

Identifying the determinants of ICT success in Tunisian Companies Using the Resource-Based View

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Abstract

Although the Solow Paradox appears to have been exceeded, neither the effective contribution of ICT to improve performance, nor the factors of their efficient use, are not yet clearly established. This research aims to highlight the moderating role played by the organizational mechanisms in the genesis of performance through the use of ICT. The conceptual model mobilizing the Resource-Based View and the strategic alignment theory was tested on 113 Tunisian firms that have invested in ICT. The hypothesis testing using the Partial Least Square (PLS) method has demonstrated the important role of the innovativeness of employees and managers. On the other hand, neither the ICT strategic alignment, nor the organizational adaptability, did prove to be significant throughout this research.

Key Words: *Resource-Based View (RBV), ICT Use, Strategic Alignment, Performance, Productivity Paradox.*

Introduction

Information and Communication Technologies have been introduced and imposed in daily transactions and exchanges in entrepreneurial management worldwide. However, passing the trend and mimicry, the positive effects of ICT turned out to be less obvious than expected. Indeed, given the significant investments undertaken by companies in these new technological potentials, the actual contribution of this latter in improving organizational performance has been proven comparatively hypothetical (Kohli and Devaraj, 2003; Joshi and Pant, 2008).

How, then, is it possible to spare companies the risk that technological investments could generate when undertaken as a simple mimicry decision dictated by a widespread enthusiasm for these equipments, notably in developing countries?

How is it possible to enable companies to generate the best performance from their investments in ICT? This is a highly critical situation, which the Solow's "Productivity Paradox" (1987) perfectly sums up the complexity. In developed countries, many studies examined the issue of the impact of ICT on organizational performance and found mixed results.

However, even if the relationship between ICT investment and performance improvement is now generally confirmed (Liu et al, 2014), its deterministic nature, however, is widely contested since companies that have similarly invested in ICT often derive variable benefits (Turedi and Zhu, 2012). Moreover, there is evidence about the existence of disparities between countries. Indeed, an OECD report (2003) found that productivity gains from ICT are more important in US companies whose management method is more conducive to an efficient use of technological innovations.

In developing countries, research on the subject is scarce and focuses mostly on the technology adoption process or the causal link between the use of ICT and organizational performance without seeking to identify the factors that could interfere in this relationship.

In Tunisia, the process of "digitalization" is a relatively recent phenomenon and indicators to measure its depth and its organizational implications are still lacking. However, several government measures have been taken to ensure a favorable environment for the development of a digital economy and increasing companies' competitiveness (Kammoun and al, 2010). Despite the efforts, the impact of the use of ICT on performance and improved competitiveness needs more attention (Ben Youssef and M'henni, 2004; Ben Khalifa, 2010).

This study aims at examining the mediating role of the organization in generating performance by the use of ICT and at determining the conditions for the optimal use of technological potentials by Tunisian companies. To answer all these questions, this research stems from the work of Weill (1992), by rejecting the technological determinism and considering that ICTs cannot, alone, predict the performance variations. Using the Resources-Based View (RBV) as a theoretical framework, the proposed conceptual model links the independent variable « ICT use », the dependent variable «Organizational Performance», and an intermediate level represented by moderating variables that may interfere in this relationship.

The Resource-Based View and Performance Genesis

While they were oriented towards economic and industrial analysis and considered the firm and its strategy through an activities' portfolio, strategic analysis tools have turned, in the late eighties, to an internal analysis of the organization to explain the origins of competitive advantage and differential performance between firms (Allouche and Schmidt, 1995).

The Resource-Based View considers that the competitiveness of a company depends on the acquisition of assets and internal competencies rather than on the external conditions that may affect its business.

The RBV takes place within a processual nature evaluation model, which intends to analyze the events that help achieve the performance following the implementation of ICT. These models offer an empirical loyalty vis-à-vis business processes allowing it to profit from its technological investments (Raymond, 2002).

The procedural model contrasts with the causal model, which seeks only to establish "cause-and-effect" relations between independent and dependent variables. The RBV provides an adequate analytical framework to examine the problem of the contribution of ICT to performance improvement (Hulland and Wade, 2004). It replicates the seminal work of Selznick (1957) and Chandler (1962), which focused on the ability of the firm to manage its resources and to generate performance. It was supported in 1984 with the work of Wernerfelt.

The RBV considers the company as a portfolio of resources on which it relies for its development. Argyres and Zenger (2007) described it as "Performance Firm's Theory." Barney (1991) defines resources as all assets, capacities, organizational processes, knowledge, information systems, etc. controlled by a company that enable it to implement strategies that improve its operation and efficiency.

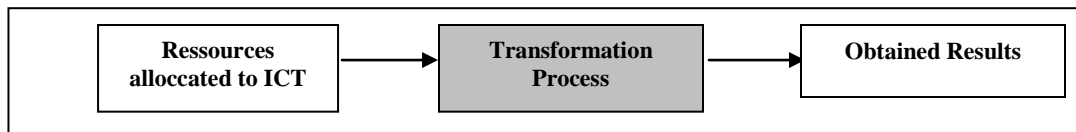
Barney (1991) classifies resources into three categories:

- Physical capital resources: facilities, hardware technology, equipment available in the company;
- Human capital resources: skills, intelligence, insight, managers' and employees' experience;
- Organizational capital resources: formal and informal planning structures control and coordination system, company's ability to anticipate, manage and adapt to change.

Value creation is achieved through complementarity and interaction of technology resources with the company's internal resources (Lockett, Morgenstern and Thompson, 2009). Some authors instead focus on the missing link between the possession of resources and their actual use by questioning the particularities of the "black box" where these resources are managed (Wong and Karia, 2010).

For this purpose, McKeen, Smith and Parent (1997) considered an efficient use of ICT through an "efficient transformation process" that needs proper allocation of corporate resources and would be the source with which ICT contributes to improving business results (Figure 1).

Figure 1: ICT transformation model of Mc Keen, Smith & Parent (1997)



In order to uncover the mystery of the black box, this study refers to the work of Rosenberg (1982), which assumes that organizational learning rests on the "organizational capacity" that the company has forged from experience.

Organizational capacity is defined as "A "know-how-to-act" integrated in cash flows by taking into account an organizational context. It helps to know what to do and how in order to implement a strategy, by mobilizing all the stakeholders. This know-how-to-act" requires, on the one hand, resources, skills, individual and organizational knowledge and on the one hand, their crystallization in a process specific to a domain at a given moment. "(St-Amant and Renard, 2003; p 6).

Amabile and Gadille (2001) refer to the work of March (1989) who explains organizational learning by two variables: exploitation and exploration to explain that adoption of new technologies leads to exploring new communication rules and operating old rules already working within the company's information system. They explain the conditions and performance of ICT use by a specific combination of these correlative rules and practices of old and new skills.

This study aims at identifying the determinants of ICT success by focusing on internal resources as outlined by Hulland and Wade (2004). Referring to Barney's resource classification (1991), three success determinants are used in this research: (1) technical characteristics, (2) human characteristics and (3) organizational characteristics.

In order to propose an integrative model, the concept of strategic alignment has also been used. Indeed, as suggested by Delone and McLean (1992), an ICT impact assessment model must be both comprehensive and detailed while keeping a certain simplicity allowing it to maintain its explanatory power.

The Conceptual Framework and Research Hypotheses

The conceptual model proposed links (1) the independent variable of ICT use, (2) the dependent variable of organizational performance and four moderating variables: (3) technical characteristics, (4) human characteristics, (5) organizational characteristics and (6) strategic alignment of ICT.

ICT Use

This variable measures the degree of digitalization processes of different business management aspects (Kalika, 2000) and should be considered as a multidimensional variable (Burton-Jones and Straub, 2006). In this study, the independent variable was assessed through several dimensions: the degree of ICT use, the

percentage of employees using ICT, the degree of ICT use by the different hierarchical levels and the ICT usage degree by the different functions.

Organizational Performance

Organizational performance is here understood in the light of the internal environment within the meaning of Song and Letch (2012). Although measurement of performance in its relationship with ICT has led to different approaches, a consensus is there among several researchers who consider that given the complexity of companies, no single variable can be sufficient to explain all the factors contributing to their performance (Kohli and Devaraj, 2003). The dependent variable was therefore apprehended through three categories of organizational benefits: Strategic, informational and transactional (Mirani and Lederer, 1998).

The Moderating Variables

According to Ghapanchi, Wohlin and Aurun (2014), a correspondence between resource categories and variables highlighted in the literature was made. This adaptation has allowed to apprehend resources as follows:

The Technical Characteristics- Task-Technology Fit

Technical characteristics were apprehended through the concept of "Task-Technology Fit" that corresponds to the degree to which technology allows the achievement of specific tasks (Illia and Roy, 2001). Fit increases intensity of technology use and represents a condition for success in the use of ICT through improved user performance (Goodhue and Thomson, 1995).

The moderating role of Task-Technology Fit was shown empirically by Prekumar and Ramamurthy (1995). *Hypothesis 1: Task-technology fit positively moderates the relationship between ICT use and organizational performance.*

The Human Characteristics - Innovativeness

Innovativeness is defined as the degree of adopting an innovation by an individual compared to other members of his social system (Rogers and Shoemaker, 1971). Applied to the particular field of Information Systems, innovativeness is the ability to use a new technology by an individual (Agarwal and Prasad, 1998). Furthermore, innovativeness is a feature that manifests in different degrees among individuals et can thus contribute to the development of favorable or unfavorable attitudes towards technological innovation (Hurt, Joseph and Cook, 1997).

Damanpour (1991) showed that innovativeness positively influence the relationship between ICT use and performance.

Hypothesis 2: Innovativeness positively moderates the relationship between ICT use and organizational performance.

Organizational Characteristics - Organizational Adaptability

"Adaptability" is a concept borrowed from organization theory and describes the ability of the company to adapt or change organizational processes and products with relatively lower time and costs (Swink, Narasimhan and Kim, 2005). It determines the ability of the company to adapt to change (expected or unexpected) and derive benefits (Zhang and Sharifi, 2000). The creation of change agents and the user involvement in the change process represent modifications in the managerial activities that may reduce resistance to change and contribute to the successful implementation of ICT (Judge, and Naoumova Douglas, 2009).

Hong and Kim (2002) empirically demonstrate the moderating role of organizational adaptability in the relationship between the implementation of ERP technology and performance.

Hypothesis 3: Organizational adaptability positively moderates the relationship between ICT use and organizational performance.

The strategic alignment of ICT

The strategic alignment concept is defined as an appropriate use of ICT in line with the business strategies and business objectives (Henderson and Venkatraman, 1991). It includes the transformation of the business strategy in order to adapt it to technology plans and a continuous adaptation to the demands of the external environment (Kearns and Lederer, 2004).

Strategic alignment enables coordination between those responsible for technology projects and those responsible for the implementation of business strategies. This leads to the development of more efficient, and particularly long-term strategic systems. Bergeron and Raymond (1995) as well as Velcu (2010), using a moderating-type relationship, showed that the strategic alignment of ICT contributed to improve performance. However, using a twinning-type relationship, Palmer and Markus (2000) found no positive relationship between ICT use and organizational performance.

Hypothesis 4: Strategic alignment positively moderates the relationship between ICT use and organizational performance

Figure 2 shows the structure of the research model proposed.

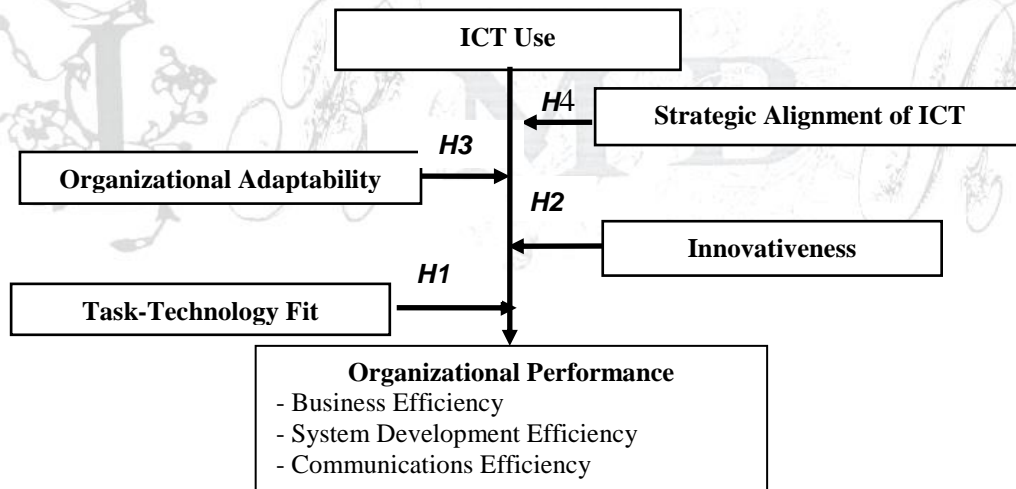


Figure 2: The Research Model

Methodology and Results

Methodology

The research model variables were apprehended by measurement scales validated by previous research. A Likert 7-point scale ranging from "strongly disagree" to "strongly agree" was used. Moreover, the choice fell on perceptual evaluation criteria because of confidentiality of data, unavailability of information on objective measures and the convergence between objective assessment and perceptual evaluation (Gauzente, 2000). A questionnaire was sent to 1000 Tunisian companies operating in the private sector. Only companies with one-year span of investment and with a satisfactory degree of digitalization were selected. 113 usable questionnaires were obtained.

Analysis and Results

Validation of Measurement Scales

The verification of the validity of the measurement scales was done primarily through a Principal Component Analysis (PCA) in the case of formative measurement model and Factoring in Key Areas (FAP) in the case of reflective measurement model (Fabrigar and al, 1999). The analyses described in this section were performed using SPSS 16 software and the Smart PLS.

Checking the validity of the measurement scales after purification is done through reliability testing, convergent validity and discriminant validity as shown in Table 1. It shows that all measurement scales are reliable ($\rho > 0.6$ and $\alpha > 0.7$) and exhibit a convergent validity ($AVE > 0.5$). In addition, the average representation quality is greater than 0.5 for each construct, indicating that the scales are generally reliable and well represented.

Table 1: Psychometric Quality of the Constructs

	Average representation quality	Alpha	Rh \hat{o}	AVE
ICT Use	0,54	0,77	0,84	0,54
Stratic Alignment	0,76	0,85	0,91	0,76
TT Fit	0,74	0,82	0,89	0,74
Organizational Adaptability	0,68	0,77	0,87	0,68
Innovativeness	0,79	0,87	0,92	0,79
Organisational Performance	0,63	0,88	0,91	0,63

The evaluation of the psychometric quality confirmed that the factor loadings of all the items on their theoretical constructs are significantly different from zero and above the 0.5 threshold for the standardized version, corroborating the convergent validity of the scales (table 2).

Table 2: Psychometric Quality of the items

	Standardized Loading	T	Representation quality
Degree ICT use	0,61	6,98	0,37
Percentage of employees using ICT	0,87	37,89	0,76
ICT use by hierarchical levels	0,82	20,97	0,68
ICT use by functions	0,83	24,80	0,70
Strategic Alignment	0,88	46,42	0,78
TT Fit	0,87	26,98	0,75
Organizational Adaptability	0,86	25,27	0,74
Innovativeness	0,87	41,17	0,76
Business Efficiency	0,86	31,50	0,74
System Development Efficiency	0,77	17,56	0,60
Communications Efficiency	0,69	10,74	0,48

Despite the absence of a global test of significance for the methodology PLS, the uni-dimensionality of the measurements can be bonded, in so far as the model adjustment index of the overall measurement data (GoF = 0.966) is above the threshold of 0.9 required for satisfactory adjustment (Tenenhaus and al, 2005).

Hypothesis Testing and Interpretation of the Results

The PLS algorithm was used to estimate relationships or paths between latent variables. It is popular among the Information Systems' Researchers because of its ability to model latent constructs under conditions of non-normality and to accommodate small sample sizes (Limayem, Khalifa and Chin, 2004). In addition, the

PLS methodology is more appropriate for studies that are at a stage of emerging uncertainties about theory and measurement (Henseler, Ringle and Sinkovics, 2009).

To estimate moderating variables under PLS, it is appropriate to use the products indicator approach which postulates that if the predictor is measured by p indicators and the moderator by q indicators, interaction is measured by p * q indicators (Chin, Marcolin and Newsted, 1996). In order to avoid measurement errors, it seemed prudent to opt for a strategy reconciling simultaneous and sequential estimations (Schermelleh-Engel and al, 2006). Thus, five models were estimated. Four correspond to the sequence estimation of the moderating effects on the relationship between the use of ICT and performance, exercised by:

- Strategic Alignment: Model M1a;
- Task-Technology Fit: Model M1b;
- Organizational Adaptability: Model M1c;
- Innovativeness: Model M1d.

The fifth model (M2) is a simultaneous estimation of the four effects with the inclusion of four interactions. The results are summarized in Table 3. It shows that the effect of ICT use on performance is actually moderated by some variables from the organizational environment, but not by the four selected variables. Indeed, innovativeness proved to be the most significant under both simultaneous and sequential estimations while being associated with a significant increment of explanatory power. This confirms the important role of innovativeness of staff and senior management in the success of using technology solutions.

Table 3: Results for simultaneous and sequential estimations using PLS

Model	Independent variable	GoF	R ²	F	DE	IB (ED/ R ²)	SB (DE/ R ²)
M1a		0.94	0.74	8.34		0.69	0.81
	UseTIC				0.33	0.21	0.42
	StratAlign				0.55	0.45	0.64
	USExStratAlign				-0.12	-0.27	0.07
M1b		0.91	0.67	1.82		0.62	0.76
	UseTIC				0.43	0.35	0.49
	TTFit				0.43	0.33	0.49
	USExTTFit				-0.12	-0.26	-0.03
M1c		0.91	0.66	12.06		0.61	0.76
	UseTIC				0.40	0.27	0.47
	OrgAdapt				0.40	0.28	0.52
	USExOrgAdapt				-0.20	-0.37	0.15
M1d		0.94	0.72	34.84		0.654	0.79
	UseTIC				0.40	0.30	0.45
	Innov				0.46	0.40	0.53
	USExInnov				-0.13	-0.23	-0.05
M2		0.88	0.75	0		0.71	0.82
	UseTIC				0.18	0.15	0.21
	StratAlign				0.22	0.19	0.26
	TTFit				0.17	0.13	0.20
	OrgAdapt				0.16	0.11	0.19
	Innovativeness				0.21	0.17	0.24
	USExAlignStrat				-0.02	-0.07	0.04
	USExTTFit				-0.01	-0.06	0.02
	USExOrgAdapt				-0.03	-0.10	0.07
	USExInnov				-0.06	-0.11	-0.02

In contrast to innovativeness, the moderating effects of organizational adaptability and strategic alignment are proven to be not significant under neither a sequential nor a simultaneous estimation. However, the findings are more mixed for the task-technology fit whose moderating effect is significant under the sequential estimation, but not significant under the simultaneous estimation. It should be noted that a substantial part of the performance variance explained by each of the estimated models (R^2), ranging from 66% to 75%, is consistent with the fact that performance can be predicted by a set of organizational variables.

The results thus lead to conclude that establishing organizational reforms had no effect on performance. This conclusion is consistent with those of Brynjolfsson and Hitt (1996) and Black and Lynch (2001). How to explain this counter-intuitive and unexpected result? The answer would be the fact that Tunisian companies probably do not have enough knowledge about the use of these technologies so that these organizational reforms have not been implemented in a structured way by the surveyed companies.

This interpretation is similar to that of Brynjolfsson and Hitt (1996) who argue that the co-introduction of ICT and organizational changes may not generate immediate benefits. By focusing on the introduction of ERP, the authors noted that despite significant organizational change initiatives, the expected impacts were not immediately obtained. They conclude that technological resources generate better performance when they are "absorbed" and become a routine part of the value chain of the firm. This finding may report to the difficulty of changing employees' beliefs, the first interested in organizational reforms, when new technologies emerge to upset their habits and knowledge gained over many years. All these changes would affect negatively ICT use behavior.

Brousseau and Rallet (1997) also assume that ICT is often a source of resistance which is sometimes justified by significant organizational changes resulting from their introduction (changes in labor division, remodeling skills) as well as by the difficulty to predict the long-term effects (status quo trend): This is the thesis of organizational determinism.

Furthermore, an investigation conducted by the Tunisian Observatory of E-management¹ concluded that the introduction of ICT in the surveyed Tunisian firms only reinforced existing organizational characteristics particularly the high degree of centralization of decision-making and formalism. Most respondents had even said that the introduction of ICT resulted in an increase in hierarchical structures.

Is it may be because of this hardening of hierarchical structures that organizational factors failed to play their catalytic role in performance in the surveyed companies? On the other hand, non-checking of the moderating role of strategic alignment is also counter-intuitive.

Accordingly, it seems so relevant to stress that there is a big gap between the level of presence of technological equipments and level of their real use. This confirms the findings of Bellon, Ben Youssef and M'henni (2006) who consider that use of ICT in the Southern Mediterranean is opportunistic and is often the result of mimetic motives rather than real economic and strategic ones.

This opportunistic behavior overshadowing the importance of strategic thinking in acquiring new technologies seems to have inhibited the moderating role of strategic alignment. The importance of choosing the right technology, according to business needs and not to mimetic or show-off motives, reinforces the essential role of the task-technology fit in the success of the use of ICT in the surveyed companies.

¹ E-management Tunisian Observatory (2005) "Vers une approche pour la pratique e-managériale dans les entreprises tunisiennes", Research Unit e-masig, Faculty of Economic Sciences and Management of Tunis.

Conclusion and Directions for Future Research

The aim of this study was to propose, through the identification of key success factors, a grid to guide managers of Tunisian companies in the development of technological innovations in order to reap the best possible performance. The results of the research highlighted the crucial role of involvement and innovativeness of employees and managers.

Indeed, for ICT to become a routine element in the management of Tunisian companies, it is first important to give great care about raising awareness of human resources on the importance of information technology in view of promoting their acceptance and hoping to earn performance gains. This is, according to Goss, Pascal and Athos (2001), often neglected despite its importance.

Furthermore, the non-confirmation of the importance of strategic alignment as a determinant of success was explained by the lack of a strategic thinking in parallel with the introduction of ICTs, which are often introduced responding more to mimetic and show-off aspirations than to strategic thinking.

As future research, it would be interesting to position the issue of identifying Key Success Factors of ICT by Tunisian companies under a longitudinal perspective to monitor the process from the adoption of new technology until it becomes a routine part of the company's business as advocated by Karahanna and Straub (1999). This particularly relates to organizational adaptability and strategic alignment of ICT whose effects have been proven noticeable over time.

References

- Agarwal, R. & Prasad, J. (1998), "A Conceptual and Operational Definition of Personal Innovativeness in the Domain of Information Technology", *Information System Research*, Vol.9, Iss.2, June, pp.204-215.
- Allouche, J & Schmidt, G (1995), *Les outils de la décision stratégique*, La découverte, Vol. 2.
- Amabile, S. & Gadille, M. (2001), "Les NTIC dans les PME : Stratégies, capacités organisationnelles et performances différenciées", Research paper of the Faculty of Applied Economics, University of Aix en Provence.
- Amabile, S. & Gadille, M. (2001), "Les NTIC dans les PME : Stratégies, capacités organisationnelles et performances différenciées", Research paper of the Faculty of Applied Economics, University of Aix en Provence.
- Argyres, N. & Zenger, T. (2007), "Preliminary Outlines: Challenges of Separating Are Capability-Based Theories of the Firm Boundaries Really Distinct from Transaction Cost Theory", *Academy of Management Best Paper Proceeding*, pp. 1-6
- Barney, J. (1991), "Firms Resources and Sustained Competitive Advantage", *Journal of Management*, Vol. 17, Iss.1, pp. 99-120.
- Bellon, B., Ben Youssef, A. & M'henni, H. (2006), "Le maillon manquant entre adoption et usage des TIC dans les fonctions managériales des économies du sud méditerranéen", *Revue Française de Gestion*, Vol.32, Août-Septembre, pp.173-190.
- Ben Khalifa, A. (2010), "TIC, innovations organisationnelles, capital humain et performance des entreprises du secteur EEE tunisien", Conference proceedings "Innovations et développement dans les pays méditerranéens" organized by the International Research Group (GDRI) of the CNRS, Cairo, Egypt, 13-14 December.
- Ben Youssef, A. & Mhenni, H. (2004), " Les effets des Technologies de l'Information et de la Communication sur la croissance économique : le cas de la Tunisie", *Région et Développement*, Iss.19, pp. 131-150.
- Bergeron, F. & Raymond, L. (1995), "The contribution of IT to the bottom line: A contingency perspective of strategic dimensions", *Proceeding of the 16th International Conference on Information Systems*, Amsterdam, pp. 167-181.

- Black, S.E & Lynch, L.M. (2005), "Measuring Organizational Capital in the New Economy", *IZA discussion papers*, Iss.1518, Institute for the Study of Labor (IZA).
- Brousseau, E. & Rallet, A. (1997), *Le rôle des technologies de l'information et de la communication dans les changements organisationnels*, l'Harmattan, Paris.
- Brynjolfsson, E. & Hitt, L.M. (1996), "Paradox Lost? Firm-level Evidence on the Returns to Information Systems Spending", *Management Science*, Vol. 42, Iss.4, pp 541-558.
- Burton-jones, A. & Staub, Jr.D. (2006), "Reconceptualizing System Usage: An approach and empirical Test", *Information System Research*, Vol.17, Iss.3, September, pp.226-246.
- Chandler, A.D. (1962), *Strategy and structure*, MIT Press, Cambridge.
- Chin, W. W., Marcolin, B. L. & Newsted, P. R. (1996), "A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and voice mail emotion/adoption study", in J. I. DeGross, S. L. Jarvenpaa, & A. Srinivasan (Eds.), *Proceedings of the Seventeenth*.
- Damanpour, F. (1991), "Organizational Innovation: A Meta-analysis of Effects of Determinants and Moderators", *Academy of Management Journal*, Vol. 34, Iss.3, pp.555-590.
- Delone, W.H. & McLean, E.R. (1992), "Information Systems Success: The Quest for the Dependent Variable", *Information Systems Research*, Vol. 3, Iss.1, pp. 60-95.
- Fabrigar, L.R., Wegner, D.T., MacCallum, R.C. & Strahan, E.J.(1999), "Evaluating the Use of Exploratory Factor Analysis in Psychological Research", *Psychological Methods*, Vol.4, Iss.3, pp.272-299.
- Gauzente, C. (2000), "Mesurer la performance des entreprises en l'absence d'indicateurs objectifs : Quelle validité ? Analyse de la pertinence de certains indicateurs", *Finance Contrôle Stratégie*, Vol. 3, Iss.2, pp.145 - 165.
- Ghapanchi, A.H., Wohlin.C. & Aurun.A. (2014), « Ressources Contributing to Gaining Competitive Advantage for Open Source Software Projects: An Application of Resources-Based Theory", *International Journal of Project Management*, Vol 32, Iss.1, pp.139-152.
- Goodhue, D.L & Thompson, R.L. (1995), "Task-Technology Fit and Individual Performance", *MIS Quarterly*, Vol.19, Iss.2, pp.213-236.
- Goss, T., Pascale, R. & Athos, A. (2001), "Réinventer les montagnes russes : descendre aujourd'hui pour mieux monter demain", *Harvard Business Review*, in J.-L. Klisnick, Éditions d'Organisation, pp. 93-125.
- Henderson, J. C. & Venkatraman, N. (1991), "Understanding Strategic Alignment", *Business Quarterly*, Vol.55, Iss.3, pp.72-90.
- Henseler, J., Ringle,C.M. & Sinkovics, R.R. (2009), "The use of partial least squares path modeling in international marketing", in Professor Shaoming Zou (ed.) *New Challenges to International Marketing*, *Advances in International Marketing*, Vol.20, Emerald Group Publishing Limited, pp.277-319.
- Hong, K.K. & Kim, Y.G. (2002), "The Critical Success Factors for ERP Implementation: an Organizational Fit Perspective", *Information & Management*, Vol.40, Iss.1, pp. 25-40.
- Hulland, J. & Wade, M. (2004), "The Resource Based-View and Information System Research: Review, Extension and Suggestion for the Future Research", *MIS*, Vol. 28, Iss.1, pp. 107-142.
- Hurt, H.T., Joseph,K. & Cook, C.D. (1977), "Scale for the measurement of innovativeness", *Human Communication Research*, Iss.4, pp.58-65.
- Illia, A. & Roy, M.C. (2001), "Utilisation des TI par les managers : Vers un modèle conceptuel intégré", Research paper *Laval University*, Québec, Canada.
- Joshi, K. & Pant, S. (2008). "Development of a framework to assess and guide IT investments: An analysis based on a discretionary-mandatory classification", *International Journal of Information Management*, Vol. 28, Iss.3, pp. 181-193.
- Judge, W. Q., Naoumova, I. & Douglas, T. (2009), "Organizational capacity for change and firm performance in a transition economy", *The International Journal of Human Resource Management*, Vol. 20, Iss.8, August, pp. 1737 - 1752.
- Kalika, M. (2000), "Le management est mort vive le e-management", *Revue Française de Gestion* n°.129, pp 68-74.

- Kammoun, F., Chaabouni, J. Tabbane, S. & Ben Letaifa, A. (2010), "Vers une politique et une réglementation des TIC fondée sur des données probantes", *Revue de performance du secteur des TIC Tunisie 2009/2010*, Research paper, Vol.2, Iss.12.
- Karahanna, E. & Straub, D.W. (1999), "The psychological origins of perceived usefulness and ease-of-use", *Information & Management*, Vol. 35, Iss. 4, pp. 237-250.
- Kearns, G.S. & Lederer, A.L. (2004), "The Impact of Industry Contextual Factors on IT Focus and the Use for Competitive Advantage", *Information & Management*, Vol. 41, Iss. 7, pp.899-919.
- Kohli, R., and Devaraj, S. (2003). "Measuring Information Technology Payoff: A Meta-Analysis of Structural Variables in Firm-Level Empirical Research," *Information Systems Research*, Vol. 14, Iss. 2, pp 127-145.
- Limayem, M., Khalifa, M. & Chin, WW. (2004), "CASE Tools Usage and Impact on System Development Performance", *Journal of Organizational Computing and Electronic Commerce*, Vol.14, Iss.3, pp.153-174.
- Liu, T.K., Chen, J.R., Huang, C.J. & Yang, C.H. (2014), "Revisiting the Productivity Paradox: A Semiparametric Smooth Coefficient Approach Based on Evidence from Taiwan", *Technological Forecasting and Social Change*, Vol.81, January, pp.300-308.
- Lockett, A., Thompson, S. & Morgenstern, U. (2009), "The Development of the Resource Based View of the Firm: A Critical Appraisal", *International Journal of Management Reviews*, Vol. 11, Iss.1, pp. 9-28.
- March, J.G. (1989), "Exploration and Exploitation in Organisational Learning", *Organization Science*, Vol.2, Iss.1, February, pp. 71-87.
- McKeen, J.D., Smith, H.A. & Parent, M. (1997), "Assessing- the Value of Information Technology: the Leverage Effect", *Proceedings of European Conference in Information Systems*, Cork-Ireland, June, Vol.19, Iss.21, pp.676-691.
- Mirani, R. & Lederer, A.L. (1998), "An Instrument for Assessing the Organisational Benefits of IS Projects", *Decision Sciences*, Vol.29, Iss.4, pp.802-823.
- Palmer, J.W. & Markus, M.L. (2000), "The Performance Impacts of Quick Response and Strategic Alignment in Specialty Retailing", *Information Systems Research*, Vol.11, Iss.3, pp. 241-259.
- OCDE (2003). "Les TIC et la croissance économique, panorama des industries des entreprises et des pays de l'OCDE", URL: http://www.oecd.org/dac/ictcd/docs/otherdocs/OtherOECD_ICT_eco_growth_fr.pdf
- Premkumar, G. & Ramamurthy, K. (1995), "The Role of Inter-organizational and Organizational Factors on the Decision Mode for Adoption of Inter-organizational Systems", *Decision Science*, May-June, Vol.26, Iss.3, pp.303-336.
- Raymond, L. (2002), « L'impact des systèmes d'information sur la performance de l'entreprise », in *Faire de la recherche en systèmes d'information* (pp.301-319), Coordinated by Row F., Vuibert (Eds), Paris.
- Rogers, E. M. & Shoemaker, F. F. (1971), *Communication of innovations: A cross-cultural approach (2nd Edition)*, New York, Free Press.
- Rosenberg, N. (1982), *Learning by using in "Inside the black box*, Cambridge University Press.
- Saint-Amant, G. & Renard, L. (2003), « Capacité, capacité organisationnelle et capacité dynamique : une proposition de définitions », *Les Cahiers du Management Technologique*, January-April, Vol 13, Iss. 1.
- Schermelleh-Engel, K., Helfried Moosbrugger, H., Kelava, A. & Dimitruk, P. (2006), "Should all Nonlinear Effects in Structural Equation Models be Always Analyzed Simultaneously? *Proceedings of the SMABS - EAM Conference*, Budapest.
- Selznick, P. (1957), *Leadership in administration: a sociological interpretation*, Harper & Row, (Eds), New York.
- Solow, R. (1987). "We'd better watch out", *New York Times Book Review*, 12 July.
- Song, X. & Letch, N. (2012). "Research on IT/IS Evaluation: A 25 Year Review", *The Electronic Journal Information System Evaluation*, Vol. 15, Iss.3, pp. 276-287.

- Swink, M., Narasimhan, R. & Kim, S.W. (2005), "Manufacturing Practices and Strategy Integration: Effects on cost efficiency, flexibility, and market-based performance", *Decision Sciences*, Vol.36, Iss.3, pp. 427-457.
- Tenenhaus, M., Esposito Vinzi, V., Chatelin Y.M., & Lauro, C. (2005), "PLS Path Modeling", *Computational Statistics and Data Analysis*, Vol.48, Iss.1, pp. 159-205
- Turedi, S. & Zhu, H. (2012), "Business Value of IT: Revisiting Productivity Paradox through Three Theoretical Lenses and Empirical Evidence", *Proceedings of the Americas Conference on Information Systems (AMCIS)*.
- Velcu, O. (2010), "Strategic Alignment of ERP Implementation Stages: An Empirical Investigation", *Information & Management*, Vol.47, Iss.3, August, pp. 158-166.
- Weill, P. (1992), "The Relationship Between Investment in Information Technology and Firm Performance in the Manufacturing Sector", *Information Systems Research*, Vol.3, Iss.4, pp.307-333.
- Wernerfelt, B. (1984), "A Resource Based View of the Firm", *Strategic Management Journal*, Vol. 5, Iss.3, pp. 171-180.
- Wong, C.Y. & Karia, N. (2010), "Explaining the Competitive Advantage of Logistics Service Providers: A Resource-Based View Approach", *International Journal of Production Economics*, 128, pp.51-67.
- Zhang, Z. & Sharifi, H. (2000), "A methodology for achieving agility in manufacturing organizations", *International Journal of Operations & Production Management*, Bradford, Vol. 20, Iss.4, pp. 496-512.

