THE ACCOUNTING INFORMATION SYSTEM FOR ASSET: HOW TO RECOGNIZE AND MEASURE ASSET IN THE CASE OF REPLACE, SELL AND DEPRECIATE TANGIBLE NON-CURRENT ASSET/TANGIBLE FIXED ASSET ACCORDING TO IAS / PSAK 16 AND IFRS 5

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ABSTRACT

Change of the reporting standard to the IFRS based for all types of financial reporting, the Indonesian Financial Accounting Standard (IFAS) or PSAK has been running it adjustment. PSAK 16 and IFRS 5 have their complete explanation on how the fixed asset has to be treated. Since IFRS became global financial reporting standard, fixed asset has to be count with fair value or fair market value. The uncertainty of that value have resulted a different way of treating fixed assets. The market value that assigned for fixed assets is difficult to predict; especially for counting all investments indicators in the financial reporting. Replacing, selling and depreciating the fixed asset are done regularly every certain period of time. It will be easy to acquire their value if the fixed asset is really one entity; it refers to no other part within the fixed asset itself. On the other hand, if the fixed asset is built from many pieces of parts then it would not be consider as simple as treating the fixed asset as on entity. The Accounting Information System (AIS) is accountant aided technology in order to simplify the work of valuation, acquiring, recognizing, measuring and recording process of it. In the case of replacing, selling and depreciating with upcoming new rule, AIS would help respectively. Through the CAIS (Computerize Accounting Information System), it helps to count the value (fair value) for fixed asset. Literature review and analysis were using as research methodology on this research paper in order to show an overview of CAIS and the expert system that helps to decide the amount of fair value or market value.

Keywords: *Fixed Asset, Accounting Information System, Fair Value, IFRS*

INTRODUCTION

Background

In the income statement, Asset is consists of two types: Current Asset and Fixed Asset (non-current asset). Current Asset is something that could easily occurred to be an asset or something that currently assigned as a liquid asset that could be used in the daily activity, on the other hand Fixed Asset or non-current asset is something that has a long term to be held as a cash or it has future benefit. According to IASB: An asset is a resource controlled by the enterprise as a result of past events and from which future economic benefits are expected to flow to the enterprise. (Collings, 2012).

The effectiveness of enterprise activity is determined by the level of provision with the fixed asset and especially its rational use in economic

processes (Domeika, 2008). The fixed asset or non-current asset do have a physical form and could be categorized as "Tangible Fixed Asset or Tangible non-current Asset". There two types of tangible non-current asset: (1) property, plant and equipment (IAS 16 and IFRS 5): land and buildings, machinery, computer equipment, building partitions , photocopiers and other sorts of assets that the company uses over a number of years. (2) Investment property (IAS 40): property (land or a building, or part of a building, or both) a company owns that it rents or holds to benefit from a rise in price or both. (Collings, 2012).

Furthermore, the emergence issue in Indonesia's accounting world is the changing in accounting rule. PSAK as the Indonesian Financial Accounting Standard (IFAS) is in process to adopt the rule from International Financial Reporting Standard (IFRS), leaving the US Accounting Standard. Although the conversion are not fully complete due to the condition that may associated with the condition of financial reporting system which sometimes are not appropriate to be applied for Indonesian financial reporting, but it has been running on all business entities and organizations. These changes have impacted on the recognition on asset value, especially for tangible fixed asset. Thus, it made accountant has tried to simplify the process of adjustment by using accounting information system.

The Accounting Information Systems (AIS) has been helping accountant to make an efficient flows of recording process. Loads of paper works are no longer believed as the only way to sort of the accounting process. Computerized Accounting Information Systems (CAIS) is raising it role to minimize paper works and time. Despite people need to learn how to cooperates with it, more advantages are showing to balance it difficulties to learn.

Based on the explanation from PSAK 16 and IFRS 5, fixed tangible asset are acquired accordingly. It accounts the value of recognition using two treatments: (1) The depreciated historic cost model: it refers to the counting process by using its (assets)

initial cost and then charge depreciation over its estimated useful life and take account of any impairment losses. (2) The revaluation model: using fair value of fixed tangible assets on the financial statement (which is how much the asset is worth at the end of the year) (Collings, 2012)

Research Motivation

Solving problems faced by enterprises, organizations and accountants on counting the value of assets especially "tangible fixed assets" that have many parts within their body for instance computer (personal computer), except the software; computer has hardware which could easily to be replace or to be sell for some reasons. PSAK and IFRS have methods to count that case of replacing and selling part of asset. However, the CAIS is aided the valuation process that may simplify it process in any circumstances (replacing, selling and depreciating).

Research Question

How the treatments for assets with CAIS caused by the change of financial report in the condition:
1) If the fixed asset being replaced?
2) If the fixed asset being sold?
3) If the fixed asset being depreciated?

Research Objectives

This research aim to:
1. Acknowledge the top management for applying computerize Accounting Information Systems (CAIS) for fixed tangible assets in order to simplify the work of organizations, enterprises and accountant in counting its market value as a whole (one entity) or partly.
2. Help the process of valuation of fixed asset in the case of (selling, replacing and depreciating) using fair value based on the adjustment of new rule from PSAK and IFRS.
3. Establish computerizes Accounting Information System for fixed asset helped by Expert System.

THEORETICAL FRAMEWORK

The Accounting Information System and Fixed Tangible Asset

Information system is perceived as an entirely of information processing system and resources of an enterprise (information itself, people, technical devices, finances, etc.) meant to form and disseminate information (Simanauskas, 2000; on Domeika, 2008). An information system (IS) is a man made system that generally consists of an integrated set of computer-based components and manual components established to collet, store and manage data and to provide output information to users (Dull, 2008). An accounting information system (AIS) in large part, is the study of the application of information technology to accounting systems. Then AIS could define as a collection of data and processing procedures that creates needed information for its users (Bagranoff, 2004).

Using Information technology in the AIS application for most enterprises, accountants and organizations have changed the nature of work. Computer, as an example of that technological impact on AIS has presented the aid of special software packages to manage the accounting process (Dull, 2008). However, T. Lucey, a researcher of information systems (Lucey, 1991; on Domeika, 2008) had mentioned that in the contemporary IS, it cannot function without computers and other technical means to measure primary information, gather and register it in carriers, process and transmit it to consumers. For this reason computerized Accounting information systems (CAIS) are designed and implemented.

The quality of accounting information is also determined by other factors such as the level of primary information automation, functionality of computer software, integration of accounting and other types of economic information, etc. Accounting information is closely related to other types of economics information such as normative and target information and especially, analytical information (or result of analysis) (Domeika, 2008).

CAIS of an enterprise accounting help to automate the processes of enterprise performance accounting and arrangement of analytical information. Accounting, being a special information system, should reveal the real picture of enterprise capital increase, sources of income and added value formation, approaches for revenue and profit distribution, scope of consumption and storage (Pankov, 2005, on Domeika, 2008).

Financial Reporting is a product of Accounting Information Systems. Because it came from raw financial data, transaction report, journals and any other things that related to the financial things. It provides the relevant information to individuals and groups outside an organisation's boundaries, for instance: investors, government and creditors. Beside, accountants need that for preparing financial statements and as a tool to inform enterprises and organizations economics performances (Bagranoff, 2005).

Furthermore, the fixed asset or tangible assets or non-current asset are something that could not be acquired within 12 months. They are having long term of usage and future expectations on profit and valuable investment. On both, PSAK and IFRS have mentioned the same point of view regarding the fixed assets. A fixed asset is defined as a financial resource that meets all of the following characteristics: (1) Tangible or intangible in nature, possesses physical substance or a contract agreement outlining a defined scope; and (2) Expected useful life of three years or more (more than one year) (Fixed Asset Accounting Procedure, website).

Fixed tangible asset may consists: land, buildings, equipment, and infrastructure. However, there are classification on fixed asset because they may have different rule on how the standard has apply on each of them:
1. **Land**-includes all land parcels acquired for municipal or resale purposes.
2. **Buildings**-includes all buildings (or structures which serve as buildings, such as permanently established trailers). Permanently attached

fixtures installed during construction are considered a part of the building. The subsequent addition of equipment will be recorded as machinery and equipment. Major improvements, such as additions to buildings, are capitalized.

3. **Improvements Other than Buildings**-includes improvements such as park facilities, parking lots, baseball fields, tennis courts, swimming pools and infrastructures associated with City owned utilities (water, sanitary sewers, and electrical distribution).

4. **Machinery and Equipment**-includes all motor vehicles (licensed and non-licensed), trailers, construction and maintenance equipment and furniture and fixtures.

(a) Office Machinery & Equipment – includes all office equipment such as typewriters, computers, printers, terminals, calculators, etc. which meet the criteria previously established for classification as a fixed asset and furniture and fixtures.

(b) Licensed Vehicles – includes all motor vehicles that are licensed for on-road use such as automobiles, trucks, vans, buses, etc.

(c) Non-Licensed Vehicles-includes vehicles such as tractors, mowers, backhoes, graders, rollers, etc.

5. **Construction in Progress** – includes all partially completed projects except roads and bridges. Buildings of various types will be the main component in this area. Upon completion, these assets are transferred to one of the other fixed asset classifications.

6. **Computer Purchases** - All computer purchases must comply with the computer standards sheet. In order to have system consistency and compatibility with the existing system/network, all computer purchases must be approved by the information consultant.

(Fixed Asset Accounting Procedure, website).

Recognising and Measuring The Fixed Asset: PSAK vs IFRS

Financial reporting is the information of accounting, whereas the information itself contains many elements that explains the economics condition of enterprises. As an information, financial reporting has to present each element that build the enterprises. Accounting equation has shown the idea in explaining the information of enterprise; Asset Equal to Liabilities add or plus Equity. Each elements; (1) Asset, (2) Liabilities, and (3) Equity are recognizing as their own present and future value. Then the Indonesian Financial Accounting Standard known as PSAK and International Financial Reporting Standard (IFRS) has the rule and concept on how to represent the financial statement. Since IFRS become common and use by most entities all over the world and has replaced the GAAP standard on financial reporting standard. PSAK have to adjust itself in order to be has introduced the rule on how reporting all elements of financial reporting in order to show the economics condition of enterprises.

PSAK 16

Property, Plant and Equipment outlines the accounting treatment for most types of property, plant and equipment. They are initially measured at its cost, subsequently measured either using a cost or revaluation model, and depreciated so that its depreciable amount is allocated on a systematic basic over its useful life.

The objective: to prescribe the accounting treatment for property, plant and equipment. The principal issues are the recognition of assets, the determination of their carrying amounts, and the depreciation charges and impairment losses to be recognised in relation to them.

Recognition:

(1) Items of property, plant and equipment should be recognised as assets when it is probable that has future economic benefit and can be measured reliably.

(2) Applied to all property, plant and

equipment costs at the time they are incurred. This cost include costs incurred initially to acquire or construct an item of property, plant and equipment.

(3) **Does not** prescribe the unit of measure for recognition---what constitutes an item of property, plant and equipment. However, if the cost model is used, each part of an item of property, plant and equipment with a cost that is significant in relation to the total cost of the item **must be depreciated separately**.

(4) Parts of some items of property, plant and equipment may require replacement at regular intervals. The carrying amount of an item of property, plant and equipment will include the cost of replacing the part of such an item when that cost is incurred if the recognition criteria (future benefit and measurement reliability) are met.

(5) Continued operation of an item of property, plant an equipment (for example, an aircraft) may require regular major inspections for faults regardless of whether parts of the item are replaced. When each major inspection is performed, its cost is recognised in the carrying amount of the item of property, plant and equipment as a replacement if the recognition criteria are satisfied.

Measurement:

(1) An item of property, plant and equipment should initially be recorded at cost. Cost includes all costs necessary to bring the asset to working condition for its intended use. This would include not only its original purchase price but also costs of site preparation, delivery and handling, installation, related professional fees for architects and engineers, and the estimate cost of dismantling and removing the asset and restoring the site.

(2) If payment for an item of property, plant and equipment is deffered, interest at a market rate must be recognised or inputed.

(3) If an asset is acquired in exchange

for another (whether similar or dissimilar in nature), the cost will be measured at the fair value unless (a) the exchange transaction lacks commercial substance or (b) the fair value neither the asset received nor the asset given up is reliably measurable.

Two Accounting Model of Measurements:

(1) Cost model: the asset is carried at a cost less accumulated depreciation and impairment.

(2) Revaluation model: the asset is carried at a revalued amount, being its fair value at the date of revaluation less subsequent depreciation and impairment, provided the fair value can be measured reliably.

Depreciation (Cost and Revaluation Models)

For all depreciable assets:

(1) The depreciable amount (cost less residual value) should be allocated to a systematic basis over the assets useful life

(2) The residual value and the useful life of an asset should be reviewed at least at each financial year-end and, if expectation differ from previous estimates, any change is accounted for prospectively as a change in estimate under.

(3) The depreciation method should reflect the pattern in which the asset's economic benefits are consumed by the entity.

(4) The depreciation method should be reviewed at least annually and, if the pattern of consumption or benefit has changed, the depreciation method should be change prospectively as a change in estimate under.

(5) Depreciation should be charged to the income statement, unless it is included in the carrying amount of another asset

(6) Depreciation begins when the asset is available for use and continues until the asset is derecognised, even if it is idle.

(www.iasplus.com/en/standards/ias16)

IFRS 5

It is about non-current assets held for sale and discontinued operations outlines how to account for non-current assets held for sale (or for distribution to owner). In general terms, assets (disposal group) held for sale are not depreciated, are measured at the lower carrying amount and fair value less costs to sell, and are presented separately in the balance sheet. Specific disclosures are also required for discontinued operations and disposals of non-current assets.

Held-for-Sale Classification.

In general, the following conditions must be met for an asset (or disposal group) to classified as held for sale:
(a) Management is committed to a plan to sell
(b) The asset is available for immediate sale
(c) An active programme to locate a buyer is initiated
(d) The sale is highly probable, within 12 months of classification as held for sale (subject to limited exceptions)
(e) The asset is being actively marketed for sale at a sales price reasonable in relation to its fair value
(f) Actions required to complete the plan indicate that it is unlikely that plan will be significantly changed or withdrawn.

The assets need to be disposed of through sale. Therefore, operations that are expected to be wound down or abandoned would not meet the definition (but may be classified as discontinued once abandoned).

Disposal group: A disposal group is a group of assets, possibly with some associated liabilities, which an entity intends to dispose of in a single transaction. The measurement basis required for non-current assets classified as held for sale is applied to the group as a whole, and any resulting impairment loss reduces the carrying amount of the non-current assets in the disposal group in the order of allocation required by IAS 36.

Measurement:
(1) At the time of classification as held for sale. Immediately before the initial classification of the asset as held for sale, the carrying amount of the asset will be measured in accordance with applicable IFRS.
(2) After classification as held for sale. Non-current assets or disposal groups that are classified as held for sale are measures at the lower of carrying amount and fair value less costs to sell.
(3) Impairment. Impairment must be considered both at the time of classification as held for sale and subsequently: at the time of classification as held for sale and after classification as held for sale.
(4) Asset carried at fair value prior to initial classification.

Non- depreciation

Non-current assets or disposal groups that are classified as held for sale shall not be depreciated.
(www.iasplus.com/en/standards/1frs5)

The Manual AIS for Fixed Asset
Please see figure 1 on appendix.
The depicted picture has shown the manual process of accounting system for fixed asset.

Computerize Accounting Information System (CAIS) for Fixed Asset
Please see figure 2 on appendix
Expert System

This system could be seen as arm's length of Decision Support System. It manipulates the role of top management by using the artificial intelligence as software form to help in the decision making process (Gelinas, Dull, 2008). It helps to decide the value of the fixed asset regarding with the fluctuation of fair value or market value. Thus could simplify the accounting process for fixed asset recognition and measurement.

RESEARCH METHOD

This research begin with all books compilation relates with topics. It's become the primary sources in the literature review. Beside, analysis and experience on the same field of theme were needed while completing this research.

Books are sources of determinations and experiences from their author, of course some research are done on that process of writing its. Tables, explanations and DFD (Data Flow Diagram) were very helpful in order to precise the presentation of this research.

Understanding each point presented on the IFRS and IAS/PSAK are important to analyze and measure the object of the research. Together with theories, opinions and fact finding from literatures; this research aim to analyze, measure and present a combination of information system and accounting process under the new standard.

Each research question were analyze with all literature sources, experiences, opinions and fact finding. Then finally the result would be present as table, DFD and sample of screen presentation on computer from CAIS.

RESULT

How to Recognize and Measure?

As we could see from the above explanation, PSAK/IAS 16 and IFRS have clearly mentioned about the process on valuing fixed tangible asset in details. It mentioned in details also item that counted according to the valuation standard. Since IFRS became global financial reporting standard, it happens to be some adjustment between PSAK/IAS and IFRS. As previously used, US GAAP standard has several differentiation on recognition and measurement on all account in the financial statement with IFRS. Likewise, comparison always has something to differ, here are some crucial things that occurs during adjustment (see table 1).

Accordingly, the recognition and measurement of asset under IFRS are using fair value or fair market value. As we know, that market value is fluctuate or changes over time and depending on the economic situation. Deciding the fair market value might cause a problem. Experts may come with many different conclusions, so that in CAIS the expert system is needed to simplify the accounting process. Here is an example of fixed asset program overview that may be done manually or as generic project to create an accounting system for fixed asset. Each table shows the details of fixed asset:

Title: name of fixed asset;

Name of Asset;

Code:

XX = Shows the secondary item of asset

Y   = Shows the primary item of asset

Term = Term of financial report, for example : in one year = 4 term

Vertical rows are show the details amount that must be count and also date when the transaction happened. Horizontal rows are filled with secondary items that part of primary item of fixed asset. (see table :2).

To understand the amount on each table you should really understand the above explanation about PSAK and IFRS.

AIS --- Using Expert System

Data Flow Diagram (DFD) Expert System on valuing Fixed Asset. Please see figure 3.

AIS--- Fixed Asset (Selling, Replacing, Depreciating)

Data Flow diagram (DFD) fixed asset process on valuation. Please see figure 4.

CONCLUSION

1. Enterprises, accountants and organizations need CAIS to simplify the accounting process on valuing the fixed asset.

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2. The Expert System helps to decide the fair value or market value for fixed asset.
3. PSAK and IFRS are clear enough to explain about the rule on financial reporting standard.
4. Recognition and Measurement Fixed Asset that consists more than one item (consists many parts in one entity) are done separately or per items.
5. Replacing, Selling and depreciating fixed asset have clearly stated on the IFRS 5 and PSAK 16.
6. Top management has to consider the importance of using CAIS on counting their fixed asset in order to be more details in items and valuation.

REFERENCES

Bagranoff, Simkin and Strand. 2005. *Core Concepts of Accounting Information Systems*. 9th Edition. John Wiley and Sons , Ltd.

Bodnar, George. H and Hopwood, William, S. 2004. *Accounting Information System*. 9Th Edition. Pearson. Prentice Hall.

Catty, James. P; Vadron, Dita; Isom. R, Andrea. 2010. *Guide to Fair Value Under IFRS*. John Wiley & Sons.Inc. Hoboken. New Jersey.

Collings, Steve. 2012. *IFRS for Dummies*. John Wiley and Sons, Ltd.

Domeika, Povilas. 2008. *Creation of the Information System of Enterprise Fixed Asset Accounting*. ISSN 1392-2875 Engineering Economics. No. 5 (60).

Gelinas, Dull. 2008. *Accounting Information Systems*. 7th Edition. Cengage learning.

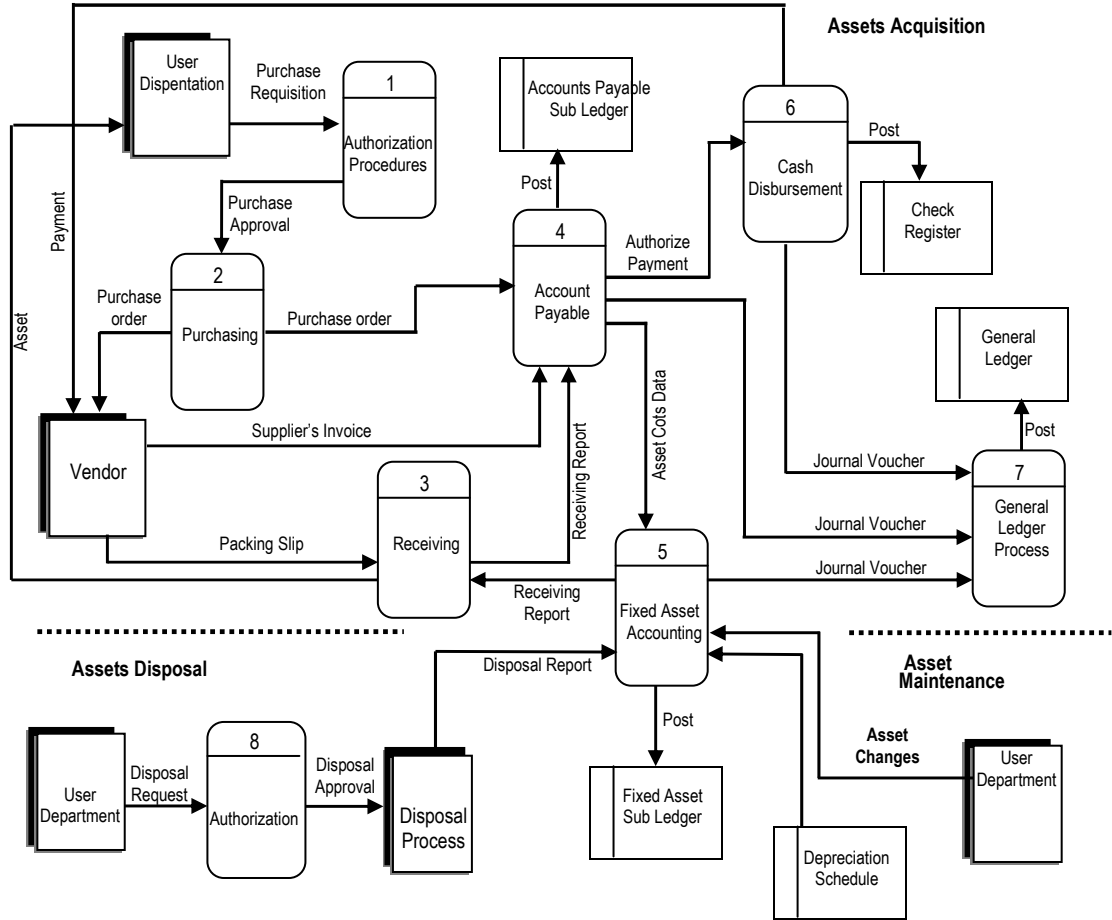Hall. 2011. *Accounting Information Systems*. 7th edition. Cengage learning

King, Alfred, M. 2009. Determining Fair Value: The Very Essence of Valuation is The Professional Judgment of The Appraiser, Not Just A Set of Rules. *Journal of Strategic Finance*: January.

Websites

PSAK 16: Aset Tetap. (Staff.uny.ac.id/sites/default/fils) accessed date: 5/6/2013

(www.iasplus.com/en/standards/ifrs5) Accessed date :27/6/2013

www.iasplus.com/en/standards/ias16) accessed date: 27/6/2013

IFRS and US GAAP: similarities and differences.(www.pwc.com/en) accessed date: 25/6/2013

Fixed Assets Accounting Procedures.(www.co.vt.edu/Forms/procedure_policy_3950.pdf) accessed date: 25/6/2013.

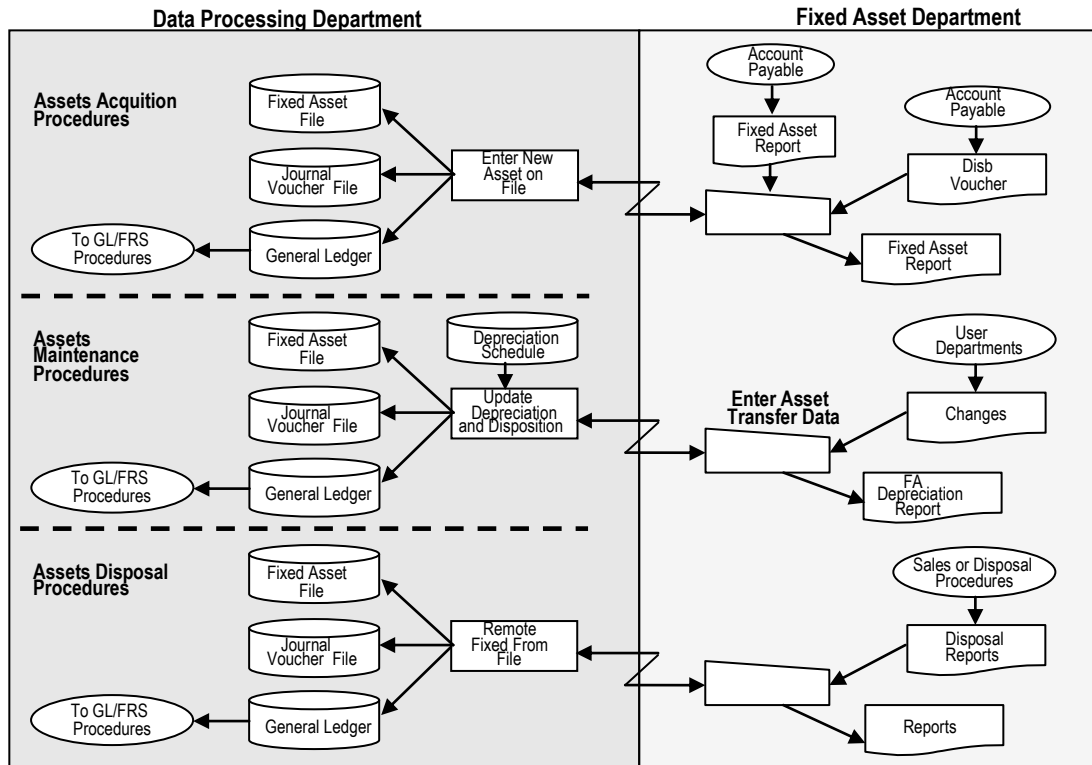**Appendix**

Figure 1

Sources: Hall, 2011, Accounting Information Systems, 7e, Cengage Learning

Figure 2

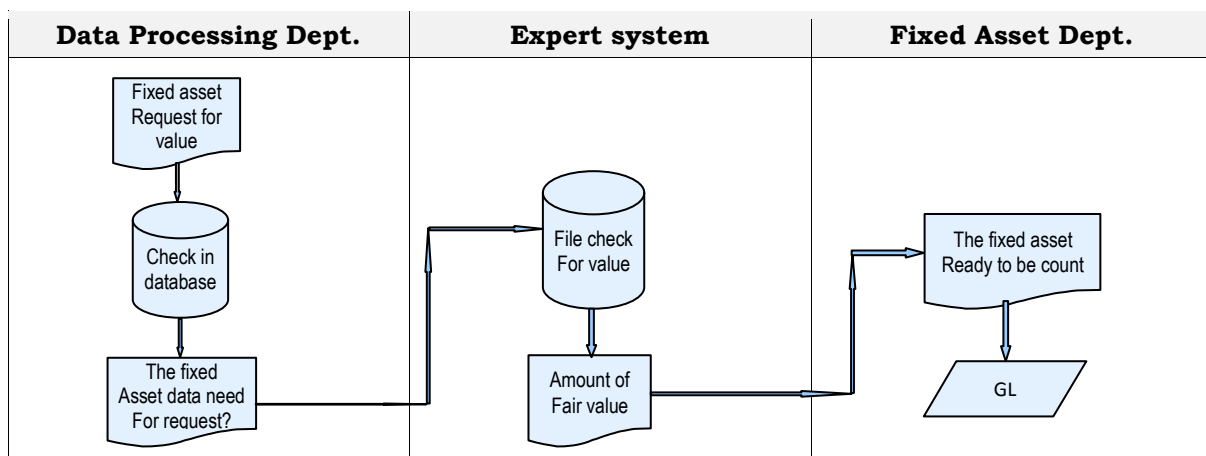Sources: Hall, 2011, Accounting Information Systems, 7e, Cengage Learning
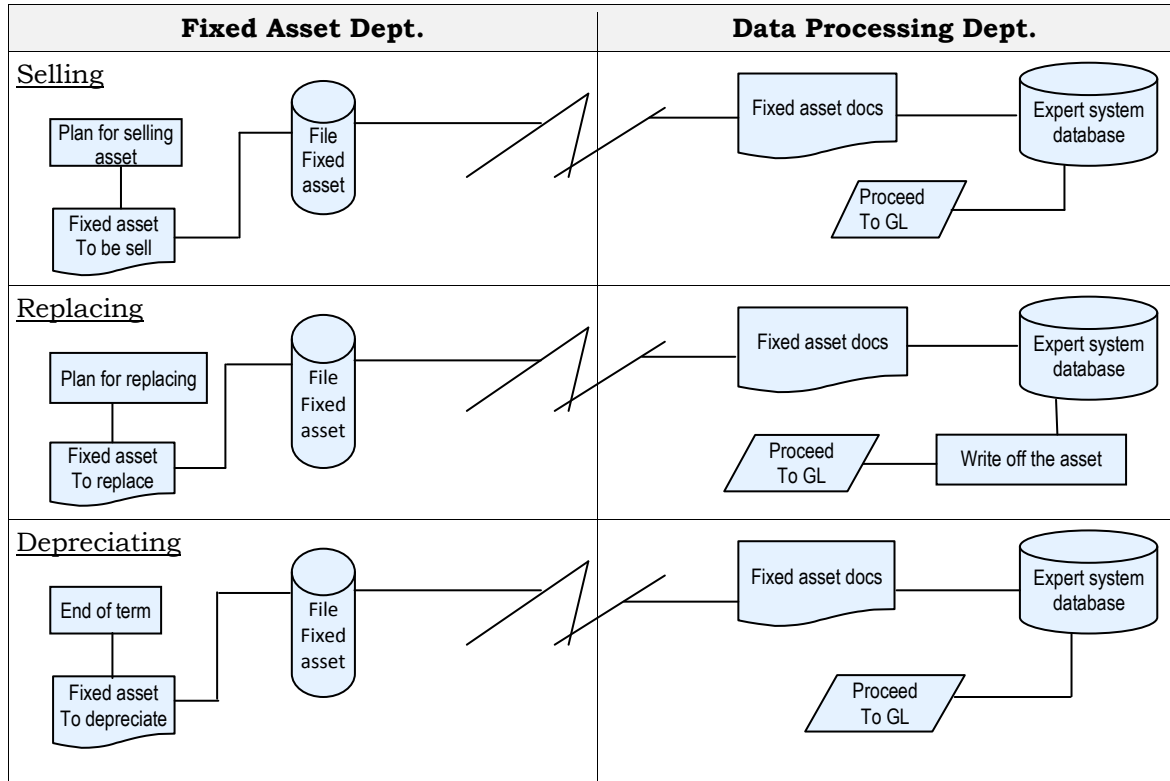
Figure: 3

Figure: 4

Table 1

US GAAP	IFRS	Impact
Does not apply fair value on non-financial asset items	Permits the revaluation of certain non-financial asset to fair value	Fundamental carrying basis of non-financial assets, whereas caused by the value of items --> fair value
It requires a two steps impairment test and measurement model as follows: **Step 1**-- carrying amount is first compared with the undiscounted cash flows. If the carrying amount is lower than the undiscounted cash flows, no impairment loss is recognized, although it might be necessary to review depreciation (or amortization) estimates and method for the related assets. **Step 2**-- if the carrying amount is higher than the undiscounted cash flows, an impairment loss is measured as the difference between the carrying amount and fair value. Fair value is defined as the price that would be received to sell an asset in an orderly transaction between market participants at the measurement date (an exit price). Fair value should be based on the assumptions of market participants and not those of the reporting entity Changes in market interest rates are not considered impairment indicators.	IFRS use a one step impairment test. The carrying amount of an asset is compared with the recoverable amount is the higher of (1) the asset's fair value less costs to sell or (2) the asset's value in use. Fair value less cost to sell represents the amount obtainable from the sale of an asset or CGU (Cash Generating Unit) in arm's length transaction between knowledgeable, willing parties less the costs of disposal. The IFRS reference to knowledgeable, willing parties is generally viewed as being consistent with the market participant assumptions noted under US GAAP. IFRS does not contain guidance about which market should be used as a basis for measuring fair value when more than one market exists. Changes in market interest rates can potentially trigger impairment and hence, are impairment indicators.	The IFRS-based impairment model might lead to the recognition of impairments of long-lived assets held for use earlier than would be required under US GAAP. There are also differences related such matters as what qualifies as an impairment indicator and how recoveries previously impaired assets get treated. In May 2011, the FASB and IASB issued new guidance on fair value measurement. The new guidance results in a consistent definition of fair value between IFRS and US GAAP and substantially converged requirements for the measurement of and disclosure about fair value when it required or permitted to be used. Once effective, the guidance on measuring fair value will be substantially converged.

Sources: www.pwc.com/en

Table: 2

Fixed Asset (on IDR (000))

Name of Asset   : CPU -Computer (PC)
Code   : XX-Y
Term   : 1

Item	Motherboard	Hard disk	Memory	VGA Card
Age	5 years	5 years	5 years	5 years
Historical Value				
Fair Value	300	200	150	80
Maintenance Date	50	0	0	0
	05/02/11			
Replace Date	0	0	0	30
				03/03/11
Selling Date	0	0	0	0
Cost Model				
Revaluation Model	yes	yes	yes	yes
Impairment Date	30	20	30	20
Depreciation	60	40		0
Total Value	160	140		30

Table: 3

Fixed Asset (on IDR (000))

Name of Asset   : Input Hardware -Computer (PC)
Code   : XX-Y
Term   : 1

Item	Mouse	Keyboard	Digitizer
Age	5 years	5 years	5 years
Historical Value			
Fair Value	150	200	150
Maintenance Date		0	0
Replace Date	60	0	0
	2/2/2011		
Selling Date	0	0	100
			5/1/2011
Cost Model			
Revaluation Model	yes	yes	yes
Impairment Date	30	20	10
Depreciation		40	
Total Value	60	140	40

Tabel: 4

Fixed Asset (on IDR (000))

Name of Asset   : Input Hardware -Computer (PC)
Code   : XX-Y
Term   : 1

Item	Motherboard	Hard disk	Memory	VGA Card
Age	5 years	5 years	5 years	5 years
Historical Value				
Fair Value	1000	200	150	80
Maintenance Date		0	0	0
Replace Date	0	800	0	30
				03/03/11
Selling Date	0	0	0	0
Cost Model				
Revaluation Model	yes	yes	yes	yes
Impairment Date	30	100	30	20
Depreciation	200		30	
Total Value	770	500	90	30