

Managing Intellectual Capital to Confront the Challenges of Globalization

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Abstract: *The world has changed dramatically during the last 20 years and the dawn of a new form of civilization has emerged as the new millennium begins. In this age of rapid, unexpected, and unpredictable changes with far reaching consequences, the role of governments, citizens, organized groups, nation-states, and societies is changing rapidly as well. Public and private organizations, and management systems, are being transformed by either choice or pressure and necessity of adaptation for survival. This article addresses intellectual capital as a new strategic in the age of globalization. After maximizing production factors such as land, buildings, equipment inventory and financial resources (the tangible assets), companies have discovered that the so-called intangible assets (hidden) asset of knowledge can play a vital role in helping them obtain a sustainable competitive advantage. To meet the challenges of globalization—negative as well as positive—capacity building is needed in areas of organization, management, governance, and public administration all over the world. The aim of this research is to investigate the different methods in managing intellectual capital due to the globalization status in different Algerian companies. The results indicate that without human capital (as a part of intellectual capital) nothing can be accomplished, and without a well-trained, well-developed, well-appreciated, and well-managed human capital, modern organizations of government and business cannot meet the challenges of the globalization age. It shows also that there is a lack of comprehension of Algerian managers concerning how to manage intellectual capital in this new era.*

Key words: *Globalization – intellectual capital – new strategic – human capital – performance.*

Introduction

According to Thomas L. Friedman, the globalization is in the third stage and work has become global knowledge work (Ichijo & Nonaka, 2007). In other words today we are in knowledge economy era. According to Drucker (1993) in the new economy, knowledge is the only meaningful resource. The traditional factors of production—land, labor and capital—have not disappeared but they become secondary. It is clear that in the knowledge economy, innovation which means the use of new technological and market knowledge to offer a new product or service that customers will require (Afuah, 2003) is playing a crucial role in gaining competitive advantage and maintaining sustainable growth for companies.⁽¹⁾

Along with governmental transformation, citizens are also transforming from the traditional passive or receptive role to the one that is highly demanding, challenging, and participating. New technologies and organizational networks are enabling citizens to play a more active and powerful role in the governance and administration processes that affect their present as well as future lives.

Obviously, inequality persists and in fact widens rapidly between the rich and the poor, and between the rich nations of the industrialized world and those of the developed and less developed countries. All nation-states are challenged by the forces of rapid globalization and their governments' sovereignty is being eroded by the new norms and organizations of the world order. There is also a widening gap between the few powerful nations that are home to globalizers and those

¹ M. Atalay & N. Anafarta, Enhancing Innovation Through Intellectual Capital: A Theoretical Overview, Journal of Modern Accounting and Auditing, Vol. 7, No. 2, 2011, p 202

of the rest of the world that are being globalized and affected by the consequences of globalization and the new world order. Therefore, the challenges—positive as well as negative—facing the governance, administration, and management of developing nations are far more serious and more demanding than those in industrialized nations.⁽²⁾

These challenges present opportunities as well as severe constraints to the governments in these nations that are making efforts to develop their economies, to utilize and manage their resources, to promote the social welfare of their citizens, to advance in science and technology, and to improve their capacity in both governability and service delivery to their citizens. To counter and meet these challenges, all governments are forced to rethink the philosophy of government, to reconsider the modes of governance, and to redesign new systems and organizations of public administration and management. To accomplish these multiple objectives, a new vision is required that strategically places intellectual capital management as a key strategic instrument in meeting and managing the challenges of globalization.

Measuring intellectual capital is difficult. In the last decade various tools are proposed in the studies however the reliability of instrument still largely depends on the industry characteristics and objectivity of information. This study takes on a broader analytical perspective to allow observation of the multiple dimensions of intellectual capital.

1. Literature Review

1.1. Intellectual capital

The term "Intellectual Capital" (IC) was first published by John Kenneth Galbraith in 1969 (Hudson, 1993), but Stewart (2001a) claimed the first use back to 1958 when he started intellectual capital study with Itami who later published *Mobilizing Invisible Assets* in Japanese in 1980. In general, IC means more than just "intellect as pure intellect" but also a degree of "intellectual action" (Bontis, 1998; Feiwal, 1975). In that sense, intellectual capital is not only a static intangible asset per se, but an ideological process. It is the kind of movement from "having" knowledge and skills to "using" knowledge and skills.

Although historically the intellectual capital concept has been discussed for some decades, there is no consensus to its definition yet. One definition that has arisen from the Skandia team was that the intellectual capital represents the domain of knowledge, of practical experience, of organizational technology, of customer relation, of professional skills, that provides the company with relevant advantage in its market.

Intellectual capital management (ICM) is defined as the direction of the value-driven transformation of human and relational capital into the structural capital of the organization (Lynn, 1998). Corporate processes (e.g., recruitment, training and compensation) help foster creativity and innovation. Together with appropriate technology and structural capital they create and share organizational knowledge which, when exploited and applied to external knowledge and relational capital, produces corporate competitive advantage.³

Gratton and Ghoshal (2003) argue that intellectual capital is part of human capital, that is, human capital subsumes intellectual capital, and also includes within it social capital and emotional capital. Roos & al (1997). Intellectual capital includes all the processes and the assets which are not normally shown on the balance sheet and all the intangible assets (trademarks, patents and brands) which modern accounting methods consider ... it includes the sum of the knowledge of its members and the practical translation of his/her knowledge. Bontis (1998) defines IC as the pursuit of effective use of knowledge (the finished product) as opposed to information (the raw material). Olve et al. (1999) regarded IC as an element of the company's market value as well as a market premium. Brooking (1996) defines IC as the term given to the combined intangible assets of -market, intellectual property, human-centered and infrastructure – which enable the company to function⁽⁴⁾.

Union Fenosa (1999), a top Spanish firm, defines intellectual capital as the set of intangible values that promote the organizational capability for generating profits now and in the future.⁽⁵⁾

² A.Farazmand, Innovation in Strategic Human Resource Management: Building Capacity in the Age of Globalization, Public Organization Review: A Global Journal 4,2004,p 3.

³S. Saudah, M. Tayles & R. Pike, Working paper: The implications of intellectual capital on performance measurement and corporate performance, p 15

⁴ Bontis,N,William Chua Chong & Stanley Richardson, Intellectual Capital and Business Performance In Malaysian Industries, Bontis,N,William Chua Chong & Stanley Richardson,Journal of Intellectual Capital, 2000.

⁵ Patricia Ordonez de pablos, Evidence of intellectual capital measurement from Asia, Europe and middle East, journal of intellectual capital, Vol 3,N 3,2002.p 288

1.2 Component of intellectual capital

There are different views about determining the component of intellectual capital in the article concerned. According to Edvinsson and Malone (1997), Intellectual Capital takes three basic forms: human capital, structural capital, and customer capital. Human capital includes knowledge, skills, and abilities of employees. In Figure (1)

Brooking (1996) suggests that Intellectual Capital is comprised of four types of assets: (i) market assets, (ii) intellectual property assets, (iii) human-centered assets and (iv) infrastructure assets.

Market assets consist of such things as brands, customers, distribution channels, and business collaborations. Intellectual property assets include patents, copyrights, and trade secrets. Human centered assets include education and work-related knowledge and competencies. Infrastructure assets include management processes, information technology systems, networking, and financial systems.

Generally intellectual capital consists of three types of capital; human capital, structural capital and relational capital. Intellectual capital can be located in its people, its structures and its relation with its stakeholders.

▪ **Human capital:** Human capital refers to the value of knowledge, skills and experience held by individual employees in a firm. (Edvinsson & Malone, 1997).⁶ It is the intangibles that rests within the minds of individuals, such as knowledge, competencies, know how, etc. Bontis (1999) argues that human capital is important because it is a source of innovation and strategic renewal, whether it is from brainstorming in a research lab, daydreaming at the office, throwing out old files, reengineering new processes, improving personal skills or developing new leads in a sales rep's little black book. The essence of human capital is the sheer intelligence of the organizational member.

▪ **Structural Capital:** Structural capital includes all the non-human storehouses of knowledge in organizations which include the databases, organizational charts, process manuals, strategies, routines and anything whose value to the company is higher than its material value. Roos et al. (1998) describe structural capital as "what remains in the company when employees go home for the night" Structural capital results from processes and organizational value who reflect external and internal configuration of the company, and their development value in the future. According to Bontis (1998), if an organisation has poor systems and procedures by which to track its actions, the overall intellectual capital will not reach its fullest potential. Organizations with strong structural capital will have a supportive culture that allows individual to try new things, to learn, and to fail. Structural capital is the critical link that allows IC to be measured at the organizational level of analysis. This component of intellectual capital is the infrastructure firms develop to commercialize their intellectual capital (Edvinsson and Sullivan, 1996). It provides a platform for people to be creative (Stewart, 2000).

▪ **Relational capital:** The relationships the organization has established with resource providers ,customers and other key stakeholders , relational capital represents the potential an organization has due to ex-firm intangibles. These intangibles include the knowledge embedded in customers, suppliers, the government or related industry associations Bontis , (1998).⁷

It is the ensemble of intangible values matured in the relations of the firm with its external environment (clients, distributors, suppliers, investors).

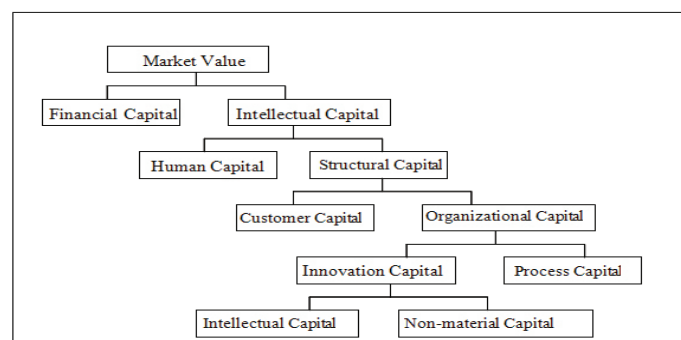


Figure 1. Edvinsson's Categorization of Capital⁸

⁶ Ngah.R&Abdul Razak.I, The relationship of Intellectual Capital, Innovation and Organizational Performance : a Preliminary Study in Malaysian SMEs ;International Journal of Management Innovation Systems .Vol 1,N 1, 2009, p 3

⁷ Bonitis.N, Intellectual capital : an exploratory study that develops measures and models ,Management decision, 1998 vol 2 n 36.p67

⁸ L. Edvinsson and M. S. Malone, "Intellectual Capital: Realizing Your Company's True Value by Finding Its Hidden Brainpower", Hzarper Business, New York, 1997.

1.3 Organizational and environmental changes and intellectual capital

With many technological changes occurring both in education, work, and homes, many changes have been observed, measured, analyzed, and discussed in terms of intellectual capital. As a result of changing technology and economic times, many organizations are realizing the need to update, innovate, and rejuvenate. InCaS (2010) noted that "As a result of constant changes caused by globalization, emerging technologies and shorter product life-cycles, knowledge and innovation have already become the main competitive advantages of many companies. Especially European small and medium-sized enterprises (SME) are highly dependent on the ability to identify changes in their global economic environment quickly and respond to these changes with suitable solutions."

1.4 Management Measures of Intellectual Capital⁹:

If enterprises want to acquire advantages in the market competition, they should not only innovate upon products, marketing channel, market and service, but enhance the R&D ability of market and product, and specially pay attention to the cultivation and management of enterprise Intellectual Capital. The target of Intellectual Capital management is to distinguish, acquire, utilize and circle Intellectual Capitals to enhance the value production ability of the enterprise.

1.4.1 Strengthening the management of enterprise knowledge resources

The knowledge resource of the enterprise means the resources which can be utilized repeatedly by the enterprise, are based on the information and technology, and bring wealth growth for the enterprise. It generally includes three aspects, i.e. the intangible assets created and possessed by the enterprise (such as brand, reputation, channel, technical flow, management mode and method, information network), information resource (various information about enterprise management acquired by the information network), intelligence resource (various knowledge which can be utilized by the enterprise and exist in human resources of the enterprise, and ability which can utilize knowledge in a creative way).

It is obvious that the knowledge resource could create large market opportunity and wealth for the enterprise. Because the role of knowledge resource in the survival and development of the enterprise is more and more important, and the management of knowledge resource has turned into the most important content of the enterprise management, and the management of knowledge resource is a kind of comprehensive management, and it comes down to many domains such as human resource management, production management, marketing management, intellectual property protection, establishment of public relations, technology and information management. The intention of knowledge resource management is to offer new technology, method and environment to harmonize, support laborers' creation, distribution and utilization of knowledge, and finally enhance the core competitive ability of the enterprise. The main content of knowledge resource management generally include following aspects, i.e. the organization system and operation standards of generating, utilizing and transferring knowledge resources of enterprise, the investment management of knowledge resources such as the training of human resources, the introduction of information and technology, and the establishment of enterprise image, the establishment of the knowledge repository to improve the sharing of knowledge, the improvement of knowledge innovation to integrate created knowledge into products, services and production process, the protection of intellectual property, the output assessment, income distribution, confirmation and evaluation of knowledge resources.

1.4.2 Reinforcing an intern and extern companies knowledge management

As viewed from the range of knowledge management, the knowledge management comes down to the interior management and the exterior knowledge management. The interior knowledge management includes the generation, communication, accumulation and application of knowledge in the interior of the enterprise. The interior management of enterprise knowledge should build a loose environment which is propitious to generate, communicate with and validate knowledge for employees, establish an information network in the interior of the enterprise convenient for employees to communicate with knowledge, constitute various encouragement polices for the knowledge communication among

⁹ Y.Ding & G.L. , **Study on the Management of Intellectual Capital** ,International Journal of business and Management , Vol 9,N 9 ,2010, p 215.

employees, utilize various knowledge database and patent database to store and accumulate knowledge, loosen the control of knowledge application and encourage employees to carve out their own careers in the interior of the enterprise and promote the application of knowledge. The intention of the exterior management of knowledge is to effectively manage knowledge by the communication and the cooperation among enterprise, and accumulate more knowledge for the enterprise and acquire more benefits. The exterior management of knowledge should make the enterprise to effectively communicate and share knowledge with other enterprises, and effectively cooperate with other special exterior suppliers of knowledge, and share knowledge, develop and cultivate the market with the competitors together.

1.4.3 Strengthening the management of explicit knowledge and implicit knowledge

As viewed from the management form of knowledge, knowledge can be divided into explicit knowledge and implicit knowledge. Explicit knowledge mainly means the knowledge existing by the forms such as patents, scientific invention and special technology. And the implicit knowledge means employees' creationary knowledge and ideas, and it only exists in employees' heads, which can not be observed and understood definitely by others. At present, many technologies and methods can be used to manage explicit knowledge, for example, the explicit knowledge such as patent and special technologies which can be stored in the database, and checked and used by the computer network to share them with others. Because electric information can span the obstacles induced by duties and classes in the daily contacts, make the communications among peoples more freely, and make the communication effect more effective.

Therefore, enterprises must learn to use this new information and knowledge disposal tool, and grasp the new knowledge, new information and new trends in the world, and utilize all human treasures of knowledge to quicken their development.

2. Empirical study

2.1. Objective and methodology

The model of this study is translate from the study of A.Sharbati ; S.Djawd & N.Bontis (2010) that examine the interrelation between the intellectual capital and business performance in the pharmaceutical sector of Jordan

Intellectual capital in this study was defined as the total stocks of all kinds of intangible assets, knowledge, capabilities, and relationships, etc, at employee level and organization level, within a company.

The aim of this study is to investigate the relationship between intellectual capital and business performance in the age of globalization. We referred to literatures to classified intellectual capital into human capital, structural capital and relational capital. "Human capital" in this study was defined as the summation of employees' knowledge, skills, capabilities, experience, attitude, wisdom, creativities, and commitment, etc and was embedded in employees, not organizations. A company can increase its innovation performance through its human capital, "structural capital" was defined as the stocks of organizational capabilities, organizational commitment, knowledge management systems, reward systems, information technology systems, databases, managerial institution, operation processes, managerial philosophies, organizational culture, company images, patents, copyrights, and trademarks, etc, within a company; it is embedded in organizations, and thereby cannot be taken away by employees. Relational capital represents all the knowledge embedded in relationships with external parties such as customers, suppliers, partners and other external stakeholders.

The purpose of this study has been done to investigate the relationship of intellectual capital in the Algerian companies upon their innovation performance. The hypotheses are described as follows:

H₁: Intellectual capital is positively associated with business performance in Algerian companies.

H₂: Human capital is positively associated with business performance in Algerian companies.

H₃: Structural capital is positively associated with business performance in Algerian companies.

H₄: Relational capital is positively associated with business performance in Algerian companies.

2.2. Data Collection and Samples

This study tested hypotheses with a questionnaire survey that was conducted in Algerian companies. The data for this study was collected throughout a field survey. There were 17 organizations in different sectors in Algeria.

The entire population was chosen to explore the topic of intellectual capital, thus negating any need for sampling. The survey unit of analysis was composed of top and middle managers and the executers drawn from the Algerian

companies' population. Financial information was also collected from annual reports, journals, books, and trade magazines. Primary information was also collected from expert interviews, and a pilot study conducted by the research team.

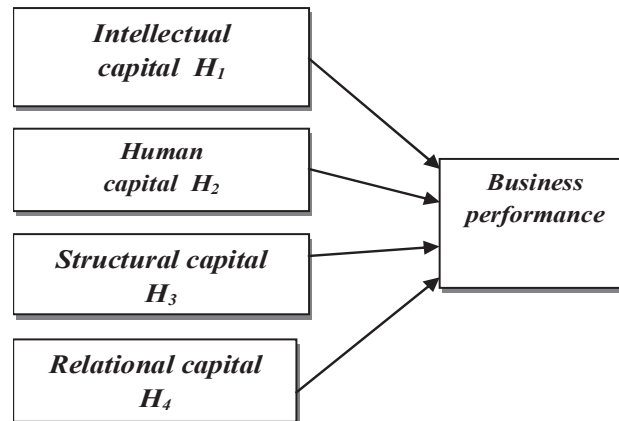


Figure 2: Conceptual model

2.3 Results:

In order to test for the normal distribution of response data, Cronbach's alpha was used to test the reliability of the measures. All variable and sub-variable items were confirmed valid since their factor loading values were more than 0.4. This result mirrors previous studies conducted by Bontis (1998), Bollen et al.(2005) and Bin Ismail (2005).; as shown in the table : 1

Table -1: The test of the reliability

<i>Items</i>	<i>Cronbach's alpha</i>
<i>Human capital</i>	0.8202
<i>Structural capital</i>	0.8886
<i>Relational capital</i>	0.8167
<i>Business performance</i>	0.7846

Pearson's bi-variate correlation coefficient was used to test the relationship between independent and dependent variables. The result showed that the intellectual capital variables and sub-variables had a weak and significant relationship with innovation performance. An ANOVA test was then used to analyze respondents' characteristics related to gender, age, education, role and experience.

The data for the study were collected from 120 respondents from various different services companies. As per the table-2 demographic profiles of the respondents where male participants in the study was 24 where female participants consisted 13 of the total population. The almost of the respondent have the license diploma, it consists73%. Age wise distribution depicts 31-40 age group dominates in the study consisting of more than 40% of the total sample. The respondents having more than 5 years of experience at current organization is very well present in the study consisting of 53.8% of the total sample

Table 2: Respondents profile

<i>Parameter</i>	<i>Group</i>	<i>N</i>	<i>%</i>
Sex	Male	82	68.3
	Female	38	31.7
Age	20-30	32	26.7
	31-40	48	40
	41-50	33	27.5
	> 50	7	5.8
Study level	Secondary	26	21.7

	License	91	75.8
	Post graduate	3	2.5
Role	General manager	6	5
	Trade commercial		
	Account	17	14.2
	Branch manager	16	13.3
	Others	18	15
		63	52.5
Experience	> 5years	46	38.3
	<5 years	47	61.7
Total		120	100

Table 3 depicts the mean scores of each variable and its corresponding construct. Generally speaking, all items scored in the affirmative (1 = strongly disagree, 5 = strongly agree, with 3 the mid-point) with mean values greater than 3.0. The only item below the mid-point was the use of intellectual property at 2.80.

Table 3: Statistical results of summary variables

	Mean	Std- dev
Intellectual capital	3.53	0.77
Human capital	3.80	0.972
- Learning and education	4.06	0.751
- Employees satisfaction	3.68	1.088
- Innovation and creation	3.67	1.078
Structural capital	3.52	1.053
- Systems and programs	3.56	1.070
- Research & development	3.58	1.097
- Intellectual property rights	3.42	0.994
Relational capital	3.86	0.924
- Customers satisfaction	3.94	0.887
- Knowledge about partners, suppliers and customers	3.87	0.894
- Alliances, licensing and agreements	3.78	0.992
Business performance	4.14	0.690
- Productivity	3.99	0.693
- Profit	4.19	0.699
- Market value	4.26	0.678

As defined in table-4, the regression equation of the business performance with human capital, structural capital and relational capital.

The regression equation of business performance component with human capital and structural capital clearly depict the model is poorly fit with R less than 0.5. Structural capital has a strong relationship with R value 0.550

The effects of human capital, structural capital and relational capital on business performance are not significant with R value 0.150, 0.114 and 0.123 in this arrangement and intellectual capital as a whole has a little influence on business performance with R value 0.086.

Table 4: Business performance Vs intellectual capital

	Intellectual capital	Multiple R	R ²	Std .Error
Business Performance	Human capital	0.383	0.147	0.055
	Structural capital	0.391	0.153	0.048
	Relational capital	0.55	0.302	0.057
	Intellectual capital	0.495	0.245	0.020

The results related to path analysis showed that the three sub-constructs of intellectual capital together have a positive and weak relationship with business performance.

Table 5 represents a correlation matrix across all variables with only the component of intellectual capital and intellectual capital values being statistically significant ($p < 0.01$).

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1.Learning and education													
2.Employees satisfaction	0.746												
3.Innovation and creation	0.583	0.712											
4.Human capital	0.830	0.911	0.900										
5.Systems and programs	0.546	0.538	0.507	0.587									
6.Research and development and	0.543	0.645	0.563	0.651	0.686								
7.Intellectual property rights	0.529	0.624	0.616	0.663	0.639	0.694							
8.Structural capital	0.610	0.670	0.629	0.710	0.907	0.865	0.873						
9.Customers satisfaction	0.435	0.473	0.456	0.506	0.531	0.487	0.472	0.565					
10.Knowledge about partners, suppliers and customers	0.289	0.410	0.480	0.461	0.469	0.272	0.500	0.487	0.606				
11.Alliances, licensing and agreements	0.385	0.399	0.477	0.472	0.550	0.48	0.523	0.592	0.497	0.480			
12.Relational capital	0.722	0.804	0.799	0.875	0.817	0.778	0.826	0.915	0.714	0.676	0.681		
13.Business performance	0.350	0.285	0.360	0.383	0.369	0.291	0.358	0.391	0.445	0.516	0.384	0.495	

Table 5: Correlation matrix

Note: All correlation values are significant at the 0.01 level (two-tailed)

2.3. Discussion

The present study found that each of the three types of intellectual capital to be associated with increased business performance. Human capital, structural capital and relational capital exhibited weak relationship with business performance. The results of this study have shown that there is in fact strong and positive evidence that Algerian firms are managing intellectual capital effectively and that in turn is influencing business performance positively.

Human capital exhibited strong relationship with performance lending support to the widespread anecdotal evidence suggesting that talented people are critical ingredient in developing and delivering superior products and services that generate high consumer demand. Hence the elements of human capital management are central to the successful implementation of most other management initiatives and achieving the firm's strategic goal. Social capital is regarded as the strongest predictor of performance.

The relationship between structural capital and performance become statistically significant in the study with weakness relationship. Since individuals form the basis of organizational level of learning and knowledge accumulation (Structural Capital) and knowledge institutionalization and knowledge sharing is lowly encouraged in Algerian industries, there is weak co-relation between structural capitals with its bottom line.

These results refer the necessary to increase the awareness of the manager, the important of the component of the intellectual capital in result to increase the business performance and this is important to meet the challenge of the globalization.

Conclusion

The management of intellect lies at the heart of value in the current "knowledge era" of business. Unfortunately, methods of measuring and evaluating intellectual capital have been slow to develop. There is an extremely limited literature on the study and management of intellectual capital. This is partly due to the privacy that accompanies most organizations and their discussion on intellectual capital. Continued research of this phenomenon should show that organizations with a high level of intellectual capital will be those in which the value-added service of the firm comes from deep professional knowledge, organizational learning, and protection and security of information. Managers, analysts and researchers should also be wary of looking for a formula of intellectual capital. By definition, the tacitness of intellectual capital may not allow analysts to ever measure it using economic variables. A warning must be sent out to those accountants and financial analysts who are asking the question, "How much is my intellectual capital worth?" A formula may never exist. This article has addressed intellectual capital(in particularly human capital) as key instruments for capacity building and enhancement in the age of accelerated globalization of corporate capitalism and rapidly changing global environment that challenge governance and public management worldwide.

Such a capacity building enables the governments and public managers to not only perform the functions of today, but also move beyond by using strategic choices to control destiny through capabilities of an anticipatory and future oriented system of governance and public management.

The article concludes that essential to national development, to sound governance and Algerian public administration is the dire need to manage their hidden assets that serves as capacity building to meet the challenges of globalization of Algerian companies. No organization can function without competent and co-operative people, and strategic human resource management is central to the development and enhancement of sound governance and public management. Further research and writings are needed in this critical area of globalization, especially, in less developed countries. Today's managers need the cutting edge information for tomorrow.

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