

Intellectual capital assessment of a management institution – methods and its significance

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Abstract— Intellectual capital (IC) deals with articular, reasonable, knowledgeable and substantial fruits of the mind. The conversion of knowledge into a valuable asset has come to be known as an intellectual asset or IC. Models, frameworks and methodologies for measuring knowledge assets and IC exist in the domains of accounting, economics, human resource accounting and intellectual property. The objective of this article is to determine what can be learned from the available frameworks/models and how their key components may be adapted to measure IC management practices in tertiary institutions. This paper is not merely a theoretical reflection but also includes some hints to provide practical, hands-on knowledge for the benefit of those who would like to pursue a similar exercise in their own universities.

Index terms - Intellectual capital, Management, Management Institutions,.

I. INTRODUCTION

Most of the management colleges / institutions are characterized by low innovation rate, weak links with industry and poor human resources management policies. For this reason, institutions require innovative management approaches.

Management education has become one of the most sought after education today. Consequently, private sector has entered in the Indian management education scenario and invested an immense amount for this.

Recently and particularly during the last 4-5 years the country has witnessed a tremendous increase in functional areas of management. Concurrently, there is a mushrooming of B-schools in the country (over 2,500 institutes, of which about 1940 are certified by the All India Council for Technical Education), leading to issues of quality [1].

The AICTE and All India Management Association (AIMA) have been critical of the quality of faculty and the teaching imparted to management students by B-Schools across the country. It is an undisputable fact that the faculty engaged by B-Schools at all levels is often not well trained professionally for the positions they hold as nearly one-fourth of all faculty are totally untrained and majority of them have not received any professional training or accreditation. Due to the growing concern for quality education among all stakeholders, AIMA has defined expanding access to B-School education, improving educational quality and sustaining expansion and improvements as priority activities [2].

One area that deserves attention is how the management institutions manage their IC (IC). The institutions that adopt a strategic approach to the management of their IC see this as an opportunity to enhance their market position [3]. Successful organizations manage their IC better than the less successful firms [4]. This may also be true for institutions of higher learning. Institutions of higher learning that manage their IC effectively are strategically focused on managing the following aspects:

- i. Human capital management and measurement
- ii. IC asset systems and competitive technology assessments
- iii. Intellectual property systems. IC is of substantial and growing importance in innovation and productivity growth, organizational competitiveness and economic performance.

IC, which may, include aspects such as R&D, human resources, organizational structure and processes, and customer relations, is often poorly identified and measured. Information on intellectual assets is collected in widely different ways, and financial accounting and reporting practices generally fail to recognise these assets. Where this information is available, it is ad hoc, difficult to verify, and not comparable across the institution. The gaps in transparent, reliable and accurate information interfere with the effective management of IC, and between intellectual and other forms of capital [5]. Therefore a proper definition and understanding of IC is essential before we try to adapt the various frameworks and models to measure IC.

II. DEFINITION OF IC

It may be said that IC deals with articular, reasonable, knowledgeable and substantial fruits of the mind. It claims intangible (tacit) and tangible (explicit) dimensions, which do not mutually exclude, but actually complement each other. The conversion of knowledge into a valuable asset has come to be known as an intellectual asset or IC [6]. One can define IC operationally as intellectual material that has been formalized, captured and leveraged to produce a higher valued asset [7].

While many authors use the terms "intellectual asset" and "IC" interchangeably, there are subtle differences between the meanings of the two. In balance sheet terms, intellectual assets are those knowledge-based items that the organization owns that will produce a future stream of benefits for the organization. They are the "debits" or individual items that

comprise intellectual assets on the balance sheet, whereas IC is the total stock of balancing "capital" or knowledge-based equity ("credits") that the organization possesses. Ideally, the total value of intellectual assets should be equal to the total IC [8]. The distinction between the terms is subtle but not unimportant. Intellectual assets are often intangible assets. They do not have a hard shape like property, for example, or plants and equipment, nor do they have obvious financial value, as do receivables and short-term investments.

One could say that IC has been characterized as hidden assets because they are sometimes difficult to identify and to uncover and derive the value of this hidden, intangible IC is to compare the market value of stock to its book value. In fact, the difference between a firm's market value and the replacement value of its physical and financial assets has been used as a definition of IC. This market premium has also been used to measure IC [9].

III. ELEMENTS OF IC

Many practitioners suggest that IC consists of three elements [10].

- i. Human capital, which includes experience, the know-how, capabilities, skills, and expertise of the human members of the organization
- ii. Structural capital (or organizational capital), which includes the systems, networks, policies, culture, distribution channels, and other "organizational capabilities" developed to meet market requirements as well as intellectual property
- iii. Relational (customer) capital, which includes the connections that people outside the organization have with it, their loyalty, the market share, the level of back orders, and similar issues.

IV. IC MANAGEMENT IN INSTITUTIONS OF HIGHER LEARNING

It becomes clear that IC is by definition intangible and that the only possible measurements are proxy variables, or indicators. These indicators are expressed in the most diverse units of measurement [11]. In the next section, existing measurement models, and how they can be used in compiling a new model for implementation at institutions of higher education will be discussed.

V. EXISTING FRAMEWORKS FOR MEASURING IC

Models, frameworks and methodologies for measuring knowledge assets and IC exist in the domains of accounting, economics, human resource accounting and intellectual property. Such models have focused at the firm level analysis with an accounting, economic, or strategic focus. None of these have been applied in the public sector or, more specifically, in the tertiary environment. The objective of this section is to determine what can be learned from the available frameworks/models and how their key components

may be adapted to measure IC management practices at tertiary institutions.

IC management is not a management technique but rather a fundamental approach to the management of resources and assets in an organization [12]. Institutions that adopt a strategic approach to the management of their IC see this as an opportunity to enhance their market position [3 & 7]. Successful organizations manage their IC better than the less successful firms [4]. This may also be true for institutions of higher learning. Institutions of higher learning that manage their IC effectively are strategically focused on managing the following aspects:

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Consequently, the growth and decline of, IC in an institution is increasingly interpreted as an early warning system of subsequent financial performance. Thus it is important that appropriate measures of performance, other than balance sheets, are developed [11]. There are two schools of thought with regard to, measuring knowledge assets. Researchers try to find appropriate metric ways to measure knowledge or they look for indicators of knowledge because knowledge in itself cannot be measured. They support the latter way of thinking since they believe that only the outcomes of knowledge activities can be measured [14]. One of the aspects of managing IC is measuring it. The vehicle for measuring this performance is the set of indicators used for each IC category [11].

VI. CLASSIFICATION OF IC MEASUREMENT MODELS

There are four basic methods to classify measurement models for IC [15 & 16]:

- i. Market capitalisation method – The difference between market capitalisation and stockholders' equity is calculated.

- ii. Return on assets method – Tangible assets and the annual financial figures are compared to the industry average. Above-average earnings are then used to estimate the value of intangible assets.
- iii. Direct IC method – Components are identified and valued.
- iv. Scorecard method – Various components of IC are identified and reflected in terms of scorecards and graphs.

VII. MODELS FOR MANAGING IC

Various models exist for managing IC. Some of the most well-known models are Sullivan’s Model, the Skandia IC Value Scheme, the Brooking’s Model, Roos and Roos’s Categorisation, St Onge’s Model, Sveiby’s Model, and Wiig’s Model [11, 17, 18, 19, 20, 21, & 22]. IC, which may include aspects such as research and development (R&D), human resources, organisational structure and processes, and customer relations, is often poorly identified and measured. Information on intellectual assets is collected in different ways but financial accounting and reporting practices generally fail to recognise such critical assets. Incidentally, wherever this information is available, it is generally ad hoc in nature, difficult to verify, and also not comparable [5].

VIII. WHY TO MEASURE THE IC OF A MANAGEMENT INSTITUTION?

The IC of management institutions should be measured for the following reasons [15]:

- a. The transparency of public institutions should be increased. In a knowledge-based society citizens demand constant and comprehensive access to the information when public funds are allocated.
- b. The press ranking lists of universities need to be compared with other benchmarking methodologies which aim at ‘measuring’ rather than ‘ranking’ educational institutions, leaving the final decision on which university is ‘better’ to the reader. Universities should acquire and apply new methods of learning. The transfer of good practices could be increased if universities obtained access to the information on their IC.
- c. The strengthening of links between educational institutions and industry cannot be possible without introducing a common language. This ‘common ground’ would enable academics and business.
- d. The measurement of IC in management institutions will bring the ‘ivory-tower philosophy’ of the present researchers closer to the requirements of the public and industry. With a clearly defined set of indicators and reporting methodologies in place, it will be more difficult to conceal the low performance of researchers behind the verbosity of general, content-poor, unstructured statements.

Motivating senior academic staff to keep up with the fast-moving environment: some academic communities tend to reward their members for past achievements. A thorough

revision of all the methods for measuring IC developed in recent years goes beyond the scope of this paper. However, one of the most promising frameworks was developed in Denmark by the Danish Agency for Trade and Industry. It presents IC in the form of resources, activities and results. Thanks to this taxonomy it is possible to understand the paradox: why well-established European universities do not produce top quality knowledge. The high potential (resources) residing in the universities in many cases does not go hand in hand with their low performance (results) [23].

The IC of a university consists of human capital and structural capital. The human capital relates to individual competencies of researchers. In the global economy there is a growing demand for qualified research staff. As a consequence, the human capital of universities is very unstable. There is a high risk of brain drain in those universities that do not invest in their human capital. Thus the activities section of the measurement tool reflects the processes aiming at the renewal and growth of the strategic resources.

The IC measures should take into account the different qualities of output – the output of the organization (e.g. publications, training courses), and the output of the client/user (e.g. problem solved).

Thus measurement of IC looms as an important instigator for increasing the productivity of knowledge-based work. The system should help the organizations involved to identify what works – and what does not work. The results should not be punitive.

IX. METHODS OF MEASURING IC

All methods can be divided into four main groups [24]:

- i. Direct IC Measurement Methods (DICM) – estimate the dollar value of intangible assets by identifying its various components. Once these components are identified, they can be directly evaluated, either individually or as an aggregated coefficient.
- ii. Market Capitalization Methods (MCM) – calculate the difference between a company’s market capitalization and its stockholders’ equity as the value of its IC or intangible assets.
- iii. Return on Assets Methods (ROA) average pre-tax earnings of a company and divide them by the average tangible assets of the company. The result is a company ROA that is then compared with its industry average. The difference is multiplied by the company’s average tangible assets to calculate average annual earnings from intangibles. By dividing the above-average earnings by the company’s weighted average cost of capital or an interest rate, one can derive an estimate of the value of its intangible assets or IC.
- iv. Scorecard Methods (SC) – identify various components of intangible assets or IC and indicators and indices are generated and reported in scorecard or as graphs. SC methods are similar to DIC methods, except that no estimate is made of the dollar value of intangible assets.

X. CONCLUSION

Knowledge-based work is the dominant economic activity in the knowledge-based economy. India is facing demographic changes requiring a significant improvement in the productivity of IC. Facing the global competition all the management institutions has no choice but to strengthen their IC.

The IC measurement should be thought of as a platform for discussion about intangible assets in the institutions. The content of IC report should therefore provoke questions – not just give all the answers. The IC reports should include a certain number of questions and scenarios, which the management will try to analyze.

Clearly, it is apparent that IC reporting models are still at an embryonic stage. It should not be assumed that universities that do not publish their IC reports are necessarily less advanced in the ways they manage their IC nor that organizations that do publish their IC reports, are generally more advanced. An IC report is an organization's attempt to gather and structure certain bits of information - not a decisive proof as to whether it manages its intangible assets or not. Understanding a problem is not identical with being able to solve the problem.

IC measurement should not be considered as an antidote for the uncertainty considering the efficiency in allocation of resources. IC measurement, despite all the difficulties, is not in vain. More knowledge is always better than less knowledge.

The measurement of Institution's performance is essential if higher-education system is to continuously regenerate itself by the intelligent use of knowledge management. There is a need for more objective and reliable methods for measuring IC of Management Institutions. Nowadays many management institutions around the world have found that measuring and managing IC can provide them with a competitive advantage. Although there are several IC measurement methods it must be considered that calculated intangible value is not precise. Most of the methods are difficult to apply, require too much information, indicators or are not completely described. Other methods are not numerical, so they only provide a reference. But in all methods, the aim is to allow managers to manage more effectively all resources, increasing the performance and competitive position of the Institutions.

The introduction of such methods requires:

- i. Building awareness among the senior academics occupying management positions at universities.
- ii. Creating an IC measurement method in the Institutions.
- iii. Introduction of IC measurement methodologies.

- iv. Timely and complex implementation and publication of the results

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