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on Intangibles Using GAAP

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Abstract

This paper aims to show how firms account for expenditure on their intangible investments and how this influences their decision making processes. Evidence from our survey of 614 large Australian companies show that (1) firms do not systematically identify and separate expenditures on intangible investment from expenditures on tangible investment and operating expenditures; and (2) this leads to an information gap that adversely affects the firm's internal processes for evaluating the decision to invest in intangibles. The paper builds a deductive argument for the use of the general purpose financial reporting system (GAAP) to separate and report the *expenditures* on intangibles by corporations in a way that is consistent and comparable across firms and over time. Our evidence suggests that investment decisions by management and investors, where intangibles are involved, are likely to be based more on rules-of-thumb than objective evidence.

Key Words: *managerial accounting system; GAAP accounting system; expenditures on intangible investment, rate of return*

“A final observation from our review [of empirical research in managerial accounting] is the lack of integration between financial and managerial accounting research. ...Without greater integration of financial and managerial accounting research, our understanding of the choice and performance implications of internal and external accounting and control systems is far from complete.” (Ittner and Larcker 2001, 402)

1. INTRODUCTION

This paper aims to show how firms account for expenditure on their intangible investments and how this influences their decision making processes. The paper builds a deductive argument for the use of the general purpose financial reporting system (GAAP) to separate and report the *expenditures* on intangibles by corporations in a way that is consistent and comparable across firms and over time. To support this argument, we compile evidence from a comprehensive survey of senior accounting managers across approximately 614 large Australian companies. This sizable survey allows us to investigate a range of internal (within the company) assumptions relating to managerial investment and accounting decisions for intangibles that are difficult to study using public information. Our findings are that (1) firms do not systematically identify and separate expenditures on intangible investment from expenditures on tangible investment and operating expenditures; and (2) this leads to an information gap that adversely affects the firm’s internal processes for evaluating the decision to invest in intangibles. Taken as a whole, this evidence suggests that management and investors are making investment decisions where intangibles are involved more on rules-of-thumb than objective evidence.

Relatively little attention has been paid to the managerial decision to invest in intangible assets. In particular, little is known about the quantitative data and resource allocation methods that inform management’s intangible investment decisions. Instead there is a common assumption, by virtue of the sophistication of modern management accounting technology, that management (have the knowledge and information to) systematically identify and analyze data on their intangible investments for the purpose of internal decision making. However, there is virtually no direct evidence on the question of whether the average firm can and does systematically identify and separate expenditures on intangible investments from other expenditures.¹ The only official, standardized measurement system is GAAP. However,

¹ From a macroeconomic perspective, Nakamura (2001) estimated that U.S. enterprises were investing as much in intangible capital as they were in tangible capital, estimated at approximately \$1 trillion for each of the latter classes of investment. Of this amount, Nakamura reports that \$250 billion is recorded in the R&D account and the rest is not accounted for as intangible investment. Evidence relating to gaps in identifying and measuring expenditures on intangibles is extensively reviewed elsewhere; for example, see Canibano, Garcia-Ayuso and

while the GAAP system identifies tangible investments, it has only a sketchy record system for *expenditures* on intangible investments.² GAAP therefore delivers information on intangibles only on an *ad hoc* basis. However, the procedure for evaluating an investment is to estimate the expected returns from the investment using estimates of the initial and future cash flows associated with the project.³ The scant evidence on internal management accounting for intangible investment does not support the assumption that management are systematically identifying and analyzing expenditures on intangibles in ways that permit the latter investment analysis. Our comprehensive survey confirms this conclusion.

Our evidence from the survey of 614 large companies suggests this lack of guidance leaves an information void. We conduct the survey using telephone interviews with senior accounting managers to maximize the response rate and facilitate open-ended responses. The survey focuses on the following managerial policies: (1) do intangible investments matter to the firm and if so what types of expenditures are key value drivers for the firm; and (2) what is the firm's current treatment of intangible investments and what are the implications of these practices for the firm's budgeting and performance measurement? Our evidence suggests that many of our sample firms find it difficult to meaningfully identify and classify the expenditures data on intangibles for internal analysis purposes. As a result of these difficulties, a high percentage of the sample of 614 firms, more than 76 percent, make internal budgeting decisions for value driving expenditures on the basis of last year's expenditures. Only 25 percent of the 614 companies use the method of rates of return to past investments as a guide to their firm's investments in intangibles. We further also examine whether "intellectual capital" (IC) methods for identifying and evaluating intangibles are used to fill the gap in GAAP (e.g., see Ashton 2005). If these methods are important then we expect to see some evidence of their use somewhere in the firms' external Annual Reports. However, we survey 6,702 Annual Reports for 1992-2004 to find *no* evidence that these IC methods of

Sanchez (2000), Lev (2001), Commission of the European Communities (2003), and Ashton (2005). Examples of studies providing evidence on unmeasured intangible assets include: Klemperer (1995) who studies consumer switching costs; Trajtenberg (1991) studies patents in the optical scanners industry; and Klock and Megna (2000) study advertising, R&D, radio spectrum licenses, and measures of the firm's customer base.

² The justification for not comprehensively identifying and separately recording expenditures on intangible assets under GAAP is the inherent uncertainty of the expected benefits. However, GAAP does not consider the possibility of identifying and separately measuring the expenditures on intangibles. The GAAP requirements are related to the quality of the managerial decisions (Hopper, Kirkham, Scapens and Turley 1992; Joseph, Turley, Burns, Lewis, Scapens and Southworth 1996; Drury and Tayles 1997). Hemmer and Labro (2008) show analytically that the properties of the optimal managerial accounting system and the properties of the optimal GAAP system are jointly determined, even though the two systems operate separately.

³ Accounting frameworks do not employ the term "investment" when referring to expenditures with expected long-lived benefits but use the term "asset". Accounting standards classify expenditures as assets or expenses according to two sets of criteria for defining and recognizing assets. The term "investment" is reserved for purchases of securities, equity and debt instruments, in other companies. In this paper we use the term investment in the economists' sense of an expenditure to create an asset.

identifying and measuring value drivers have been adopted by listed corporations in Australia; a finding consistent with the IC implementation and interpretation problems raised (later) in this paper and other studies.⁴

It is hard to rigorously estimate the impact of not accounting for the expenditures on intangibles, but the distortion cannot be trivial given the importance of intangible investments in the current economy. Once there is a standardized approach for identifying and separating expenditures on intangible investments from other types of expenditures under GAAP, there will be internal data for managers to evaluate key decision criteria including: What is the rate of return to the different categories of expenditures on intangible investment? What role do these investments play in the value creation process? How robust are the assumed lines of causation between specific intangible inputs and the associated outputs from production?

The paper is organized as follows. In Section 2, we describe the survey design. Section 3 considers whether or not intangible assets matter for value creation. Section 4 discusses the current understanding and treatment of intangible assets by economists and accountants. We then assess the implications of current accounting practices for managers and other stakeholders (Section 5). Section 6 presents an alternative way to incorporate intangible expenditures into GAAP and section 7 concludes.

2. SURVEY OBJECTIVES AND DESIGN

A common assumption is that firms have the technology to identify and separate out expenditures on their intangibles from their expenditures on other types of investments. If this latter measurement is not observed then the counter argument made by some academics is that the cause is not a lack of capability to measure expenditures on intangibles but rather that the costs of measurement exceed the benefits.⁵ However, there is very limited evidence on internal management policies relating to the decision to invest in intangibles.

Accordingly, to accompany our deductive argument for measuring expenditures on intangibles, the objective of our empirical analysis is to provide evidence on internal, managerial decision-making policies relating to intangibles: Do intangible investments matter

⁴ For literature reviews that focus on internal systems see Ittner and Larcker (2001), while for internal and/or financial accounting systems see Ashton (2005) and Hunter, Webster and Wyatt (2005)

⁵ An example of the costs versus benefits argument is the following commentary from the American Accounting Association Financial Accounting Standards Committee on an FASB proposed projects on intangibles disclosure: "If the FASB is to step in and (say) mandate the disclosure of certain information on intangibles, a question that seems relevant is: why have firms chosen not to disclose this information voluntarily. One answer is that there are likely to be costs associated with such disclosures, including both costs associated with measuring intangibles and proprietary costs of disclosing such information to competitors. Another answer may be that the benefits of these disclosures are not very large, perhaps because these disclosures are not very informative to investors due to low relevance or imprecise measurement. Whatever the case, it seems to us that the relatively low levels of voluntary disclosure in the intangibles area raise the possibility that disclosures in this area do not provide net benefits." (September 28, 2001).

to the firm and if so what types of expenditures are the firm's key value drivers? What is the firm's current treatment of intangible investments and what are the implications of these practices for the firm's budgeting and performance measurement?

We conduct the survey using telephone interviews with senior accounting managers (collectively we refer to as CFOs) at the top 1445 Australian firms.⁶ Factors motivating the choice of telephone interviews over other survey methods include: the goal to maximize the response rate by initiating direct contact with respondents, directly administering the survey to facilitate clarification of concepts to minimize the probability that respondents take cues from the survey design and provide responses that are biased in ways they feel are important to the researcher (also see below on this point), and finally to provide the ability to undertake cross-check on response bias through-out the survey using open-ended responses.

To minimise non-response biases, the non-responding firms were contacted three times. Table 1, which presents the response rate, shows that of the 1445 CFOs approached, 614 responded (42.5 percent); 204 (12.4 percent) refused (either had no policy on intangibles; refused outright or requested an email version of the survey and did not complete it) and 627 (38.0 percent) were out of scope (CFO unreachable by telephone or no longer in business).

⁶ Three factors motivated the choice of telephone interviews over other survey methods including maximization of the response rate by initiating direct contact with respondents, use of direct administration of the survey to facilitate clarification of concepts to minimize the probability that respondents take cues from the survey design and provide responses that are biased in ways they feel are important to the researcher, and finally to provide the ability to undertake cross-check on response bias through a clinical debriefing using open ended questions throughout the survey.

Table 1: Summary Statistics

<i>Response rates</i>	<i>Freq.</i>	<i>%</i>
Responded	614	42.5
Refused	204	12.4
No policy on intangibles	90	6.2
Refused to be surveyed	103	7.1
Emailed survey but no reply	11	0.8
Out of scope	627	38.0
CFO unreached	446	30.9
Acquired, closed etc	181	12.5
Total approached	1445	100.0
Respondent's position		
CEO	5	0.8
CFO	112	18.1
Finance manager	330	53.2
Senior accountant	131	21.1
Financial reporting manager	3	0.5
General manager	3	0.5
Investment Strategy:		
Persistent acquirer of other companies and businesses	117	19.3
Growing from internal operations	480	79.1
Brand company	302	49.8
Technology company	65	10.7
Science company	20	3.3
Industrial Classification		
Manufacturer	148	24.4
Retailer, distributor or wholesaler	220	36.2
Financial, insurance, investment company	67	11.0
Energy, resource, agriculture, livestock sectors, waste	52	8.6
Transport, air, sea, freight, construction, engineering sectors	35	5.8
Foreign operation, import, export business	9	1.5
Media, advertising, real estate, tourism, leisure, legal, education	25	4.1

Our approach follows the survey practices in Sudman and Bradburn (1983). We first develop the survey instrument using a pilot sample of ten firms that are not included in the final survey sample. To maximise the overall validity of the responses, the first questions ask the CFOs to describe their policy and perspective on “intangibles”. We leave until later in the interview specific questions that might establish an agenda and bias the responses.

Our pilot survey compares the CFO's policy perspectives from the initial questions to later questions that frame the same issues in a different way to provide insights on the validity of the responses made versus actual beliefs in practice. Consistent with our priors, this analysis reveals that many CFOs do not think in terms of "intangible assets" but instead think about the types of *expenditures* that are important for building and sustaining competitive advantage, and are, hence, key *value drivers*. Accordingly, we build this empirical regularity into the final survey instrument to enable the subject to respond from their contextual reality. The final survey instrument is available on request from the authors.

Table 1 also provides summary statistics on the position of the respondents and the type of firm including the industry and the firm's investment strategy, respectively. The majority of the respondents are CFO, finance managers, and senior accountants. A very large percentage, 79.1 percent of the sampled firms, nominate their strategy is growing from internal operations, which suggests that internal investments on intangibles is potentially important for a majority of the sample. This strong bias towards a strategy of internal growth indicates many firms will be immediately expensing expenditures on intangibles as required under GAAP (GAAP is discussed in section 4).

3. DO INTANGIBLE INVESTMENTS MATTER?

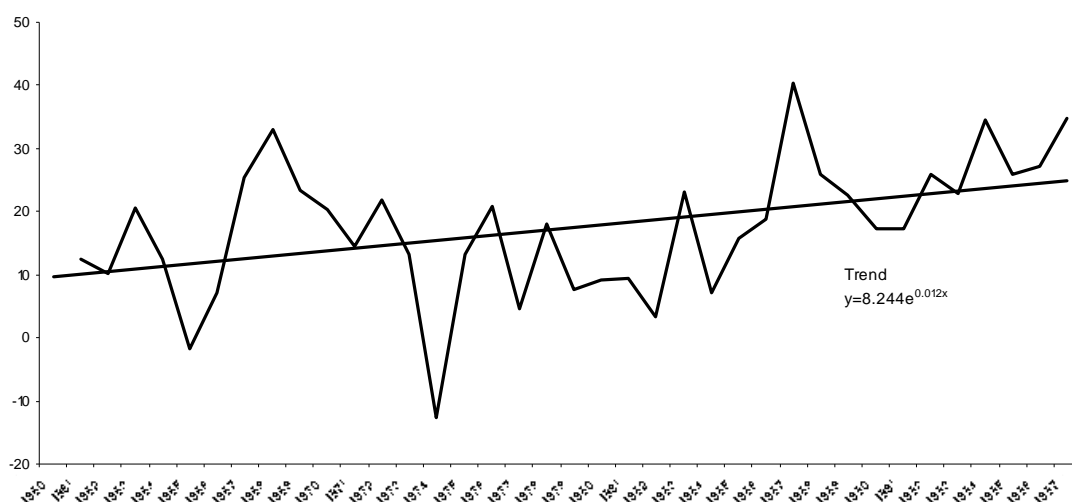
It is easy to argue deductively for the importance of intangibles and its intellectual constituents. Intellectual capital is a prerequisite for all production processes; even fishing with bare hands requires a level of skill and prior knowledge to succeed.⁷ Indeed, aside from God-given resources, there are only two factors of production: the intellect (or knowledge) and raw physical labour. We know that since the amount of physical matter in the world is fixed, what is called "production" must simply be a re-arrangement of matter. In general, the higher our level of knowledge or intellectual capital, the more labour-saving devices will reduce our reliance on physical labour for the production of material needs.

Despite these arguments, the nineteenth century convention that "capital" includes only tangible plant and equipment still holds sway within accounting circles. Under the GAAP financial accounting expenditures, intangibles are only accounted for as investments if a reliable link to future benefits can be demonstrated. While this emphasis on tangible production assets may have suited the traditional nineteenth century firm, it is increasingly at odds with post-industrial organizations. The evidence for this is ubiquitous but some of the most compelling are the economy-wide data on the magnitude of intangible capital in the

⁷ Marshall (1890). Menger also points out that without knowledge it is not even possible to distinguish between nutritious and poisonous berries (Loasby 1991).

corporate sector. The size of the latter, which has been calculated as the difference between companies' market value and their tangible assets, shows that since 1960, there has been a clear, positive trend in the proportion of intangible capital. Figure 1, which presents intangible capital as a percentage of total capital in listed companies in Australia, 1960 to 1998, shows an annual trend rise of 1.2 percent a year in the proportion of intangible enterprise capital.

Figure 1: Intangible capital as a percentage of total capital, listed Australian companies, 1960 to 1998.



Source: Webster (2000)

From the 614 respondents to our Australian survey, we obtained evidence on the managerial view regarding the identity of value drivers for their firm. In particular, we asked the CFOs what types of *expenditures* relate to important value drivers for their company, and whether they believe that well-accepted standard definitions exist for value driving categories of expenditures in their industry. The responses are presented in Table 2 and 3. For the “key value driver” issue, the respondents indicated that the most important drivers are the remuneration of skilled workers, IT infrastructure and training at 83.3, 81.9 and 80.5 per cent respectively. The least-cited value drivers are science innovation and R&D. These findings are consistent with the theoretical role of human capital in generating the firm’s “intangible” value (see Section 4), and also the rapid growth of information technology as the central architecture of the firm’s knowledge and communications routines and networks.⁸

⁸ For example, see Baily and Lawrence (2001) on the existence of economic change due to technology, Hobijn and Jovanovic (2001) on the interaction of information technology with capital stock and share prices, and Dudley (1999) on the role of communication technology advances in economic cycles.

Table 2: Value drivers for companies

Value driving categories of expenditures for the company	Frequency	%
Training	487	80.5
R&D	198	32.6
Customer or member acquisition	381	62.8
Brands	397	65.4
IT Infrastructure	497	81.9
Procurement and distribution	463	76.5
Organization structure	255	42.1
Science innovation	110	18.1
Technical innovation	308	50.7
Executive compensation	384	63.3
Remuneration of skilled workers	509	83.9

In the detailed, open-ended responses, some CFOs stated that expenditure categories which are value drivers are often carried on outside Australia. Another CFO indicated that compliance drives training and remuneration expenditures. One respondent said that training and executive compensation should be value driving, but actually turns out not to be so for their company. A number of companies reported that procurement and distribution are important but constitute separate categories of value driving expenditures. Other important value drivers cited by the CFOs include customer service, productivity improvements, science-based positioning in competitive markets, a happy workforce, and acquisitions of competitors and profitable companies.

When asked whether there are generally accepted definitions of value drivers in their industry, we found that in most cases fewer than half of respondents believed that they existed. As reported in Table 3, the lowest rate of agreement is for efforts relating to managerial reform, organisational restructuring, and R&D. We received a number of open-ended responses on the standardisation question. The general tone of this discussion was that there was lots of “talk” about standardising a framework for measurement and disclosure of key value drivers but no concerted or formal action.

Table 3: Standard Definitions for Value drivers

Do you believe there are standard definitions in your industry for classifying data for these same value drivers?	Frequency of "yes" responses	%
Training and staff development	328	54.1
R&D	138	22.7
Organisational re-structuring	104	17.1
Managerial reform	84	13.9
Information Infrastructure	285	47.0
Procurement, distribution, customer linkages	337	55.5

In the open-ended clinical responses, the CFOs said that some industries are actively working towards a standard and view this task as important. However, some industries already have standards but the standards are vague and hence not too useful. Another respondent said that a large amount of competition tends to discourage standards. Several firms indicate that they are unique or the only company offering the good or service in Australia. In some industries, there is a similar definition although there is no formal standard. Standard definitions can apply to large operators (such as large car dealerships) but not to small operators. In the extractive industry, there are standard definitions for discovery costs per barrel of reserves, development costs per barrel of reserves, lifting costs per barrel of production, and service costs per day, and also the Solomon benchmarking index is used for bench marking across refineries.⁹

In summary, we can argue deductively that intangibles are important and an array of academic literature provides evidence consistent with this argument (see Footnote 1). Our survey results indicate some of the key types of expenditures categories and activities that the firms identify as important value drivers. Only the extractive industry appears to have developed widely used definition standards.

4. CURRENT TREATMENT OF INTANGIBLE INVESTMENT

Investment expenditures represent outlays by the firm made in the expectation of *future* benefits (Fisher 1930). Capital or assets, which arise from these expenditures, have the ability to release (capital) services for production in future periods. Capital can be embodied in either tangible or intangible formats. Firm-level *intangible* capital comprises all forms of capital not embodied in matter, that is, all assets that do not have a tangible form. While it includes

⁹ Solomon is a commercial enterprise that specializes in developing measurement indexes for asset management: see <http://www.solomononline.com/ram/index.asp>

enterprise-level intellectual capital and registered intellectual property, it also embraces access to distribution networks and markets, systems to optimise the rate of innovation, and structures and procedures that improve workplace and enterprise efficiency.¹⁰ As a subset, intellectual capital refers to the stored knowledge and cognitive abilities of the workforce. This includes investments in both the skills and knowledge of a firm's workforce and the invention and development of new products and processes. Disembodied forms of intangible capital include registered intellectual property such as the rights embodied in patent, trademark and design titles, as well as copyright, plant and seed breeders' rights.

By contrast to tangible investments, intangible investments are more likely to involve uncertain appropriability. The uncertainty of a production process depends on how often the process has been undertaken before, and thus how standardised the process has become; and on the extent of direct labour involvement, since mechanised investments produce more reliable outcomes than those dominated by people. In addition, because intangible activities are often designed to be firm-specific and heterogeneous for strategic reasons, there is an extra tier of uncertainty associated with intangibles. The close nexus with people poses problems for the accounting system. Employees cannot be owned and the firm's investment can simply walk out the door with no recompense to the original investor. In addition, intangibles that are not embodied in people, such as patents and trade marks, are prone to expropriation through imitation and reverse engineering.

The disciplines of accounting, economics, and management science all embrace similar definitions of intangible investment comprising "identifiable non-monetary assets without physical substance".¹¹ However, there is no agreement on how to classify intangible investments or account for them.¹² Underlying the problem of accounting for investments in intangible assets are the different nuances between accounting and economic concepts of investment. Intangible investments have economic properties, in particular, the difficulty in obtaining property rights, which prevent them from meeting the accounting requirements. By contrast to accounting regulations, economists define an intangible investment as *any* expenditure that is not immediately embodied in physical matter, but which is intended to generate long-term benefits. This definition cuts to the core of an *investment*: what matters for managers, and hence what is important for internal information systems and external reporting

¹⁰ Rent seeking behavior is also an intangible investment from the firm's perspective.

¹¹ International Accounting Standard (IAS) 38 Intangible Assets, paragraph 8.

¹² Accounting regulators have suggested items that would be considered intangible assets although no formal classification has been proposed (see IAS 38 Intangible Assets). Wyatt (2005) finds reported intangible assets under the Australian pre-international accounting standard regime, are associated with technological innovation conditions consistent with the assets having economic substance. Despite this and other evidence consistent with intangible assets having economic substance, the IAS 38 standard which severely restricts reporting of intangible assets was adopted in Australia.

is the intention of managers. Managers' and their firm's stakeholders want to be able to trace the effects of outlays that are intended to have long-run consequences.

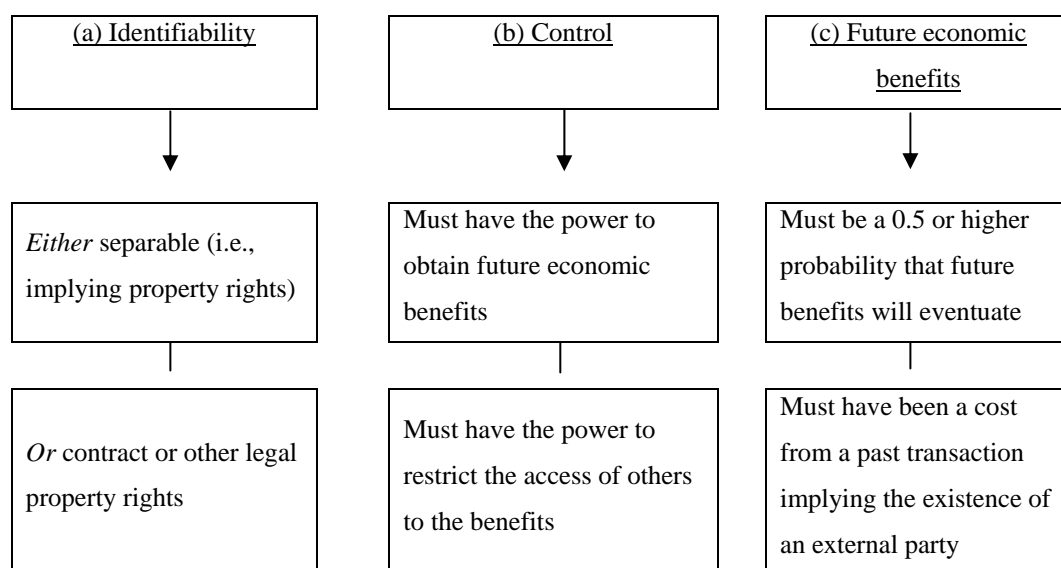
A critical difference between the accounting and economics approaches is that accountants effectively require, as a consequence of the transaction basis of accounting adopted for intangible assets (discussed further below), that property rights to the benefits associated with intangible investments exist. Because intangible assets are often embodied in employees, who cannot be owned, it is frequently impossible to obtain property rights to their benefits. Demonstrable property rights are not however central to economists' definition of intangible investment. But a lack of property rights increases the risk that the firm will not be able to appropriate the expected benefits from an investment,¹³ which is a problem for accountants.

Accounting principles (GAAP) that relate to accounting for *investment* expenditures are summarised in Figure 2. To summarise the implementation of the GAAP rules before looking at the details of how the principles work in practice:

- Investments on tangible and intangibles are treated differently because tangible investment involves a physical asset whereas intangible investment usually does not;
- Investments in tangible assets are always recorded as assets (unless some event decimates value);
- Investments in intangible assets are always treated as expenses unless there is a single, external exchange transaction (that gives rise to an external cost for recording the asset) (IAS 38 Intangible Assets para. 18).

¹³ This may be due to either of two potential problems. One is preventing others from using the asset; the other is that the firm cannot exchange the asset until the benefits are embodied in a physical form, and thus there is a very long period of appropriation vulnerability. An example of a non-embodied asset is an algorithm.

Figure 2: Accounting Principles for Recognizing Intangible Assets



As summarised in Figure 2, the *asset definition* criteria for intangible assets comprise three attributes:

(a) Identifiability: (i) the asset is separable, being capable of being separated or divided from the entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, asset or liability; or (ii) the asset arises from contractual or other legal rights, regardless of whether those rights are transferable or separable from the entity or from other rights and obligations¹⁴;

(b) Control: “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.”¹⁵

(c) Future economic benefits: benefits flowing from an intangible asset that may include revenue from the sale of products or services, cost savings, or other benefits resulting from the use of the asset by the entity.¹⁶

Asset recognition criteria for intangible assets comprise two further attributes:

(d) It must be probable (presumably more than 50 percent probable) that the economic benefits embodied in the asset will eventuate; and

(e) The asset must possess a cost that can be measured reliably.¹⁷

¹⁴ IAS 38 Intangible Assets, paragraph 12.

¹⁵ IAS 38 Intangible Assets, paragraph 13.

¹⁶ IAS 38 Intangible Assets, paragraph 17.

The previous section has established that the uncertain *appropriability* of expenditures on intangibles render them in many cases outside this accounting description. In particular, the tendency for intangible assets to be embodied in people renders attribute (a) - the identifiability criterion - unlikely. Attribute (a) leads to *ad hoc* recognition of expenditures on intangible assets since the definition criterion is identifiability rather than managements' intent to invest for expected long term benefits or otherwise undertake operating expenditures with only current benefits.

The characteristics of *uncertainty* in production and limited *appropriability* affect attribute (b) the capacity to control the asset, and attribute (d) the probability of future benefits. While (c) (future benefits) is a prerequisite, under any definition of capital or an asset, failure to comply with (e) (reliable cost) primarily arises from the focus of accounting on transaction and reliable cost rather than a focus on measurement of investment and its return.

Attributes (a) and (e) – identifiability and the reliable cost rule are intended to imply that a purchase transaction with an external party to the firm must have occurred before an expenditure can be accounted as an asset. While internal investment in brand development, workforce skills and innovation is expensed (either in cost of goods sold or sales, general and administration expenses), intangibles bought as a complete set through the market, are included as assets since they are separable and have a verifiable cost. Similarly, capabilities that are required to implement the firm's strategy and can be bought through transactions including mergers and acquisitions are recorded as assets since they are valued in a market transaction (von Hippel 1988). As they satisfy attribute (e) (reliable cost), they are reflected in the balance sheet in a way that intangibles developed internally by the firm typically are not. Arguably, a similar level of certainty or uncertainty, appropriability or non-appropriability, attends the valuations of expenditures on intangibles irrespective of how they are undertaken (internal expenditures or purchased). They will usually be integrated within a package of acquisition costs, subject to negotiation. No "market price" is likely to be identifiable, each component being a unique blend of brands, reputation, management systems, and customer relationships. Hence, economic principles do not justify the asymmetric accounting treatment of acquired and internal expenditures on intangibles. The market-based empirical evidence is also not consistent with this asymmetric approach as intangible expenditures and assets of all kind are valued as if they are expected to give rise to future benefits.¹⁸

¹⁷ IAS 38 Intangible Assets, paragraph 17.

¹⁸ See the comprehensive review of the value relevance literature on intangibles in Wyatt (2008).

This contradictory treatment of expenditures is exacerbated by the lack of a classification of expenditures on intangibles. That is, even if the expenditures that economists regard as intangible investments (i.e., as assets) are expensed, information relating to the intangible expenses is not available because these expenditures are bundled into the cost-of-goods-sold and administration aggregates and are not clearly identified in the financial accounting data.

5. IMPLICATIONS FOR MANAGEMENT AND STAKEHOLDERS

Three parties currently rely upon accurate accounting information and are therefore potentially affected by the current treatment of intangible investment: managers, external investors, and public-policy makers.

Managers

Managers make decisions about investment in intangibles, whether they explicitly realise this or not. They may be based on more or less acts of faith – or guided by rules of thumb – or through managers being sufficiently persuasive in managerial politics to win approval for their plans. There is very little evidence on the information used internally for making investment decisions.¹⁹ Nevertheless, it is often assumed that firms already identify and collect information on value drivers for internal decision making purposes.

We provide evidence on the validity of this latter assumption focusing on the decision making context. We asked the CFOs of our sample firms whether the computation of useful rates of return on the firm's value driving expenditures is possible under their internal accounting systems. The responses as summarised in Table 4 are surprising. If we take the 4 on the 7-point likert scale as indicating that firms have some basic capability to extract rates of return on value drivers from their systems, then the results of the survey suggest that over 50 percent of the firms have at best only a very basic capability. In further discussion, a number of CFOs indicated that they have this capability to compute rates of return for the business overall and for returns to capital employed but not for other areas such as training. We found in the discussions with the CFO respondents that some firms have the capability but do not use it while a number of the firms believe that this capability is important but do not have the capability at present. We found that only a small percentage of the firms fall into the high capability bins, comprising only 12.9 percent of the sample of 614 firms.

¹⁹ See for example Ittner and Larcker (2001).

Table 4: Does the internal management accounting system allow your company to compute useful rates of return on value driving expenditures?

Scale of 1 to 7 where one is very little capability to compute returns on investment and seven is a lot of capability	Frequency	%	Cumulative
1= very little	34	5.6	5.6
2	51	8.4	14.0
3	86	14.2	28.2
4	158	26.0	54.2
5	178	29.3	83.5
6	52	8.6	92.1
7=a lot	26	4.3	96.4
Unsure	3	0.5	
Capability exists but not used	6	1.0	
No, but working on this capability	13	2.1	
Total	607	100.0	

We also asked CFOs the related question of how budgets are set for value driving expenditures. According to Table 5, a surprising 76.4 percent of the companies decide this year's budget for value drivers based on what was spent by the firm last year adjusted for any shortfall or windfall in available funds. Similarly, a large percentage comprising 54.3 percent of the companies use the method of "Negotiation and bargaining by senior managers with the CEO". The results in Table 5 suggest that there is very little objective analysis of internal data on value driving expenditures. In particular, we find that only 25.4 percent of the sample firms decide their budget for spending on value drivers on the basis of the estimated rate of return to past expenditures on the value drivers.

Table 5: How does the company decide on budgets for value driving expenditures

Method	Number	%
Fairly constant percentage of available funds	98	16.1
Last years spending with adjustment for available funds	466	76.4
Based on estimated rates of return to past expenditure on these value drivers	155	25.4
Negotiation and bargaining by senior managers with the CEO	331	54.3
Other	89	14.6
Total responded	610	100.0

Table 6: Mean Differences for the proportion of firms using budgetary decision making methods by nominated value driver, and by whether the company collects expenditures data

<i>Nominated value driver</i>	<i>Fairly constant percentage of available funds</i>	<i>Last years spending with adjustment for available funds</i>	<i>Based on estimated rates of return to past expenditure on these value drivers</i>	<i>Negotiation and bargaining by senior managers with the CEO and/or board</i>
Training				
Not collect expend data	0.143	0.714	0.286	0.571
Collect expend data	0.165	0.791	0.264	0.561
R&D				
Not collect expend data	0.167	0.500	0.333	1.000
Collect expend data	0.225	0.717	0.304	0.607
Customers				
Not collect expend data	0.273	0.818	0.182	0.455
Collect expend data	0.152	0.807	0.266	0.549
Brands				
Not collect expend data	0.200	0.850	0.300	0.650
Collect expend data	0.157	0.805	0.256	0.543
IT infrastructure				
Not collect expend data	0.087	0.913	0.348	0.304**
Collect expend data	0.178	0.784	0.256	0.575**
Procurement and distribution				
Not collect expend data	0.083	0.667	0.25	0.333
Collect expend data	0.151	0.797	0.247	0.549
Organization structure				
Not collect expend data	0.219	0.719	0.406	0.563
Collect expend data	0.235	0.760	0.299	0.623
Science innovation				
Not collect expend data	0.333	0.667	0.667	0.667
Collect expend data	0.283	0.708	0.358	0.648
Technical innovation				
Not collect expend data	0.222	0.722	0.222	0.556
Collect expend data	0.215	0.716	0.315	0.599
Executive compensation				
Not collect expend data	0.167	0.667	0.500	0.667
Collect expend data	0.168	0.816	0.279	0.58
Remuneration of skilled workers				
Not collect expend data	0.250	0.500**	0.250	0.500
Collect expend data	0.148	0.788**	0.259	0.558

Note: ** means are significantly different at 5 per cent or less.

This evidence casts doubt on the commonly held assumption that the average firm is actively identifying and collecting data on the level and success of their value driving expenditures. To further explore this latter assumption, in Table 6, we examine whether the method used to

decide how much to spend on the value drivers nominated by the CFOs as important for their firm is different compared to those drivers considered unimportant for that firm. For each type of value driver, we calculate the proportion of firms which use each type of decision making method. The means of the proportions are compared statistically for those firms indicating they do or do not collect expenditures data on these value drivers. As reported in Table 6, we find that whether or not the firm states that expenditures data on value drivers is collected, generally has no influence on the firm's choice of decision making method. Again we find the dominant methods are 'Last years spending with adjustment for available funds' and 'Negotiation and bargaining by senior managers with the CEO and/or board'. A reasonable interpretation of the evidence in Table 6 is that the expenditures data (nominated by the firms as categories of value driving expenditures for their firm) is not consistently classified over time and not collected in a format that makes estimations of rates of return possible.

There is a symbiotic relation between management and financial accounting systems in the sense that the financial accounting data for external reporting must come from the internal systems.²⁰ One barrier to progress is disagreement on the role of GAAP for measuring intangible investment. In the vacuum generated by the official GAAP measures of expenditures on intangibles, a divergent literature has spawned among accountants. One avenue seeks an accounting solution: an internally consistent system of accounting rules that includes many of the inconsistencies discussed earlier in Section 4 (e.g., Canibano, Garcia-Ayuso and Sanchez, 2000). An accounting-based solution has not been pursued by accounting standards bodies due to political interventions and the inability of financial accounting to agree on a workable approach to reporting on the intangible investments.²¹

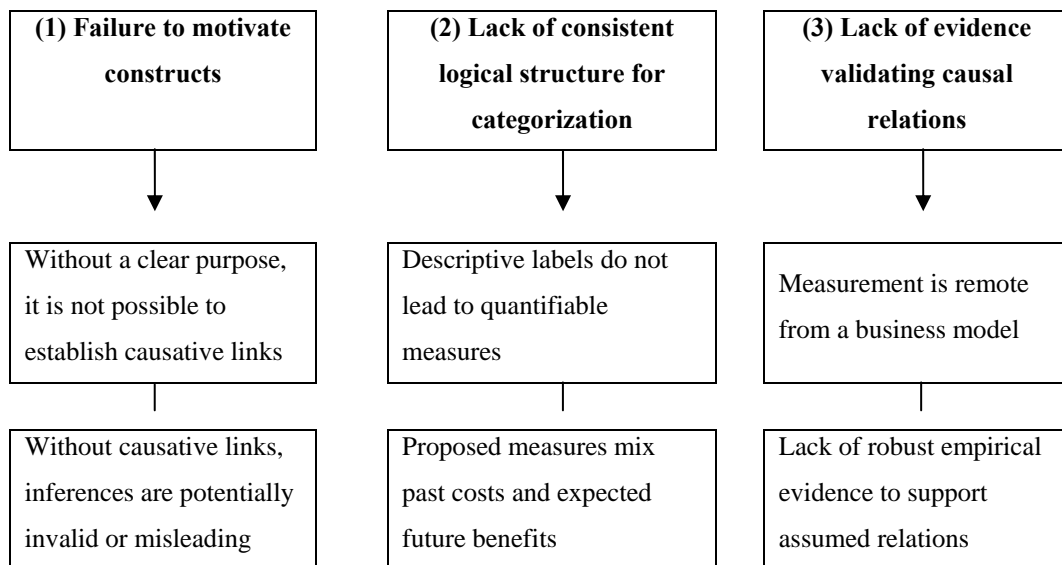
Another avenue focuses on the anatomy of intangibles, often termed intangible capital or intellectual capital literature by its proponents (IC measurement), producing batteries of possible indicators that are held out to managers as effective measures of their intangible

²⁰ Several studies consider the issue that in practice managerial and financial accounting systems are very much related whereas in much of the academic literature and in management accounting text books, the financial accounting system is treated as irrelevant to them management accounting system (see Hopper, Kirkham, Scapens and Turley 1992; Joseph, Turley, Burns, Lewis, Scapens and Southworth 1996; Drury and Tayles 1997). Also see Hemmer and Labro (2008) who show analytically how and why managerial and financial accounting systems will overlap in fundamental ways that cause the financial accounting system to affect the economic information quality and control quality of the managerial system.

²¹ For example, the United States' Financial Accounting Standards Board announced an enhanced disclosure project that will "consider requiring disclosures about intangible assets that are currently not recognized in financial statements but would have been recognized as assets if acquired, either separately or in a business combination" on January 9, 2002 with the stated goal to work towards required rather than voluntary disclosures on intangible assets. This project has subsequently been withdrawn in the wake of the Enron and other financial collapse crises. There is also debate amongst commentators: e.g., Lev (see for example, Lev and Zarowin, 1999) in a large body of literature argues that capitalizing intangible assets is the solution particularly in relation to R&D, while Douglas Skinner (see Skinner, 2008) does not believe there is a role for GAAP in relation to intangibles.

assets.²² These include sets of indicators supported by government (e.g., Denmark and other Scandinavian countries), plus sets put together by academics and consultants. Earlier studies evaluate (aspects of) the “intangible capital” (IC) literature and find it flawed on several dimensions (e.g., Hunter, Webster and Wyatt, 2005; Ittner 2008). These problems are summarised in Figure 3.

Figure 3: The Intellectual Capital (IC) Approach to Measuring Intangibles



The IC literature purpose is to measure intangible value both for internal purposes and for external signalling purposes (see Hunter, Webster and Wyatt, 2005, Table 2). Measurement that helps management to improve strategic thinking by identifying intangible drivers of future value is important. However, referring to the problems outlined in Figure 3, unless the purpose of measurement is clear, and the causative links from the measurement constructs to the empirical measures are explicit and stand up to empirical scrutiny, the outcome may be at best opaque and at worst misleading.

In one respect, the IC literature appears to have moved toward some acceptance of an intangible asset structure, though different authors use different labels for broadly similar concepts. These labels are set out in Table 7.

²² For example, some of the “branded” IC metrics that currently exist include Intangible Asset Monitor (Sveiby, 1997), Balanced Scorecard (Kaplan and Norton, 1992), IC-dVAL (Bounfour, 2003), Intellectual Capital Web (Zhou et al, 2003a, 2003b), Scaling (Cinca et al, 2003), Value Creation Index (Funk, 2003, Kalafut and Low, 2001), European Performance Satisfaction Index (Eskildsen, et al 2003), European Employee Index (Eskildsen, et al 2003), FiMIAM (Rodov and Leliaert, 2002), and IC-3 dimensional scaling (Edvinsson, 1997).

Table 7: Common Labels for Intangible Capital

<i>Label</i>	<i>Description</i>
Human capital	Human capital embodied in the skills, knowledge and experience of the management and workforce
Organisational (or infrastructure) capital	Organisational (or infrastructure) capital in the form of organization-specific structures, procedures and business or operational routines
Relational (or market) capital	The established set of relationships with suppliers, customers, partners and business associates
Intellectual property	Comprising assets like patents and trademarks, design titles, copyright and plant and seed breeders' rights, with a legal ownership embodied in the company

The problem with the batteries of IC measures observed in practice, and their broader labels as in Table 7, is that (a) they are subject to inconsistency in terminology and definition, and (b) they do not lead to easily quantifiable measures of value. Consequently, researchers and consultants have suggested a multitude of non-financial 'indicators', both qualitative and quantitative, as measures of the construct, intangible capital. These indicators are claimed to correlate intangible capital (or investment) with the scale of intensity of the labelled categories (or changes in intensity). Agreement on the indicators is lacking in large part because there is little convergence on what questions the sets of indicators are seeking to answer. Many of the detailed indicators are highly industry-specific, and do not permit aggregation across lines of business. Furthermore, it is not clear whether these non-financial indicators represent the activity (cost) expended in generating the asset, or the expected benefits for the firm. We maintain that virtually no company would find it sensible (or efficient) to collect and analyse the information required to yield the spectrum of recommended indicators.

Several surveys have been conducted to assess how far companies are using internal reporting to manage their IC. These surveys suffer from very low response rates (and high response biases), but are consistently interpreted as showing firms doing little in terms of implementing IC measurement and management strategies (e.g., Pablos 2003; Darroch and McNaughton, 2003; St Leon 2002). The problems outlined above also suggest that the IC approach is unlikely to be widely used in practice.

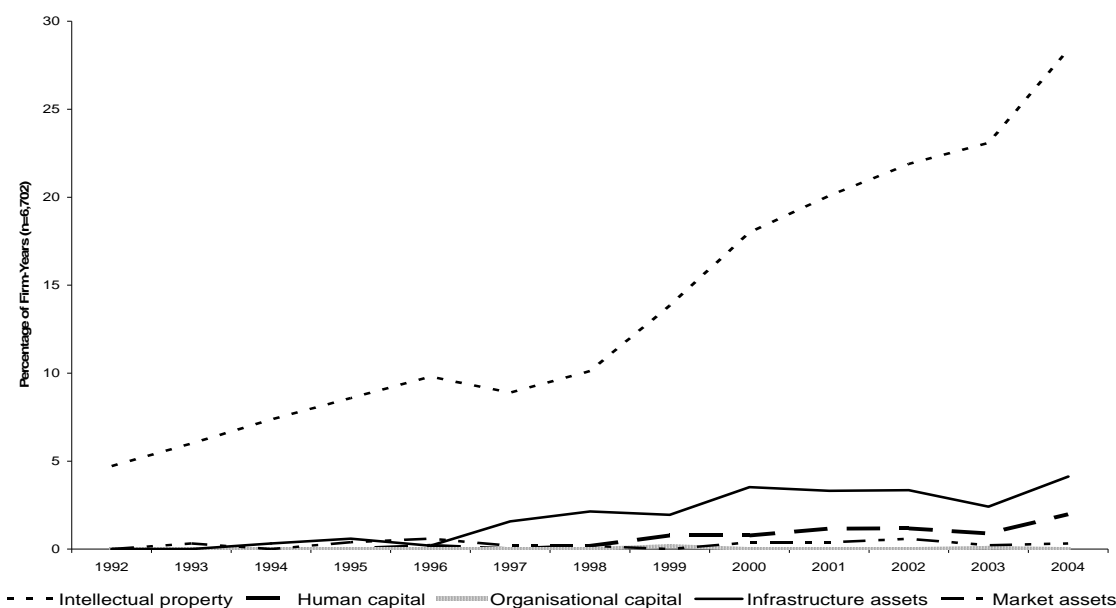
To provide empirical evidence on the extent that firms use the IC structure to internally collect data, which is then externally reported for the benefit of investors and other market participants, we conducted a comprehensive search of 6,702 Annual Reports on the *Connect 4 Annual Report File* for the period, 1992-2004. Connect 4 comprises Annual Reports for approximately the 500 largest companies in the Australian listed equity market.

We surveyed the Annual Reports with key word searches on the IC literature constructs, Human capital, Organisational (or infrastructure) capital, Relational (or market) capital, and

Intellectual property. If the IC structure for collecting data and reporting on intangibles is important in practice then we expect to observe evidence of this usage somewhere in the external financial reports.²³ Figure 4 graphically summarises the results of our search of the 6,702 Annual Reports over the 12 year period. Consistent with the problems discussed in implementing and interpreting the IC structure, we find that apart from intellectual property, there is no evidence this structure was increasingly adopted by listed corporations in Australia over 1992-2004.

However, in Figure 4, we do observe a dramatic increase in the percentage of the firms reporting intellectual property over time. This trend is striking. Approximately five percent of the firm-years in 1992 were collecting information and externally reporting on intellectual property, but this increased to about 30 percent of the firm-years in 2004. This increasing trend over a 12-year period starkly contrasts with the other IC structural components but is consistent with the increasing strategic focus of business on property right protection for intangible investments.²⁴ It is also consistent with the GAAP emphasis on some form of separability or legal rights for recognising intangible assets (see Section 4.).

Figure 4: Percentage of Firms disclosing the 5 common labels for intangible capital in Annual Reports, 1992-2004



Note: Includes financial statements, notes to the accounts, and management discussion and corporate governance

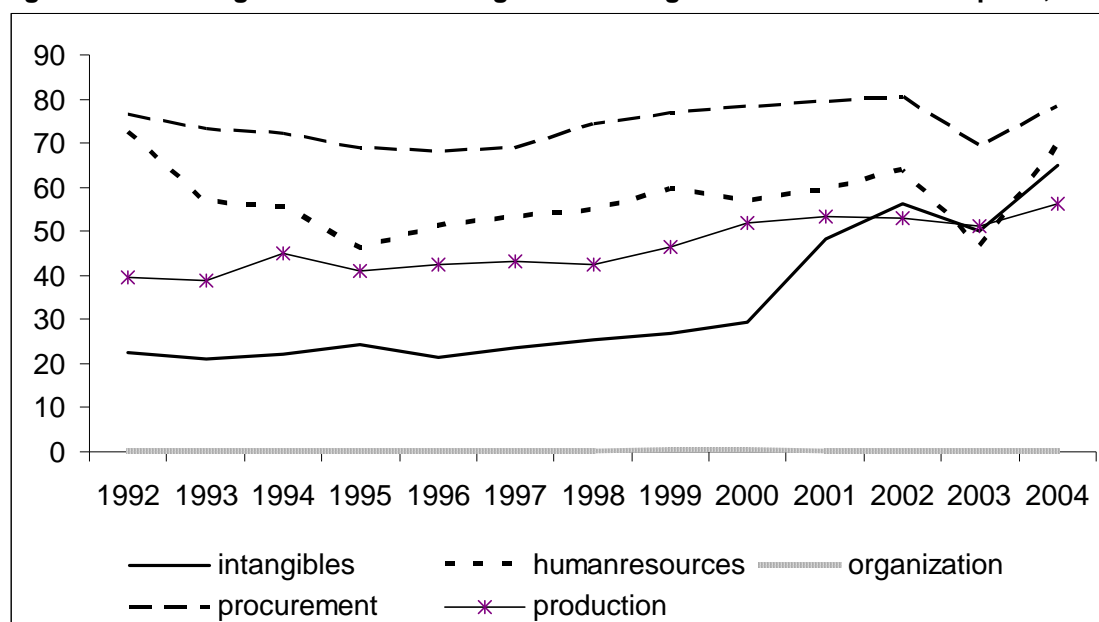
While firms do not appear to be using the terminology supported by the IC metrics consultants, we also find in a search of the Annual Reports that firms are using a plethora of other terms. These other terms comprise: brands, copyright, education, human capital,

²³ Annual Report includes the actual financial statements, the notes to the financial statements, management report, and other information about the business(es) and corporate governance.

²⁴ For example, see Cohen, Nelson and Walsh (2000).

infrastructure assets, intangible assets, intellectual assets, intellectual capital, intellectual property, knowledge capital, license, market assets, marketing, organisational capital, patents, proprietary technology, research and development, structural capital, technology rights, trademarks, and training. We classify these 23 terms into five broad headings and report on the percentage of all firms in each year which mention these terms at least once. Results from this exercise, which are presented in Figure 5 below, reveal that about 80 percent of firms report on procurement-related expenditures - market assets, brands, trademarks, marketing - and this figure have been relatively constant over time. Nearly 70 percent of firms report human capital related terms such as education, human capital and training. Production-related terms are the next most common (at about 50 percent) with a slight tendency to becoming more prevalent. These terms include copyright, infrastructure assets, intellectual property, license, patents, proprietary technology, research and development and technology rights. However, the strongest growth in cited terms is the intangible category which contains intangible assets, intellectual assets, intellectual capital and knowledge capital. The number of firms reporting the two organizational terms – organizational capital and structural capital – is negligible.

Figure 5: Percentage of firms disclosing the 23 intangible terms in Annual Reports, 1992-2004



Note: Includes financial statements, notes to the accounts, and management discussion and corporate governance

As summarised in Figure 3, one explanation for the failure to report the five common intangible capital labels (see Table 7) is the lack of a theoretical underpinning. The purpose of measurement underlying the IC approach and the evidence to support the connections is absent in all but a few cases (e.g., see Hunter et al 2005; Ittner 2008). The existing series of indicators are not linked into the processes of value-creation that drive the competitive

capability of the business. Meaningful rates of return on investment are those classifiable according to designated competitive strategies. Unfortunately, most of the existing indicators and their imputed influence on performance measures are remote from intermediate business objectives and the processes of management. In other words, the indicators are not integrated with a justifiable business model.

In practice, most of these espoused measurement systems *assume* causal relationships rather than validate them with robust empirical evidence: "...correlations between measures have rarely been empirically proven and some critics even doubt the assumption of causalities in widely implemented measurement systems such as the Balanced Scorecard" (Kaplan and Norton, 2000a, 2000b; Norreklit, 2000: in Marr, Gray and Neely 2003, 445).²⁵

To test therefore for the presence of a causal relationship, we examined the responses from the open-ended interviews that focused on the CEOs choices about the use or otherwise of performance measures to evaluate payoffs. Table 8 in Panel A tabulates the CFOs open-ended comments on their firm's measurement of performance from intangibles. Of the roughly 600 firms, 411 indicated that they do not measure payoffs from value driving expenditures at all. Twenty respondents defer this task to the parent company. From Panel A, a further 86 firms engage in very limited performance measurement for intangibles, while 22 firms said that such measurement was not needed by their firm.

²⁵ According to Hunter, Webster and Wyatt (2005), very few of the consultant companies providing IC metrics for other companies have any type of formal analytical framework, and where they do so, it tends to be poorly specified or based on a simple typology or structure.

Table 8: CFO comments from open-ended interviews

Panel A Open-ended responses on the question of whether performance is measured in relation to expenditures on value drivers?

Not at all	Parent handles	Limited	Ad hoc	Too hard	Not needed	Intuition	Acquisition only- not relevant	No as not internally generated
411	20	37	49	2	22	2	5	3

Panel B Open-ended responses on the approaches used to evaluate performance from value drivers? or what performance is measured in relation to payoffs from intangibles expenditures?

Risk analysis	Cost benefit analysis	Part of budget process	Forecast & track outcomes	Product market share	Inhouse measures	GAAP numbers
1	17	8	14	13	2	25
Financial ratios	Variance analysis	Growth in productivity	Balanced Score card	Cash flow analysis	Asset management	KPI
6	2	3	1	6	9	10
ROCE or ROI or ROE	ROA	EVA	IRR	DCF	NPV	Valuation analysis
42	2	1	3	7	7	3
Historical cost	Goodwill valuation	Selective capitalisation and amortise	Undertake impairment testing	Business feasibility analysis	Project and division analysis	Use of employee database and surveys
4	4	8	14	11		

Panel C Open-ended responses on the types of factors that have a causal role in the performance evaluation process?

Conduct franchise survey	Measure exploration success rate	Measure water use rate	Measure brand reputation	Measure customer satisfaction	Use six sigma defect control	
1	2	2	9	23	1	
Purpose is quality and safety analysis	Transfer price purpose	Purpose is to measure impact on tender success rate	Purpose is tax impact of accelerated R&D	IP focus	Software focus	RD focus
2	1	1	1	5	6	5

For those firms that indicated some degree of performance measurement for intangibles, Table 8 Panel B summarises the open-ended comments on the issues of how their firm evaluates performance relating to value drivers. Table 8 Panel C summarizes the open-ended comments on what type of performance is measured. On the first “how evaluated” issue in Panel B, a large range of approaches are represented including a comparison of expected cost and benefit, budget, and KPI. In Panel C, a number of specific motivations for measurement are evident ranging from brand, customer satisfaction, transfer pricing, water usage, to feasibility for some acquisition purposes. The whole of business measurement (e.g., business feasibility analysis) indicates that firms consider investments in intangibles when making acquisition decisions. What is notable from this panel is the diversity of approaches and the strong influence of GAAP-based financial data on the measures and types of analyses employed.

External investors

Although our focus is mainly on the internal management dimension of intangible investment, it is evident that disclosure of more detailed information about such investment is likely to be of interest to investors, analysts and other stakeholders (such as employees or customers) or potential investors. There is the likelihood, however, that the interests of the different parties will generate differing demands for information, reflecting their separate interests. For example, accounting numbers are used to write debt contracts and incentive-based remuneration. However, both of the latter uses might benefit from more information on the quantum of expenditures on intangibles.²⁶

Given that accounting standards, and the managers’ status as insiders, provides discretion regarding the application of GAAP and an insider information advantage, one might also ask whether information on intangibles is voluntarily disclosed and, if so, whether the information is useful and for what purpose? The comprehensive review of the value relevance literature for financial and non-financial on intangibles summarises evidence on voluntary disclosure (Wyatt 2008). A significant problem that emerges from the intangibles literature is the lack of interpretability of these heterogeneous disclosures. The evidence (summarised in Wyatt 2008) suggests that stock prices are slow to adjust to intangibles disclosures in general. This likely reflects some unknown level of uncertainty about the probability and timing of cash-flow realisations as well as problems interpreting/processing the information.

²⁶ There is some evidence that investments might be affected by capital market pressures on management to produce a pattern of increasing earnings (e.g., Barth, Elliott, and Finn, 1999).

Because the scale of intangible investment in modern enterprise appears to be increasing, and most of the investment is not separately measured, it is likely that the level of information asymmetry between internal management and external stakeholders is increasing over time.²⁷ More specifically, limited disclosure on intangibles is a potential source of information risk that disadvantages some firms (e.g., younger firms) by generating higher systematic risk (Clarkson and Thompson 1990).²⁸ Other evidence suggests the consequences of not identifying and measuring intangible investments may include insider trading (e.g., Aboody and Lev, 2000), mispricing of intangibles-intensive firms (e.g., Chambers, Jennings and Thompson, 2002), and mis-specification of valuation models (e.g., Kohlbeck and Warfield, 2007; Sougiannis and Yaekura, 2001).

Public-policy makers

Corporate financial accounting data forms the basis of the market sector of the national accounts (i.e., GDP). These data are used extensively by economists and business analysts to forecast and analyse economic and market trends. While existing GAAP provides a long and comprehensive time-series of data on the level of expenditure on plant and equipment, for reasons discussed above, the public's ability to analyse the level and effects of intangible investments is severely circumscribed. There are no systematic data collections of expenditures on intangible investments.

Given this omission from corporate accounting data, governments around the world have commissioned dedicated surveys of intangible investments such as surveys of innovation and of training. However, these surveys are often *ad hoc*, do not form part of a time series, are expensive and often use approximate Likert-scale responses rather than monetary values. Furthermore, unless special arrangements are made²⁹, it is not possible to make international and cross-country comparisons. By contrast, macroeconomic and microeconomic studies of investments into plant and equipment are prolific and relatively cheap for the user. The impact on statistical estimations of omitting intangible investment, given it is a substantial portion of total investment, is unknown.

²⁷ For further discussion and references on the micro-economic effects of asymmetry see, Commission of European Communities (2003).

²⁸ Easley and O'Hara (2004) use a multi-asset rational expectations equilibrium model to show that firm-specific information risk is a non-diversifiable risk factor. Analytical modeling suggests that both the precision and quantity of information available to investors can influence the cost of capital. Uninformed investors with access to public information require a higher rate of return to compensate for non-diversifiable risk, compared to more informed investors who have access to private information to distinguish the mix of stocks to hold.

²⁹ Such as the Community Innovation Survey in Europe.

Summary

Unquestioning adherence to GAAP, without consideration of the costs of so doing, leaves an information gap in both the balance sheet and the income statement. Increasingly, there is recognition that the GAAP impacts on the internal managerial systems (e.g., Hemmer and Labro 2008). However, while regulators focus on the capitalisation or expense decision, this is a second order issue. The first order problem is how to identify the expenditures on value driving intangibles. In addition, the problem of Type I errors – when an expenditure that is an investment is classified as an expense – has been growing with time (Webster 2000).

6. MEASURING EXPENDITURES ON INTANGIBLES USING GAAP

We argue that the focus of GAAP, in the first instance, be the identification and separation of the *expenditures* on intangible value drivers from other types of expenditures. Without details about the quantity and quality of these expenditures, there are few objective ways of estimating rates of returns and values – the latter being a forward-looking prospective-profits measure. The data needed for our purpose has to address key questions such as: How do these forms of intangible investment fit into the value creating process? How robust is the hypothesised line of causation between specific inputs and outputs? Do investments in different forms of intangible assets work independently or do they interact with each other to create a synergy effect?

So far we have argued that the failure of the formal financial accounting system (GAAP) to identify and separate expenditures on intangible investment from expenditures on tangible investment and operating expenditures adversely affects: the firm's internal processes for evaluating the decision to invest in intangibles; external financial reporting to outside investors and other stakeholders; and the integrity of macroeconomic data. However the true level of distortion can only be known from analysing data on the relative quantum and classifications of value driving intangibles.

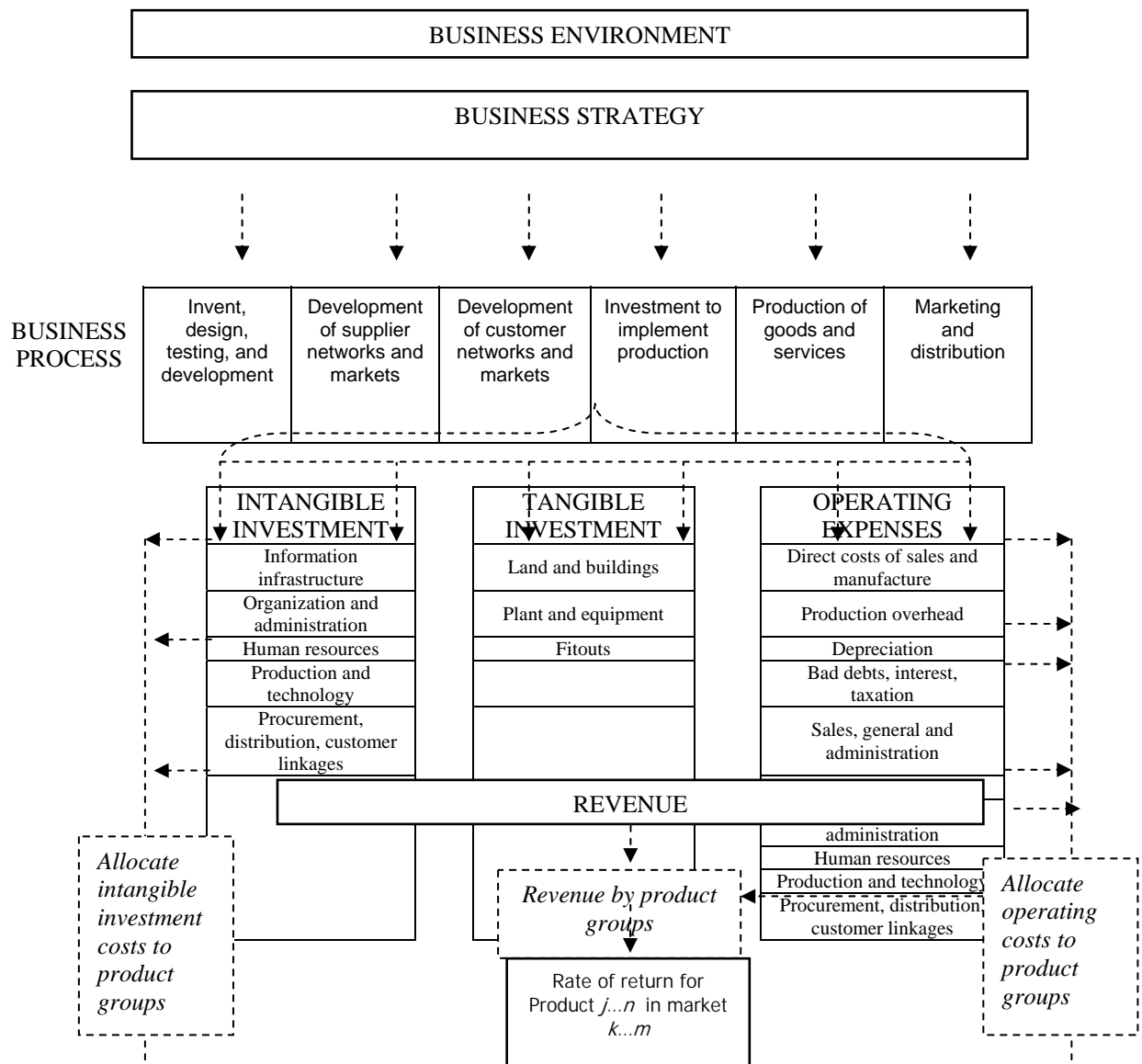
With explicit, standardized procedures for the total expenditures on intangible investments it is possible to make useful estimates of expenditures and returns. By standardizing procedures, at least the ambiguity associated with non-standardized data can be eliminated, and it is reasonable to think that there is enough information, even in noisy measures of intangible investments, to make their reporting a net improvement, in spite of the uncertainty associated with their future benefits.

We have argued that the attributes of (a) identifiability, (b) control, and (c) a high probability of future benefits, are not relevant criteria for determining whether an expenditure

is an intangible investment. Any form of classification involves errors and there is usually a trade-off between Type I (classifying an investment as an expense) and Type II (classifying an expense as an investment) errors. The trade-off between Type I and II errors depends on where we draw the line on the criteria such as “separable”, “probable future economic benefits” and “measurable cost”. The more permissive the standards are towards intangibles, the more type II errors and fewer type I errors; the less permissive, the more type I errors and less type II errors. It is unclear *a priori* how steep the trade-off is between these errors as the boundary changes and what are the costs of each type of error. It is certain, though, that being conservative towards treating expenditure on intangibles as investment expenditures, (minimising Type I errors) is, by definition, neither an inherently more reliable nor more valid form of accounting than the converse (due to the reciprocal increase in Type II errors).

Under current GAAP, *managers* of firms make the investment and operating decisions, while GAAP second guesses which of management’s investments and operating expenditures are actually reported according to management’s original intent. We argue that it is not the role of the accounting standards to second guess whether managers, investors, and analysts want an estimate made of the degree of market certainty or the legal and cost status of past expenditures in the accounting data. This *ex ante* classification of the data may have been desirable even 30 years ago when it was difficult and cumbersome to manipulate data and the readership of accounts required a high level of data calibration and sorting. However, today it is very easy and cheap today to analyse data, change algorithms and use data flexibly. Modern analysts are looking for more finely grained classifications which they may use for their own purpose. Generically expensing the bulk of intangible investment expenditures is similar to writing off the “junk DNA” part of the chromosome as one indistinguishable lump.

Figure 6: Identifying and Separating Expenditures on Intangibles from Tangible and Operating Expenditures



As illustrated in Figure 6, we propose this information problem can be addressed by a separate accounting for *expenditures* on intangibles, parallel to the accounting for tangible investments and operating expenses. Since our purpose is to record intangible investment for the purpose of generating measures of risk and return relating to categories of expenditures on intangibles, we must link the investments to the firm’s value creation processes.

As shown in Figure 6, the process involves first identifying expenditures on intangible investment separately from expenditures on tangible investment and operating expenses. Second, this financial data can then be used to produce rate-of-return metrics by matching against the revenues from product lines. Third, in a feedback loop, the analyst can use the data and rate-of-return measures to relate the firm’s mix of intangible investment and product line performance outcomes to the structure of the business including the fit with economic environment conditions, the firm’s business processes, and the strategy choices.

To be useful to the managerial decisions, firms need some standardisation of the “expenditures on intangibles” categories. Standardisation makes possible the comparison of intangible investment strategies across firms and for the same firm over time.

Table 10: A Framework for Classifying Expenditures on Intangible Investment

Classification ^a	Examples of intangible investment expenditures
Information System Infrastructure	<u>Expenditure on :</u> Wages of staff involved in information systems planning and development, Commercial enterprise systems, Software, databases, Other computer services, Licenses
Production and Technology	<u>Expenditure on</u> Product & process R&D, Process design, engineering and development, Technology adoption, Quality control systems, Proprietary technology, patents, designs, licenses
Human Resources	<u>Expenditure on :</u> Pay of HR managers Re-design of remuneration and incentive systems Staff development and longer-term training, Staff goal planning and evaluation, Information and knowledge database development, Programs for health and motivation of workforce (eg: labour relations, health care, fitness)
Organization and Administration	<u>Expenditure on :</u> Wages of staff involved in organizational design and management techniques Corporate governance structures, Networks and strategic alliances, Administration structure and systems, Finance systems, accounting systems.
Procurement, distribution, customer linkages	<u>Expenditure on :</u> Distribution and market research systems, Advertising, trademarks, brands, Customer lists, subscribers” list, potential customer list, Product and quality certification.

Notes: (a) This classification is adapted from Young (1998). The principal criterion is whether the expenditures are long term outlays by firms aimed at improving their future performance (other than by the acquisition of fixed assets).

OECD in developing a national accounts framework for intangible investment. Young begins by identifying a variety of potential components that are similar to those in her work for the OECD in developing a national accounts framework for intangible investment. Young begins by identifying a variety of potential components that are similar to those in Table 10. In the right hand column in, we suggest potential expenditure lines within each of the general categories.

7. CONCLUSIONS

This paper has been motivated by the present standoff between, on the one hand, the accounting standards authorities, both national and international, who resist more

comprehensive standard procedures for intangible investments³⁰, and on the other hand, the stakeholders who want a more transparent and explicit reporting process. Some managers and academics side with the accounting standards authorities, arguing that there is no evidence of market inefficiency associated with investments in intangibles (e.g., Skinner 2008).³¹ Because of this powerful alliance between some managers, academics, and the accounting authorities, there would have to be a very strong incentive to introduce new procedures. However, other stakeholders point out that against this, there is evidence in the literature that additional information on the firms' investments, regardless of whether they are tangible or intangible, improves market efficiency.³² Other evidence referred to in the paper suggests capital market inefficiencies also arise with the limited reporting procedures for intangibles, creating unnecessary uncertainty for investors and other stakeholders. A systematic approach to dealing with intangible investments would increase transparency, giving stakeholders more confidence in the accuracy and fairness of the accounting system.

Our evidence suggests consistent and systematic information is not collected internally and is therefore not available for managerial decision making, despite assumptions commonly observed to the contrary. Systematic accounting treatment of expenditures on intangibles would provide relevant information to all stakeholders: e.g., investors, managers, employees, regulators, public-policy makers and customers. By making it possible to determine returns, stakeholders will be able to methodically evaluate potential investments, and to compare realized returns to original expectations, in order to determine why an investment under or out-performs expectations. This information will help management to make better investment decisions in the future, and it will help others to evaluate management's effectiveness. Perhaps even more importantly, systematic treatment of intangible investments improves transparency, thus increasing confidence in the truth and fairness of managerial reporting. We propose an approach to dealing with intangible investments that aligns accounting procedures with both management strategy and economic theory. In this approach, intangible investments

³⁰ For example, the United States' Financial Accounting Standards Board issued SFAS No. 142 *Goodwill and Intangible Assets* in June 2001 and SFAS No. 141 *Business Combinations* after a long deliberation. Despite the effort applied to these projects, the issued statements carry over the "immediate expensing of intangibles" provisions that typified the preceding accounting standards, APB Opinion No. 17 *Intangible Assets* and SFAS No. 2 *Accounting for Research and Development Costs*. Similarly, the International Accounting Standards Board accounting standard, IAS 38 *Intangible Assets*, issued in 1998 and preceding the United States deliberations, specifically prohibits recognition of most internally generated intangible assets on the balance sheet. The United Kingdom's Accounting Standards Board, similarly issued FRS 10 *Goodwill and Intangible Assets* in December 1997, which states that internally developed intangible assets should be capitalised only where they have a readily ascertainable market value.

³¹ For example, US software companies campaigned for the removal of SFAS 86 *Accounting for the Costs of Computer Software to Be Sold, Leased, or Otherwise Marketed* (Issued 8/1985) in the mid 1990s. This may be due to the standard's negative earnings effect of capitalization under SFAS No. 86 for the now mature industry (Aboody and Lev 1998).

³² For further elaboration see the Commission of European Communities Report (2003).

are distinguished from intangible expenses based on the manager's intention, as is the case currently with tangible assets.

Current accounting practices focus on tangible assets; relevant procedures developed for tangible assets both because they were historically important, and because they are relatively easy to deal with, since they can be seen and measured and are usually bought from another firm. By contrast, current accounting procedures provide only minimal information about intangible assets. The rationale for not including information about intangible assets is that the benefits associated with them are so uncertain that information about them is unsuitable for accounting purposes. Without systematically collected and organized accounting information, managers cannot estimate meaningful rates of return.

In summary, relatively little attention has been paid to the internal managerial decision to invest in intangible assets. Little is known about the quantitative data and resource allocation methods that inform managements' intangible investment decisions. Our first evidence on this latter issue suggests that management, on average, use rules of thumb and not rigorous quantitative analysis for their internal investment decisions relating to the firm's intangible value drivers. In view of this information problem, it is reasonable to think that decisions about intangible investments are likely to be sub-optimal.

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