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Dynamic Capabilities and Their Effect on Organizational Resilience in Small and Medium-Sized Commercial Enterprises

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Abstract. *The organizational environment often experiences turbulence, resulting in increased complexity in maintaining a foothold in the market. Consequently, dynamic capabilities play a crucial role in fostering organizational resilience. Given the substantial impact that organizations faced during the COVID-19 pandemic, this study aims to assess the influence of dynamic capabilities on the organizational resilience of small and medium-sized enterprises (SMEs), with the objective of identifying the factors that contribute to organizational survival. Using Covariance-Based Structural Equation Modeling (CB-SEM), this research examined 216 SMEs operating within the commercial sector of Mexico. The findings revealed a positive and significant impact of most dynamic capabilities, detection, absorption, coordination, and innovation on organizational resilience. Notably, the integration capability exhibited the weakest influence on the dependent variable. In contrast, the innovation capability emerged as the most influential factor for SMEs in bolstering organizational resilience.*

Keywords: Dynamic capabilities, organizational resilience, innovation, commercial enterprises, adaptation.

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Introduction

The research approaches that examine dynamic capabilities as sources of competitive advantage, which create the necessary conditions for organizational resilience, are grounded in the resource-based view of the firm (Barney, 1991; Barney, 1986; Barney et al., 2011; Grant, 1996). These approaches highlight the significance of intangible resources as primary sources for generating sustained competitive advantages.

According to Annarelli and Nonino (2016) and Assistant et al. (2019), organizational resilience is considered a relatively new concept in the discipline, with limited empirical research investigating this administrative phenomenon. Currently, it is in a theoretical stage where the concept is being defined, along with the assumptions under which it operates within an organization. Its main precedent in social sciences comes from psychology, where the adjective resilient is used to describe the characteristic of coping with or surviving prolonged adversity caused by external factors to the subject under study (Garmezy, 1971).

The authors Bueno et al. (2019) contribute to a comparative study of empirical research conducted among companies in Spain and Colombia. They determine that the dynamic capabilities with the greatest impact on organizational resilience are the dynamic capability of adaptation and the capability of innovation. They argue that human talent is of utmost relevance for this type of analysis, which aligns with the perspectives of Nonaka and Takehuchi (1995). On the other hand, Fainshmidt et al. (2019) argue that dynamic capabilities have an influence on organizational resilience as they are linked to the performance of companies, which is defined by their own business routines. Thus, in the face of adversity from the environment, the organization's ability to react will be optimized based on its dynamic capabilities, enabling the attainment of organizational resilience (Monguilot & Marqués, 2017; Manfield & Newey, 2018).

This aligns with the study conducted by Nenonen et al. (2018), which determines that dynamic capabilities have a relationship with the ecosystem in which the company operates. In the case of the study conducted in the service sector, they propose a model that specifies that dynamic capabilities are more closely related to the environment. According to Salanova et al. (2019), the balance between a company and its environment leads to organizational resilience.

In Mexico, the lifespan of companies follows a consistent downward trend. Within the manufacturing sector, out of every 100 companies that commence operations in their first year, only 70 manage to survive. By the fifth year, this number further declines to 40, and after 10 years, only 30 companies remain.

In the context of a pandemic, such as the Covid-19, it is pertinent to understand the behavior of organizations in relation to their dynamic capabilities, which enable them to create value in turbulent environments. This becomes particularly relevant considering the national and state life expectancy for SMEs.

The current issue faced by the commercial sector under the effects of the COVID-19 pandemic highlights the need for research that not only describes the behavior of organizational survival but also explains the causality of assumptions through an analysis of dynamic capabilities. According to data from Instituto Nacional de Estadística y Geografía (2014, 2016), the life expectancy of businesses tends to decline over time, resulting in an accumulated increase in the business mortality rate in the following year. However, based on the statistics found, although companies are dying in the market, there are also companies that are surviving. These resilient companies possess a factor that enables them to remain in their environment.

Thus, there arises a need to conduct empirical research on commercial SMEs in Ciudad Obregón, Mexico, aiming to develop a theoretical framework that determines the influence of dynamic capabilities on organizational resilience and, in turn, explains the causality of organizational survival (Doerfel & Prezelj, 2017; Elidea & Prado, 2017).

The novelty and unpublished aspect of this research lie in the contribution of an empirical antecedent that utilizes a model of dynamic capabilities integrating the key dynamic capabilities of an organization (detection, absorption, integration, coordination, and innovation) to analyze their influence on a resilience model across different dimensions of study (adaptation, integrity, and performance). This generates a new construct of a hypothetically tested model through statistical methods. Therefore, the following research objective is proposed:

To determine the effect of dynamic capabilities on organizational resilience of SMEs in the commercial sector of Ciudad Obregón, Mexico, in order to identify the elements that explain organizational survival.

Literature review and hypothesis

Dynamic Detection Capability (DDC)

Building on a thorough identification and utilization of resources, organizations can detect valuable resources and thereby identify sustainable competitive advantages in the face of competition. One way to generate valuable resources and create value for the organization is through dynamic capabilities, which enable organizations to develop resilience in turbulent environments (Kamalahmadi & Parast, 2016; Kurtz & Varvakis, 2016).

In such a dynamic and chaotic environment, characterized by the global economic crisis caused by Covid-19, it becomes of utmost importance to efficiently leverage resources in order to develop dynamic capabilities that create value from the organization's intangible assets. This allows for the creation of sustainable competitive advantages that endure over time and enable companies to develop organizational resilience (Gössling et al., 2020; Haapanen et al., 2020; Ioannides & Gyimóthy, 2020).

Dynamic detection capability is defined by Teece & Leih (2016) as "sense" or "sensing" in English. In rapidly changing and turbulent environments, organizations should not remain static. They need to be aware of all the opportunities that may arise in the market. The dynamic detection capability is the one that intervenes in this process within organizations. Zapata and Mirabal (2018) define this capability as the ability to timely identify market opportunities and threats within the organization's operating environment. Viewing a changing environment as an opportunity for change is in line with Moncaleano's (2018) propositions regarding chaos theory. Therefore, detecting adversities as opportunities also assumes that organizations possess a cognitive ability to perceive the environment differently. This is also related to the propositions of Nooteboom (2009) in cognitive theory.

Dynamic detection capability, in addition to aiding in the identification of environmental changes, allows organizations to have a vision of the evolution of these changes, such as new customer needs, new legal frameworks in their sectors, or new business opportunities for the organization (Teece, 2007; Teece, 2018a). Simply identifying these changes enables the organization to initiate its adaptation, as these changes become adversities to which the organization must survive. Based on the above, the following research hypothesis is proposed:

H1: There is a positive and significant effect of dynamic detection capability on organizational resilience of SMEs in the commercial sector.

Dynamic Absorptive Capability of knowledge (DAC)

Although the dynamic absorptive capability of knowledge (DAC) is known by various authors as dynamic learning capability, this concept is initially defined in microeconomics by Cohen & Levinthal (1990). They describe it as the significant ability of firms to accurately identify external information and subsequently assimilate it in a manner that can be utilized for commercial purposes. (Carrazco-Escalante & León-Balderrama, 2017; García et al., 2021; Pérez, 2018).

In contrast, Zahra & George (2002) contribute a new concept to the DAC and primarily define it as a cluster of essential processes for knowledge management in firms. These processes include the acquisition of external knowledge, assimilation of external knowledge, transformation of external knowledge, and finally, the exploitation of external knowledge.

The authors García et al. (2018) argue that this capability of firms is dynamic and strengthens knowledge management within organizations. It not only helps in identifying external knowledge but also in exploiting it when it reaches the final dimension of this capability. Thus, the exploitation dimension takes on greater importance within the DAC, as innovation can stem from this final phase. The phases of the DAC allow for an estimation of the interaction between the absorption process and knowledge management in firms, with each dimension complementing the others in a certain way.

Organizations can possess different levels of DAC, which depend on the effective execution of each dimension. Since DAC is a sequential or cyclical variable, the existence of Dimension 1 (acquisition) is necessary for the existence of Dimension 2 (assimilation), which in turn may lead to the existence of Dimension 3 (transformation) due to the presence of the previous dimension. Similarly, the existence of Dimension 4 (exploitation) requires the presence of the preceding dimension.

The optimal process of DAC can ensure that companies create new practices that generate greater added value to their offered goods and services, positioning the organizations in a more competitive position compared to the market (Flor et al., 2017; Meza et al., 2021; Pérez et al., 2019). The above highlights the importance of DAC in value generation, which enables organizations to stay in the market. Therefore, the following research hypothesis is proposed:

H2: There is a positive and significant effect of dynamic absorptive capability of knowledge on the organizational resilience of SMEs in the commercial sector.

Dynamic Integration Capability (DIC)

Once knowledge has been acquired, assimilated, transformed, and exploited through organizational learning, there arises a need to integrate the newly acquired knowledge with activities within the organization. Teece & Pisano (1994) define integration as the incorporation of external resources required to enhance competitive advantage. The dynamic capability of integration holds great importance in organizations, as it enables the efficient combination, reconfiguration, and integration of existing functional skills with newly acquired ones, thereby integrating them into the organization's established routines and practices (Teece, 2016).

The relevance of this dynamic integration capability is clearly evident. What good is it to learn certain knowledge that allows organizations to improve their practices if they are

unable to integrate it into their routine activities? Because of this, integration plays a crucial role in an organization's dynamic capabilities model and should be included accordingly, as proposed by Kurtz and Varvakis (2016), Pavlou and El Sawy (2011), and Popadiuk et al. (2018).

Dynamic integration capability refers to the organization's ability to leverage an opportunity once identified and absorbed in response to the environment. The faster the response, the greater the organization's agility and flexibility in adapting to the environment (Teece, 2020).

This capability involves combining individual knowledge with organizational knowledge, thereby integrating them into a collective business unit where knowledge is unified and a single organizational knowledge is generated (Kurtz & Varvakis, 2016). In this context, knowledge is no longer considered external to the organization but becomes internal. Given the importance of integration capability within dynamic capabilities, the following research hypothesis is proposed:

H3: There is a positive and significant effect of dynamic integration capability on the organizational resilience of SMEs in the commercial sector.

Dynamic Coordination Capability (DCC)

Once the organization is capable of detecting, absorbing, and integrating the information and knowledge provided by the changing environment, it requires coordination of each and every individual effort. This coordination is necessary to achieve precise and timely regulation of internal processes, leading to a reconfiguration that provides the necessary conditions for the organization to survive in the market (Pavlou & El Sawy, 2011).

Within this dynamic coordination capability, the application of external knowledge is already facilitated by the dynamic integration capability. Therefore, top management must make strategic decisions to initiate the planning process (Rashidirad & Salimian, 2020) in order to survive contingencies.

Dynamic coordination capability enables organizations to continuously change and adapt to environmental changes (Teece, 2007; Teece, 2012). According to Teece et al. (2016), the agility with which coordination occurs plays a fundamental role in achieving adaptation to the environment. The faster an organization can coordinate its new organizational model, the sooner it will be able to confront the environment with a model that has integrated new routines into the company's processes.

This process is related to governance, which safeguards organizational well-being and ensures the protection of tangible and intangible resources during adaptation to the environment. Based on the theoretical review of DCC, the following research hypothesis is proposed:

H4: There is a positive and significant effect of dynamic coordination capability on the organizational resilience of SMEs in the commercial sector.

Dynamic Innovation Capability (DINC)

Based on the theory of economic complexity, as proposed by García et al. (2019), innovative processes in economic entities tend to be generated through increased diversification and

decreased ubiquity of products. Knowledge transfer plays a fundamental role in this regard. With greater knowledge transfer, more knowledge is applied to the processes, resulting in the production of sophisticated goods and/or services that generate higher value in the market. Consequently, customers are willing to pay a higher price to acquire them (García et al., 2021).

Innovation is a crucial process in organizations, particularly in the face of increasing business mortality rates due to reduced consumption. It is imperative to develop new digital models (Mendoza, 2017) that enable organizations to adapt to the new adverse environment.

According to Garzón (2015), dynamic innovation capability is the ability to generate new products and/or services in the market to meet new customer needs. On the other hand, Zapata and Mirabal (2018) state that dynamic innovation capability refers to the organizational ability to change and innovate in the market through the application of new strategies, knowledge, and processes.

According to Heider et al. (2020), an innovative business model is closely linked to dynamic capabilities. Fierro and Mercado (2012) support this argument and indicate that dynamic capabilities play a relevant role in innovative business models. Therefore, the following research hypothesis is proposed:

H5: There is a positive and significant effect of dynamic innovation capability on the organizational resilience of SMEs in the commercial sector.

Methodology

The research has a correlational scope with a cross-sectional design and a non-experimental approach, utilizing quantitative information and analysis. The study focuses on small and medium-sized enterprises in the commerce sector of Ciudad Obregón, Mexico, which have a lower lifespan than the national and state averages (6 years), as reported by Instituto Nacional de Estadística y Geografía (2014). The phenomenon to be explained (organizational resilience) is characterized by the adjective "resilient," referring to the ability to cope with or survive prolonged adversity caused by external factors. In organizational terms, it is understood as the survival of an organization in the face of turbulent market conditions (Verbeke, 2020). These resilient enterprises are chosen as the subjects of study.

The population of small and medium-sized enterprises (SMEs) in the essential commerce sector (groceries, food and beverage trade, wholesale trade, retail trade, pharmacies, wholesale trade of pharmaceutical products, and gas and fuel trade) during the COVID-19 pandemic, according to the National Directory of Economic Units (DENUE), consists of 336 companies. The present study conducted a census of these 336 companies that met the subject study specifications and obtained a response rate of 64.28%, with a total of 216 completed questionnaires.

The information was collected in the month of November 2021 at a single point in time, therefore it is a cross-sectional study. This data was collected using an instrument capable of measuring each dimension of the dynamic capabilities and organizational resilience being analyzed. The responses from the participating companies were analyzed using a Likert scale, which is a psychometric scale ranging from 1 to 5. This scale measures the level of agreement with each item in the survey. The scale includes response options ranging from strongly disagree, disagree, neither agree nor disagree, agree, to strongly agree.

An instrument was designed for data collection, which was validated by two experts and approved by the institutional ethics committee of the Instituto Tecnológico de Sonora before its application. Based on the literature review, an instrument was developed to collect the necessary data to study the proposed model of dynamic capabilities and its relationship with organizational resilience.

The fieldwork was initiated, and a total of 216 completed instruments were obtained. The internal consistency validity of the instrument was assessed by calculating Cronbach's alpha coefficient using IBM SPSS Statistics version 26 for each dimension of the study variables. The results showed statistical significance and reliability. Regarding the results, a database was created to tabulate all the completed instruments from the study subjects. Once the database was generated, the hypothetical model was designed, incorporating each latent variable and observed variable, using the statistical software IBM AMOS version 24. The database was then integrated to commence with the statistical tests.

To contrast and verify the optimal number of proposed items to measure each dynamic capability and organizational resilience, confirmatory factor analysis methodology was used. This methodology allows for grouping variables in order to reduce the number of study variables, optimizing the research methodology. The grouping was done based on the compatibility of item characteristics, where it is expected that items have a statistically significant factor loading, resulting in homogeneous groups. These groups are based on the dimensions of each variable considered in the hypothetical model.

Results

The instrument was completed by individuals in ownership, managerial, or similar positions within their respective organizations. This approach was chosen because the statements in the instrument carry strategic implications concerning dynamic capabilities. Based on the collected responses, the general characterization of the study subjects is as follows: out of the 216 surveyed companies, 155 are categorized as small, representing 71.76%, and 61 are classified as medium-sized, representing 28.24%. Among the total of 216 surveyed companies, 124 are non-family-owned, accounting for 57.41%, while 92 are family-owned, comprising 42.59%. Out of the 216 owners, managers, or individuals in similar positions who completed the survey, 137 are male, constituting 63.43%, and 79 are female, representing 36.57%.

Based on the responses obtained from the 216 completed instruments, internal consistency validity was assessed for each dimension of each study variable using Cronbach's Alpha coefficient. The results are presented in Table 1.

Table 1. Internal consistency validity.

Variable	Dimension	Number of items	Cronbach's alpha
Dynamic capabilities	Dynamic Detection Capability	4	.894
	Dynamic Absorptive Capability of knowledge	5	.907
	Dynamic Integration Capability	5	.901
	Dynamic Coordination Capability	4	.856
	Dynamic Innovation Capability	6	.909
	Organizational Adaptation	5	.904

Variable	Dimension	Number of items	Cronbach's alpha
Organizational resilience	Organizational Integrity	6	.915
	Organizational Performance	4	.914

Source: Own elaboration based on the results of IBM SPSS Statistics version 26.

Similarly, Table 1 presents the detailed results of the calculations of Cronbach's Alpha coefficients for each dimension. These coefficients determine the instrument's reliability in terms of its internal consistency. Based on the results obtained, all dimensions demonstrate statistically significant findings, indicating a high level of reliability. For dynamic capabilities, a Cronbach's Alpha coefficient value of 0.977 was achieved, while for organizational resilience, a Cronbach's Alpha coefficient value of 0.967 was attained.

The results of the confirmatory factor analysis for both the independent and dependent variables are presented to determine the factor loadings for each item within their respective dimensions. These results are displayed in Table 2. The acronyms utilized in Tables 2 and 3 are as follows: Dynamic Detection Capability (DDC), Dynamic Absorptive Capability of Knowledge (DAC), Dynamic Integration Capability (DIC), Dynamic Coordination Capability (DCC), Dynamic Innovation Capability (DINC), Organizational Adaptation (OA), Organizational Integrity (OI), and Organizational Performance (OP).

Table 2. Confirmatory Factor Analysis of Variables

Dynamic capabilities	Item	Factor loading	Organizational Resilience	Item	Factor loading
Dynamic Detection Capability	DDC 1	0.82	Organizational Adaptation	OA 1	0.8
	DDC 2	0.85		OA2	0.83
	DDC 3	0.83		OA 3	0.77
	DDC 4	0.83		OA 4	0.84
Dynamic Absorptive Capability of knowledge	DAC 1	0.8		OA 5	0.79
	DAC 2	0.83			
	DAC 4	0.83			
	DAC 5	0.8	Organizational Integrity	OI 1	0.85
Dynamic Integration Capability	DIC 1	0.82		OI 2	0.81
	DIC 3	0.78		OI 3	0.84
	DIC 4	0.8		OI 4	0.72
	DIC 5	0.82		OI 5	0.85
Dynamic Coordination Capability	DCC 1	0.79		OI 6	0.72
	DCC 2	0.8			
	DCC 4	0.78	Organizational Performance	OP 1	0.87
Dynamic Innovation Capability	DINC 1	0.8		OP 2	0.82
	DINC 2	0.8		OP 3	0.87
	DINC 3	0.78		OP 4	0.85
	DINC 4	0.79			
	DINC 5	0.83			

Dynamic capabilities		Item		Factor loading	Organizational Resilience		Item		Factor loading
CFI	GFI	RMSEA	TLI	p	CFI	GFI	RMSEA	TLI	p
0.997	0.9	0.052	0.972	0	0.972	0.907	0.066	0.966	0

Source: Own elaboration based on the results from IBM AMOS version 24.

Table 2 presents the factor loadings of each item in the dimensions of the independent variable, dynamic capabilities. All items have factor loadings greater than 0.70 for each dimension of dynamic capabilities, indicating that the items effectively measure their respective dimensions. The model fit indices, comparative fit index (CFI) with 0.997, root-mean-square error of approximation (RMSEA) with 0.052, and goodness of fit index (GFI) with 0.900, demonstrate satisfactory results. To achieve these results, the model was re-specified by removing item 3 from the dimension of knowledge absorption dynamic capability, item 5 from the dimension of integration dynamic capability, item 3 from the dimension of coordination dynamic capability, and item 6 from the dimension of innovation dynamic capability. Additionally, covariances were included in the re-specification to account for error correlations between e2-e3 and e11-e13, which improved the fit indices in the factorial analysis of this variable.

Likewise, Table 2 displays the factor loadings of each item in the dimensions of the dependent variable, organizational resilience. All items have factor loadings greater than 0.70 for each dimension of organizational resilience, indicating that the items effectively measure their respective dimensions. The model fit indices, CFI with 0.972, RMSEA with 0.066, and GFI with 0.907, demonstrate satisfactory results. In order to achieve these results, the model was re-specified without removing any items, and covariances were included in the error terms of e9-e11 to improve the fit indices in the factorial analysis of this variable.

Subsequent to this, the structural equation model was executed in order to identify relevant statistical indicators. Once the database was generated, the results were interpreted based on the research objectives.

Below, Table 3 presents the covariance matrix, which consists of the Pearson correlation between the dimensions of each variable, along with the mean and standard deviation.

Table 3. Matrix covariance

	DDC	DAC	DIC	DCC	DINC	OA	OI	OP
DDC	1							
DAC	.916**	1						
DIC	.886**	.929**	1					
DCC	.859**	.880**	.903**	1				
DINC	.878**	.907**	.930**	.904**	1			
OA	.880**	.902**	.905**	.892**	.915**	1		
OI	.864**	.882**	.882**	.869**	.904**	.908**	1	
OP	.832**	.851**	.845**	.843**	.879**	.880**	.898**	1
M	4.0752	4.1539	4.1901	4.0946	4.0759	4.1000	4.0596	4.1169
SD	.87926	.85574	.74797	.86088	.85125	.83794	.86714	.911527

Table 3 displays the results of the Pearson correlation coefficient, which are statistically significant for each of the analyzed correlations between the dimensions of the study variables, as they are closest to 1 under a 95% confidence level. Figure 1 presents the results of the proposed structural equation model in the research.

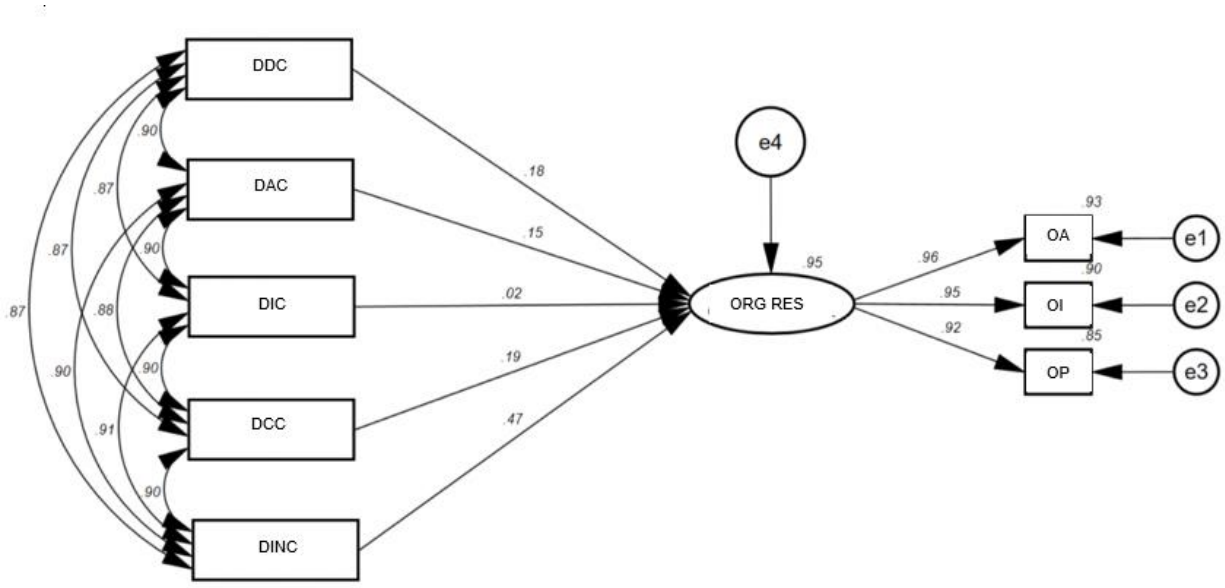

Figure 1. Structural equation model

Source: Own elaboration based on the results of IBM AMOS version 24.

Figure 1 presents the specified structural model for the current research. On the left-hand side, the variables related to each of the dynamic capabilities are displayed. On the right-hand side, the organizational resilience variable is depicted as a latent variable composed of three observable variables. Each of the unidirectional lines connecting the dynamic capabilities to organizational resilience represents the statistical hypotheses that the proposed model seeks to validate. Additionally, it is possible to observe the effect size of dynamic capabilities on organizational resilience along each of these unidirectional lines. (OP).

In addition, Figure 1 provides a detailed depiction of the behavior of the structural equation model, which aims to determine theoretical-causal relationships using the method of covariances. With a 95% confidence level, it has been found that the dynamic capabilities model can explain 95% of the variations in organizational resilience in small and medium-sized enterprises, as indicated by the R^2 values. These results are considered satisfactory, as the fit indicators CFI (0.996), RMSEA (0.070), and GFI (0.976) fall within the established parameters for statistically satisfactory indicators (Kline, 2015; Schumacker & Lomax, 2016).

The covariances observed between the dimensions of dynamic capabilities demonstrate the extent to which each dimension varies jointly. As the results approach a value of 1, a high covariance among the dimensions is considered, indicating the existing relationship among the dimensions, all of which are part of the dynamic capabilities variable.

The effects of the exogenous variables on the endogenous variable are presented in detail in Table 5, along with the acceptance or rejection of the hypotheses posited in the research.

Table 4. Hypothesis testing

Hypothesis		Estimator	P	Acceptance Rejection
H1	There is a positive and significant effect of dynamic detection capability on organizational resilience of SMEs in the commercial sector.	0.18	.004	Accepted
H2	There is a positive and significant effect of dynamic absorptive capability of knowledge on the organizational resilience of SMEs in the commercial sector.	0.15	.006	Accepted
H3	There is a positive and significant effect of dynamic integration capability on the organizational resilience of SMEs in the commercial sector.	0.02	.449	Rejected
H4	There is a positive and significant effect of dynamic coordination capability on the organizational resilience of SMEs in the commercial sector.	0.19	***	Accepted
H5	There is a positive and significant effect of dynamic innovation capability on the organizational resilience of SMEs in the commercial sector.	0.47	***	Accepted

Source: Own elaboration based on the results of IBM AMOS version 24.

As observed in Table 4, most of the independent variables are statistically significant in explaining the causal movements of organizational resilience in small and medium-sized enterprises in Ciudad Obregón, Mexico.

The dynamic capability of integration exhibits the least significant impact on organizational resilience within companies in Ciudad Obregón, Mexico, as indicated by a relationship coefficient of only 0.02. This finding suggests that, particularly in turbulent and dynamic contexts such as the Covid-19 pandemic, the integration of environmental information may not be as pivotal when striving to enhance market resilience through adaptation, integrity, and performance. Instead, organizations that cultivate dynamic capabilities in sensing, knowledge absorption, coordination, and innovation are better positioned to foster organizational resilience.

Conversely, the dynamic capability of innovation has the greatest influence on the development of organizational resilience in small and medium-sized enterprises in Ciudad Obregón, Mexico, with a coefficient of relationship of 0.47. This indicates that nearly 50% of the effects on resilience are influenced by the organization's dynamic capability of innovation. Based on theory, this suggests that organizations need to reinvent themselves and innovate in the three-dimensional aspects within the CDIN: processes, organization, and primarily in products, as indicated by the factor loading of the items within this dimension.

The obtained results in the present research, based on a sample of 216 companies, demonstrate a statistically significant and positive effect between the dynamic capabilities of sensing, absorption, integration, coordination, and innovation with organizational resilience (Akhigbe & Onuoha, 2019; Bohórquez et al., 2020; Carvalho et al., 2016; Carmona-González

et al., 2017; Fukofuka & Tusse, 2015; Kraus et al., 2020; Quiñones & Prado, 2017; Strange, 2020; Van Hoek, 2020).

The results demonstrate that the hypothesis related to Dynamic Detection Capability (DDC) was supported within the specified structural model. This implies that a firm's ability to detect situations, circumstances, or events in the business environment is a characteristic that can contribute to the attainment of organizational resilience for firms (Teece, 2007; Teece, 2018a).

On the other hand, it is also verified that Dynamic Absorptive Capability of Knowledge (DAC) has a positive effect on organizational resilience. Hence, a company's capacity to assimilate new knowledge from its environment can confer an advantage for organizational survival, as mentioned by Meza et al. (2021) and Pérez et al. (2019).

The model analyzed in the current research confirms the hypothesis that Dynamic Coordination Capability (DCC) also has a positive impact on the resilience of companies. This aligns with the findings of Rashidirad and Salimian (2020), who argue for the significance of coordinating efforts within a company to achieve improved organizational outcomes.

The empirical evidence generated in the present research indicates the influence of dynamic capabilities on organizational resilience, which aligns with the findings of North and Gueldenberg (2011) and Pettit et al. (2019), who also establish the relationship between these two variables of study.

The results suggest a greater influence of the dynamic capability of innovation on organizational resilience, implying that organizations need to reinvent themselves and innovate in their organization, processes, and products in order to remain competitive in the market. This finding is consistent with the contributions of Brandon-Jones and Knoppen (2018), who emphasize the impact of innovation on dynamic capabilities and strategic actions. Furthermore, the results of De Silva et al. (2019) highlight the significant importance of innovation in dynamic capabilities within international organizations. These findings are further supported by the studies of Branicki et al. (2018), Heider et al. (2020), Ilmudeen et al. (2019), Ledesma et al. (2020), Wang et al. (2019), and Williams et al. (2017), all of whom argue that innovation is closely related to dynamic capabilities, as they enable the creation of value through the generation of competitive advantages.

On the other hand, the findings of Camargo et al. (2017) in their study of Colombian SMEs align with the aforementioned results, as they demonstrate how the dynamic capability of innovation fosters the generation of competitive advantages in Latin American companies.

However, the results of Huang et al. (2020) do not coincide with those found in the present research. In their study of 1,597 Chinese companies during the pandemic, they indicate that organizational resilience is explained by social responsibility with statistically significant results. Although the predictor variable has a different theoretical and conceptual framework, the results obtained in this study indicate that dynamic capabilities account for 95% of the variations in organizational resilience.

Conclusion

Based on the obtained results in the present research, it can be concluded that the objective of determining the effect of dynamic capabilities on the organizational resilience of commercial SMEs in Ciudad Obregón, Mexico, for the identification of elements that explain

organizational survival, has been successfully achieved using the proposed methodology of covariance-based structural equation modeling (CB-SEM).

The main contribution of this research is the identification of dynamic capabilities that influence organizational resilience and the extent to which they have varying effects on this phenomenon under study. This allows for the determination of assumptions through which dynamic capabilities enable organizations to thrive in a specific market. The findings help establish the relevance of dynamic capabilities in organizations to achieve resilient market survival. Specifically, the dynamic capability of innovation emerges as the most crucial factor in terms of resilience and has the greatest impact on the longevity of companies in the market.

Based on the aforementioned, considering that commercial SMEs in Ciudad Obregón have a lower life expectancy compared to other regions in Mexico, these organizations should focus their organizational efforts on innovating their processes (Ilmudeen et al., 2029), their products (Ledesma et al., 2020), and the organizational structure itself (Wang & Feng, 2020) if they aim to overcome the business mortality gap and achieve a longer life expectancy in the market.

The organizational resilience model developed in this research is statistically accepted to measure the study variable. Firstly, the dimension of organizational adaptation emerges as the most significant for companies, encompassing business model adaptation practices, individual adaptation, routine adaptation, and organizational strength and resilience. Following this, there is organizational integrity, which includes practices related to adversity perspective, mentorship and leadership, healthy organizational practices, and employee authenticity. Finally, there is organizational performance, which focuses on financial performance and the achievement of goals and objectives.

In terms of organizational resilience, only the dynamic capability of innovation, dynamic capability of coordination, dynamic capability of sensing, and dynamic capability of knowledge absorption provides the necessary conditions for the organization to generate organizational resilience.

The findings of this study empirically support theoretical contributions from various theories. For instance, the resource-based view and capabilities theory (Penrose, 1959) describe how organizations that leverage their resources and capabilities tend to grow. The results of this study confirm that organizations with dynamic capabilities can not only create value and grow but also sustain their presence in the market. Furthermore, the findings affirm the insights of Barney (1991), who argues that rare resources enable the generation of sustainable competitive advantages. According to Nonaka and Takeuchi (1995), human talent is the primary source of competitive advantage, namely knowledge. These contributions are aligned with the micro theory of dynamic capabilities (Teece et al., 1997), which asserts that this type of organizational capability allows firms to create value in dynamic and turbulent environments. In line with the research context, the present study confirms that commercial SMEs in Ciudad Obregón, Mexico, operating in a dynamic environment shaped by the Covid-19 pandemic, are capable of generating organizational resilience through their dynamic capabilities.

One of the primary limitations of the present research is the fact that only companies within the commerce sector were analyzed, and no comparative analysis was established with companies from other sectors of the economy. This limitation may result in valuable insights concerning the phenomenon of organizational resilience, considering that each

sector of the economy presents a distinct reality. Another limitation is that the structural model only incorporated dynamic capabilities while excluding other variables that could potentially explain organizational resilience, such as leadership, human capital, or organizational culture. It is also worth noting that a larger sample size could be employed to enhance the generalizability of the results.

Future studies can be conducted to elucidate how dynamic capabilities can be fostered within businesses, along with the development of analyses that encompass companies from various sectors of the economy. It is also important to categorize the types of organizational resilience that exist based on the different sectors and subsectors to which the companies belong.

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Appendix

ITEM	In our company ... DYNAMIC DETECTION CAPABILITY
1	We detect problems, threats and opportunities in the environment.
2	We identify the new technologies on the market.
3	We constantly monitor the competition.
4	We evaluate the environment before making a decision.
	In our company... DYNAMIC ABSORPTIVE CAPABILITY OF KNOWLEDGE
1	We provide constant training to our employees.
2	Employees understand new processes, activities or technologies.
4	We develop new ideas in the business.
5	We generate improvement proposals.
	In our company... DYNAMIC INTEGRATION CAPABILITY
1	We integrate what has been learned into our processes.
3	Employees share their knowledge with others based on their experiences.
4	There is participation of all employees in decision-making.
5	Employees know their objectives and identify their goals.
	In our company ... DYNAMIC COORDINATION CAPABILITY
1	We coordinate effectively between employees, clients, suppliers, etc.
2	We delegate responsibilities to our employees according to their positions.
4	We effectively allocate available resources (time, money, personnel).
	In our company ... DYNAMIC INNOVATION CAPABILITY
1	We have made improvements to our products in the last year.
2	We have products with characteristics different from those of the competition.
3	We are good at implementing new types of production processes.
4	We constantly implement new types of improvement processes.
5	We emphasize creativity and innovation with personnel.
	In our company ... ORGANIZATIONAL ADAPTATION
1	We manage to anticipate factors that affect the market.
2	We constantly update its long-term plans to contextualize them to the environment.
3	Employees provide suggestions to the company to do their jobs differently.
4	Employees adapt to new working conditions.
5	We have optimized our processes in the last year.
	In our company ... ORGANIZATIONAL INTEGRITY
1	We persevere and do not give up in the face of adversity.
2	We face complex situations and threats with a proactive attitude.
3	Employees acquire skills and knowledge necessary for their work.
4	Internal conflicts are resolved most of the time.
5	We support employees in their problems. (Bonds, savings funds, permits, etc.)
6	The personnel turnover rates are acceptable.
	In our company ... ORGANIZATIONAL PERFORMANCE
1	Financial returns are acceptable.
2	We manage an acceptable level of costs.
3	Employees achieve their goals and objectives according to their positions.
4	We achieve organizational objectives in the short and long term.