

Influence of Information Capital on Competitive Advantage of Public Universities

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Abstract

Presentation of information capital today has become one of the principal mechanisms by which public universities gain competitive advantage. Given inadequate government funding which has forced institutions of higher learning in Kenya to attract Self Sponsored Programme (SSP) students in order to meet the short-fall. This paper aims to review current literature and contributes a set of empirical evidence that capture the current state of information capital and competitive advantage of public universities. Pragmatism philosophical paradigm and explanatory survey research design was utilized. Target population of 450 was considered, out of which a sample of 212 employees drawn from 28 universities were obtained using Slovin's sample size formula. Simple random sampling technique was adopted. Questionnaires were then administered to these employees. Multiple regression analysis was used to analyze data collected. The findings revealed positive significant relationship between competitive advantage of public universities and reporting tools, between competitive advantage of public universities and techniques and between competitive advantage of public universities and procedures. F-test as an overall test indicated high significance effect of information capital on public universities competitive advantage. It was concluded that the findings extended the use of competitive advantage and resource based view theories. Subsequently, it extended the literature on the match between information capital on public universities competitive advantage. The findings clarified the alignment of information capital on public universities competitive advantage which will help practitioners utilize more attentively information capital resources for decision-making and competitive advantage.

Key Words: Information Capital, Competitive Advantage, Reporting Tools, Techniques and Procedures.

1.0 Introduction

The need for higher education institutions to have greater participation with their wider community and the general concern that information capital being presented as a toll for visualizing in a comprehensive way the institution's inputs, outputs and processes. Therefore, information capital as the main issue in this article is defined as the sum of all the reporting tools, techniques and procedures used by the business to process data to be reflected in information (Hooper & Page, 1997). In addition, Laudon and Laudon (2001) consider it as all the information systems that are embedded in an organization / institution as a result of operating procedures, work flow, politics,

culture and structure. It is an important source for learning new things, solving problems, creating core competencies and establishing new positions for the individual and organization (Nasimi *et al.*, 2013).

Institutions can only reap the benefits associated with information capital if they have the capacity to use it to capture business opportunities that bring success (Oriarewo *et al.*, 2013). Many firms have recognized the potential and advantages of information capital and infused it into their operations to facilitate business growth and enhance competitiveness (Wang *et al.*, 2007). Information capital enhances growth and competitiveness because it enables institutions to develop new products, services, re-engineer business processes, and improve decision-making, coordination and flexibility (Chi & Sun, 2015). It also leverages a firm's complementary assets such as new business models, management behaviour, organizational culture and training (Ray *et al.*, 2005).

The capacity of information capital is usually expressed in terms of availability of information and communication technology facilities, employees' knowledge, expertise and behaviour towards work. Fang *et al.*, (2009) assert that information capital is effective only if the user is responsive to it. This means that information capital can only contribute to the success of an organization if its employees (users) have the required knowledge, skills and work behaviour. Institutions should therefore ensure that their employees have those attributes because competitive advantage is increasingly found in knowing how to do things, rather than in having special access to resources and markets (Lubit, 2001).

Literature shows that information capital enhances organizational performance and competitiveness. Choy *et al.*, (2014) examined the effect of information technology on the performance of logistics firms. They established that information technology enhances service quality thereby creating a competitiveness edge. Rashed *et al.* (2010) investigated the impact of information and knowledge sharing among suppliers. Results indicated that information sharing is a vital factor for increasing the supplier's operational performance. The results of Rashed *et al.*, (2010) study confirmed the findings of earlier studies by Neumann and Seger (1979), McCormack (1998) and Petersen (1999), which established that relevant data, information accuracy and completeness were critical factors to an organization's effectiveness.

Studies that involved institutions of higher learning have also indicated that information capital affects their performance and competitiveness. Barnes and Lescault (2011) established that 100 per cent of the most popular institutions of higher learning in USA sampled in their study reported using some form of social media to reach their clients, with Facebook (98%) and Twitter (84%) being the most used. Swartzfager (2007) observed that aspects of information capital such as twitter provides institutions with the opportunity to create live, up-to-the minute notices of commencement programs, homecoming events, class re-unions and live chat sessions thus enhancing their attractiveness to students. A research carried out by Davis III *et al.*, (2011) on internal marketing communications of higher education institutions found out that reduced information flow led to the loss of prospective students to competing institutions. Gomes and Murphy (2003) examined the Internet's role in communicating educational opportunities to potential university students'. The results showed that its use enhanced enrolment of foreign students.

Intellectual capital report or statement is one of the concrete tool successfully applied in different institutions of higher learning, which is used to deliver and identify information on aims, strategy, activities, resources and visions, based on both financial and non-financial indicators. According to Marr (2005), there are two categories from the benefit of the use of intellectual capital statement namely: the first category is the institution's potential to function as a management tool aid to

allocate and develop resources, prioritize challenges to the development of the institution, create strategy, monitor institution's development result, and thus facilitate decision-making for internal reporting. The second category is the potential of the institution to function as communication device which link the outside world to the institution, and used to attract resources in terms of human, technological and financial and foment relationship with customers and partners (Marr, 2005).

The internal and external benefits of intellectual report are diverse. An intellectual capital report can internally facilitate management decision by identifying intangible capabilities and resources, by improving the goal and activities of the university, and by improving capital and investment allocation. Externally, it helps to attract new partners, employees and collaborators and to improve transparency (European Commission, 2006). In relation to the fundamental determinant of the value of the institution, disclosing information on information capital acts as a powerful tool for communicating institution's resources, abilities and commitments. Consequently, the work carried out by the institution with the aim of managing, developing and maintaining its activities and intangible resources is contained in the information capital report (MERITUM, 2002).

The level of public organization's "intangibility" has been affirmed to be very high as they have non-monetary objectives that cannot be defined in relation to their value in the market. Information intangibles or capital are referred to as the measurements of elements that are significant in the institutions of higher education, since a university's main outputs and inputs are principally intangibles mostly human resources and knowledge.

Due to the new demands for accountability in research centers, universities and public institutions, they are obliged to disseminate more information and be more transparent to stakeholders: the labor society and market as a whole, students as well as public authorities who fund the universities. Universities have a duty to maximize the social returns of stakeholder's investment (European Commission, 2003). An empirical study held across different universities in Spain, Canada, United Kingdom, Australia, USA, Germany and France confirms that most of the universities haven't assumed yet the generalized on the elaboration of external information reports (Compos et al., 2003), despite rise in demand for greater transparency and information on the use of public funds (Warden, 2003). This is applicable to institutions of higher learning in Kenya.

In the past decade, an growing number of independent public institutions have been making considerable effort to measure, identify, disclose and manage their information capital despite majority of studies analyzing information intangibles and capital during the 90s have been associated with private firms. Therefore, it is likely to find examples in cultural institutions (Donato, 2005), hospitals (Casteleni & Vagnoni, 2005), micro-level to measure capital information of the nation (Bontis, 2004; Kivikas & Edvinsson, 2004).

The network relationship technique support the people in social affair performance resulting to competitive advantage of institutions which is the central theme of social capital theory. Therefore, jointly owned capital that are rooted within the techniques of network shared associates are availed (Ghoshal, & Nahapiet, 1998). The techniques added to the institutions in part in based on their communication skills with other people, gathering right people who can develop opportunities as well as add value to the organization. According to Burt (1997), the result of the techniques of network of a manager that extend beyond the organization is the knowledge of how they can perform. Gaining access to individuals and capital with resources is a commonly mentioned benefit of social capital technique (Torgler & Savage, 2010). Other benefits may include influence, solidarity, power, control and the availability of information (Kwono & Adler, 2002).

According to Ginman and Widén-Wulff (2004), the development of norms and the platform formation of knowledge sharing arise from the development of a thought technique which mainly focus on individual's behavior in the social network concerning knowledge. The synergistic growth of knowledge in organizations and individuals arise from the joint creation of knowledge (Nonaka, 2004). Mosakhani and Tihidinia (2010) Song and Teng (2011), reiterated that a considerable accumulation of body knowledge in the recent times that discuss the outcomes and antecedents of knowledge sharing.

According to Stumpf and Tymon (2003), they predicted that in the 21st Century, success will be based on the ability to share and learn quickly with the network relationship network rather than merely a based upon technical skills and knowledge. Upon the growth and development of relationships techniques, success in social systems becomes contingent. Chiu, et al (2006), explained the importance of why and how individuals develop their understanding to the techniques of their knowledge sharing. Important aspects of the knowledge techniques are ties between multipurpose use of networks; and members of social network; structure if a network based on connectivity, density and hierarchy (Nahapiet & Ghoshal, 1998).

Lang (2004) explained that it is in social interactions that a superior portion of knowledge exist. According to Mu, *et al.*, (2008) knowledge sharing and creation are social process eased by social capital, but not an induce technique through coercion. Individual get to gain knowledge through the external networking technique that is not available. Also, external networks enable individuals to gain expertise, information and ideas (knowledge) beyond the bounds of local rules and the hierarchies (Faraj & Wasko, 2005).

Goshal and Nahapiet (1998) defined social capital structure as configurations of techniques between units and people. The coordination, formal and informal collaboration as well as interaction between units, colleagues and departments creates spillover effects that can ameliorate individuals and working conditions and organizational performance. Technique ties is one of most important component of social capital structure which provide access to information and resources.

An alternate purpose behind the necessity and importance of the universities' methods will be the presence from securing consistent requests for greater transparency and information about the utilization of government funds (Warden, 2003), primarily because of the constant procedure of both financial and academic decentralization which organizations of higher training presently engaged in (Ramírez, 2013). Similarly as leaders of knowledge providers, in the current economy, universities are the key players and their procedures are henceforth subject to examination by wider community (European school Association, 2006). In this manner these methods about institutional correspondence need turn into a standout amongst those vital instruments which establishments for higher training render accounts.

Express information identifying with the interior methods from claiming dissemination, correspondence as well as management of technological and scientific knowledge at the university is vital for competitive advantage. Methods alludes all the of the operational environment derived from those interactional the between of organizational and management procedures, corporate values and cultures, organization routines, the scope and quality of information system as well as internal procedures. In addition, it alludes of the approach innovative unrest assets accessible at those university, for example, such that bibliographical Also documentary resources, archives, specialized foul developments, patents, licences, programming What's more databases are figured out how on attain focused point. Kenyan higher training foundations need aid at present inundated over methods from claiming profound. Change, those plan of which is should enhance those

effectiveness, effectiveness Also transparency about these establishments for those point about helping of the improvement and change of the intensity for economy (Ramírez, 2011; Secundo et al., 2010).

2.0 Methodology

The study utilized the explanatory survey research design. This type of design is primarily concerned with determining cause and effect and the state of affairs as they exist (Gall *et al.*, 2007). Explanatory design was used to determine causal relationship between variables (Saunders *et al.*, 2011). The explanatory survey was deemed ideal for the study because it involved collecting data at one point in time on personal selling and competitive advantage of public universities and then establishing their effects without manipulation of variables. Target population of 450 was considered, out of which a sample of 212 employees drawn from 28 universities were obtained using Slovin's sample size formula. Questionnaires were then administered to employees of the institutions. The analysis of collected data was by the use of multiple regression analysis.

3.0 Results

Correlation analysis was performed thereafter hypotheses were tested using multiple linear regression analysis to check the relationship between independent and dependent variables.

3.1 Correlation Analysis of Information Capital and Competitive Advantage of Public Universities

Correlation analysis was carried out to test the theoretical proposition regarding relationship between information capital and competitive advantage of public universities in Kenya. There was positive significant correlation between reporting tools and competitive advantage ($r = 0.665^{**}$, $P < 0.01$). The correlation of techniques and competitive advantage was positively significant ($r = 0.633^{**}$, $P < 0.01$). The correlation of procedures and competitive advantage was positively significant ($r = 0.393^*$, $P < 0.05$). This shows that there is degree of association between information capital and competitive advantage of public universities in Kenya as shown in Table 1.

Table 1: Correlation Analysis of Information Capital and Competitive Advantage

		MCOMP	TOO	TEC	PRO
MCOMP	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	28			
MRTOO	Pearson Correlation	.665**	1		
	Sig. (2-tailed)	.000			
	N	28	28		
MTEC	Pearson Correlation	.633**	.373	1	
	Sig. (2-tailed)	.000	.051		
	N	28	28	28	
MPRO	Pearson Correlation	.393*	.007	.289	1
	Sig. (2-tailed)	.039	.970	.135	
	N	28	28	28	28

** . Correlation is significant at the 0.01 level (2-tailed), * . Correlation is significant at the 0.05 level (2-tailed). MCOMP= Competitive advantage, MRTOO= Reporting tools, MTEC= Techniques, MPRO= Procedures

3.2 Model Summary of Information Capital and Competitive Advantage

Regression model summary results between information capital and competitive advantage of public universities, indicates that three dimensions of independent variable explained 68.9% ($R^2 = 0.689$) of the variance on competitive advantage of public universities and they were statistically significant and positively related to institution competitive advantage. As indicated, the residuals were not correlated since the Durbin-Watson statistic of 2.5 which falls within the normal range as presented in Table 2.

Table 2: Model Summary of Information Capital and Competitive Advantage

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change	Durbin-Watson
						F Change	df1	df2		
1	.830 ^a	.689	.650	.08661	.689	17.732	3	24	.000	2.500

a. Predictors: (Constant), MPRO, MRTOO, MTEC

b. Dependent Variable: MCOMP

MCOMP= Competitive advantage, MRTOO= Reporting tools, MTEC= Techniques, MPRO= Procedures

3.3 ANOVA Model of Information Capital and Competitive Advantage

ANOVA model results as in model 1 indicated that with F-test value of 17.732 as illustrated by overall test of significance shows good model fit and with (p value $0.000 < 0.05$) the level of significance was statistically vastly substantial (Table 3). Thus, the model was fit to predict competitive advantage of public universities in Kenya using reporting tools, techniques and procedures.

Table 3: ANOVA Model of Information Capital and Competitive Advantage

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.399	3	.133	17.732	.000 ^b
	Residual	.180	24	.008		
	Total	.579	27			

a. Dependent Variable: MCOMP

b. Predictors: (Constant), MPRO, MRTOO, MTEC

MCOMP= Competitive advantage, MRTOO= Reporting tools, MTEC= Techniques, MPRO= Procedures

3.4 Effect of Information Capital and Competitive Advantage

The multiple regression results of standardized beta coefficients indicated that reporting tools ($\beta = 0.532$, $t = 4.309$, $P < 0.05$), techniques ($\beta = 0.352$, $t = 2.728$, $P < 0.05$), and procedure ($\beta = 0.287$, $t = 2.396$, $P < 0.05$) were positive and statistically highly significant predictors of competitive advantage. Multicollinearity was not a problem since the variables had VIF of less than 10 and tolerance values of above 0.2 as displayed in Table 4.

Table 4: Coefficient Analysis for Information Capital and Competitive Advantage

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1 (Constant)	-.433	.640		-.677	.505		
MRTOO	.486	.113	.532	4.309	.000	.850	1.176
MTEC	.334	.123	.352	2.728	.012	.779	1.284
MPRO	.284	.118	.287	2.396	.025	.904	1.106

MCOMP= Competitive advantage, MRTOO= Reporting tools, MTEC= Techniques, MPRO= Procedures

4.0 Discussion

ANOVA model results as in model 1 indicated that with F-test value of 17.732 as illustrated by overall test of significance shows good model fit and with (p value $0.000 < 0.05$) the level of significance was statistically vastly substantial. In other words reporting tools, techniques and procedures were statistically highly significant predictors of competitive advantage of public universities in Kenya. The findings were in line with Chi and Sun (2015) that information capital enhances growth and competitiveness because it enables institutions to develop new products, services, re-engineer institution processes and improve decision-making, coordination and flexibility (Chi & Sun, 2015).

From the model summary results, the three independent variables explained only 68.9% ($R^2 = 0.689$) of the variance on competitive advantage of public universities in Kenya and they were statistically significant and positively related to competitive advantage. This indicated that the three independent variables predicted competitive advantage. The findings concurred with Oriarewo *et al.*, (2013) that organizations or institutions can only reap the benefits associated with information capital if they have the capacity to use it to capture business opportunities that bring competitive advantage. In addition, Wang *et al.*, (2007) assert that many institutions have recognized the potential and advantages of information capital and when infused it into their operations it facilitate institution growth and enhance competitiveness.

5.0 Conclusion

There is a significance relationship between competitive advantage and information capital as confirmed by the empirical findings in this study. Moreover competitive advantage and resource based view theories extension are confirmed in this study. Valuable guidelines and information are provided in the results of this study that would be of importance to Kenyan public universities implementers and policy makers, in designing appropriate measures and addressing issues or interventions on information capital to positively impact competitive advantage institutions in Kenya.

6.0 Recommendations

Future studies might explore what other types of information capital that could lead to the competitive advantage of public universities in Kenya, in respond to external influences, as a result of changing educational environmental philosophies.

References

- Adler, P. S., & Kwon, S. W. (2002). Social capital: Prospects for a new concept. *Academy of Management Review*, 17-40.
- Andrews, R. (2011). Exploring the impact of community and organizational social capital on government performance: Evidence from England. *Political Research Quarterly*, 64(4): 938-949.
- Barnes, N. G. & Lescault, A. M. (2011). *Social media adoption soars as higher-ed experiments and reevaluates its use of new communication tools.*
- Bontis, N. (2004). National Intellectual Capital Index. The Benchmarking of Arab Countries. *Journal of Intellectual Capital*, 5(1): 13-39.
- Burt, R. S. (1992). *Structural holes: The social structure of competition.* Cambridge, MA: Harvard University Press.
- Burt, R. S. (1997). The contingent value of social capital. *Administrative science quarterly*, 339-365.
- Campos, M.; Novertó, M.C. and Villanueva, E. (2003). Reporting de las Instituciones Universitaria. *Revista AECA*, No. 62, January-April.
- Cañibano, L. and Sánchez, P. (2004). Measurement, Management and Reporting on Intangibles. State of the Art, in Cañibano, L. and Sánchez, P. (Eds), *Reading on Intangibles and Intellectual Capital*, AECA, Madrid, 81-113.
- Chi, J. Y. & Sun, L. (2015). IT and Competitive Advantage: A Study from Micro Perspective. *Modern Economy*, 6: 404-410.
- Chiu, C. M., Hsu, M. H., & Wang, E. T. G. (2006). Understanding knowledge sharing in virtual communities: An integration of social capital and social cognitive theories. *Decision support systems*, 42(3): 1872-1888.
- Choy King L. et al. (2014). Impact of Information Technology on the Performance of Logistics Industry: the Case of Hong Kong and Pearl Delta Region. *The Operational Research Society*, 65, 904-916.
- Donato, F. (2005). The orientation towards the management and the reporting of the intangibles in cultural organisations: a starting point or an escape route? paper presented at 1st Workshop on Visualising, Measuring and Managing, Ferrara, Italy, October 18-20, 2005.
- Edvinsson, L. and Kivikas, M. (2003). The New Longitude Perspective for Value Creation. *Controlling*, Heft 3 / 4, March/April 2003, pp.163-167.
- European Commission (2003a). The role of the Universities in the Europe of Knowledge. Brussels 05/02/2003, COM (2003) 58 Final.
- European Commission (2006). *Reporting Intellectual Capital to Augment Research, Development and Innovation in SME's* (RICARDIS).
- EUROPEAN UNIVERSITY ASSOCIATION (2006). *The rise of knowledge regions: emerging opportunities and challenges for universities.* Bruselas: European University Association.
- Fang, R., & Shaw, J. D. (2009). Self-monitoring, status, and justice-related information flow. *Journal of Occupational and Organizational Psychology*, 82, 405-430.
- Gomes, L. and Murphy, J. (2003). An Exploratory Study of Marketing International Education Online. *The International Journal of Educational Management*, 17 (3): 116-125.
- Government of Kenya (2002). Vision 2030. Government Press.

- Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology*, 78, 1360–1380.
- Hooper, P. & Page, J. (1997). Organizing information and data flows in business systems. *National Public Accountant*, 42 (9): 9-14.
- Lang, J. C. (2004). Social context and social capital as enablers of knowledge integration. *Journal of knowledge management*, 8(3), 89-105.
- Laudon, K. and Laudon, J. (2001) *Essentials of information systems: Organization and technology in the networked enterprise* (4th ed.), Prentice Hall, New Jersey.
- Leitner, K.H. and Warden, C. (2004). Managing and Reporting Knowledge-based Resources and Processes in Research Organisations: Specifics, Lessons Learned and Perspectives. *Journal of Management Accounting Research*, 15 (1):33-51.
- Lubit, R.(2001). *Tacit knowledge and knowledge management: the keys to sustainable Competitive advantage*. *Organizational Dynamics*, 29,164 -178.
- Marr, B (Ed.) (2005). *Perspectives on Intellectual Capital. Multidisciplinary insights into Management, Measurement and Reporting*, Elsevier Inc., Amsterdam.
- McCormack, K., (1998). What Supply Chain Management Practices Relate to Superior Performance? DRK Research Team, Boston, MA.16.
- MERITUM (2002). *Guidelines for Managing and Reporting on Intangibles (Intellectual Capital Statements)*, Vodafone Foundation, Madrid.
- Moynihan, D.P. & Pandey, S.K. (2006). Creating desirable organizational characteristics. How organizations create a focus on results and managerial authority. *Public Management Review*, 8(1), 119–140.
- Mu, J., Peng, G., & Love, E. (2008). Inter firm networks, social capital, and knowledge flow. *Journal of knowledge management*, 12(4), 86-100.
- Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 242-266.
- Nasimi, M.H., Nasimi, S., Kasmaei, M.S., Kasmaei, H.S., Basirian, F. & Musapour, H. (2013). Knowledge management and competitive advantage for organizations. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 2(5), 56-64.
- Neumann, S. Seger, E. (1979). A Case Study of User Evaluation of Information Characteristics for Systems Improvement. *Journal of Information and Management*, 2, 271-278.
- Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization science*, 14-37.
- Oriarewo, G. O. & Chukwujioko, K. & Aondoseer, A. A. (2013). Entrepreneurial Perceptions and Knowledge among Graduates of Nigerian Universities. *International Journal of Scientific and Research Publications*, Volume 3, Issue 6, June, 1-8.
- Petersen, K., (1999). The effect of information quality on supply chain performance: an inter-organizational information system perspective. Unpublished dissertation. Michigan State University, MI.
- RAMÍREZ, Y. (2011). New management in Spanish universities: introducing Balanced Scorecard. *International Journal of Learning and Intellectual Capital*, 8(4): 359-377.
- RAMÍREZ, Y. (2013). Intellectual capital management and reporting in European higher education institutions. *Intangible Capital*, 9(1): 1-19.

- Rashed Choudhury, Azxeem Abdullahil and Halim Zaheed (2010). Effect of Information and Knowledge Sharing on Supply Chain Performance: A Survey Based Approach. *Journal of Operations and Supply Chain Management*, 3 (2): 61-77.
- Ray, G., Muhanna, W.A. and Barney, J.B. (2005). Information Technology and the Performance of the Customer Service Process: A Resource-Based Analysis. *MIS Quarterly*, 29, 625- 652.
- Sánchez, P. and Elena, S. (2006). Intellectual Capital in Universities. Improving Transparency and Internal Management. *Journal of Intellectual Capital*, Vol. 7, N.4, pp.529-548.
- Saunders, M., Lewis, P., & Thornhill, A. (2011). *Research Methods for Business Students*. India: Dorlington Kindersley India Pvt.Ltd.
- Savage, D. A., & Torgler, B. (2010). The relationship between Stress, Strain and Social Capital. *Working Papers*.
- SECUNDO, G.; MARGHERITAM, A.; ELIA, G.; PASSIANTE, G. (2010). Intangible assets in higher education and research: mission, performance or both? *Journal of Intellectual Capital*, 11(2): 140-157.
- Teng, J. T. C., & Song, S. (2011). An exploratory examination of knowledge-sharing behaviors: solicited and voluntary. *Journal of knowledge management*, 15(1), 104-117.
- Tohidinia, Z., & Mosakhani, M. (2010). Knowledge sharing behaviour and its predictors. *Industrial Management & Data Systems*, 110(4), 611-631.
- Tymon, W. G., & Stumpf, S. A. (2003). Social capital in the success of knowledge workers. *Career Development International*, 8(1), 12-20.
- Vagnoni, E. and Castellini, M. (2005). *Designing Intellectual Capital Report: A Study on Health Care Organisations*, Paper presented at 1st Workshop on Visualising, Measuring, and Managing Intangibles and Intellectual Capital. Ferrara, Italy, 18-20 October 2005.
- Wang, M.J., Zhang, W.Y. and Zhou, L.A. (2007) Informationization, the Organizational Behavior and Performance: A Case Study Based On Zhejiang's Enterprises. *Management World*, 4, (96):104, 129.
- Warden, C (2003). *Managing and Reporting Intellectual Capital: New Strategic Challenges for HEROs*, in IP Helpdesk Bulletin, n° 8, April-May 2003.
- Wasko, M. M. L., & Faraj, S. (2005). Why should I share? Examining social capital and knowledge contribution in electronic networks of practice. *MIS quarterly*, 35-57.
- Widén-Wulff, G., & Ginman, M. (2004). Explaining knowledge sharing in organizations through the dimensions of social capital. *Journal of Information Science*, 30(5), 448-458.