

The Role of Information Technology Capabilities in Capitalizing Market Agility in Jordanian Telecommunications Sector

Abdallah Q. Bataineh

Assistant Professor, Department of Marketing (Corresponding Author)
Applied Science Private University, Amman, Jordan
E-mail: a_bataineh@asu.edu.jo

Anas Y. Alhadid

Assistant Professor, Department of Marketing
Applied Science Private University, Amman, Jordan
E-mail: a_alhadid@asu.edu.jo

Ghaith M. Al-Abdallah

Associate Professor, Department of Marketing
Applied Science Private University, Amman, Jordan
E-mail: gh_alabdallah@asu.edu.jo

Tasneem F. Alfalah

Assistant Professor, Department of Business Administration
Applied Science Private University, Amman, Jordan
E-mail: tasneem_alabady@hotmail.com

DOI Link: <http://dx.doi.org/10.6007/IJARBSS/v5-i10/1763>

Published Date: 20 October 2015

Abstract

Information technology (IT) capabilities consider the foundation stone for telecoms organizations to achieve market agility, in view of the fact that these capabilities can provide those organizations with enormous data about the overall market surroundings; thus they can quickly respond to seize on opportunities and avoid various threats. However, the focal point of this research is to examine the role of IT capabilities in capitalizing market agility. A self-administered questionnaire was distributed on a total sample of (192) IT employees working at one of these Jordanian telecoms organizations (Zain, Orange and Umniah) from different managerial levels. The findings of multiple regression test showed that; IT business spanning capability is the most influential dimension on market agility, and respectively, IT infrastructure capability and IT proactive stance capability. Accordingly, the researchers

recommended both managerial implications and directions for other researchers in this rich area to better appreciate critical IT capabilities with the purpose of attaining superior market agility.

Keywords: Market agility, IT infrastructure capability, IT business spanning capability, IT proactive stance capability, telecoms organizations, Jordan.

1. Introduction

In these days, the turbulence and unpredictable business environment imposed organizations profoundly to be agile, and to show real readiness to deal with tremendous challenges, overcome extraordinary threats and exploit opportunities. Even though, there are a various meanings and definitions of organizational agility mentioned in business and marketing literatures, and all of these definitions were concentrated around organizations' ability to rapidly act in response to market conditions. According to Kara and Kayis (2004) in order to be approachable and adjustable to the fluctuated environmental circumstances; organizations have to build up flexible processes and procedures.

However, organizations may utilize numerous information technology (IT) capabilities, since the IT capabilities were found essential to impact the promptness of organization responding to the changes occurring in the market, particularly by means of the lofty swiftness of transmitting information (Lu and Ramamurthy, 2011). According to Sambamurthy and Zmud (1997) IT capability can be defined as the ability of organization's to obtain, spread, bond and rebuild the IT resources to improve operations and overall business strategy. Therefore, IT capability is of a vital for organization to recognize business worth and became more competitive in the market. Even both scholars and practitioners have started to connect competitive advantage with IT capability; incomplete thoughts of how IT capability impact agility in the modern and volatile business environments predominantly still exist (Kohli and Grover, 2008). Accordingly, there is a call for more thorough investigations of the relationship between IT capability and organizational agility. While organizations are devoting high amounts in building IT systems to track novel innovations produced by different marketplace drivers. A small number of researchers have practically examined the possible role of organizational IT capabilities contexts in gaining organizational agility (e.g. Tallon and Pinsonneault, 2011). What is more, some researchers claimed that IT capabilities might hold back and restrain organizational agility (Rettig, 2007; Galliers, 2007). Hence, it is indispensable and crucial to research more on the agility development, taking in consideration the IT role as cornerstone of this process. According to Goodhue et al., (2009) projects systems that apply immense incorporated and bundled systems to computerize and reinforce business processes were found to be linked with organizational agility.

In this research, we will empirically examine how IT capabilities possibly will influence market agility as one aspect of the organizational agility concept, through discussing the main components of IT capabilities. We planned to choose the telecommunication sector since it best represent the IT capabilities context. Moreover, the telecoms sector has witnessed a great progress in the last decade, since the telecoms infrastructures are incrementally and rapidly growing. According to latest figures provided by Jordanian department of statistics www.dos.gov.jo (2015); the telecoms sector formed 5.48% of gross domestic product (GDP) compared with other economical sectors. However, telephone, radio, television and the internet are the most common media used in this lusty sector. As a final point, we are looking for to establish more comprehensive picture regarding the influence of IT capabilities on market agility.

2. Research Background and Previous Studies

2.1 Market Agility

The concept of market agility can be defined as the organizations' readiness to speedily take action toward market changes, via constantly keep an eye on organizations' products and quickly improving them to satisfy targeted audience needs and wants. Hence, market agility call attention to a lively, insistent change-encirclement and pioneer attitude concerning holistic directions for organizations, and make ruling under ambiguous situations. According to Goldman et al., (1995) in order to attain market agility, organizations need appropriate handling of a huge and various amount of information, which might be augmented by a number of supporting IT systems. The role of IT became critical in formulating the digital dais that draws the broad lines of market agility in an organization (Weill et al., 2002). Some researchers found direct influence of IT systems on agility (e.g. Goodhue et al., 2009); while others found that the IT systems might hinder agility due to inappropriate deployment or management (e.g. Overby et al., 2006).

2.2 Information Technology (IT) Capabilities

The IT capabilities in most cases reflect the organizational aptitude to consolidate organizational overall activities, procedures and resources and via automated instruments. Moreover, it provides important backup designed for easily and efficiently sense and respond to market forces. On the other hand, it seems that IT capability can create time-lag before rivals act forcefully to devastate the competitive advantage of the organization, which means it serves as strategic obstacle in the face of other competitors (Piccoli and Ives, 2005). Consequently, and depending on previous research (e.g. Yoon, 2011; Lu and Ramamurthy, 2011), IT capabilities can be classified into the following dimensions:

2.2.1 Infrastructure Capability

Well built IT infrastructures for telecoms industry can secure local and international integration basis that encourages consistency and integration of data gathering and processing, which leads to well-timed and precise sharing for information to make reasonable decisions. The concept of IT infrastructure capability can be defined as the organizations' aptitude to set out IT solid dais to process and manage data accurately and create connected network channels (Weill et al., 2002). Telecoms organizations ability to reach international information can strengthens widespread recognizing for turbulence market conditions by collecting, following and distributing an organized information regarding customer preferences, competition, latest technology and new regulations imposed by government (Overby et al., 2006). According to Sambamurthy et al., (2003) infrastructure integration can create unlimited digital alternatives that improve and enrich organizational learning, which can support organization ability to share and utilize available knowledge. As well as, organizations at the same time may implement a variety of IT platforms to setup knowledge management (KM) systems. For example, sorting and keeping accumulative knowledge in the organizations' databases warehouses can facilitate allocating and using of knowledge, or, alternatively, building networks of people to share knowledge (Hansen et al. 1999). Throughout strong IT infrastructure organizations can swiftly put into practice new IT plans. The telecoms organizations can benefits from modeling and codifying data to immediately create IT-based services like the internet, which will be in line with environmental changes (Overby et al. 2006). Furthermore, the IT infrastructure can be managed effortlessly and efficiently by the IT knowledgeable staff in the telecoms organizations, since they consider as

transformation channel that turn hardware elements into valuable IT services (Fink and Neumann, 2007).

2.2.2 Business Spanning Capability

Generally speaking, the business spanning capability dimension indicates an integrated relationship among the overall IT capabilities inside the organization and decision makers, in order to gain superior analysis, planning and execution for organizations strategies. According to Ross et al., (1996) the continuous interaction and cooperation between business activities and IT after a while might promote a real confidence among IT and decision makers to share more information and introduce incredible services. Moreover, the business and IT interaction can guarantee competent adaptation of organizational workflow that regularly entails fundamental changes for information systems, operations and procedures. Hence, this dimension can be defined as the way that organization's utilize IT equipments to achieve both business goals and objectives, and to do so; organization's needs strategically to construct IT vision, mission and introduce them for decision makers to be aware of the preciosity of the IT tangible and intangible assets (Wade and Hulland, 2004). Similarly, previous studies strongly confirmed the role of IT based planning with formulating and implementing innovative strategies and flexible operations (Mitchell and Zmud, 1999). Consequently, since IT staff in the telecoms organizations deal directly with operations managers and in some cases with executives, they need to recognize business challenges and threats and then recommend radical solutions.

2.2.2 Proactive Stance Capability

The last dimension of IT capabilities is proactive stance, which describes how organizations continuously looking for innovative methods to find out and determine the best use of its IT potentials, to seize on various opportunities in the market. As a result, the organization will be ready to define, choose and track IT developments (Swanson and Ramiller, 2004). As well as, organizations can predict and feel significant changes caused by IT rapid progress. According to Galliers (2007) this dimension make possible for organizations to speedily explore and pick up appropriate opportunities using IT inventions to treat the gap between business strategy and the need for relevant and timely information. In addition, the proactive stance dimension offers organization with frequent updated knowledge. By means of a proactive IT stance organization can with no trouble handle the acceptance and execution of the latest IT solutions, and keep away from the consequences of lock-in technology (Swanson and Ramiller, 2004). Therefore, telecoms organizations can swiftly reformulate and use again its IT on hand to be prepared to introduce creative and innovative services to the market.

3. Generating Hypotheses

With the aim of testing the forthcoming model, and exploring the relationships between the prior discussed variables, the upcoming hypotheses have been generated:

H1: IT infrastructure capability will positively influence market agility.

H2: IT business spanning capability will positively influence market agility.

H3: IT proactive stance capability will positively influence market agility.

4. Research Model

As illustrated in figure 1, the researchers suggested this model depending on previous studies to explain and express the expected relationships among the research variables.

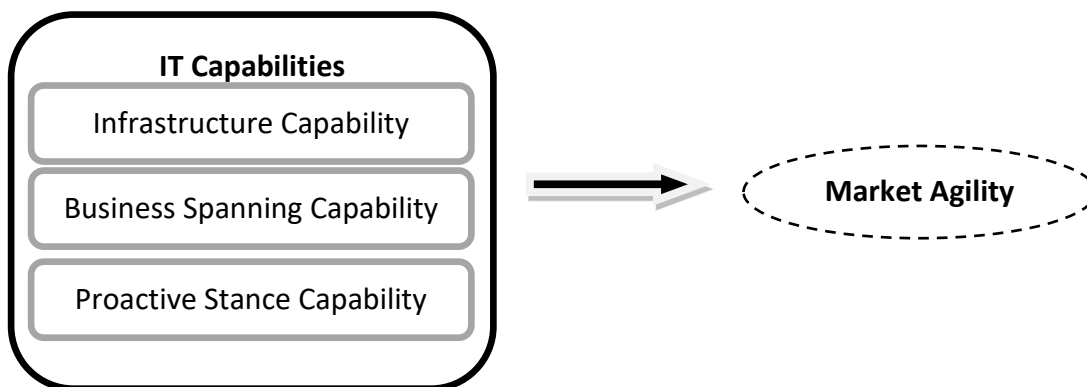


Figure 1: Suggested Research Model

5. Research Methodology

5.1 Research Sample

A convenience sampling method was applied to gather data from respondents. This method was identified in (Diffley et al., 2011). However, since the key players in the telecoms sector are; (Zain, Orange and Umniah) the research sample was all IT staff in these organizations, from low, middle and high managerial levels. Accordingly, the researchers had many official calls with these organizations to gain staff emails in order to send them the research questionnaires, and give details for them in terms of the research objectives, and privacy issues. Fortunately, all organizations showed professional and high cooperation. Table 1 exhibits number of questionnaires sent via email, and the response rate for each organization. As shown in the table, the total number of sent questionnaires was 192; and that was based on the available contacts, and 169 have been returned, whereas only (153) questionnaires were valid for statistical analysis.

Table 1:

The Research Sample and Response Rates

Organization Name	Questionnaires sent	Returned questionnaires	Response rate (%)
Zain	66	57	0.86
Orange	82	73	0.89
Umniah	44	39	0.88
Total	192	169	88.0

5.2 Developing Research Instrument

With the intention of fulfillment the research objectives, and gathering data from respondents; self-administered questionnaire has been built based on appropriate previous studies and proper literatures. For all questionnaire statements Likert' five-point scale was applied. As well as, a screening question has been used to confirm that all respondents are from IT background. Likewise, operational definitions and measurements of the research variables were derived from previous studies as illustrated in table 2.

Table 2:

Measurements and Their Sources

Variable	Measurement
Infrastructure capability	(Weill et al., 2002)

Business spanning capability	(Bharadwaj et al., 1998)
Proactive stance capability	(Fichman, 2004)
Market agility	(Goldman et al., 1995)

5.3 Validity and Reliability

The research variables were assessed by using both construct and content validity identified proofed in (Churchil, 2014). For the research reliability, cronbach's alpha was applied (Sekaran and Bougie, 2013). Table 3 signifies that each variable was greater than 60% which consider as a cutoff point, the alphas' values ranged from (0.839 to 0.884). As a result, the principle of internal reliability coefficients was met.

Table 3:

Cronbach's Alpha Coefficients

Variables	Number of Items	Cronbach's Alpha
Infrastructure capability	4	0.855
Business spanning capability	4	0.839
Proactive stance capability	4	0.884
Market agility	3	0.851

6. Analysis and Findings

6.1 Demographic Characteristics

Table 4 exhibits sample demographics in terms of respondents' age, gender, title and number of experience years.

Table 4:

Respondents Demographics

Variable	Frequency	Percentage %
Age		
22 – 31 years	41	0.27
32 – 41 years	76	0.50
42 – 51 years	23	0.15
More than 51 years	13	0.08
Gender		
Male	117	0.76
Female	36	0.24
Title		
T junior	48	0.31
T team leader	59	0.39
T manager	33	0.22
T executive	13	0.08
Number of experience years		
<i>Less than 3 years</i>	51	0.33
3 – 6	57	0.37
7 – 10	29	0.20
More than 10	16	0.10
Total	153	100.0

6.2 Hypothesis Testing

To facilitate testing the previous hypothesis, the researchers applied multiple regression tests in order to examine the influence of IT capabilities on market agility for telecoms organizations.

H1: IT infrastructure capability will positively influence market agility.

As revealed in table 5, there is a positive and significant influence of IT infrastructure capability on market agility. The table illustrates that 40.1% of the variation in market agility is explained by the IT infrastructure capability variable, what is more, beta value = 0.369 is significant at (0.000). Furthermore, all regression tests showed that there is no multicollinearity problem. As mentioned in (Hair et al., 2010). In view of that, H1 has been supported.

Table 5: Multiple Regression Tests for H1

R	R ²	Adjusted R ²	Std. Error of the Estimate	F	Sig.	H1 Result
.643a	.413	.401	.68730	65.545	.000b	Supported
Coefficients						
Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
B	Std. Error	Beta			Tolerance	VIF
2.338	.194		18.843	.000		
.235	.024	.369	8.096	.000	0.411	2.425

H2: IT business spanning capability will positively influence market agility.

As revealed in table 6, there is a positive and significant influence of IT business spanning capability on market agility. The table illustrates that 50.0% of the variation in market agility is explained by the IT business spanning capability variable, what is more, beta value = 0.390 is significant at (0.000). In view of that, H2 has been supported.

Table 6:
Multiple Regression Tests for H2

R	R ²	Adjusted R ²	Std. Error of the Estimate	F	Sig.	H2 Result
.709a	.502	.500	.52290	72.318	.000b	Supported
Coefficients						
Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
B	Std. Error	Beta			Tolerance	VIF
2.071	.110		19.559	.000		
.261	.030	.390	8.504	.000	0.411	2.425

H3: IT proactive stance capability will positively influence market agility.

As revealed in table 7, there is a positive and significant influence of IT proactive stance capability on market agility. The table illustrates that 47.1% of the variation in market agility is explained by the IT proactive stance capability variable, what is more, beta value = 0.371 is significant at (0.000). In view of that, H3 has been supported.

Table 7:

Multiple Regression Tests for H3

R	R ²	Adjusted R ²	Std. Error of the Estimate	F	Sig.	H3 Result
.687a	.471	.463	.53425	51.825	.000b	Supported
Coefficients						
Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
B	Std. Error	Beta			Tolerance	VIF
2.001	.103		18.555	.000		
.244	.027	.371	7.199	.000	0.411	2.425

7. Conclusions

As shown in the prior figures, the research findings confirmed that IT capabilities for telecoms organizations can affect and achieve market agility, this general finding was in line with (Goodhue et al., 2009), while inconsistent with (Overby et al., 2006). Likewise, the most influential dimension of IT capabilities was the business spanning capability, and respectively; infrastructure capability and proactive stance capability. For business spanning capability; this finding was in line with previous studies like (Ross et al., 1996; Mitchell and Zmud, 1999), this dimension can strongly provide telecoms organizations with strategic thoughts that incorporate IT with the overall business plan, in order to create an integration system that allows decision makers to smartly and swiftly respond to market threats and opportunities. Whereas the influence of infrastructure capability was in line with (Sambamurthy et al., 2003; Overby et al., 2006), the IT infrastructure offers telecoms organizations with healthy, constant, and competent base that enabling market agility. And finally the proactive stance capability findings was consistent with (Swanson and Ramiller, 2004; Galliers, 2007), IT proactive stance allow telecoms organizations to explore latest technologies, and take advantage of their resources on hand to concentrate on finding strategic and cost-effective opportunities. Accordingly, telecoms organizations in Jordan may spend more to improve and leverage their IT capabilities. Furthermore, telecoms organizations have to continuously cultivate and extend better IT capabilities to effectively run and boost up their IT assets, in order to establish agile and responsive organizations.

8. Recommendations and Future Research

Information technology IT is merely one piece to figure out market agility secrecy, which based on monocular technical point of view. Therefore, other researchers may possibly expand this effort and investigate other variables or dimensions that might influence market agility, for instance; organization architecture, operations, IT staff qualifications, or even cultural drifting. On the other hand, other researchers can analyze the past history of IT capabilities to recognize the generation and evolution of this concept. Moreover, research in

the future may address IT capabilities for other organizations with various circumstances; for instance, organizations working in somehow steady environment could call attention to IT infrastructure capability more than business spanning and proactive stance dimensions, whereas organizations in a extremely energetic setting possibly will stress more on the former dimensions.

References

1. Bharadwaj, A., Sambamurthy, V., and Zmud, R. W. 1998. "IT Capabilities: Theoretical Perspectives and Empirical Operationalization," in Proceedings of the 19th International Conference on Information Systems, J. I. DeGross, R. Hirschheim, and M. Newman (eds.), Helsinki, Finland, December 13-16, pp. 378-385.
2. Churchill, GA & Brown TJ. (2014). Basic Marketing Research (8th Ed.). Cengage Learning.
3. Fichman, R. G. 2004. "Real Options and IT Platform Adoption: Implications for Theory and Practice," *Information Systems Research* (15:2), pp. 132-154.
4. Fink, L. and Neumann, S. (2007). Gaining agility through IT personnel capabilities: The mediating role of IT infrastructure capabilities. *Journal of the Association for Information Systems*, 8 (8), 440-462.
5. Galliers, R. 2007. "Strategizing for Agility: Confronting Information Systems Inflexibility in Dynamic Environments," in *Agile Information Systems*, K. DeSouza (ed.), Burlington, MA: Butterworth-Heinemann, Elsevier Inc., pp. 1-15.
6. Goldman, S. L., Nagel, R. N., and Preiss, K. 1995. *Agile Competitors and Virtual Organizations: Strategies for Enriching the Customer*, New York: Van Nostrand Reinhold.
7. Goodhue, D. L., Chen, D. Q., Boudreau, M. C., Davis, A., and Cochran, J. D. 2009. "Addressing Business Agility Challenges with Enterprise Systems," *MIS Quarterly Executive* (8:2), pp. 73-87.
8. Hair, J.F., Jr., Black, W.C., Babin, B.J. & Anderson, R.E. (2010). *Multivariate Data Analysis*. 7th ed., Prentice Hall, Upper Saddle River, N.J.
9. Kara, S. and Kayis, B. (2004), "Manufacturing flexibility and variability: an overview", *Journal of Manufacturing and Technology Management*, Vol. 15 No. 6, pp. 466-78.
10. Kohli, R., and Grover, V. 2008. "Business Value of IT: An Essay on Expanding Research Directions to Keep up with the Times," *Journal of the Association for Information Systems* (9:1), pp. 23-39.
11. Lu, Y. And Ramamurthy, K. (2011). Understanding The Link Between Information Technology Capability And Organizational Agility: An Empirical Examination. *Mis Quarterly*, 35 (4), 931-954.
12. Mitchell, V. L., and Zmud, R. W. 1999. "The Effects of Coupling IT and Work Process Strategies in Redesign Projects," *Organization Science* (10:4), pp. 424-438.
13. Overby, E., Bharadwaj, A., and Sambamurthy, V. 2006. "Enterprise Agility and the Enabling Role of Information Technology," *European Journal of Information Systems* (15), pp. 120-131.
14. Piccoli, G. and Ives, B. (2005). Review: It-dependent strategic initiatives and sustained competitive advantage: A review and synthesis of the literature. *Mis Quarterly*, 29 (4), 747-776.
15. Rettig, C. 2007. "The Trouble with Enterprise Software," *Sloan Management Review* (49:1), pp. 21-27.
16. Ross, J. W., Beath, C. M., and Goodhue, D. L. 1996. "Develop Long-Term Competitiveness through IT Resources," *Sloan Management Review* (38:1), pp. 31-42.

17. Sambamurthy, V., and Zmud, R. W. 1997. "At the Heart of Success: Organization-wide Management Competencies," in Steps to the Future: Fresh Thinking on the management of IT-Based Organizational transformation, C. Sauer and P.Yetton (eds.), San Francisco, CA: Jossey-Bass Publishers, pp. 143-164.
18. Sambamurthy, V., Bharadwaj, A., and Grover, V. 2003. "Shaping Agility through Digital Options: Reconceptualizing the Role of Information Technology in Contemporary Firms," MIS Quarterly (27:2), pp. 237-263.
19. Sekaran, U., Bougie, R. (2013). Research Methods for Business (6th ed.). John Wiley & Sons, Inc.
20. Swanson, E. B., and Ramiller, N. C. 2004. "Innovating Mindfully with Information Technology," MIS Quarterly (28:4), pp. 553-583.
21. Tallon, P.P. and Pinsonneault, A. (2011). Competing Perspectives on the Link between Strategic Information Technology Alignment and Organizational Agility: Insights from a Mediation Model. Mis Quarterly, 35 (2), 463-486.
22. Wade, M., and Hulland, J. 2004. "Review: The Resource-Based View and Information Systems Research: Review, Extension, and Suggestions for Future Research," MIS Quarterly (28:1), pp.107-142.
23. Weill, P., Subramani, M., and Broadbent, M. 2002. "Building IT Infrastructure for Strategic Agility," Sloan Management Review (44:1), pp. 57-65.
24. www.dos.gov.io
25. Yoon, C.Y. (2011). Measuring enterprise IT capability: A total IT capability perspective. Knowledge-Based Systems, 24 (1), 113-118.