INTELLECTUAL CAPITAL: AN INTRODUCTION

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ABSTRACT

Intellectual capital is the sum total of human capital, structural capital and relational capital. Intellectual capital is also known as intangible assets or knowledge assets of the organization. IC is most important capital as it creates value and wealth for organization in today's knowledge economy. It consists of knowledge, skills, competences, know-how, capabilities, creativity, ideas, education and training of employees(human capital),patents, trade marks, copyrights, exclusive licences, information systems, databases (structural capital) and relation with external customers(relational capital).The present study aim to investigates the concept of IC, model of intellectual capital and components of intellectual capital. Study also reveals the most common used measurement modes of IC such asSkandia Navigatore(Edvinsson and Malone, 1997), Intangible asset monitor (Sveiby1997), Calculated intangible value (Stewart and Luthy, 1997), Balance scorecard (Kaplan and Norton, 1996), Technology broker (Brooking, 1996), Value added intellectual coefficient, VAIC (Pulic, 1998), Value Chain Scoreboard(Lev, 2001).For this purpose study used secondary data compiled from various journals and articles. Overall result of the study shows that intellectual capital is most important key resource of value creation for company and helps in taking competitive advantage in the era of knowledge economy.

Keywords: Intellectual capital, Intangible assets, Structural capital, Relational capital, Human capital

INTRODUCTION

The concept of Intellectual capital was first introduced in 1969 by Kenneth Galbraith. He wrote a letter to economist Michael kalecki, in which he stated the significance of intellectual capital by saying "what I have over the last decade, I owe to intellectual capital". Intellectual capital is also known as intangible assets or knowledge assets of the organization. IC is most important capital as it creates value and wealth for organization in today's knowledge economy.It consists of knowledge, skills, competences, know-how, capabilities, creativity, ideas, education and training of employees(human capital), patents, trade marks, copyrights, exclusive licences,

information systems, databases (structural capital) and relation with external customers(relational capital).

Companies like Skandia Insurance, Tellia, Microsoft, Intel, etc. have become global leaders in their respective fields by managing knowledge and intellectual capital. Earlierfirms in knowledge economy face a real challenge in the matter of accountingfor the investment and performances of intangible assets.

As intellectual capital plays a significant role in achieving the performance of businesses so, it's more important to manage and measure intellectual capital of the organizations. For that purpose there are lots of performance measurement models of IC. Study found that out of several measurement models, there are seven commonly used models which are known as "seven schools of thought in modeling IC". Such common models are:

- Skandia Navigatore (Edvinsson and Malone, 1997)
- Intangible asset monitor (Sveiby 1997)
- Calculated intangible value (Stewart and Luthy, 1997)
- Balance scorecard (Kaplan and Norton, 1996)
- Technology broker (Brooking, 1996)
- Value added intellectual coefficient, VAIC (Pulic, 1998)
- Value Chain Scoreboard (Lev, 2001)

REVIEW OF LITERATURE

Choong (2008) try to develop a conceptual framework that can be further used to generate and formalize a reporting model for intellectual capital. Study found that many models are too broadly focused and are often qualitative so, they fail to offer any useful measurement objectives. They also found that most of publications are still lack of theoretical and practical usefulness.

Gogan (2014) try to develop an innovative model for measuring intellectual capital which would provide a better tool for organizations to manage and measure their intellectual capital. They explained most widely used models such as Balanced scorecard, Skandia Navigator and Intangible Assets Monitor.

Ornek and Ayas (2015) analyze the relationship between the intellectual capital and innovative work behaviors and also try to find out relation between intellectual capital and business performance..

Abbas (2015) examine the number of major theoretical and empirical contributions and identify major components of intellectual capital. Study found seven important components such as human capital, customer capital, structural capital, business capital, social capital, technology capital and spiritual capital as a major component of intellectual capital.

Matos (2013) try to analyze and present intellectual capital methodology for small and medium enterprises which provide benefits of audit and as well helps in managing intellectual capital. Study concludes that ICM (intellectual capital management) parameters are robust approach to auditing the intellectual capital management in SMEs, as they meet the criteria for its psychometric properties.

Sveiby (2010) try to briefly examine the methods for measuring the intellectual capital or intangible assets. Study covers IC models developed by many researchers from 1950 to 2009.

Brooking (1996) develop a IC methodology which is known as Technology broker and divides IC into four main categories as market assets, human centered assets, intellectual property assets and infrastructure assets.

Lev (2001, p.5) try to analyze and provide new terms and definitions of assets to exclude financial assets from its scope. Also states that IAs consists of innovation, human capital, organizational and knowledge etc. that can be further categories into sub-parts:IP, separately identifiable IAs and non- separately identifiable IAs.

Petty and Guthrie (2000) try to conduct a meta- analysis of the intellectual capital different fields and explain several frames such as major current research projects that examine the aspects of IC, secondly give a brief review of research methods type and lastly describe the intellectual capital indicators and corporate reporting reviews.

Kaplan and Norton (2004) try to examine the readiness of strategy which is developed to measure the intangible assets of the organization. Study reflects how organization determine its need for intellectual capital such as human capital, information and organizational capital as their strategy. For this they develop a model, "Balanced scorecard" as to measure its strategies for IC.

OBJECTIVES OF THE STUDY

- To Study the different Elements of Intellectual capital.
- To study the measurement models of Intellectual capital and find out the most commonly used methods to measure intellectual capital.
- To study the features and characteristics of Intellectual capital of companies.

RESEARCH METHODOLOGY

The study purely based on secondary data which is collected from various books, National & international Journals, published government reports, publications from various websites which focused on various aspects of Intellectual capital.

ELEMENTS OF INTELLECTUAL CAPITAL

- **Human capital:**

The first and most importantelement of intellectual capital is human capital or manpower skill and their experiences for the organizations. It includes technical knowledge, skills, competences, know-how, capabilities, creativity, ideas, education and training etc of the human capital of the organization. Also known as the first level of intellectual capital.
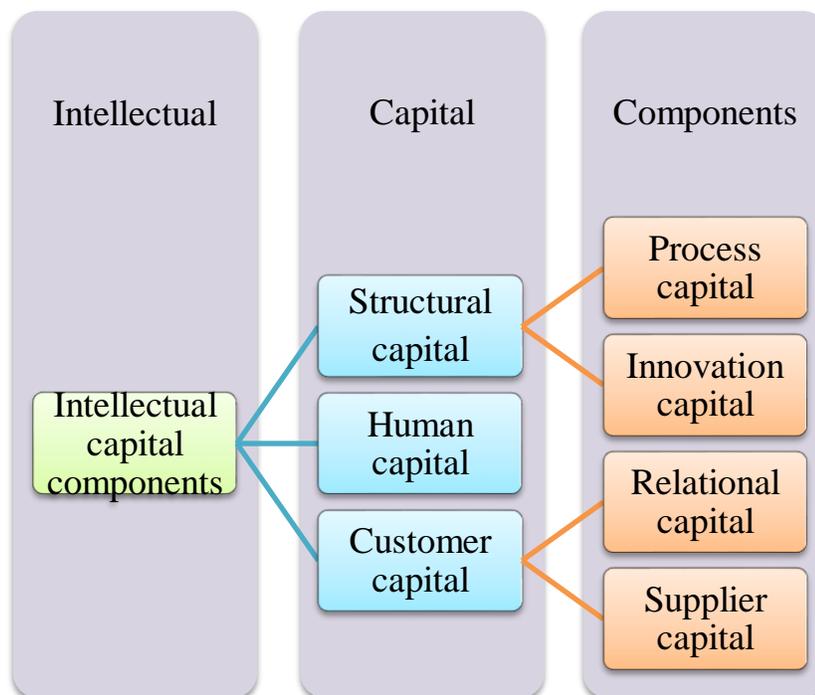
Intellectual Capital Measurement Models

Intellectual capital models are divided into four categories : DIC - Direct Intellectual Capital Methods, MCM - Market Capitalization Methods, ROA - Return on Assets and SC - Scorecard Methods.

Table 1: Brief Overview of Intellectual Capital Measurement Models

Models Of IC	Authors	Category	Description
ICU Report	Sanchez (2009)	SC	ICU is a result of an EU-funded project to design an IC report specifically for universities. Contains three parts: (1) Vision of the institution, (2) Summary of intangible resources and activities, (3) System of indicators.
. EVVICAE™ (Estimated Value Via Intellectual Capital Analysis)	McCutcheon(2008)	DIC	Developed by the Intellectual Assets Centre in Scotland as a web-based EVVICAE toolkit based on the work of Patrick H. Sullivan (1995/2000).
Dynamic monetary model	Milost (2007)	DIC	The evaluation of employees is done with analogy from to the evaluation of tangible fixed assets. The value of an employee is the sum of the employee's purchase value and the value of investments in an employee, less the value adjustment of an employee.
Intellectus Model	Sanchez-Canizares et al. (2007)	SC	The model is structured into 7 components, each with elements & variables. Structural capital is divided in organizational capital & technological capital. Relational capital is divided in business and social capital.
			A modified version of the Skandia

National Intellectual Capital Index	Bontis (2004)	SC	Navigator for nations: National Wealth is comprised by Financial Wealth and Intellectual Capital (Human Capital + Structural Capital)
IC-dVAL™ (Dynamic Valuation of Intellectual Capital)	Bonfour (2003)	SC	"Dynamic Valuation of Intellectual Capital". Indicators from four dimensions of competitiveness are computed: Resources & Competencies, Processes, Outputs and Intangible Assets (Structural Capital and Human Capital indices).
Value Chain Scoreboard	Lev (2001, 2002b)	SC	Arranges a matrix of non-financial indicators in three categories according to the cycle of development: Discovery/Learning, Implementation, Commercialisation.
FiMIAM (Financial Method of Intangible Assets Measurement)	Rodov& Leliaert (2002)	DIC	Assesses monetary values of IC components. a combination both tangible and Intangible assets measurement. The method seeks to link the IC value to market valuation over and above book value .
Meritum Guidelines	Meritum (2001)	SC	An EU-sponsored research project, which yielded a framework for management and disclosure of Intangible Assets in 3 steps: 1) define strategic objectives, 2) identify the intangible resources, 3) actions to develop intangible resources.
Value Creation Index (VCI)	Baum et al. (2000)	SC	They estimate the importance of different nonfinancial metrics in explaining the market value of companies. Different factors for different industries. The VCI

			developers claim to focus on the factors that markets consider important rather than on what managers say is important.
Intellectual Asset Valuation	Sullivan (2000)	DIC	Methodology for assessing the value of Intellectual Property
Total Value Creation, TVC™	Anderson and McLean (2000)	DIC	A project initiated by the Canadian Institute of Chartered Accountants. Uses discounted projected cash flows to re-examine how events affect planned activities.
The Value Explorer™	Andriessen and Tiessen (2000)	DIC	Calculates and allocates value to five types of intangibles: (1) Assets and endowments, (2) Skills and tacit knowledge, (3) Collective values and norms, (4) Technology and explicit knowledge, (5) Primary and management processes.
Human capital valuation	Liebowitz and Wright (1999)	ROA	Based on activity based costing. Uses the accounting convention of historical costs. Enables the valuation of human capital to be integrated into traditional accounting models.
Knowledge Capital Earnings	Lev (1999)	ROA	Calculates as the portion of normalized earnings over and above expected earnings.
Value added intellectual coefficient(VAIC)	Pulic (1998)	ROA	Measures how much and how efficiently intellectual capital and capital employed create value based on the relationship to three major

			components: (1) capital employed; (2) human capital; and (3) structural capital.
Accounting for the Future (AFTF)	Nash H. (1998)	DIC	Calculated by difference between AFTF value at the end and the beginning of the period is the value added during the period.
Investor assigned market value (IAMV™)	Standfield (1998)	MCM	Takes the company's true value to be its stockmarket value and divides it into tangible capital + (5787realized IC + IC erosion + SCA (Sustainable Competitiv Advantage)
Market-to-Book Value	Stewart (1997) Luthy (1998)	MCM	Intellectual capital value is shown by difference between the firm's stock market value and the company's book value.
Calculated Intangible Value	Stewart (1997)	MCM	Calculates the excess return on assets (Intangible Assets) in terms of human, customer and structural IA.
Tobin's q	Stewart (1997) Bontis (1999)	MCM	Refers to the value of capital relative to its replacement cost. Q = Market Value /Asset Value
Calculated intangible value	Stewart (1997) and Luthy (1998)	ROA	Calculates the excess return on hard assets, then uses this figure as a basis for determining the proportion of return attributable to intangible assets.
Economic Value Added(EVA™)	Stewart (1997)	ROA	Calculated by adjusting the firm's disclosed profit with charges related to intangibles. Changes in EVA provide an indication of whether the firm's intellectual capital is productive or not.

Intellectual capital services IC-index	Roos and Roos (1997)		SC	Consolidates all individual indicators representing intellectual properties and components into a single index. Changes in the index are then related to changes in the firm's market valuation.
Intangible asset monitor	Sveiby (1997)		SC	Management selects indicators, based on the strategic objectives of the firm, to measure four major components of intangible assets: (1) growth (2) renewal; (3) efficiency; and (4) stability.
Skandia Navigator™	Edvinsson and Malone (1997)		SC	Measures intellectual capital through the analysis of up to 164 metric measures that cover five components: (1) financial; (2) customer; (3) process; (4) renewal and development; and (5) human.
Balance scorecard	Kaplan and Norton (1996, 2000)		SC	Measures a company's performance through indicators covering four major focus perspectives: (1) financial perspective; (2) customer perspective; (3) internal process perspective; and (4) learning perspective.
Human Resource Costing and Accounting	Johansson (1996)		ROA	Calculates the hidden impact of HR related costs, which reduce a firm's profits. I.C is measured by calculation of the contribution of human assets held by the company divided by Realizeded salary expenditures.

Technology broker	Brooking (1996)	DIC	Assesses the value of the intellectual capital of a firm based on a diagnostic analysis of a firm's response to 20 questions covering four major components of intellectual capital.
The Invisible Balance Sheet	Sveiby (1990)	MCM	The difference between the stock market value of a firm and its net book value is explained by three interrelated "families" of capital; Human Capital, Organisational Capital and Customer Capital. The three categories first published in this book in Swedish have become a de facto standard.

Source : Adapted from Sveiby(2010)

DIC - Direct Intellectual Capital Methods
MCM - Market Capitalization Methods
ROA - Return on Assets
SC - Scorecard Methods

CONCLUSION

Intellectual capital is also known as intangible assets or knowledge assets of the organization. IC is most important capital as it creates value and wealth for organization in today's knowledge economy. From the above study we conclude that intellectual capital is dynamic by nature and helps organizations in facing the market competition by their using their knowledge resources. Intellectual capital mainly divided into three main components such as human capital, structural capital and relational capital. As intellectual capital plays a significant role in achieving the performance of businesses so, it's more important to manage and measure intellectual capital of the organizations. For that purpose there are lots of performance measurement models of IC.Study also found that out of several measurement models, there are seven commonly used models which are known as "seven schools of thought in modeling IC". Such common models are:

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