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# Managing to measure: appropriate options for measuring Intellectual Capital in the Australian Public Service

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## Abstract

*The key question to be addressed by this research is whether an intellectual capital measurement model can be effectively applied universally across a range of organisations or whether the nature of the organisation dictates the type of intellectual capital measurement model deemed appropriate. The research will involve a review of intellectual capital measurement theory and research, and a critical analysis of the accepted measurement models. It will also focus on a review of measurement practices and involve the conduct of a needs analysis in a sample of Federal Government Departments. The expected outcome is an intellectual capital measurement model that best meets identified public sector requirements.*

## Keywords:

*Knowledge Management, Intellectual Capital, Knowledge Assets, Human Capital, Social Capital, Measurement Models*

## Introduction

*Intellectual capital has been considered by many, understood by a select few, and formerly valued by practically no one. Therein lies one of the greatest challenges facing business leaders and academic researchers today and tomorrow - Nick Bontis (1998)*

Nick Bontis (Choo & Bontis: 2002) suggests that academic researchers face challenges and ‘turf wars’ when studying the intellectual capital phenomenon, but he considers that the intuitive appeal of intellectual capital allows opportunity for both practitioners and academics to work alongside one another to ‘further understand its complex inner workings’. Bontis has issued a challenge that intellectual capital empirical research should be ‘pursued with more fervour’ and he has charged researchers to consider the user’s perspective in conducting such research.

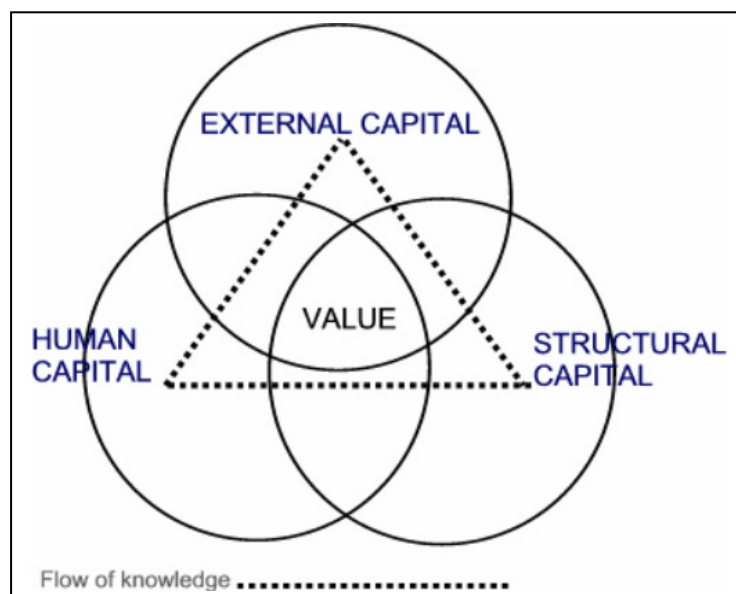
This current research proposal flags an intention to take up the challenge. The work entails comparative studies of intellectual capital approaches across a sample of Australian Public Service Departments and consulting companies. User research will help answer the question of *whether intellectual capital measurement models can (or should) be applied universally across sectors, or whether there is a need for a more appropriate model to better suit the needs of Federal Government Departments.*

The intellectual capital movement had its roots in the review of private sector companies and although the field is relatively new, the actual term was first used in 1958, in the discussion of stockmarket valuations of small, science-based companies (Stewart: 2001). From this time up until 1997, a group of academic researchers and economists came together to develop a view of business that emphasised resource efficiency rather than competitive market forces. One of these was Karl-Erik Sveiby whose initial work helped to change the view of the firm to one that included the need to consider intangible assets as a key determinant of corporate value. Other early writers included Leif Edvinsson (the first Director of Intellectual Capital), Hubert St Onge (who established the concept of a sub-component – ‘customer capital’) and Thomas

Stewart who brought the concept into mainstream thinking with his publication on intellectual capital in Fortune Magazine in 1991.

Contemporary theorists like Verna Allee, Yogesh Malhotra and even the OECD have expanded on the work of the early writers and are now considering a global perspective – though still retaining the key notion of increasing value. Notably it is Allee who has indicated that although the terminology of theorists has differed along the way, intellectual capital, intangible assets, knowledge assets and intangibles have often been used to describe the same thing. This is not to discount the need to clarify the terms, just an acknowledgement that different professional sectors might describe things differently. For example, Allee noted that accountants might use *intangibles*; economists might prefer *knowledge assets* and business people might speak in terms of *intellectual capital*. Whatever the term used, the overriding premise is that ‘knowledge, relationships, and ideas are more important for success today than are physical assets’ (Allee 2003).

Some models of intellectual capital have also stood the test of time, albeit with modifications suggested as intellectual capital theory development progressed. The classic conceptual model for intellectual capital, following from the early work by Karl-Erik Sveiby and others shows a mix of sub-components. Arguably these might include human capital, relating to the skills and knowledge of the people in the organisation, structural or organisational capital such as the processes and databases in the organisation, and relationship (client) capital covering the relationships of people within the organisation and possibly including relationships with those who interact with it such as clients and service providers.



The concept of *value* is key to the intellectual capital body of knowledge and an essential element in this current research. Value should not imply purely financial value in terms of profitability or corporate competitiveness, but should also consider the organisation’s value in achieving its objectives, thereby including the value to the community and in carrying out political initiatives. The diagram opposite from Allee (2003) shows how the interrelationship of the sub-components together add value to the organisation.

In their book *Intellectual Capital, realising your company’s true value by finding its hidden brainpower*, Edvinsson and Malone (1997) acknowledged that it was probably impossible to develop a universal intellectual capital reporting model that will suit every situation, but they also made the point that their model (IC Navigator) could be used as a base that institutions and businesses could adapt to suit their own requirements.

Though the aim of a universal measurement method may be noble, the reality may be somewhat different. It is debateable that the models that arose from early and/or more

financially directed conceptual thinking in intellectual capital can be equally well applied across the public sector. It is worthwhile and even essential for public sector agencies to manage their intellectual capital; it is just that the model or approach must suit their requirements. This issue is considered significant enough to warrant the conduct of major research, particularly when the outcome is designed to be a practical tool for use in the Government sector.

In an interview for destinationKM.com, Goran Roos (a pre-eminent intellectual capital theorist and practitioner) was asked how the management of intellectual capital could benefit governments. His response was that it enables organisations to identify and optimise systems (and presumably processes) that provide non-monetary outputs that assist organisations to understand how to measure and track these outputs. According to Roos (2004), intellectual capital management was the most suitable approach to address effectiveness and efficiency issues within public sector organisations that were not involved in generating money. However, anecdotal evidence garnered through public sector discussion forums indicates that many Federal Government Departments currently do not have appropriate methods in place capable of measuring their intellectual capital. Some have expressed a concern about knowing what models are available in the marketplace that would suit their particular requirements, with the Balanced Scorecard used as the default model.

The challenge of this current research is not to simply add to the plethora of available intellectual capital measurement models already available, but rather to develop an approach in consultation with public sector representatives that meets their particular identified requirements. The overarching mandate for this research is to provide public sector organisations with practical assistance, grounded in theory, so that they can apply the appropriate measurement models in their organisations and therefore increase their intellectual capital. If these organisations can manage to measure, they will be best placed to measure to manage.

## **Applying theory**

The aim of delivering a practical outcome to measure intellectual capital that can be used by agencies involved in the research does not preclude the need for a theoretical base. To do so, would relegate this research to the development of just another measurement tool. Instead, there is a rich vein of theoretical core from which to tap – going back as far as the scientific management approaches to improve productivity and organisational processes instituted by Frederick Taylor, to various ‘theories of the firm’. These theories of the firm have changed from the traditional accounting view concerned with book values to resource-based views of the firm, knowledge-based views (Grant: 2002), and social capital views (Nahapiet & Ghoshal: 1998). Nowadays theorists are aware of the importance of managing intangible assets, so as to add value to the organisation.

The focus on value itself is a unifying theme. Intellectual capital studies can be traced back along the management continuum through other managerial advances all designed to increase value. For example, Stewart (2001) noted that there have been three big ideas in the last two decades that have fundamentally changed the way organisations are run. Total quality management during the 1950s and 1960s transformed low producing organisations (and even countries) to become industrial giants, re-engineering during the 1980s and 1990s transformed organisations and streamlined processes (although sometimes with the loss of skilled knowledge workers), and there is now intellectual capital and an understanding that knowledge assets are more valuable than ‘bricks and mortar’.

The fairly recent emergence of a possible unifying theory of social capital (Loch Lee: 2005) might also provide a useful foundation for the development (or refinement) of a measurement model of intellectual capital to suit the public sector. The notion of social capital has attracted support from key theorists like Bontis who considered that it might offer a 'potentially valuable perspective of understanding and explaining the creation of intellectual capital' (Choo & Bontis 2002). Arguably, the metrics included in any intellectual capital measurement developed for the public sector might need to include a social capital focus. For example, these are networked organisations which rely on knowledge exchanged by subject matter experts within the organisation as well as assistance from external service providers, advice from lobby groups and limitations set by other bodies. The move towards a 'whole-of-government' approach also serves to strengthen the need for trust and collaboration. Unlike the private sector, Federal Government Departments (while perhaps vying for Government funding), operate in a more collaborative rather than competitive environment.

### **Addressing key research questions**

The key research question is whether an intellectual capital measurement model can be effectively applied universally across a range of organisations as some theorists claim (Edvinsson: 1997), or conversely whether specific organisational requirements dictate the use and effectiveness of a particular model.

A key hypothesis is that the nature of the organisation dictates the type of measurement tool considered most appropriate. Thus an organisation primarily in the business of generating income (eg BDO Kendalls) might select a model that emphasises the financial aspects, whereas a 'compliance' organisation concerned with governance and ensuring agencies adhere to required protocols (eg Australian Tax Office) might be more concerned with a model that emphasises processes. Similarly an organisation with a social welfare focus that provides benefits in a distributed fashion across Australia (eg Centrelink) might focus on social capital.

### **Specific questions**

Within the context of the Australian Federal Government, the proposed research will consider specific questions such as:

- What is the shared meaning of intellectual capital?
- What is the perceived value (if any) in measuring intellectual capital?
- How is intellectual capital currently measured within the organisation? How effective is this method?
- What determined (or will determine) the choice of intellectual capital measurement model?
- What are the organisational requirements for an appropriate intellectual capital measurement model?

### **Using an appropriate research method**

The proposed research is investigatory in nature and aims at addressing a known organisational knowledge gap – a lack of knowledge about the need to measure intellectual capital and about ways that it can be measured in a public sector environment. It might best be described as action research – a data-based and cooperative approach to solving a particular organisational problem. Thus this type of research involves data gathering (via interviews, questionnaires and analysis of secondary resources), analysis and feedback to enable planned action to resolve the perceived gap in knowledge.

The research includes both qualitative elements (ie interviews) and quantitative elements such as the comparative analysis of factual information included in Annual Reports and other publicly available documents. It is predominantly inductive in nature, moving from specific observations to perhaps being able to generalise findings in the development of a more appropriate public sector intellectual capital model.

One aim is to build on the existing body of knowledge relating to intellectual capital measurement and (if possible) to help advance the concept of a unified intellectual capital theory. A component of the research will include empirical testing of the aforementioned key hypothesis that the nature of the organisation dictates the type of measurement tool considered most appropriate for that organisation. So, following from theories of the firm and the views of the relative importance of each sub-component of intellectual capital (human capital, structural or organisational capital, client or relationship capital and social capital), the hypothesis is that the nature of the organisation (profit, compliance, social welfare) will determine its requirements for measuring intellectual capital and therefore predict its selection of the most appropriate measurement tool. In this case, the dependent variable might be the type of intellectual capital model and the independent variable might be the nature of the organisation expressed in terms of the stated (or implied) organisational objective (profit making, compliance, social welfare). Obviously meaningful constructs would need to be developed to test this hypothesis.

### **Selecting the sample**

Previous intellectual capital research has been conducted with quite large sample bases such as the 57 technology firms studied by Smith, Collins and Clark (2001). The findings from previous studies such as this will be analysed to inform the current research. However the suggested sample size for the current research is much smaller.

It is envisaged that the sample for the proposed research will include two consulting companies, two 'compliance' focused Federal Government Departments (such as the Australian Tax Office and the Attorney General's Department), and two social welfare focused Federal Government Departments (such as Centrelink and the Department of Health and Ageing). In this way, the distinctiveness of individual organisations will be evident, but there should also be expected similarities among them. The organisations eventually selected will have some intellectual capital models in place and/or at least an interest in implementing such models.

### **Data capture**

The data to be captured as part of this research will incorporate the following items:

- Demographic details of the organisations included in the survey (eg size, structure)
- Stated mission (role or purpose) of the organisation
- Indication of their understanding of intellectual capital
- Details of any previous or existing intellectual capital measurement
- Reason for the choice of intellectual capital measurement model (in use or proposed)

### **Possible steps** (minimum review points)

#### **Step 1**

Conduct a literature review of books, refereed journal articles and other resources.

**Deliverable:** An annotated bibliography that would be updated during the research period.

## Step 2

Develop the constructs, and (if necessary) refine the variables and the hypothesis to be tested.

**Deliverable:** A glossary of terms and an agreed Research Plan.

## Step 3

Develop suitable draft questions to ask organisational representatives.

Test the questions with a smaller sample (pre-testing).

**Deliverable:** A draft survey instrument, questionnaire and interview schedule.

## Step 4

Analyse the results and refine the test instruments.

Develop draft requirements in the form of metrics, following from initial findings.

**Deliverable:** Draft metrics to test the perceived appropriateness of IC models.

## Step 5

Test the draft metrics with a smaller sample (pre-test).

**Deliverable:** A report on the findings from the development and testing.

## Step 6 (loop)

Analyse the results, refine the metrics and test with the sample (ie test the hypothesis)

**Deliverable:** Status updates (feedback) to representatives and stakeholders.

## Step 7 (when research has concluded and if supported)

Develop (or refine) an intellectual capital measurement model suitable for APS Departments

**Deliverable:** A robust, tested, model that meets requirements.

## Step 8

Document draft thesis for presentation at mid-term review

**Deliverable:** Draft thesis – work achieved at that point

## Step 9

Finalise thesis based on research, feedback and results

**Deliverable:** Completed thesis and presentation

## Progress

Although the research is still in its infancy, at Step 1, some progress has already been made. The work to date has involved gathering useful general documents and articles as background material and compiling specific references that address the issue of intellectual capital measurement in the public sector context.

As well as gathering documents from quality refereed journals, research to date has led to observations at intellectual capital forums where advice on models and approaches can be obtained from practitioners in the field. One example is the Australian Government Consultative Committee on Knowledge Capital which is made up of public and private representatives whose aim is to build recognition of Knowledge Capital via universally accepted reporting standards, and with the support from senior government departments and commercial enterprises. Groups such as the newly formed Society for Knowledge Economics are also expected to provide currency of thinking during ongoing intellectual capital research. Apart from these, there are a number of seminars and conferences organised around the topic of intellectual capital and these would provide avenues for networking and participation. Information from these practitioner-based avenues will continue to add to the knowledge base that is continually being developed.

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