

LIMITATION OF MEASUREMENT MODELS OF NATIONAL INTELLECTUAL CAPITAL IN REAL WORLD SITUATIONS

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[Abstract: Recognizing the primacy of intangibles over tangibles in knowledge economy, scholars have been standardising measurement techniques for business entities and institutions. A number of scholars have been drawn to the idea of extending the application of such micro level techniques to measure and rank intellectual capital at macro level of nation states, thus seeking to benchmark their relative competence and competitiveness. This discussion note argues that, considering the dynamics of NIC, the extending of the techniques of measuring IC at micro level to measure the NIC is not a sound proposition, and the conclusions drawn from such an exercise will not be adequately supported.]

In DN2015/05, the concept of Intellectual Capital (IC) in respect of an entity has been explored¹. Given that the main objective of a business entity is to maximise profits and profitability, the impact of IC of that entity will be viewed accordingly. Attempts have been made to extrapolate the concept of IC in respect of nation states to reflect upon their sources of competencies and capabilities that are deemed essential for national economic growth. Assigning ranks to nation states based on their IC will be towards benchmarking and making intelligent decisions with regard to the effective investment of national intangible assets and their development in the era of knowledge economy².

Lin and Edvinsson (2011) in their much referenced work have made a comparative study of the IC of 40 countries. The study provides a comparative macro level view of how countries are managing their intangible assets, which determines their relative competitive advantages over one another. For making such a comparison, the IC of respective countries was divided into four dimensions, namely Human Capital,

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¹ Sardana, M.M.K. (2105), "Recognising, Measuring, Accounting, Harnessing and Managing Intellectual Capital Assets of Entities," ISID Discussion Note DN2015/05, July.

² Lin, C. Yeh-Yun and L. Edvinsson (2011), "National Intellectual Capital: A Comparison of 40 Countries." Available at: <http://www.springer.com/in/book/9781441973764>

Market Capital, Process Capital and Renewal Capital, drawing analogy from the model of a business entity. Each of these dimensions was viewed to have defined indicators within their fold, the valuations of which were available in the long-term databases of OECD and the World Competitiveness Year Book.

Normalising values of the identified indicators with reference to the databases mentioned above gave the IC scores for each of the countries included in the study. The scores were further normalised by adding another dimension, i.e. financial capital (FC), to the previously mentioned four dimensions and were represented by a normalised form of GDP per capita to present the IC and FC rankings. In this study, while Nordic Countries are highly ranked as compared to other European countries, China held the 36th position and India the 40th. When this ranking was correlated in terms of per capita consumption of electricity in these countries, there appeared to be a high order of convergence. Electricity consumption per capita emerges to be a proxy indicator for ranking IC of nations³. Such a correlation need not be surprising when IC of a nation is viewed from the angle of GDP growth or economic growth and the nation is visualised as an economic enterprise. It would be myopic to view a nation as an economic enterprise and the interrelationship of nations at par with interrelationship of enterprises. NIC from a conceptual point of view has to be understood comprehensively.

If IC is rooted in knowledge, then IC will be “the knowledge” that will be acted upon to yield values specific to each society but subject to change through time. This NIC, content-wise, will be value-laden in character. Knowledge base within a region or society will also be value-laden in character and will be influenced by the political, social and cultural milieu of their region. IC, when acted upon such a knowledge base in the environment described herein, will be influenced by the strategic goals of the society in the region or the nation at the macro level. Strategies will aim at bringing out defined outcomes such as wealth creation and GDP growth. However, in a multicultural and multiplural society like India, broader outcomes will be expected,

³ “A Proxy Indicator for the Intellectual Capital of Nations,” by Attainix Consulting, July 27, 2012. Available at: icreporting.blogspot.com/2012/07/a-proxy-indicator-for-intellectual.html

transcending mere GDP growth or wealth creation to give way to sustainable development laced with equity and narrowing of social and economic disparities.

NIC will necessarily integrate different layers of society and strata of economic echelons and will include the hidden values of individuals, enterprises, institutions, communities and regions that are currently the potential sources of creativity, wealth creation and value additions. Defined levels start with individuals, who remain the primary source of NIC. Communities and regions across nations will have unique IC characteristics: IC at all levels will be integrated into the specific structure of the nation states. IC of a nation will be differentiated sector-wise and NIC will be integral to the differentiated sectors. In a nation state, broadly, NIC will be composed of IC's of private sector, public sector, civil society and individual/family/class sector. All these sectors, though interconnected, have not been studied by scholars from the intellectual capital angle with equal emphasis; nevertheless, in terms of importance, none of these can be overlooked to reflect the totality of NIC. In fact, a sector like civil society is increasingly asserting its role, thus appreciably affecting the social component of NIC through social work organisations seeking to perform a host of services. The individual/family and social groups within this sector are also finding new coherent patterns of expression for an effective interaction with the civil society. And together, these two sectors are influencing the public and the private sectors, perceptibly reorienting IC in each of the sectors. The sense of shared trust with regard to family structure and social groups on the crest of their norms, values, customs and traditions are generating positive externalities in the dynamic mix of sectors that is benefitting the society and establishing an altogether new paradigm of NIC.

Of all of the above-mentioned sectors, some scholars have investigated private sector intellectual capital to devise a standardised structure based on identification and measurement methodologies⁴. Such standardisation in the other three sectors is yet to make headway for reasons of precisising the indicators in quantitative

⁴ Mačerinskienė, Irena and Rasa Aleknavičiūtė (2015), "Comparative Evaluation of National Intellectual Capital Measurement Models," *Business: Theory and Practice*, Vol. 16, No. 1, Pp. 1–14. Available at: www.btp.vgtu.lt/index.php/btp/article/download/btp.2015.548/pdf

measurements. It is not difficult, however, to imagine that a higher degree of efficiency in public sector as well as other sectors will be beneficial to the society and nation on the whole. It is also evident that each of these sectors holds a unique IC, which is a combination of national and global resources. The IC components of all sectors interact with each other as well as with the national IC and global IC. NIC values will be influenced by a host of factors like migration flows of human capital, transfer of IPRs, offshoring and outsourcing of activities. The influence may be positive and/or negative. Finally, NIC is specific to the nation and is the integrated IC of its various sectors.⁵

It may be recalled that the basic conceptual classification of NIC is a transformation of the organisational level research, which was based on the model developed by Edvinsson and Malone. In this current model, NIC will initially be composed of human capital and structural capital. Structural capital consists of the supportive infrastructure, processes and databases of an organisation that enable human capital to function; however, in case of a nation, it will be embedded in both the internal relationships and the external relationships. When conceptualised in the national context, market capital will be reflective of a country's competitiveness in external markets, which is achieved by making investments in foreign relations as well as through exports of quality products and services. Market capital is rich in intangible assets and is created by elements such as laws, market institutions and social network, i.e. social capital.

Organisational capital in the national context will be described against the backdrop of an internal environment formed by social processes, political processes and interactions among the societies comprising various regions. These will be akin to renewal and process capital. Renewal capital will address the capabilities and actual investment in renewal and development of a sustainable competitive advantage (SCA) whereas process capital will include an intangible storehouse of knowledge in a nation embedded in the technological, information and communication systems as represented by its hardware, software, databases, laboratories and organisational

⁵ *Ibid.*

structures which sustain and externalise the output of human capital. Viewed this way, IC is composed of the value of ideas generated by the union between human and structural capital, which allows knowledge to be produced and shared. A refining of the model herein described with a distinct “relational capital” classification, which represents the IC embedded in national intra-relationships, will be an indicator of a nation’s capability to provide an attractive and competitive environment. In the same vein, a further subcategorisation will be in the form of social capital through internal relationships and also through the interaction of national non-governmental sectors with similarly placed institutions beyond the national jurisdiction. Summed up, NIC stands divided into at least four components: human capital, social capital, relational capital and structural capital. All sub-components are interconnected and need to be acted upon harmoniously to yield optimum outcomes of values.

On a final and pragmatic analysis, NIC is characterised not only on the basis of intangible factors, but also on tangible factors. The tangible factors describe an environment which fixes the use of human capital for creating value addition. These include infrastructure factors, which support knowledge creation and sharing, and factors reflecting relations and policy variables. All these help to create value additions for society.⁶

From the forgoing it is apparent that the essence of NIC is difficult to define with precision, as its meaning varies according to the context—disciplinary, cultural or temporal. However, its essence can be explained in terms of outcomes: according to the level of application and by identifying the structural positioning of NIC.

Country-specific strategic documents state the outcomes being aimed at and often these are defined in terms of wealth creation. But of late, new strategic goals such as the quality of life are being conceived and are also being extended to include sound environment and rewriting of social relationships.

⁶ *Ibid.*

In a multipolar society, the strategic outcomes at different layers may not only be different, but also may be mutually exclusive. NIC approach at national level will be the result of regional outcomes and the current level of research does not measure up to the challenges, which partly explains the continued prevalence of conflict potentials even within the apparently sound policy frameworks as analysed on conventional economic and social parameters.

When NIC is perceived as a component of global intellectual capital, the inadequacy of research efforts becomes apparent. Cross border movement of resources may have positive and negative effects on global IC and also on national IC. Grounded factors in culture, history and social ethos will enter the matrix of interrelationships, thereby impacting the NICs and global IC.

The measurement of NIC is mainly based on the model introduced by Edvinsson and Malone (E&M Model) and no specific macro models have been developed. The common view among academics is that there is no need for a specific NIC model since the IC model is relatively transferable from the micro to the macro level. No serious question on this notion has arisen. Ranking surveys as well as comparative assessment of nations have been conducted by international institutions such as the UN, the World Bank, the EU and the OECD and several private institutions including WEF and IMD using the E&M model as the basic framework⁷. When micro level models are applied directly to national level, it can be hypothesised that they function in a similar way. In effect, the ground realities may be entirely different and theoretically it may not be sound to carry forward the framework from micro level to macro level. Measuring the impact of IC on, say, national wealth creation and/or vice-versa, is a contested issue and further impact of other drivers of economy remains to be assessed. Drawing of international comparisons on such fragile theory and concepts remains debatable. In literature, a number of measurement models have been conceived seeking to refine the E&M approach. However, none of the

⁷ Ståhle, Pirjo (2008), "National Intellectual Capital as an Economic Driver: Perspective on Identification and Measurement."

models is capable of capturing the dynamics of IC of a nation as brought out in the preceding paragraphs.

Another scholar, Lazuka, is circumspect about the capacity of NIC measurement models—whether these models are valid to identify economic effects and as an instrument of international comparative analysis.⁸

⁸ Lazuka, Volha (2012), “National Intellectual Capital: Concept and Measurement,” Master Thesis, Lund University.