versus Expense in the questionnaires booklet}.

Q17. How often do you classify the cost of the investment item in {*Telecommunication Services}* **as Asset?**

Answer: Never

Q18. How often do you classify the cost of the investment item in {*Telecommunication Services}* **as Expense?**

Answer: Always

Q20. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_3's Responses to Questionnaire in Section C in the questionnaires booklet}.

1. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}***?**

Answer: 1.Very Easy. Base on my personal judgement, I can see directly there is the benefit from these devices in cutting cost and times for our everyday work.

2. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}***?**

Answer:1.Very Easy. It is tangible and has the clear feature.

3. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}***?**

Answer: 1.Very Easy. It is tangible and has the clear feature.

4. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}***?**

Answer: 1.Very Easy. We have the asset list and asset tag. The code used for tagging is defined by the organisation for each office/department of the organisation.

5. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{Computer Hardware}***?**

Answers: 1 Very Easy. Invoice from the supplier for individual item and sum of payments.

6. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer software}***?**

Answer: Very easy. It is based on my personal judgement that the benefit is expected from software in reducing cost.

7. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Software}***?**

Answer: Very easy. License and contract from software supplier.

8. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised?. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer software}***?**

Answer: Very easy

9. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer software}***?**

Answer: Easyc. Going on usage of software. Training from sun system base on the contact agreement.We also lay out a lot of condition in the contract agreement with SUN to make sure that the support and maintenance is going on.

10. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{Computer software}***?**

Answer: Very easy. c. Invoice, contract. The payment is made base on the stage of development. The payment is recorded into the class that has the nature as the Accounting payable. The payment is recorded as asset when development is finished.

11. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Services}***?**

Answer: Easy. b. The benefit is highly visible to the organisation

12. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Services}***?**

Answer: Easy

13. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Services}***?**

Answer: Easy. As it is always recorded as expense.

14. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Services}***?**

Answer: Easy

15. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{ Computer Services}***?**

Answer: Easy

{For Telecommunication Equipment and Communication Cables, all the answers are the same to the answer for Computer Hardware}

21. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Services}***?**

Answer: Very Difficult. We always recorded services as expense.

22. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Services}***?**

Answer: Very Difficult

23. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Services}***?**

Answer: Very Difficult

24. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Services}***?**

Answer: Very Difficult

25. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{Telecommunication Services}***?**

Answer: Very Difficult

Participant Exp_4

- *Current Job: Finance Analyst*
- *The current employer (Organization Name): Gordon & Associates Asia (Cambodia)*
- *Location of the current employer: Cambodia*
- *Working Experience in Accounting: 2 year 9 months*
- *Highest qualification: Bachelor degree of administration.*

Q2.Do you know how much does your organisation spend on ICT in average for the last 5 years?

Answer: 15% of annual budget

Q3.Do you or your company accountant record the cost of purchasing ICT products or services separately?

Answer: Sometimes

Q4.When does your organisation accountant record the cost of purchasing on ICT separately from non-ICT expenditure? Q5. How do you identify whether the cost incurred are from ICT?

Answer: When the cost of purchasing is related to information and communication technology. Base on the existing and the threshold

Q6. Name the header account (Class) and detail account (subclass) that you or your organisation's accountant use for bookkeeping the transaction of purchasing ICT product or services described in Appendix A?

Answer: For asset: PPE -> Computer Equipment. For expense: Maintenance cost -> Service maintenance

Q7. Does your organisation use the capitalization threshold as the criterion for Asset capitalisation in General?

Answers: Yes

Q8. What is the capitalisation threshold for Asset in general?

Answers: USD 100

Q9. What is the capitalisation threshold for IT asset?

Answers: USD 50

{The below are Exp_4's Responses to Questionnaire in Section B, S1.1 Computer Hardware – Asset Versus Expense in the questionnaires booklet}

Q1. How often do you classify the cost of the item described in {*Computer Hardware}* **as Asset?**

Answer: Often

Q2. How often do you classify the cost of the item described in {*Computer Hardware}* **as Expense ?**

Answer: Not often

Q4. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_4's Responses to Questionnaire in Section B, S2.1 Computer Software – Asset Versus Expense in the questionnaires booklet}

Q5. How often do you classify the cost of the investment item in {*Computer Software}* **as Asset?**

Answer: often. Because the company only buy Peachtree Accounting Software and one time only.

Q6. How often do you classify the cost of the investment item in {*Computer Software}* **as Expense?**

Answer: Not often. Kaspersky software were bought and considered as expense, the cost only 10 dollars.

Q8. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_4's Responses to Questionnaire in Section B, Computer Services – Asset Versus Expense in the questionnaires booklet}

Q9. How often do you classify the cost of the investment item in *{Computer Services}* **as Asset?**

Answer: Sometimes

Q10. How often do you classify the cost of the investment item in *{Computer Services}* **as Expense?**

Answer: always

Q12. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_4's Responses to Questionnaire in Section B S4.1 Telecommunication Equipment and Communication Cables– Asset Versus Expense in the questionnaires booklet}

Q13. How often do you classify the cost of the investment item in { *Telecommunication Equipment and Communication Cables– Asset Versus Expense* **} as Asset?**

Answer: Often

Everything in this category is normally written off as expense since the amount is small.

Q14. How often do you classify the cost of the investment item in { *Telecommunication Equipment and Communication Cables– Asset Versus Expense* **} as Expense?**

Answer: Not often

Q16. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_4's Responses to Questionnaire in Section B S5.1 Telecommunication Services– Asset Versus Expense in the questionnaires booklet}

Q17. How often do you classify the cost of the investment item in {*Telecommunication Services}* **as Asset?**

Answer: Never

Q18. How often do you classify the cost of the investment item in {*Telecommunication Services}* **as Expense?**

Answer: Always

Q20. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_4's Responses to Questionnaire in Section C in the questionnaires booklet}

1. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}***?**

Answer: 1.Very Easy. c. Because the cost is fix from the suppliers.

2. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}***?**

Answer:1.Very Easy. It is tangible and has the clear feature.

3. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}***?**

Answer: 1.Very Easy. c. It is tangible and has the clear feature.

4. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}***?**

Answer: 1.Very Easy. c. the cost is set by the supplier. The purchase receipt is the proof of purchase and ownership.

5. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{Computer Hardware}***?**

Answers: 3. c. Because the supplier always have profit margin on each product.

6. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Software}?*

Answer: 3 Neither easy nor difficult. c. the uncertainty of its future economic benefit whether it exist or not.

7. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Software}***?**

Answer: 4 difficult. It's software that already in the set with hardware

8. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Software}***?**

Answer: 4. Difficult. c. We don't know if it exist or not.

9. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Software}***?**

Answer: 3. Neither easy nor difficult. c. Sometimes it comes in set with hardware that we find it hard to separate the cost.

10. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{Computer Software}***?**

Answer: 3. Neither easy nor difficult. c. Because it will come in package include service fee in it.

11. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Services}***?**

Answer: 5.Very Difficult. b. It is not certain to identify the future economic benefit in figure 3. It's always recorded as expense.

12. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Services}***?**

Answer: 5 very difficult. As it is always recorded as expense.

13. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Services}***?**

Answer: 5 Very Difficult. c. As it is always recorded as expense.

14. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Services}***?**

Answer: 5.Very Difficult. c. As it is always recorded as expense.

15. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{Computer Services}***?**

Answer: 5.Very Difficult. c. As it is always recorded as expense.

16. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{ Telecommunication Equipment and Communication Cables}***?**

Answer: 3. Neither easy nor difficult. c.Some the items have its physical form but some items need to put in together to get it work. And some items have low cost than our threshold

17. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{ Telecommunication Equipment and Communication Cables}***?**

Answer: 2.Easy. It is not hard to identify.

18. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{ Telecommunication Equipment and Communication Cables}?*

Answer: 2. Easy. c. It's tangible.

19. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{ Telecommunication Equipment and Communication Cables}***?**

Answer: 2. Easy. c. the item has to be purchase under the company or by the company.

20. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{ Telecommunication Equipment and Communication Cables}***?**

Answer: 2. Easy. c. it is set by supplier for each item.

21. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Services}***?**

Answer: 4.Difficult. We always recorded services as expense.

22. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Services}***?**

Answer: 4. Difficult

23. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Services}***?**

Answer: 4. Difficult

24. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Services}***?**

Answer: 4. Difficult. c. We use asset list to control the asset.

25. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{Telecommunication Services}***?**

Answer: 4. Difficult

Participant Exp_5:

- *Current Job: Chief Financial Officer*
- *The current employer (Organization Name): Daun Penh (Cambodia) Group*
- *Location of the current employer: Cambodia*
- *Working Experience in Accounting: 10*
- *Highest qualification: Association of Chartered Certified Accountant (ACCA), Bachelor of Accountant.*

Q2.Do you know how much does your organisation spend on ICT in average for the last 5 years?

Answer: Less than 1% of annual total budget

Q3.Do you or your company accountant record the cost of purchasing ICT products or services separately?

Answer: when purchase

Q4.When does your organisation accountant record the cost of purchasing on ICT separately from non-ICT expenditure? Q5. How do you identify whether the cost incurred are from ICT?

Answer: If it is a IT related.

Q6. Name the header account (Class) and detail account (subclass) that you or your organisation's accountant use for bookkeeping the transaction of purchasing ICT product or services described in Appendix A?

Answer: For asset: Fix asset for Hardware, Intangible Asset for Software. For expense: IT expense and administration

Q7. Does your organisation use the capitalization threshold as the criterion for Asset capitalisation in General?

Answers: Yes

Q8. What is the capitalisation threshold for Asset in general?

Answers: 100 USD

Q9. What is the capitalisation threshold for IT asset?

Answers: 100USD

{The below are Exp_1's Responses to Questionnaire in Section B, S1.1 Computer Hardware – Asset Versus Expense in the questionnaires booklet}

S1.1 Computer Hardware – Asset versus Expense.

Q1. How often do you classify the cost of the item described in {*Computer Hardware}* **as Asset?**

Answer: Often

Q2. How often do you classify the cost of the item described in {*Computer Hardware}***as Expense ?**

Answer: Sometimes

Q4. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_1's Responses to Questionnaire in Section B, S2.1 Computer Software – Asset Versus Expense in the questionnaires booklet}

Q5. How often do you classify the cost of the investment item in *{Computer Software}* **as Asset?**

Answer: often

Q6. How often do you classify the cost of the investment item in *{Computer Software}* **as Expense?**

Answer: Often

Q8. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_1's Responses to Questionnaire in Section B, S3.1 Computer Services – Asset Versus Expense in the questionnaires booklet}

Q9. How often do you classify the cost of the investment item in *{Computer Service}* **as Asset?**

Answer: Not often

Q10. How often do you classify the cost of the investment item in *{Computer Service}* **as Expense?**

Answer: Often

Q12. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_1's Responses to Questionnaire in Section B, S4.1 Telecommunication Equipment and Communication Cables– Asset Versus Expense in the questionnaires booklet}

Q13. How often do you classify the cost of the investment item in {*Telecommunication Equipment and Communication Cables}* **as Asset?**

Answer: Often

Q14. How often do you classify the cost of the investment item in {*Telecommunication Equipment and Communication Cables}* **as Expense?**

Answer: Sometimes

Q16. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_1's Responses to Questionnaire in Section B, Telecommunication Services– Asset Versus Expense in the questionnaires booklet}

Q17. How often do you classify the cost of the investment item in {*Telecommunication Services}* **as Asset?**

Answer: Sometimes

Q18. How often do you classify the cost of the investment item in in *{Telecommunication Services}* as Expense?

Answer: Not often

Q20. Do you use any important criteria or technique other than the criteria mentioned above?

Answer: No

{The below are Exp_1's Responses to Questionnaire in Section C in the questionnaires booklet}

{Computer Hardware}

1. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}* **?**

Answer: Difficult. c. Some items are small and others are more for administrative.

2. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}***?**

Answer: Neither easy nor difficult. Some items are too small and not so easy to separate.

3. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}***?**

Answer: Easy. c. When you buy you can see it.

4. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Hardware}***?**

Answer: Very Easy c. Through supporting document to indicate the control/ownership.

5. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{Computer Hardware}***?**

Answers: Easy. c. Based on accounting standard, cost must be reliably measurable before we recognize it.

6. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Software}***?**

Answer: Difficult. c. Some software is for operation or administrative.

7. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Services}***?**

Answer: Very difficult. c. Sometimes, it could be built in.

8. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Software}***?**

Answer: Very difficult. b. You don't see it generally

9. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Software}***?**

Answer: Difficult. c. some for administrative purpose. We also lay out a lot of condition in the contract agreement with SUN to make sure that the support and maintenance is going on.

10. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{Computer Software}***?**

Answer: Easy. c. We have to base on the accounting standard.

11. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Services}***?**

Answer: Difficult. b. Sometimes, we don't have technical knowledge to judge.

12. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Services}***?**

Answer: Difficult. As it is a service which you can't use it.

13. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in Figure 2?

Answer: Very Difficult. c. Again, once service performed, no visibility.

14. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Computer Services}***?**

Answer: Easy. Through the supporting document.

15. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{Computer Services}***?**

Answer: Easy. Follow the accounting standards.

16. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in ***{****Telecommunication Equipment and Communication Cables}***?**

Answer: Easy. c.Generally before such investment is made there must be a lots of considerations.

17. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in ***{****Telecommunication Equipment and Communication Cables}***?**

Answer: Neither easy nor difficult. The amount is general large.

18. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in {*Telecommunication Equipment and Communication Cables}***?**

Answer: Easy. c. Normally visible.

19. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in {*Telecommunication Equipment and Communication Cables}***?**

Answer: Easy. c. Normally supported.

20. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in {*Telecommunication Equipment and Communication Cables}***?**

Answer: Easy.c. Normally supported by invoice.

21. Asset arising from the expenditure must have the future economic benefit in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Services}***?**

Answer: Difficult. Sometimes no trace.

22. The asset arising from the expenditure has to be identifiable in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Services}***?**

Answer: Very Difficult. Sometimes no trace.

23. There must be the existence of asset arising from the expenditure in order for the asset to be capitalised? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Services}***?**

Answer: Difficult. Sometimes too technical to understand

24. The future economic benefit embodied in the asset has to be controllable by the organisation in order to be capitalised. Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the item described in *{Telecommunication Services}***?**

Answer: Easy. Generally supported

25. The cost of asset arising from the expenditure has to be measured reliably? Do you feel it is difficult to justify this criterion to capitalise the cost of purchasing the items described in *{Telecommunication Services}***?**

Neither easy nor difficult. Generally supported.

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