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### Accounting for intellectual assets and liabilities

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### Abstract

This paper is an addition to the current debate on how to measure and recognise intellectual assets and liabilities. A conceptual approach has been proposed so that intellectual assets and liabilities can be recognised in the financial statements using market value as a reference point acknowledging that intellectual assets and liability items cannot be measured accurately to recognise them individually. It was constructed using the common ground between financial reporting and intellectual assets and liability management. It has used an intellectual assets definition, an intellectual assets indicator at an organizational level, the Australian conceptual framework in accounting and recently published and revised accounting standards in Australia as tools for its construction.

### Keywords

Conceptual Approach, Australia, Intellectual Assets, Intellectual Liabilities, Accounting

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## **ACCOUNTING FOR INTELLECTUAL ASSETS AND LIABILITIES**

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## **ACCOUNTING FOR INTELLECTUAL ASSETS AND LIABILITIES**

### **ABSTRACT**

This paper is an addition to the current debate on how to measure and recognise intellectual assets and liabilities. A conceptual approach has been proposed so that intellectual assets and liabilities can be recognised in the financial statements using market value as a reference point acknowledging that intellectual assets and liability items cannot be measured accurately to recognise them individually. It was constructed using the common ground between financial reporting and intellectual assets and liability management. It has used an intellectual assets definition, an intellectual assets indicator at an organizational level, the Australian conceptual framework in accounting and recently published and revised accounting standards in Australia as tools for its construction.

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## **ACCOUNTING FOR INTELLECTUAL ASSETS AND LIABILITIES**

### **1. INTRODUCTION**

Although the significance of intellectual assets has gained its importance in the corporate world from a strategic sense, accounting for them in financial statements has not kept pace with it for several reasons. These include the conservative approach of the profession, and leaning towards reliability over relevance (Jenkins 1998, p. 1; Swinson 1998, p. 4; ICA E&W 1998, pp. 2-3).

The increased attention and focus on the importance of intellectual capital disclosure is a global phenomenon. Bontis (2003) argues the increasing importance in the Canadian economy is due to the shift towards a knowledge-based orientation and away from roots of natural resources. However, according to Bontis (2003) intellectual capital continues to be excluded from Canadian corporate annual reports despite the global appeal and changing beliefs surrounding the value of intellectual capital. Petty and Guthrie (2000) carried out a content analysis of the annual reports of the largest Australian listed companies (by market capitalisation) in an attempt to understand the extent to which these companies report their IC. It was found that the key components of IC are poorly understood, inadequately identified, inefficiently managed and inconsistently reported. A study by Olsson (2001) examined the annual reports of the 18 largest Swedish companies, selected on the basis of market capitalisation in the Swedish stock market. The information that was reported was found to be highly deficient in either the quality or the extent of the disclosure. Brennan (2001) carried out a similar study of technology and people orientated

companies in Ireland. Brennan analysed annual reports of 11 listed companies and 10 private companies and has reported results similar to the Australian study.

Although this paper makes reference to international accounting standards, rather than examining all global changes, this paper examines the progress made by the accounting profession in Australia in intellectual capital reporting and the relevance to setting an accounting standard in intellectual assets and liabilities.

Section 2 begins by defining intellectual assets and introducing major indicators available to measure intellectual capital at an organisational level. Section 3 discusses measuring intellectual assets and intellectual liabilities to recognise them in the financial statements. It also discusses the current position in relation to the measurement of intellectual assets, followed by the steps taken by the accounting profession in Australia to make information more relevant to users of financial reports. Section 5 constructs a conceptual approach to it and argues the advantages of the approach. Section 6 offers concluding remarks for recognising intellectual assets or liabilities in the financial statements and shows the common ground between financial accounting and intellectual capital management.

## **2. DEFINITION OF INTELLECTUAL ASSETS AND INTELLECTUAL LIABILITIES AND MEASUREMENT INDICATORS**

An accounting based definition for intellectual assets put forward by CPA Australia and the Society of Management Accountants of Canada (SMAC) is “In balance sheet terms, intellectual assets are those knowledge-based items, which the company owns

which will produce a future stream of benefits for the company” (Australian Society of Certified Practising Accountants and The Society of Management Accountants of Canada, 1999; Dzinkowski, 2000, pp 33).

The CPA Australia and SMAC definition however conflicts with the assets definition of the International Accounting Standards Board (IASB) framework and the Australian conceptual framework. The latter require ‘control’ and not ‘ownership’ in meeting the definition of an asset (IAS 38, 2000; Australian Society of Certified Practising Accountants and The Society of Management Accountants of Canada, 1999). The differences in definition of assets between CPA Australia and SMAC, and the IASB imply that the definition on intellectual assets can be widely interpreted for reporting purposes.

Previous literature also argues that there are also intellectual liabilities that impact an organisation. There can be elements existing within the organisation such as weak strategic planning processes, dangerous work conditions, potential environmental clean up, potential product tampering and poor corporate reputation (Harvey and Lush, 1999; Caddy, 2000). There can be elements that exist outside but have an influence on the organization such as poor government policies and political environment of a country (Abeysekera, 2001). The, focus of this paper is on both intellectual assets and liabilities that represents intellectual capital.

Although several models are proposed to measure intellectual asset and intellectual liability items, the indicators discussed in the literature discuss them mostly at organisational level. There are 3 major indicators used to measure net intangible

assets at an organizational level (Stewart, 1997, pp 224-229). The first and the most popular indicator are the market price to book value. If the ratio is more than 1, it indicates that the organization contains intellectual assets not represented by the financial statements. However, if the ratio is less than 1, an organisation may still have intellectual assets but are masked by liabilities (Abdolmohammadi, Greenlay, and Poole, 2001; Dzinkowski, 2000; Knight, 1999; Roos, Roos, Dragonetti, and Edvinsson, 1997, pp2; Sveiby, 1997, pp3-18). The second indicator was initially developed by the Nobel-prize winning economist James Tobin to predict the investment behavior affiliation (Chung, Wright, and Charoenwong, 1998; Flamholtz and Main, 1999). This method measures assets in traditional accounting by replacement cost. The difference between market value and the replacement value represents intellectual assets. The use of intellectual assets enables the organisation to command higher than normal returns on its investment (Chung and Pruitt, 1994). The third indicator is Calculated Intangible Value (CIV) to calculate the fair market value of intangible assets of an organisation. It uses a three years period for averaging of pre-tax earnings and tangible assets to compute the return on assets, which is then compared with the industry average (Abdolmohammadi, Greenlay, and Poole, 2001; Stewart, 1997, pp226-229; Dzinkowski, 2000).

### **3. MEASURING INTELLECTUAL ASSETS AND INCLUDING THEM IN FINANCIAL STATEMENTS**

The present accounting standards by and large write off the intellectual assets (future economic benefits) as expenses (economic outflow during the period), making information reported by financial statements far from accurate for decision making. This is partly because the present accounting standards have not identified the impact



of intellectual capital items in determining the value of the firm and also the inability to measure them as separate items for identification.

Previous literature identifies three reasons for not measuring intellectual assets excluding intangibles recognized in the financial statements are as follows. The first reason is it challenges the historical cost method. This method is largely based on the transactions taking place in an organisation. The model in practice is based on concept of reliability. The model uses methods such as revaluation stated in Australian Accounting Standards Board 1041 (AASB 1041) and net realisable value on inventories (AASB 1019) to make measurements relevant to the market. However, in most cases, the method requires an initial transaction to be recorded in the financial records. The second reason is the inability to accurately measure their output in monetary terms. Intellectual asset and liability identification, measurement and management are still at their initial stage. There is a basic framework in place for identification and capture intellectual capital assets data (Guthrie et.al. 1999) but a uniform method to measure each intellectual asset has not been agreed upon. They are mostly soft measures and cannot objectively verify to be audited. The third reason is its inability to make inter organizational comparisons. Intellectual assets items identified under each intellectual asset component can shift from one to another depending on the managers' logic and way the managers decide to harness it's potential. Additionally, lack of a consistent valuation method makes it difficult to compare intellectual assets performance between organizations.

A review of the Australian accounting standards and the conceptual framework reveals that the accounting profession has taken several steps to provide relevant

information to the users in the financial statements. First, accounting standards offer a choice of methods and estimates exercised through professional judgement. Second, the profession uses the statement of accounting concepts as a framework to define elements of accounting such as assets, liability, revenue and expenses. This is evident from relatively new accounting standards and recently revised accounting standards. The conceptual framework has a statement of financial position focus, namely on the status of wealth, than on the statement of income that focuses on creation of wealth during a given period. Assets and liabilities need to satisfy both the definition and the recognition criteria to be recognised in the financial statement. Third, it is also clear from recently published accounting standards AASB 1037 and AASB 1038 Life Insurance Business that assets are measured in reference to their market values. Any fluctuation in the value of those assets during a period is recognized in the statement of income. Although net market value have not been extended to all assets of all businesses, the 'net market value' seems to be the newly preferred choice of the profession in the absence of a conceptual paper on measurement of financial elements.

#### **4. THE CONCEPTUAL APPROACH ON INTELLECTUAL ASSETS AND LIABILITY ACCOUNTING**

As discussed previously in Section 2 of this paper, the most popular indicator to measure intellectual net assets is the difference between market value and the book value of an organisation. If intellectual assets are more than intellectual liabilities that indicates a net intellectual assets position and if intellectual assets are less then that indicates a net intellectual liability position. The other two indicators on intellectual assets measurement were not considered for this concept development, although they

are good indicators in their own right. The application of Tobin q indicator on net intellectual assets can be time consuming, costly because that indicator uses replacement value of assets as a basis. Tobin q was developed during the industrial era economy. In the knowledge economy, tobin's q can give a false indication of over-valuation of knowledge-based firms (Flamholtz and Main, 1999). The calculated intangible value (CIV) indicator is primarily a comparison of intellectual assets within the industry. It uses an average and not actual return on assets to determine excess returns. Further, company's cost of capital dictates the net present value of intangible assets (International Federation of Accountants, 1998).

Although there are number of definitions on intellectual assets, all definitions tend to refer to a stock of knowledge as of balance date. The flow (ie increase or decrease) of knowledge of a firm that is converted to financial value during a given period adds to the stock of knowledge as of balance date. This has a similarity to the statement of financial position in terms of the "collection" and to the statement of income in terms of "flows". The value of "collection" is impacted by the value of "flow".

The "collection of knowledge" can be objectively verified at a given time as the difference between market value and net book value and the concept of this paper proposes that the difference should be reflected in the shareholders' capital. If the market value is not discernible (such as listed share price) the firm can use directors value or a certified valuer's value as an approximation. The difference is termed here as "intellectual capital reserve" or "intellectual capital deficit". The "intellectual reserve" would be part of retained reserve or accumulated deficit in the statement of financial position. Therefore, "intellectual capital reserve" or "intellectual capital

deficit” is not seen separately in the statement of financial position. It is part of shareholders’ capital. However, it takes the character of retained reserves or accumulated deficit since its stock is determined by its extent of flow during the period. This information is useful to users of accounts determine the extent they rely on intellectual capital where the firm could not quantify individually. At any given time there would be either an intellectual asset that is represented by “intellectual capital reserve” or intellectual liability that is represented by “intellectual capital deficit” and is located in the statement of financial position under shareholders’ equity. This is because the model looks at the intellectual net assets or liabilities collectively and not individually. This is necessary to avoid users being misled by inaccurately segregating those intellectual assets that cannot be accurately measured.

The flow of knowledge represents the difference between intellectual net assets or intellectual net liabilities between two consecutive periods. Any change in the ‘flow of knowledge” between the two statement of financial position dates would flow into the statement of income as an intellectual revenue or intellectual expense with a corresponding impact on intellectual asset or liability element. The intellectual revenue or expense item will flow through the statement of income into the retained reserve or accumulated deficit. During a period, there would be either “intellectual revenue” or “intellectual expense” shown in the statement of income. Figure I illustrates the process.

There is little research done to measure the impact of each intellectual asset or liability by time length and in relation to the organizational market price. However, previous literature points to those intellectual items have a long-term effect than short-

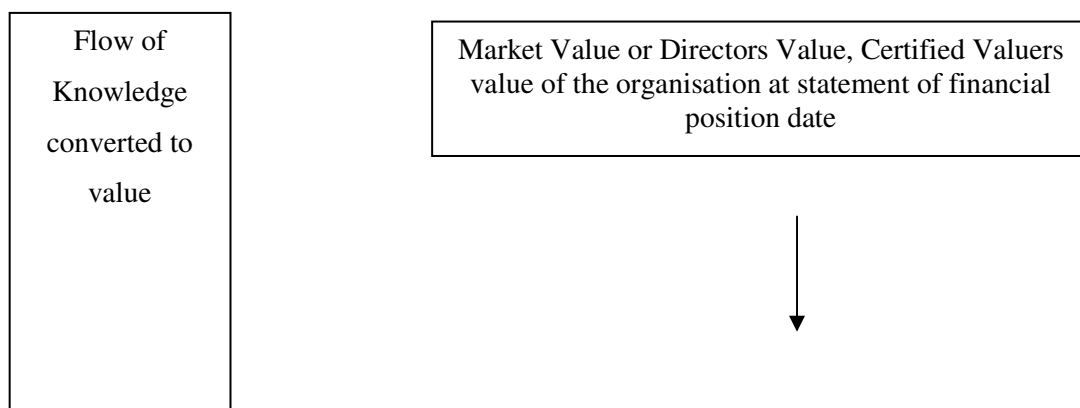
term effect on organizations (Roos, Roos, Dragonetti, and Edvinsson, 1997, pp122). Therefore, this paper assumes that intellectual current assets or current liabilities are not material (based on the fact that financial benefits of intellectual assets are derived long-term rather than short-term) compared to intellectual non-current assets or non-current liabilities. This is based on the premise intellectual net asset or net liability position is shown as a non-current item in the statement of financial position. As AASB 1040 on Statement of Financial Position states that assets must be classified according to their nature or function (paragraph 5.1) and liabilities must be classified according to their nature (paragraph 5.2). The classification of intangible as a non-current item is consistent with that definition.

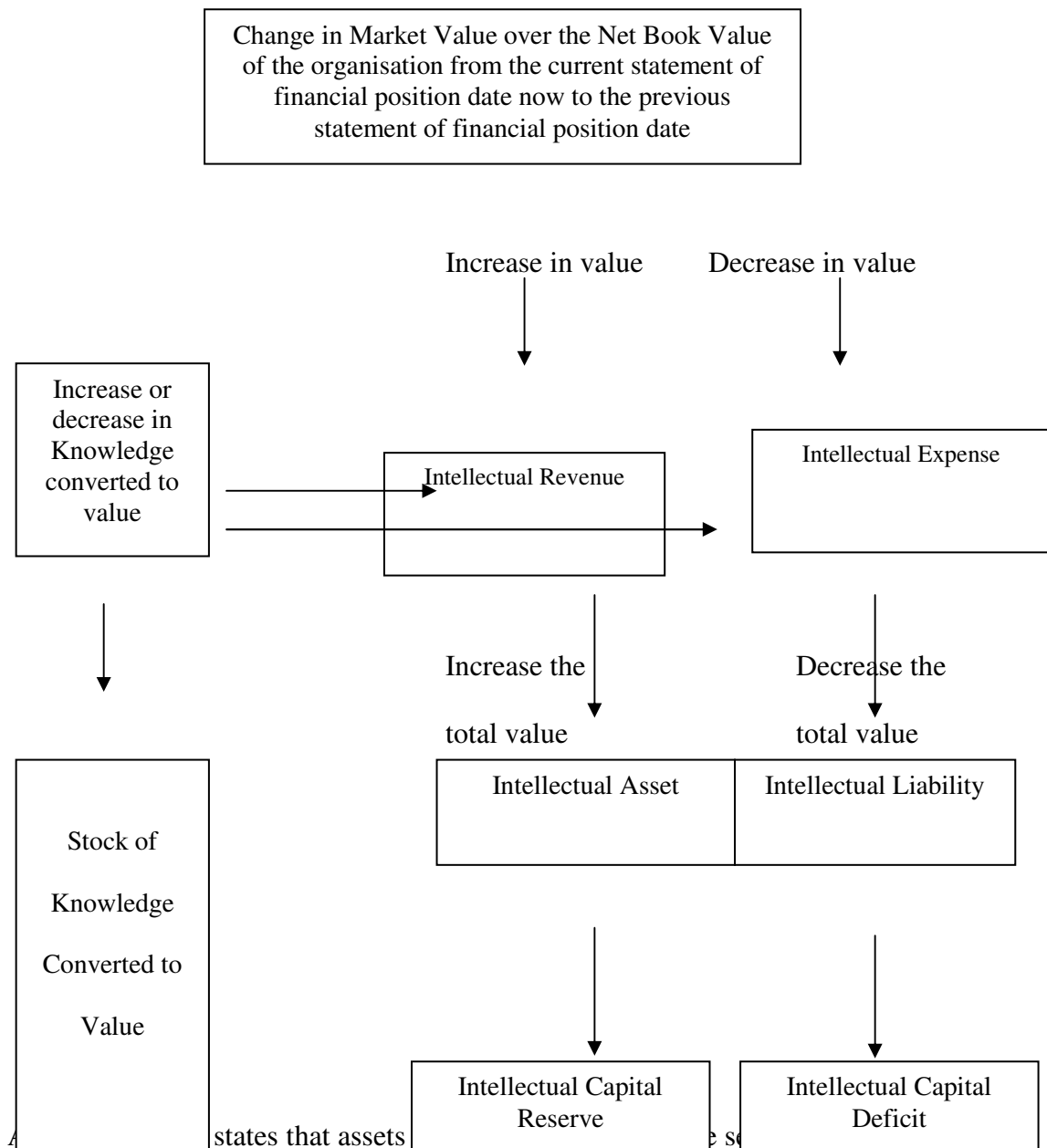
Figure I

The Conceptual Approach Process

Managing intellectual capital

Accounting for intellectual capital





permitted by another standard (paragraph 5.3). The commentary in that standard (paragraph 5.3.1) says that setting-off assets and liabilities in the statement of financial position can detract from the ability of users to understand the transactions undertaken and to assess the future cash flows of the entity. On the contrary to the definition in AASB 1040 of setting-off assets and liabilities, the single 'catch all' intellectual net asset or net liability account in the financial statement is proposed for the following reasons.

First, intellectual assets and liabilities can't be valued accurately individually at this stage. Because the individual items comprising intellectual assets and liabilities cannot be measured reliably, any attempt to measure and include them individually can be questioned for its accuracy by its users since they may not satisfy the recognition criteria of assets and liabilities in the conceptual framework. Further, setting-off intellectual assets and liabilities does not affect the ability of the user to understand the transactions, in this instance. This is because, at this stage, individual transactions and events giving rise to a change in value cannot be measured accurately. Therefore, it is more prudent to recognise intellectual asset or liability as an aggregate item.

Second, International Accounting Standard (IAS) states that an intangible asset to be initially recognised it should be distinguishable from goodwill. Also, IAS 38 specifically disallows capitalising costs on training and research and development activities. On the contrary, training, and research and development can constitute intellectual assets and liabilities. However, the IAS 38 allows revaluation of intangible assets only if the value can be determined by reference to an active market. This indicates that reference to an active market provides a reliable measure. The Australian accounting standard AASB 1013 on Accounting for Goodwill specifically states the internally generated goodwill must not be recognised by the entity. It defines goodwill as future benefits from unidentifiable assets. The commentary (paragraph 5.1.1) states that they are not recognized because of the difficulty or impossibility, of identifying the events or transactions that have contributed to the overall goodwill of the organization. The commentary further states that even if they

were identifiable, future economic benefits of those assets cannot be reliably measured.

For example, AASB 1037 on Self-Generating and Regenerating Assets (SGARAs) require its assets to be measured at net market value. The commentary (paragraph 5.2.2) in that standard states that the net market value is the amount that can be expected to receive from the disposal of the SGARAs in an active and liquid market after deducting costs expected to be incurred in realizing the proceeds of such a disposal. In other words the point of reference for measurement is it's the market value of those assets as a going concern and the accounting standard seems to imply that those live assets can be either valued individually or collectively. The past events that resulted in the net market value of live assets at a given time can be numerous. They could vary from fertilizer input, feed intake, availability of water, pest management, interest rate, consumer demand and the list goes on. However, the measurement was based in reference to market value which gives rise to a reliable measurement. AASB 1037 on SGARAs shows that even if individual asset items cannot be measured reliably, if they can be measured collectively in reference to the market, the value is a reliable figure. The commentary (paragraph 5.2.4) further states that measures that are based on prices in active and liquid market provide more consistent measurement between entities and between SGARAs of the same entity while their use results in the carrying amounts more relevant to users of financial reports (ASCPA, 2000).

It is further evident from AAS (Australian Accounting Standards) 25 on Superannuation Plans (paragraph 37), AASB 1023 on General Insurance activities



(paragraph 10.1), AASB 1038 on Life Insurance Business (paragraph 12.1.3) and AASB 1037 (paragraph 5.2.4) commentaries that market prices provide a reliable measure of net market value at reporting date. The same analogy can be applied to intellectual asset and liability measurement in this proposed conceptual approach. The intellectual assets and liabilities are measured collectively in reference to the market and not individually because the carrying amount of net intellectual assets or liabilities been more relevant to users of financial reports.

The conceptual approach proposed in this paper, therefore is a shift away from the modified historical cost system that allows periodic revaluation of non-current assets. Although measuring of intellectual assets and liabilities in relation to market value can introduce volatility, it is also a further step towards relevance preceded by several Australian accounting standards.

This paper argues that although at this stage intellectual assets cannot be identified and measured individually, they can be identified and measured in aggregate, at organizational level, in reference to an active and liquid market such as Australian Stock Exchange.

However, once the measurement of each intellectual asset and liability item is perfected, they can enter the financial statements on their own right as an intangible asset or liability. Therefore, in theory, eventually intellectual reserve or deficit, intellectual assets and intellectual liabilities should disappear from the financial statements. However, in practice, it does not seem a possibility in the near future until measurement of intellectual assets and liabilities is perfected.

The impact on the statement of cash flows due to recognising intellectual assets would be classified in the investing category. This is because it is the investment in intellectual assets and liabilities or impairment that gives rise to the gap between market and the book value of an organisation. It also constitutes a non-cash item when reconciling operating cash flows with net profits for the period.

## **5. CONCLUDING REMARKS**

The conceptual approach proposed in this paper has several advantages and they are as follows. First, this concept is easy to apply and complies with the Australian conceptual accounting framework (refer to the Appendix for definitions accounting elements). It meets both definitions of asset and liability and their recognition criteria. Intellectual assets position indicates the inflow of future economic benefits controlled by the organization that resulted due to past events or transactions or intellectual liability position indicates the outflow of future economic benefits due to past events or transactions. Second, the conceptual approach proposed meets with the definition of intellectual assets and its popular measurement indicator of market to net book value, at an organisational level. The concept has a direct fit with listed organisations where the market value can be objectively verified. The unlisted organisations could measure their organizations by either at director's valuation as a proxy or by a certified valuer. The details on valuation can be disclosed in the accounts as done in AASB1041 Accounting for the Revaluation of Non-Current Assets, if they are measured on cost basis, and in AASB1038 on Life Insurance Business. Third, this concept also has an automatic compensatory effect on intellectual costs written off that otherwise should have been capitalized. For example, an investment on a training

program can be considered as an intellectual asset that has a future economic benefit. However, presently, that amount is written off to the statement of income as an expense reducing the reported profits. The flow of knowledge into the organisation from training is taken care of by a higher market value of the organization reflected in the market price and that increases the intellectual net assets. The increase in market price flows as intellectual revenue in the statement of income into intellectual capital reserves, through intellectual asset in the statement of financial position. Fourth, the proposed conceptual approach is in harmony with those who generally tend to oppose, such as bankers, in measuring intellectual assets and liabilities to recognise them in the financial statements, since the total value of the organization do not exceed the market value. Fifth, it proposes to have intellectual net assets or intellectual net liabilities as one line item in the financial statement. Any detailed measurement of intellectual items can be described in notes. The advantages of doing so are, because measuring of intellectual items singularly has not been perfected and intellectual items can change its position from one intellectual category to another depending on the managers' logic in the organisation. Therefore, including them in the financial statements by categories of intellectual assets can make financial statements less comparable with similar organizations.

It is recommended organisations disclose intellectual assets and liabilities by items under the three categories, namely, human competence, external assets or liabilities, and internal assets or liabilities, in their notes to the accounts. This is because partly the value creation takes place when the organization exchanges (flows) the knowledge embedded in these items among the three categories. For example, employees interacting with customers to inquire about customer satisfaction can increase the

know-how of employees. The share price is an unbiased estimate of the value of the firm based on the market participants' estimates using available information. This paper incorporates market's estimates into the balance sheet as a starting point to bridge the gap between the market and the value of the firm reported by financial reporting.

However, this paper has two limitations. First, this approach stems from the market to net book value measurement basis. Higher ratio indicates ( $>1$ ) indicates intellectual assets and lower ( $<1$ ) indicates intellectual liabilities. While theoretically this can be argued, several interacting factors, internal and external, can determine the ratio. The market to net book value can represent growth opportunities captured through market's perception about the firm's future earning capacity which depend on factors such as overall economy, growth of the industry, and investment in tangible assets. Second, this paper has a potential circularity argument that an 'objective' measure of aggregate net intellectual assets/liabilities can be gained by reference to the market value of a company's shares. It could be argued that although the share price is 'objective' in the sense that it can be observed, it does not follow that the share price is 'objective' measure of the value of intellectual capital.

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