



Research Article

Organizational Ambidexterity Dimensions as Effective Axes for Digital Transformation

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Abstract

This paper focuses on highlighting the effective role played by the dimensions of organizational ambidexterity in creating a digital transformation within the company. For this purpose, we used the survey method directed at 530 workers in an organization selling agricultural equipment in Algeria, which witnessed a rapid digital transformation after the Covid-19 pandemic.

This research confirms that there is a statistically significant relationship between monitoring new opportunities and digital transformation during the current crisis in the target market.

Also, the study concludes that people's behavior must be directed toward understanding organizational ambidexterity and then proceeding with its application as a doctrine that must be adopted in achieving digital transformation.

Keywords: Digital transformation; Organizational ambidexterity; Organizational integration; Monitor new opportunities.

Introduction

The acceleration of economic, social, and technological changes within the institution's environment has obliged the latter to constantly search for new ways in which it can withstand these changes. There have been several writings, research and publications about the management approaches that the firm can adopt in this context. Among the most important of these approaches is the organizational ambidexterity, which is defined "broadly as firm's ability to simultaneously

balance different activities in a trade of situation" (Kortmann, 2012, p. 22)

This study came to put the organizational ambidexterity under the microscope to weigh the degree of its impact on promoting digital transformation inside and outside the organization, especially in the target market. During the Corona crisis, for example, most of the markets have become websites due to the quarantine rules, which made it necessary for firms to search for digital outlets to target and identify the market.

The Research Question

In light of the pandemic, most firms have begun to realize the importance of the role that digital management plays in general in the success of their policies and achieving their goals in the market, which prompted it to explore the most important means and strategies that enhance this, especially with the significant impact of the Corona pandemic. Among the pillars that the management researchers have mentioned is "organizational ambidexterity".

Therefore, this study sought to question what the organizational ambidexterity is and what role it plays in supporting the digital transformation in the target market by measuring the relationship between them in a statistical manner. The general question is:

What impact have the dimensions of organizational ambidexterity in supporting the digital transformation of the agricultural equipment market during Corona pandemic?

Significance of the Study

The Significance of this study lies in the increasing importance of the organizational ambidexterity as a system that helps to support the digital transformation, thus, participating in the digitization of the firm and its adaptation to the new technology. The study also focuses on studying the relationship between the organizational ambidexterity and the effective digital transformation in a statistical and descriptive methodology.

Delimitation of the study

The study boundaries are summarized in the main points as follows:

Theoretical foundation: This study focused on three independent variables and a dependent variable (they will be referred to in the study model).

Study period: The research was conducted in the period between July 21-2022 and September 30-2022, which knew several preventive measures against the Corona virus due to the third wave. This hindered the work of the society under study and constituted a crisis in the target market (Agricultural equipment market in Algeria). Added to this, it obliged this firm to deal with digitization immediately.

Spatial delimitation: A questionnaire was distributed to the workers of a company in Algeria. Knowing that this company is an institution specialized in the agricultural development, which provides agricultural equipment in Algeria.

Study Reference

In the theoretical part, this study relied on a group of books, articles and university theses. As for the practical part, the study relied on the data analysis derived from the questionnaire and some reports of the society under study.

Study Model

The model below shows the basic factors that constitute the axis of the field study. The following figure shows the two main variables in the general hypothesis, which are the organizational ambidexterity and the digital transformation in the target market.

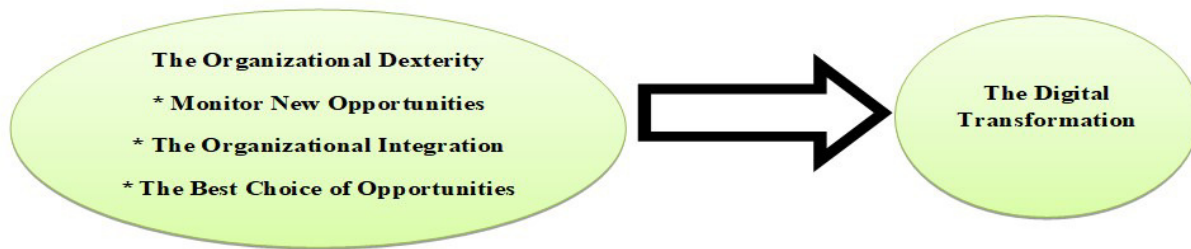


Figure 1: Study Model

Source: Prepared by the researcher

Literature Review

A study of Amine Belhadi and all (2021) finished that the organizational ambidexterity has a significant role in the digital transformation of business, especially companies which adopt industry 4.0 technology. The organizational ambidexterity qualifies to maintain a good level of performance and adapt to the new requirements of digitization. This study added that achieving the digital adaptation necessarily depends on business acumen and the firm's spotting rate for optimal digital opportunities in the target market. Amine Belhadi and his colleagues emphasize that the dynamic capabilities of the organizational ambidexterity are considered as an essential criterion for the digital transformation in Industry 4.0.

A study, conducted by Rialti, Giacomo, Andrea, and Kayode (2020) discussed several key factors that prove the importance of organizational ambidexterity in obtaining a good big data analysis and developing an effective knowledge management. This study aims to find the positive impact that the organizational ambidexterity and behavioral integration leave on the big data analysis by testing the structural model based on 215 questionnaires collected from managers of many companies in Europe. The results showed that one of the consequences of not having an effective organizational ambidexterity is the failure in achieving the effective digital transformation.

A study conducted by (Zhen, Xie , & Dong, 2021) examines the antecedents of organizational agility by integrating top management support, IT governance mechanisms (i.e., structural, process-based, and relational governance), and IT ambidexterity (i.e., IT exploration and exploitation) into a research model. By using statistical data collected from 326 firms in China. The study's findings indicate that top management support positively influences structural, process-based, and relational governance. Results show that process-based and relational governance positively influence IT exploration and exploitation, whereas IT exploration and exploitation positively influence organizational ambidexterity. In addition, top management support positively impacts organizational ambidexterity through the dual mediation of process-based and relational governance and IT exploration and exploitation.

Another study directed by Park (2020) presents a new conception, which is the harmonizing between the organizational ambidexterity and the digital transformation, which means that achieving the digital transformation requires a permanent organizational ambidexterity, While the exploitation of the organizational ambidexterity forcefully depends on digitization, whether in small and medium enterprises or big companies .

A study presented by Balarezo (2020) has pointed to the important role of top management behavior in shaping and facilitating ambidexterity, the cognitive processes at both individual and team

level still warrant more research. Moreover, this article focused explicitly on strategy, organizational structure, design, and actor decisions.

By reviewing the previous studies, it turns out that these studies dealt with several aspects of the organizational ambidexterity, so that each study took one of the axes of organizational ambidexterity and examined the extent of its impact on the digital transformation and the role of this in the adaptation to the new conditions in a specific market. The current study can benefit from the positive points mentioned in the previous studies and follow-up on new aspects that these studies have not been exposed to, by linking all axes of the organizational ambidexterity and measuring their impact on the rapid digital transformation during the Corona pandemic in the studied market (agricultural equipment market). This study lists the basic factors together rather than studying each of them separately, which is considered as an integrated model provided by the current study.

The Theoretical Framework of the Study

The Organizational Ambidexterity: The term ambidexterity means the set of abilities and talents that allow adapting to the potential problems in the future, and the readiness to address it and find solutions to confront it (Nosella, 2012). This term was used by Adam Smith in the field of business administration to denote a smart way to divide the work in the scope of the market, which provides the leader with a sufficient ability to know the strategic field in which he works (Hermann, 2015). Then, the term organizational has been added to it, which many researchers differ about its definition. Organizational ambidexterity has been defined as the mechanism by which an organization ensures a generation of competitive advantages, through the radical change, development and simultaneous pursuit of exploratory and investment innovation (Baškarada, 2016).

The Organizational ambidexterity is defined as the ability to achieve an organizational success by exploiting the available capabilities, exploring the new opportunities and possibilities, employing them optimally and activating all of the capabilities to partake in the competition (Papachroni, 2015).

The significance of the organizational ambidexterity in business is widely prominent (O'Reilly III, Harreld, & Tushman, 2009), in the private (Chang, Yang, & Chen, 2009) and public sectors (Smith & Umans, 2015), as a means of implementation of new ideas (Pelagio Rodriguez, Hechanova, & Regina, 2014), business benefits (Cao, Gedajlovic, & Zhang, 2009), and organizational change (Mitra, Gaur, & Giacosa, 2019). This has resulted in the scaling up of methods (Sinha, 2019) and has become an approach for many organizations (Blarr, 2012). The organizational ambidexterity ensures a long-term success by balancing the need to innovate and the adaptation to the environmental changes (O'Reilly III, Harreld, & Tushman, 2009) and by improving and scaling the existing processes (Úbeda-García, Claver-Cortés, Marco-Lajara, García-Lillo, & Zaragoza-Sáez, 2018) and technologies (Wirtz, 2019). How, To achieve this success, five conditions must be met, which are as follows:

- Constructing a capability for resolving routines conflict management. (Jurksiene & Pundziene, 2016)
- Creating a balance between the internal and external environment. (Acevedo & Díaz-Molina, 2019)
- Spreading and leveraging organizational values through positive relationships. (Peng, Lin, Peng, & Chen, 2019)
- Understanding the future, determining the direction by the clarity of the strategic goal. (Kafetzopoulos, 2021)

In order for the organizational ambidexterity to cover its effective role, it must be integrated in three basic dimensions:

Monitoring New Opportunities: It is defined as the process based on collecting information from the organization's external environment with its facts, events, trends and relationships. This helps them to understand the environmental behaviors and translate them into opportunities by planning (Vishnevskiy & Karasev, 2016); this dimension relates in particular to: (Pu, Wang, & Chan, 2018).

- The Specific investment criteria and standards;
- Data about the market variables or the target markets;

- The steps to be followed in the implementation process;
- Period for the completion of tasks.

Monitoring new opportunities is concerned with discovering profitable opportunities and exploiting them before the competitor through the provision of new goods and services and/or entry into new markets. This requires developing a strategic vision and defining paths to link and unify the superior and scattered capabilities to know and determine the right path to obtain opportunities and how to exploit them (Michael & Miller, 2013);

The Organizational Integration: It is defined as an organization's ability to pursue explorative and exploitative innovation simultaneously. (Hughes, et al., 2020). It is defined also as the extent to which distinct and interdependent organizational components (i.e., organizational units, departments or partners and includes the business processes, people, and technology involved) constitute and behave as a unified whole. (Pinsonneault & Barki, 2012). Organizational integration mechanisms play a crucial role in the process of organizational ambidexterity; Following the publication directed by (López-Sáez, Cruz-González, Navas-López, & del Mar Perona-Alfageme, 2021), knowledge is "embedded in the organizing principles by which people cooperate within organizations". Hence, the transfer of know-how between different areas of the firm depends on the higher order organizing principles by which relationships among their individuals are structured. Such principles are determined by the organizational integration mechanisms that establish how different parts of the organization are linked and coordinated. Organizational integration essentially represents a structural and relational characteristic of a given organization, as well as between organizations. It can extend from suppliers, to manufacturers, to retailers, and to customers. As such, the notion of organizational integration can provide a general and broad perspective, which can be applied to any domain by selectively focusing on specific organizational aspects salient for that domain. (Pinsonneault & Barki, 2012)

The Choice of ideal opportunities: It is defined as the process by which the best alternative is

acquired from among a set of opportunities available to the firm (Cho, 2013), with an attention to the relationship between the individual, the organization and the environment (Isensee, Teuteberg, Griese, & Topi, 2020). It is also the means through which the organization can select the optimal strategic alternative. (Gans, Stern, & Wu, 2019). To do this process managers resort to a set of tools that help them in adopting the most appropriate strategic alternative called the portfolio analysis models. (Udo-Imeh, Edet, & Anani, 2012). The selection process also requires some kind of thinking and analysis, as well as a number of tools that are used in evaluating the available strategic alternatives in order to narrow the number of those alternatives, and reduce the options for managers to take the appropriate alternative. (Gregory, et al., 2012)

The success of the organizational ambidexterity also depends on the efficiency of transferring the optimal choice of the appropriate opportunity to the actual reality of the work of the institution through organizing resources, personnel and developing job policies in accordance with the requirements of the effective operation of the new strategy or the new environment. (Andersen, Ellegaard, & Kragh, 2021)

The Digital Transformation: The digital transformation represents a composition of technology, processes, and people – and it must be positioned as an enabler of business transformation. This transformation is not limited to creating a new website, developing a mobile app, going 'paperless', or adopting social media marketing. (Mielli & Bulanda, 2019). So, digital transformation is the change process involved in becoming a digital business. (Busulwa, Pickering, & Mao, 2022).

Digital transformation is a continuous complex undertaking that can substantially shape a company and its operations (Matt, Hess, & Benlian, 2015). It is therefore important to assign adequate and clear responsibilities for the definition and implementation of a digital transformation strategy. (Matt, Hess, & Benlian, 2015) Based on extant definitions, the digital transformation is "a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity

technologies". (Vial, 2019). Furthermore it, Digital transformation is changing business paradigms. It is redefining existing businesses and creating new business ventures and IIoT and emerging technologies are acting as catalysts. (Ghosh, Hughes, Hodgkinson, & Hughes, 2021)

Digital transformation is a subject of continuous and rapid change requiring continuing professional development. It is more about people rather than technology, up- and reskilling them for coping with this change. (Marx, Flynn, & Kylänen, 2021).

Study Hypotheses

Based on the review of the previous studies concerned with the subject of this study, a set of research hypotheses were developed. Based on the main problem posed by the research, the general hypothesis of the study is as follows:

"There is a significant relationship between the organizational ambidexterity and the digital transformation during the crisis in the target market"

The following hypotheses are derived:

H. 1: There is a statistically significant impact of monitoring new opportunities on the digital transformation during the crisis in the target market.

H. 2: There is a statistically significant impact of the organizational integration on the digital transformation during the crisis in the target market.

H. 3: There is a statistically significant effect of the choice of optimal opportunity on the digital transformation during the crisis in the target market.

Methodology

The search was based on:

The inductive and deductive approaches: The study tried to reach causal conclusions by the logical generalization of the reality of the organizational ambidexterity applied in a company in Algeria, after extrapolating the most important books and reports about the studied relationship.

The Quantitative and qualitative approaches: The study relied on the mechanism of collecting data from 530 employees in Algeria. Then conducting statistics and testing the possibilities of generalization, supported by some qualitative methods to increase the credibility of the research.

Population and Sample of the Study

The study population contained heads of the departments, In addition to some other supreme hierarchy (Vice president - Head of unit). The study relied on the random sampling method in selecting the study sample, where 530 questionnaire forms were distributed to the targeted groups.

The Reliability of the Study Tool

The study relied on testing the validity of the questionnaire on the use of Alpha Cronbach coefficient to measure the independent factors in addition to the dependent factor represented by the digital transformation during the crisis in the target market. As shown in the following table.

Table 1: Validity test of the study tool

Factors	Number of Vertebrae	Alpha
Monitoring New Opportunities	5	0.852
The Organizational Integration	5	652,0
The Choice of ideal Opportunities	5	801,0

Table (01) shows that all the correlation coefficients are positive and statistically significant at the level (0.05). Thus, the questionnaire can be used to verify the hypotheses of the study.

Sample's characteristics

The following is a description of the basic data of the study sample members according to the nominal measures of gender, age, scientific qualification, years of experience and occupational level:

Gender

The number of males reached 302 men, representing 56.98% of the study sample, while the number of females reached 228 women representing 43.02% of the study sample.

Age

The largest segment of the sample members are those aged between 25 and 35 years, which amounted to 36.67%, followed by the third

segment (from 35 to 45 years) with a rate of 23.33%, after which the two segments (less than 25 years old) and (more than 45 years old) are equal at 20%. The most sensitive segment to the concept of digital transformation is the segment from 25 to 35 years old.

Scientific Qualifications

The percentages of the sample members in terms of their academic qualifications varied between high-school by 70%, which is the most attractive category for the subject under study. And the percentage of individuals with a post-graduation qualification and a medium qualification, with 16.67% and 13.33%, respectively. It is worth noting that the target sample included people with position that require scientific qualifications.

Years of Experience

In terms of experience's age, the individuals interviewed were characterized by the following percentages:

Table 2: Sample characteristics according to the experience age.

years of experience	percentage of sample
less than 5 years	40%
5 to 10 years	23.3%
11 to 15 years	33.3%
over 16 years	3.3%
Years of Experience	40%

The two categories that are most sensitive to the subject are those with years of experience 5 to 10 years and 11 to 15 years.

Occupational Level

As for the occupational level; the category of department heads dominated by 56.7%, then unit

heads with 33.3%, followed by the category of major sellers with 10%.

Testing Hypothesis

The hypotheses were tested using chi-square, where it is clear from the results of Table No. 03 that the chi-square values of the questions associated with the first hypothesis mostly

indicate that they are significant with a value less than 0.05. Except in the first statement, the degree of the morale has increased above the specified level of confidence. This is an indication of the rejection of the null hypothesis and the acceptance of the alternative hypothesis, which says that there is a statistically significant relationship between monitoring new opportunities and the digital transformation during the current crisis in the target market.

Table 3: Responses of the sample members to the questions of the first hypothesis

Paragraph	Chi-square Value	Degree of the Morale
The society monitors the needs of farmers to quickly meet them in the target market, especially in the days of quarantine, through multiple technological means	11.82	0.63
The society monitors the market share opportunities in order to enable the digital positioning in the new market.	28.02	0.079
The society monitors opportunities that transform customers from competitors who have been affected by the Corona pandemic and are affected by the digitization.	28.09	0.003
The society monitors the development of the relationship between the customer and the worker "from distance" in order to draw a distinctive mental picture for him.	31.03	0.02
The society monitors the change of the products and customer desires through the digital media during the pandemic.	40.03	0.002

The respondents' answers to the questions of the second hypothesis resulted in the following

results, which are illustrated in the form of a significance table:

Table 4: Responses of the sample members to the questions of the second hypothesis.

Paragraph	Chi-square Value	Degree of the Morale
The society is interested in integrating with the supplier strategy through several digital networks to exploit the pandemic.	25.1	0.09
Knowing more about the research and development areas of the competitors allows the society to create other opportunities for integration.	54.25	0.009
Verification of distribution channels allows the creation of new outlets for the integration with new enterprises.	39.92	0.000
The integration with the new information systems help to create an opportunity in light of the pandemic.	13.01	0.89
The integration with the multiple digital platforms is essential to deal with the crisis.	30.01	0.005

It is clear from the results of the above table that the degrees of the morale in most of the paragraphs related to the second hypothesis are less than (0.05). Except for the fourth paragraph, this is a clear indication of the lack of understanding of the concept of organizational integration in its true meaning by the individuals or workers. This does not negate the existence of a statistically significant relationship between the organizational ambidexterity and the digital

transformation during the corona pandemic in the agricultural equipment market in Algeria. (This may be due to several reasons, which we will mention later)

The answers of the respondents to the questions of the third hypothesis resulted in the development of the following results, explained in the form of a significance table

Table 5: Responses of the sample members to the questions of the third hypothesis

Paragraph	Chi-square Value	Degree of the Morale
Full knowledge of the available digital alternatives helps to enhance the digital transformation during the COVID-19 crisis.	28.91	0.004
Knowing the process of the optimal digital alternative supports the digital transformation during the crisis in the target market.	25.001	0.09
Establishing the optimal option helps in developing the alternative plans towards the digital transformation.	32.01	0.003
Tracking developments of the available options supports the digital transformation.	35.02	0.004
Information security supports the intelligent digital transformation.	39.02	0.002

It is clear from the results of the above table that the values of the chi-square are statistically significant except for the second paragraph. The information used in the digital transformation needs opportunities to collect information, and individuals within the organization have high efficiency in collecting information. Especially in the field of the agricultural equipment, the null hypothesis is rejected and the alternative hypothesis is accepted.

Conclusion

The study has shown the following results:

There is a high percentage of the workers' awareness of the term organizational proficiency, but in a random framework, and this is what we see in the answers that surrounded the acceptance of the hypotheses put forward.

By confirming the hypotheses, we can also conclude that organizational ambidexterity is very important in the agricultural equipment market; it is an essential factor in adapting to the changing digital environment imposed by the COVID-19 pandemic.

The company under study adopts an organizational ambidexterity, as it conducts the environmental monitoring, and the cell responsible for this falls within the commercial interest alone, but its inclusion under one interest may hinder the field of the digital transformation, which is supposed to include all interests.

The company is still somewhat off the topic of the intelligent digital transformation, which has made its people not pay attention to the core concepts. As the signs of their interest appeared in the form

of scattered terms that do not rise to the level of the systematic concept that we are looking for.

In light of the current crisis in the agricultural equipment market, the organizational ambidexterity of the Algerian institution is an inevitable necessity, in which the members of the institution must believe in order to enable them to open the doors of the complete digital management.

The study calls for decision-makers to rethink the crisis management system in its serious sense, and try to put it in a regulatory framework, in order to maintain its market share, in a purely competitive manner, during the Corona pandemic.

The digital transformation can only succeed during the crisis with the will of the individuals working in the organization. Therefore, the behavior of people must be directed to understanding the subject and then proceeding with its application as a doctrine that must be adopted. This is done through training in digital transformation and demonstrating its importance to them.

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