The influence of strategic agility on firm performance

Miruna Florina LUNGU

Bucharest University of Economic Studies, Bucharest, Romania
lungu.miruna@gmail.com

Abstract. *The business environment is becoming more dynamic, reaching new milestones driven by technology and innnovation. As companies are transforming, the competition in the IT sector is increasing. This is translated into uncertainty and a higher focus on setting the right strategic direction of the company. The IT sector has been a driver of change and innovation for the economy. It is on a continous exponential trend, setting new directions for the business environment. Given so, the literature highlights the importance of strategic agility as a tool of increased firm performance and improved results. The current paper points out how strategic agility is influencing the peformance of a company. To outline the findings of the paper, the author uses a quantitative and qualitative analysis. Based on the literature we focus on understanding on the connection between strategic agility, transformation and firm peformance. The author will perform a statistical analysis based on collected primary data. To capture the opinion of the respondents, the author has created a survey and shared it with IT professionals who are part of IT organizations in Romania. Their responses will be analyzed and transposed into a regression model. As a result, the paper will help us bridge the literature with a real-case analysis applied on the IT sector in Romania. The outcome of the paper might serve as a reference for those who want to invest in the Romanian IT sector or who want to open-up an IT company in Romania.*

Keywords: strategic agility, IT sector, Romania, firm performance, transformation.

Introduction

Nowadays organizations are increasingly subject to continous change. The influence of various factors such as technology, innovation, industry trends and increased competition lead to a higher need for securing competitive advantage. Strategic agility is used as an ability of the organizations to identify and react to the changes of the business environment. We will use the literature as a foundation to enrich our understanding about the concept of strategic agility and its impact on firm peformance.

Our paper aims to understand the concept of strategic agilty and how the IT professionals of the IT sector in Romania perceive it. In order to capture their opinion, the author has created a survey which has been shared with stakeholders of IT companies operating in Romania. The sections of the survey are adopted from other surveys validated by the literature. To deep dive on the input received from the IT sector, we will use hypothesis testing and apply linear regression to check the validity of our model. The literature together with a real-case analysis will enrich our knowledge on how strategic agility is percived within the IT industry. Our paper aims to contribute to a better understanding on strategic agility and how it takes place on the IT sector.

Literature review

Strategic agility is defined by Tallon and Pinsonneault (2011) as the ability of a company to respond fast to the changes of the business environment, adapt to it and take actions points to control uncertainty. Kumkale (2016) believes that strategic agility is a tool for creating competitive advantage for the organization. The author debates about the influence of market conditions such as technology, sustainability and competition. To survive, one has to be

responsive to the industry's dynamics and the author suggests strategic agility to be an opportunity of creating and extending competitive advantage.

For clarity purposes, we should note that Teece et al. (2016) use as denomination for strategic agility the terms of either organizational agility or agility. The authors define agility as the capacity of an organization to redirect resources to create value. Alahyari et al. (2017) consider that strategic agility is meant to be a value generator tool. By achieving it, companies manage to make a difference on the market and deliver improved performance both internally and externally. Bratianu (2015) adds that in strategic thinking, one is always considering value generation as an ultimate goal. Paunescu et al. (2018b) support as well the significance of value creation for the business environment, and Adamik et al. (2018) show the importance of achieving the competitive advantage.

Tallon et al. (2018) have conducted a screening of the literature about the perspectives on to strategic agility. The below timeline from table 1 enables us to have an overview of the evolution of the concept of strategic agility.

Table 1. *Literature perspectives on strategic agility*

Study	Characterization of strategic agility	Theoretical Lens
Sambamurthy et al. (2003)	The ability to rapidly identify market opportunities.	Resource and capability building; Dynamic capability
Overby et al. (2006)	The ability to sense changes and react rapidly.	Dynamic capability
Nazir and Pinsonneault (2012)	The ability of sensing and responding to internal and external change.	Electronic integration perspective
Lowry and Wilson (2016)	The ability to respond to market changes using IT as a strategic enabler.	Contingency theory
Queiroz et al. (2018)	The ability to detect and react to threats and opportunities.	Dynamic capability
Ravichandran (2018)	The capability to enable firm performance by using IT competence and innovation.	Capabilities perspective
Kale et al. (2019)	Strategic agility is a mediator to improve firm performance.	Mediating perspective
Ahammad et al. (2019)	Strategic agility is the ability to rediscover the strategy of influenced by external change.	Organizational capability

Source: Authors' own representation

Sambamurthy et al. (2003) see strategic agility as a process of identifying market opportunities which aligns between internal resources and external stakeholders. Overby et al. (2006) describe agility as a dynamic capability to sense organizational changes and react to them in a rapid manner. Further on, Nazir and Pinsonneault (2012) believe that IT and agility boost firm performance by using the defining elements of agility: sensing and responding. Tallon et al. (2018) support the significance of strategic agility for the IT industry.

When addressing strategic agility as a concept, a company should always be opened to transformation. Teece et al. (2016) consider that strategic agility is achieved only through

openess to novelty and flexibility to implement change. Lowry and Wilson (2016) comment upon the importance of investing in IT resources for a company in order to be able to obtain a leverage on the market. Queiroz et al. (2018) add that strategic agility is a dynamic capability governed by IT, who is contributing to improving the firm performance. Warner and Wäger (2019) consider that strategic agility is a dynamic capability as well. The authors believe that in a digital modern business environment, strategic agility is central in dealing with uncertainty. With strategic agility, organizations can foresee and adjust their response to the incoming changes. Păunescu et al. (2018c) add that when making a change, a company must have a business continuity plan. It means one must secure that the company is able to cope with turbulent change and at the same time manage to function at full speed.

Ashrafi et al. (2019) consider that strategic agility has a strong connection with transformation. The authors state that strategic agility plays an undeniable role in transforming a company and boost its performance. Doz and Kosonen (2010) define transformation as a pillar for strategic agility. The authors believe that strategic agility has three core capabilities that contribute to the renewal of an organization: strategic sensitivity, leadership unity and resource fluidity. Guinan et al. (2019) argue that once a company embraces transformation within its organizational strategy, it will drive an impact on competition, politics and internal operations. Transformation and performance are acknowledged by Tan et al. (2017) as components of strategic agility. The authors state that the strategic agility enhanced in IT is positively correlated with firm performance.

Ravichandran (2018) sustain the idea that strategic agility is a capability of an organization. Strategic agility takes place through its IT competence and innovation capacity. The author points out that companies with a focus on IT investments have an increased level of performance and are more agile. Kale et al. (2019) view strategic agility as a mediator between absorptive capacity and firm performance. The authors prove that strategic agility is positively influencing the firm performance. Ashrafi et al. (2019) argue that strategic agility has a stronger impact on the organization under a turbulent context, namely a changing business environment.

Ahammad et al. (2019) offer a new perspective over strategic agility. They consider it is an ability to reshape and benefit from external dynamics. Shin et al. (2015) add that the response to the external changes can lead to new opportunities for the organization. The authors argue in their paper that an organization must be aware of both internal and external factors. Kumkale (2016) points out that a company needs to capture both internal and external perspectives, meaning it must constantly collect feedback and market insights. Păunescu et al. (2018a) add that in a business plan, one must adopt strategic planning and management.

One of the key features of strategic agility is flexibility. Sherehiy et al. (2007) mention that an organization should adapt for example to the culture of the market they want to expand in and shape their strategy in a customized manner. Ahammad et al. (2019) support the importance of flexibility in reaching strategic agility. The authors add that in the case of strategic agility, flexibility arises from the people involved in the business process. They bring into discussion the existence of a match between multinational corporations' strategy and human resources. According to the authors, for an increased impact, this match should take place at all organizational levels. One example shared can be from the CEO that adapts its leadership style to its executive team.

Methodology

The purpose of the paper is to explore and provide a better understanding on the concept of strategic agility. We have used a mixed methodology to deep dive on the topic of strategic agility. The paper embeds two dimensions: qualitative and quantitative research. The qualitative dimension is based upon literature, investigating scientific articles and research papers on the studied topic. Secondly, the paper includes a quantitative dimension based on a questionnaire which has been addressed to stakeholders of Romanian IT companies. Having as framework the literature, the paper aims to assess the validity of two research hypotheses. We have tested these two hypotheses by using linear regression as a quantitative research technique.

The survey has been developed by the author online via Google Docs, being built from the work of Tallon and Pinsonneault (2011), Flatten et al. (2011) and Queiroz et al. (2018). The sample of the survey involves the input of 100 respondents working in large IT companies operating in Romania. As selection criteria of the sample, the respondents had to be employees of a large multinational company with operations in Romania and they should possess at least one year as professional experience within the company.

As research method for gathering the responses to the survey, we have used snowball sampling for collecting the input of 100 IT stakeholders. They have either technical job roles (software developers, solution architects etc) or non-technical (financial analyst, procurement manager etc). The author wanted to gather the opinion of various stakeholders of the organizations to capture the overall view on the topic of strategic agility.

The survey has been structured on various sections to find out who the respondents are, how they see strategic agility and its impact on the organizations they are part of. They have been responding to the survey for a couple of months during 2019. To measure the opinion of the respondents on the survey's questions, we have used Likert scale as follows: : 1=Strongly Disagree, 2=Disagree, 3=Undecided, 4=Agree, 5= Strongly agree.

As previously mentioned, the exploratory research has enabled us to define the two below hypotheses which will be tested by using SPSS tool:

H1: The higher the strategic agility is, the stronger the firm performance is.

H2: The transformation of the company is positively related to strategic agility.

The two hypotheses have been developed based on the exploratory research and the analysis has been conducted using as method simple linear regression. This method enables us to find out the type of relationship between two variables. The simple linear regression method helps us find out the level of correlation between the studied variables by two indicators: R square and Adjusted R square. The analysis will also touchbase on the ANOVA table and it will be completed by the check of the validity of our model.

Results and discussions

Presentation of the sample

The survey has been built in order to explore who the respondents are, how they perceive strategic agility and which is the impact level it has within their companies. The first section of the survey has addressed general questions about their age, gender, professional background, seniority, educational status. Analyzing the results of the 100 respondents we can state that 68% are males, most of them being aged 24-44 years old. More than half of the sample has graduated at least Bachelor studies, 40% of them owing also a Master's degree.

Hypothesis testing through simple linear regression

The paper aims to find out if the two defined hypotheses under the methodology section are valid or not. First of all, we must mention that there are two types of variables in the econometric analysis: dependent and independent. For the first hypothesis the dependent variable is performance, denoted with Y and the independent variable is strategic agility, denoted with X. In the case of the second hypothesis the dependent variable is strategic agility, while the independent one is transformation. The below table for the first hypothesis defined depicts the first model of our analysis. The general form of our econometric model is:

$$Y = b_0 + b_1x_i \text{ a (1)}$$

This can be translated to our research is as follows:

$$\text{Performance} = 1.69 + 0.51 * \text{Strategic agility (2)}$$

We can observe that R Square in table 2, also called the coefficient of determination indicates the proportion of the variation in our dependent variable, performance explained by the independent variable, namely strategic agility.

Table 2. *Regression statistics for the first assumption*

R	R Square	Adjusted R Square	Std. Error of the Estimate
.556	.309	.302	1.001

Source: Author's own processing

The R Square indicates 30.9% of the variance in performance explained by strategic agility. The Adjusted R Square shows whether additional variables are contributing to the model. The Durbin- Watson value of 1.5 indicates a positive autocorrelation, as our result is part of the interval (1.5- 2.5).

Table 3. *Change Statistics for the first assumption*

Change Statistics					Durbin-Watson
R Square Change	F Change	df1	df2	Sig. F Change	
.309	43.845	1	98	.000	1.506

Source: Author's own processing

The ANOVA table 4 confirms that our model has a good fit (43.94, $p < 0.05$). Looking at the Sig. Value, we notice that it is smaller than 0.05 meaning our model is significant. Therefore, we can state that our variable is a significant predictor for performance.

Table 4. *ANOVA for the first assumption*

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	43.942	1	43.942	43.845	.000
	Residual	98.218	98	1.002		
	Total	142.160	99			

Source: Author's own processing

Under the coefficients table 5 we can distinguish between unstandardized and standardized coefficients. The unstandardized coefficients represent the amount of change in performance due to a change of 1 unit of the independent variable, strategic agility.

Table 5. *Coefficients for the first assumption*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
	(Constant)	1.692	.322		5.253	.000	1.053	2.332
	Strategic agility	.513	.078	.556	6.622	.000	.359	.667

Source: Author's own processing

For the second model of the paper we have applied the same steps for simple linear regression. As mentioned under the methodology section, the dependent variable denoted with Y is strategic agility and the independent variable denoted with X is transformation. Transposing the model from the general form to our research, the second model equation can be seen below:

$$\text{Strategic agility} = 2.26 + 0.46 * \text{Transformation} \quad (3)$$

The R Square illustrated under table 6 shows 17.3% of the variance, while the Durbin-Watson test value of 1.47 is close to the limit of positive correlation.

Table 6. *Regression statistics for the second assumption*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.416	.173	.165	1.186

Source: Author's own processing

Table 7. *Change Statistics for the second assumption*

Model	Change Statistics					Durbin-Watson
	R Square Change	F Change	df1	df2	Sig. F Change	
	.173	20.523	1	98	.000	1.474

Source: Author's own processing

The ANOVA table 8 confirms that the second model has a good fit (20.52, $p < 0.05$). Looking at the Sig. Value we notice that it is smaller than 0.05 meaning our model is significant. Therefore we can state that transformation is a significant predictor for strategic agility.

Table 8. *ANOVA for the second assumption*

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	28.874	1	28.874	20.523	.000
	Residual	137.876	98	1.407		
	Total	166.750	99			

Source: Author's own processing

Table 9. *Coefficients for the second assumption*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
	(Constant)	2.267	.390		5.812	.000	1.493	3.041
	Transformation	.465	.103	.416	4.530	.000	.261	.669

Source: Author's own processing

Discussions

The findings of our paper are in line with the research results indicated by the literature; strategic agility has a significant impact on IT companies. Based on the primary data gathered from the survey, we have managed to capture the opinion of various stakeholders engaged in a Romanian IT organization. Their input has been processed with the help of SPSS to run an in-depth analysis of the data.

The two assumptions developed as per the literature have been tested and validated. In each of the two cases we have observed that Significance F is smaller than α ($p < 0.05$), so both of the models are significant. For the first assumption, the Durbin-Watson value of 1.50 strengthens the validity of our test, indicating also a positive autocorrelation. Given that the first assumption is validated, we can state that our assumption is in line with the views of Ravichandran (2018). The author confirms that organizations which use strategic agility have an improved performance level. Kale et al. (2019) agree that there is positive correlation between performance and strategic agility.

The second test concluded by the author concerns transformation. The second hypothesis is also sustained, confirming that the organization's transformation positively influences strategic agility. Multiple sources confirm that there is a strong connection between transformation and strategic agility. The result of the second assumption is in line with Teece et al. (2016) who believe strategic agility is achieved through transformation. Lowry and Wilson (2016) support the same idea, as transformation enables a company to be strategic and agile in securing its competitive advantage.

Conclusion

The paper shows the influence of strategic agility on firm performance and it presents various literature perspectives on the studied concept. We have managed to identify a series of views on strategic agility, building a timeline reference list on how the topic has been perceived by various authors. The author presents the topic using multiple theoretical perspectives. The literature has helped the author to develop a survey by selecting validated questions from other papers on the topic of strategic agility. The primary data collected brings a valuable contribution to the research domain, due to its specific focus on IT organizations operating in Romania.

One of the limitations of the paper refers to the sample size. Gathering the primary data has been done using the snowball method. The input of the sample might not be applicable to all Romanian IT organization, as we have managed to collect the opinions of only 100 IT stakeholders. However, the information discovered by the author can be beneficial to start-up IT

companies, any IT company which seeks to understand the impact of strategic agility or other researchers interested on this topic.

The simple regression applied on the two assumption highlighted that both of them have been validated, as Significance F is smaller than α ($p < 0.05$). As we have initially aimed, the paper embeds a mix of qualitative and quantitative research techniques, which adds value to the overall research. We can conclude that strategic agility is a complex topic, with validated impact in IT organizations. As indicated by the literature, the results of our analysis point out that strategic agility has multiple perspectives, having an impact on firm performance.

References

- Adamik, A., Nowicki, M., & Szymanska, K. (2018). Openness to co-creation as a method of reducing the complexity of the environment and dynamizing companies' competitive advantage. *Management & Marketing – Challenges for the Knowledge Society*, 13(2), 880-896.
- Ahammad, M. F., Glaister, K. W., & Gomes, E. (2019). Strategic agility and human resource management. *Human Resource Management Review*, 30(1), pp. 1-3.
- Alahyari, H., Svensson, R. B., & Gorschek, T. (2017). A study of value in agile software development organizations. *Journal of Systems and Software*, 125, pp. 271-288.
- Ashrafi, A., Ravasan, A. Z., Trkman, P., & Afshari, S. (2019). The role of business analytics capabilities in bolstering firms' agility and performance. *International Journal of Information Management*, 47, pp. 1-15.
- Bratianu, C. (2015). Developing strategic thinking in business education. *Management Dynamics in the Knowledge Economy*, 3(3), 4009-429.
- Bratianu, C., & Vasilache, S. (2006). In search of intelligent organizations. *Management & Marketing*, 1(4), 71-82.
- Doz, Y. L., & Kosonen, M. (2010). Embedding strategic agility: A leadership agenda for accelerating business model renewal. *Long range planning*, 43(2-3), pp. 370-382.
- Guinan, P. J., Parise, S., & Langowitz, N. (2019). Creating an innovative digital project team: Levers to enable digital transformation. *Business Horizons*, 62(6), pp. 717-727.
- Kale, E., Aknar, A., & Başar, Ö. (2019). Absorptive capacity and firm performance: The mediating role of strategic agility. *International Journal of Hospitality Management*, 78, pp. 276-283.
- Kumkale, I. (2016). Organization's Tool for Creating Competitive Advantage: Strategic Agility. *Balkan and Near Eastern Journal of Social Sciences*, 2(3), pp. 118-124.
- Lowry, P. B., & Wilson, D. (2016). Creating agile organizations through IT: The influence of internal IT service perceptions on IT service quality and IT agility. *The Journal of Strategic Information Systems*, 25(3), pp. 211-226.
- Nazir, S., & Pinsonneault, A. (2012). IT and firm agility: an electronic integration perspective. *Journal of the Association for Information Systems*, 13(3), pp. 2.
- Overby, E., Bharadwaj, A., & Sambamurthy, V. (2006). Enterprise agility and the enabling role of information technology. *European Journal of Information Systems*, 15(2), pp. 120-131.
- Queiroz, M., Tallon, P. P., Sharma, R., & Coltman, T. (2018). The role of IT application orchestration capability in improving agility and performance. *The Journal of Strategic Information Systems*, 27(1), pp. 4-21.
- Păunescu, C., Popescu, M., & Duennweber, M. (2018a). Factors Determining Desirability of Entrepreneurship in Romania. *Sustainability*, Vol. 10, No. 11, pp. 1-22.
- Păunescu, C., Argatu, R., & Lungu, M. (2018b). Implementation of ISO 22000 in Romanian companies: Motivations, difficulties and key benefits. *Amfiteatru Economic*, Vol. 20, No. 47, pp. 30-45.

- Păunescu, C., Popescu, M. C., & Blid, L. (2018c). Business impact analysis for business continuity: Evidence from Romanian enterprises on critical functions. *Management & Marketing. Challenges for the Knowledge Society*, Vol. 13, No. 3, pp. 1035-1050.
- Ravichandran, T. (2018). Exploring the relationships between IT competence, innovation capacity and organizational agility. *The Journal of Strategic Information Systems*, 27(1), 22-42.
- Sambamurthy, V., Bharadwaj, A., & Grover, V. (2003). Shaping agility through digital options: Reconceptualizing the role of information technology in contemporary firms. *MIS quarterly*, pp. 237-263.
- Shin, H., Lee, J. N., Kim, D., & Rhim, H. (2015). Strategic agility of Korean small and medium enterprises and its influence on operational and firm performance. *International Journal of Production Economics*, 168, pp. 181-196.
- Sherehiy, B., Karwowski, W., & Layer, J. K. (2007). A review of enterprise agility: Concepts, frameworks, and attributes. *International Journal of industrial ergonomics*, 37(5), pp. 445-460.
- Tallon, P. P., & Pinsonneault, A. (2011). Competing perspectives on the link between strategic information technology alignment and organizational agility: insights from a mediation model. *Mis Quarterly*, pp. 463-486.
- Tallon, P. P., Queiroz, M., Coltman, T., & Sharma, R. (2018). Information technology and the search for organizational agility: A systematic review with future research possibilities. *The Journal of Strategic Information Systems*. (2), pp. 218-237
- Tan, F. T. C., Tan, B., Wang, W., & Sedera, D. (2017). IT-enabled operational agility: An interdependencies perspective. *Information & Management*, 54(3), pp. 292-303.
- Teece, D., Peteraf, M., & Leih, S. (2016). Dynamic capabilities and organizational agility: Risk, uncertainty, and strategy in the innovation economy. *California Management Review*, 58(4), pp. 13-35.
- Warner, K. S., & Wäger, M. (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning*, 52(3), pp. 326-349.