LEISURE & TOURISM | RESEARCH ARTICLE

Achieving sustainable tourism with dynamic capabilities and resilience factors: A post disaster perspective case of the tourism industry in Saudi Arabia

Ragmoun Wided1,2,

Abstract: In this research, we aim to define and analyze dynamic capabilities (DCs) for organizational resilience (OR) to achieve sustainability in the tourism industry (SST) in Saudi Arabia. In fact, we admit that resilience is the foundation for the development of sustainability based on different factors and capabilities. After debating the concept of DC for resilience and its dimensions, an integrative model of resilience, sustainability, factors and DCs was developed and tested to identify the joined effect of these factors. The research adopted a quantitative research design and the survey method to collect data. Structural equation modeling was selected for data analysis. Through a dataset of 200 respondents, results indicated the four main components of DC significantly affect OR by a mediating effect and moderate the relationship between OR and sustainable tourism. The mediating effect confirmed here is still related to only three resilience factors: resilience network, organizational factors and individual factors. Managerial and theoretical implications are also discussed at the end of this paper. The research model defined and tested can be considered as a critical pathway for resilience on tourism industry in Saudi Arabia after crisis caused by COVID-19 pandemic.

ABOUT THE AUTHOR

Ragmoun Wided is an assistant, professor in college of Business and Economics – Qassim University in Saudi Arabia and affiliated to Faculty of economic sciences and management in Nabeul- Tunisia on Business department. Currently, she has been teaching managerial courses and has engaged in the supervision of research projects for the students in the same department. Her research interests focus on strategic management, entrepreneurship and innovation, with the particular interest to resilience and open innovation in actual circumstances. She published many previous studies in indexed journal as well as some development project.

PUBLIC INTEREST STATEMENT

The purpose of this research was to provide a pragmatic critical pathway for organizational resilience (OR) in tourism sector in Saudi Arabia to survive and overcome difficulties after pandemic according to the concept of tourism sustainability. An exhaustive model was defined based on different factors. We identified internal, external and interactive factors. The main approach was oriented by capabilities to facilitate its adoption by managers and policymakers. Then, we collected data from 200 questionnaires. Our results support the existence of a mediating effect of dynamic capabilities (DCs) between factors identified and OR. Tourism sustainability seems to be a direct consequence of this combination. Researchers and managers may benefit from using the developed and tested model as a guide to surpass difficulties caused by COVID-19 pandemic and ensure continuity and survival. This research differs from previous studies by its pragmatic and illustrative roadmap for resilience.
1. Introduction

Recently, it is admitted that socio-economic development in many regions and countries around the world depends on tourism (Fatoki, 2021). This fact seems to be in difficulty with the appearance of COVID-19 pandemic, which affects all over the world at different levels and invites the scientific community to look for eventual recovery plans to adapt the new normal (Elmo et al., 2021).

In fact, the tourism sector, which is based on mobility and requires interaction and communication between individuals, becomes one of the most affected sectors by the crisis caused by the pandemic (Hao et al., 2020). At the same time, this situation causes bankruptcy and several difficulties of many companies (Hsieh et al., 2021). The tourism sector becomes paralyzed with a high rate of job losses (Boulos et al., 2020; Verma & Gustafsson, 2020).

Gössling et al. (2020) qualified this new situation as a shift from “overtourism” to “nontourism” and indicated that this transformation reveals an unprecedented crisis in the tourism sector with reference to the relative importance of resilience for the tourism system to overcome further eventual crisis much more devastating than the Coronavirus pandemic.

A reform of operational mode is also caused by COVID-19 crisis and become more resilient and sustainable (Elmo et al., 2021). New challenges have been introduced by the pandemic, and it streams companies and compromises their resilience with a rude effort to find its future (Ivanov, 2020).

In addition to this, resilience as well as sustainability regain importance for the tourism sector due to its vulnerability to external threats such as socio-economic crises and natural disasters (Espiner et al., 2017) and can be affected quickly by chaos (Faulkner, 2001).

At the same time, Romagosa (2020) highlights that tourism sector is characterized by an important ability for adaptation and recovering in addition to a high resilience and despite this it is widely affected by the crisis of COVID-19. This observation allows us to conclude that the actual level of resilience and sustainability is not enough to guarantee survival in this sector, and this is why we are looking for a critical pathway for OP and sustainable tourism through a pragmatic approach.

This request is amplified by the diversity of others factors which can cause problem of sustainability on tourism which is the climate change. The actual literature shows that tourism causes environmental degradation (Efjigiamusoe, 2020) but, in the same time, tourism represents a good predictor of economic growth and financial development (Efjigiamusoe, 2021). The dilemma is how to be resilient and sustainable without wasting resources or damage environment?

Today, it is necessary to rethink and reconsider the concept of sustainable tourism and bring it closer to the resilience that becomes increasingly evident (Cheer & Lew, 2017; Hall et al., 2018; Romagosa, 2020). Here, Hall et al. (2020) conclude that we need a comprehensive sustainable reform in tourism sector, but this approach remains limited. Our research is developed to support this effort to promote the sustainability of tourism and enrich theoretical and empirical studies in this field.

The aim of this research is to understand what changed in the tourism industry due to the pandemic in terms of resilience and sustainability, but the most important in our study is to operationalize these
two joined aspects as a post-pandemic perspective making tourism more competitive to overcome this crisis and eventual unexpected events, as well as their negative effects on an important and productive sector such as tourism. In Saudi Arabia, this need is amplified and can be determinant because tourism is still in the primary stages of development and the government considers this sector as one of the key activities within Vision 2030 related to sustainable development.

Under these considerations and necessity of being competitive, building capabilities becomes vital. To adjust and adapt changes, caused by crisis in this case, organization needs to renew their resources (Nieves et al., 2016). If we are talking about competitiveness through resources, the key concept must be the DC described as an organizational ability to integrate, build and reconfigure external and internal competencies to deal with rapid environmental changes and improve competitiveness (Teece, 2007; Zhou et al., 2017). The interrelationship between OR and DC is investigated by a limited number of scholars (MacInerney-May, 2012; Teece, 2007).

This research makes both empirical and conceptual contributions to fill this gap related to the mechanisms of resilience through DC in tourism industry in Saudi Arabia as well as the definition of an ultimate objective of sustainable tourism. Our results will provide deeper insights into this integrative approach between DC, OR and SST. To achieve this objective, a comparative literature review is developed to develop a conceptual framework.

This paper is structured as follows: the first part represents a theoretical approach of our research in which main theoretical reference is defined and analyzed, then the development of the theoretical framework is detailed. After this, the methodological approach is presented as well as corresponding results. Finally, the discussion and contributions are detailed.

2. Literature review
The transposition of sustainable development vision to the tourism sector has recently become the subject of an interesting debate with great interest (Jones et al., 2016; L Williams et al., 2020)

According to the World Tourism Organization (1998), sustainable tourism (SST) is a specific form of tourism activity that provides and guarantees tourism opportunities for actual and future generations. This means that SST not only permits the maximization of benefits for communities as well as minimizes costs but also ensures preservation of natural environment and cultural aspects of tourist destinations to maintain economic sustainability in tourism industry (Ilić & Kostić, 2021). Butler (1993) presents SST as tourism that maintains and develops sustainability for an indefinite period without change or degrade the environment for a successful well-being and development of the rest of activities.

SST still related to a long-term perspective of any tourism that protects and preserves cultural, natural and social resources for individual well-being and sustainable economic development (Dekić et al., 2016).

Nowadays, maintaining sustainability is not easy. Unexpected events or disasters can easily break a sustainable process if it is not well managed. COVID-19 is one of the most dramatic pandemics of this century, which causes economic and social negative effects. Our mission is to define a critical pathway for the post-pandemic perspective able to regain sustainability in tourism.

In this frame, constructivist self-determination theory (Saakvitne et al., 1998) regains importance. It belongs to trauma theory and integrates growth and development after the crisis through a constructivist approach, social learning and cognitive development to stimulate individual development based on social and cultural norms.

A positive response to trauma depends on individual factors, especially experience and interpersonal experience (Nishikawa, 2006).
Saakvitne et al. (1998) insist on the relative importance of this theory because it defines a contingent and personalized aspect of thriving, helping us to understand the constructive approach of resilience as adopted here.

Based on this theoretical analysis, the general framework of our research approach is based on two main aspects: resilience is a dynamic and constructive concept which can be developed and maintained. In the next section, we will try to demonstrate how this proactive resilience can be developed through a DC considered as a mediating–moderating variable.

1.1. Theoretical framework

1.1.1. Dynamic capabilities

DC theory is directly linked to the Resource-Based View (RBV) as detailed by Teece et al. (1997). It is admitted that RBV concentrates on how firm can use capabilities and resources to reach high level of performance through a sustained competitive advantage (Barney, 1991). Based on this, firm is composed of a heterogeneous mix of capabilities, resources and competencies and its success depends on its efficient and effective use of these capabilities. In this line of idea, capabilities, as well as resources, must be valuable, rare and nonsubstitutable to generate a sustainable competitive advantage.

Capabilities is considered as an ability to deploy and use resources and skills in addition to knowledge which generate directly competitive advantage (Amit & Schoemaker, 1993).

Based on the existing literature review, capabilities can be dynamic or operational. As operational, capabilities will be described as routines which allow firm to accomplish usual tasks by using same techniques in the production of services and goods proportionally to the demand of the market (Amit & Schoemaker, 1993). DCs are described as the ability of a firm to make adjustments due to its evolution in a changing business environment (Seo et al., 2021).

As extension of the RBV, DC is defined as an organizational ability to build, integrate and reconfigure external and internal competencies to adapt rapid change in environment (Teece et al., 1997).

It is also an organizational capacity to extend, modify and create an organizational resource base (Helfat et al., 2007), an organizational process to reconfigure, integrate, release and gain resources to match and create environmental change (Eisenhardt & Martin, 2000) and an organizational potential to solve problems systematically and sense threats and opportunities to make market-oriented and timely decisions (Barreto, 2010)

To operationalize DC, three main relative dimensions are mentioned: seizing, transforming and sensing (Teece et al., 1997). This is the main and most used approach to appreciate DC (Zhou et al., 2017) but considered as an abstract and limited level (Pavlou & El Sawy, 2011) and this is why they defined a new approach of DC through four processes: Learning, sensing, coordinating and integrating. This conceptualization seems to be more exhaustive and more dynamic as mentioned and adopted by recent previous researchers (Rashidirad & Salimian, 2020). For us, the same will be adopted to explain and demystify the role of DC for resilience and sustainability in tourism based on a direct and indirect effect.

1.1.2. Resilience in tourism industry: definitions and determinants

Resilience is considered as a capacity to deal with an unexpected event and especially to learn how to recover after this event (Wildavsky, 1991). It is also defined as an attribute which permits to organizations and individuals to survive and overcome a disaster period or uncertainties (Conz & Magnani, 2020).
Sinha and Ola (2021) conclude that resilience can be a capability, an ability or a capacity to plan or recover from dramatic events or financial uncertainties and can stimulate and maintain the performance of an organization during such disasters or unpredictable events (Hollnagel, 2014).

In the same line of idea, Denyer (2017) presents OR as the ability to anticipate, prepare, respond and adapt to sudden difficult events to generate a sustainable superior level of organizational performance (Pal et al., 2014).

In general, resilience, in existent literature review, is directly related to same basic aspect such as ability to plan (Pal et al., 2014), ability to adjust (Acquaah et al., 2011), reactive capabilities (Kamalahmadi and Parast, 2015), ability to anticipate and respond and recover from disaster event (natural or financial; DesJardine et al., 2019; Duchek et al., 2020).

However, Bouaziz and Smaoui Hachicha (2018) supported that resilience seems to be more than a simple effort to adapt or resist change. In fact, it is more appropriate to consider it as a proactive attitude to anticipate and leverage change.

As a first conclusion, resilience will be a dynamic, evolutive and sustainable concept to survive in a turbulent and unpredictable environment.

Conz and Magnani (2020) present resilience according to a processual approach which suppose that all organizational capabilities must be used at different disaster stages, this means that OR have to be possessed and developed not only before any unexpected events but also during and after such events. So, we can conclude that OR is adopted and integrated in organization as well as any resources to use it efficiently in anytime.

Other researchers consider that OR is the result of organizational reactions or a response to unpredictable change in the business environment through the development of an adequate recovery plan (T. A. Williams et al., 2017).

However, Gilly et al. (2014) explained that OR is developed as a capability to adjust and anticipate their routines to eventual external event.

As we can see, the majority of researchers agree that OR must be developed and defined as a continual process according to external events, but they differ on the nature of this resilience. In other words, OR depends not only on routines but also on ability, capacity and behaviors to anticipate, react, respond and recover from disaster events (Buyl et al., 2019) as well as adjust continuously to external circumstances while preserving its own values and behaviors (Hamel & Välikangas, 2003). In fact, OR depends on the opportunity of developing alternative plans of reaction proportionally to change and disaster (T. A. Williams et al., 2017). In this research, we adopt the conception according to it or we must consider it as proactive resilience (T. A. Williams et al., 2017) which means that this capability must coexist and co-evolute within the organization and be ready to use under different forms of external pressures. For us, we admit that OR is dynamic, continuous and processual concept that requires knowledge and information (Giroux and Prior, 2012; William et al., 2017).

Independently, our objective is not to define the concept of OR but specially to make it more operational to define a pragmatic pathway to be resilient.

In this level, we will admit that OR is a multidimensional and can be determined by multiple factors at different levels (internal and external) (Huey and Palaganas, 2020). Through a systemic literature review, they identify four main themes that affect resilience in service: Individual factors, environmental and organizational factors, Individual interaction with professional circumstances and effective educational interventions.
Another research in the same vein of idea demonstrates that resilience depends on five main factors in hospitality family business (Schwaiger et al., 2022): employees, personal treats, network resilience, finances and subsides and finally communication behaviors.

Sinha and Ola (2021) identify another category of factors of OR which are continuous learning, technological implementations, community knowledge sharing and social learnings. These factors are considered in direct relationship with DC.

As we can see, the appreciation of OR determinants differs from researcher to researcher, and there is no consensus about its related nature.

In this state, we have to select determinants which correspond to our interest. To make it effectively, we have to consider some basic points related to OR as studied here:

Resilience is dynamic and operated through a process, it is a multilevel (external and internal) and it is operated all over the time (Amir, 2018; Lengnick-Hall & Beck, 2005).

The OR is developed and enhanced by organizational capabilities (T. A. Williams et al., 2017).

Resilience trace a dynamic and sustainable interactions between external environment and the organization (Walker et al., 2004).

At all, four determinants are adopted, and individual factors, organizational factors, environmental factors and learning factors are proportional to the resilience characteristics cited below.

1.2. Individual factors
These factors deals with human behavior, social relations and cognition (J. F. Tantri Tasic & Amir, 2019). According to Lengnick-Hall et al. (2011), the OR is embedded in the knowledge, human abilities, and skills of employees. These researchers support the relative importance of strategic human resource management (SHRM) for the development of capacity for OR.

Individuals develop behavioral, cognitive, relational and emotional capabilities to respond and anticipate adverse events (T. A. Williams et al., 2017). Cognitive capabilities are the ability to make sense through uncertain conditions to generate the appropriate response (Maitlis & Sonenshein, 2010). To appreciate this individual dimension, researchers refer to creative thinking, mindfulness and flexibility (Lengnick-Hall & Beck, 2005; Sutcliffe et al., 2016). The OR at this level depends on the individual capability to experience and knowledge of the strength (Williams & Shepherd, 2016).

H1. Individual factors stimulate OR

1.3. Organizational factors
These factors depend on collective cognitive, emotional, relational, behavioral and socio-material capabilities (T. A. Williams et al., 2017). In this category, researchers also investigated the importance of organizational culture and structure (Bundy et al., 2017), technology (Pearson & Clair, 1998) to shape the work environment.

These factors are considered internal and are important to explain OR. Lengnick-Hall et al. (2011) argued that OR results from organizational capabilities, routines, practices and processes. Heinimann and Hatfield (2017) define a framework for OR directly related to internal arrangement, human interactions and operational procedures. As organizational factor for OR, culture is determinant for OR. It is associated with a collective mind, well developed for reliable performance through interrelations and social interactions (Weick & Roberts, 1993).
An effective collective response depends on collective mindfulness (Weick et al., 1999) by sharing means and respectful interactions (Weick, 1993).

For more details, a collective approach of organizational factors permits the definition of a collective sensemaking for a collaborative action and resources flow (J. F. Tantri Tasic & Amir, 2019; Gillespie & Dietz, 2009). Kahn et al. (2013) insist on the importance of the relational system to enhance OR. Mechanisms of such organizational factors are diversified, we can cite: informal social relationships which can supplement formal connections and generate OR (J. F. Tantri Tasic & Amir, 2019), emotional capital (T. A. Williams et al., 2017) and organizational behavior (Orlikowski, 2007).

Anyways, this factors still related to internal organizational environment which are able to detect change and take action to adapt appropriately to guarantee resilience.

H2. Organizational factors stimulate OR

1.4. Environmental factors

Heinimann and Hatfield (2017) support the idea of the external dimension of OR which means that this resilience has to be appreciated beyond organizational boundaries. OR is interactive and dynamic (Kant & Tasic, 2018). This interaction is determinant to achieve goals (Kovoor-Misra, 1995) and the interdependence can take different forms (regulations, authority, information exchange)

This level is directly related to the relationship with stakeholders (local community, media, industry bodies and government) which determine the organizational reaction during crisis. A good relationship facilitates the safe act and responsibility in crisis (H€allgren et al., 2018). In fact, it facilitates resource flow and reduce crisis consequences (J. Tasic & Amir, 2016) and therefore ensure resilience.

Based on a processual approach of resilience adopted here, the integration of stakeholders on crisis preparation contributes to maintain legitimacy and manage effectively their expectation (Pfarrer et al., 2008).

The key factor of such determinants deals with the communication and the alignment of organizational response with stakeholders’ perceptions (Bundy et al., 2017).

Clair and Waddock (2007) demonstrate that listening to stakeholders in term of opinion and concerns facilitate the detection of crisis signals and can prevent it. So, we can conclude that environmental factors stimulate stakeholders’ communication through the definition of different relationships enhance OR.

H3. Environmental factors stimulate OR

1.5. Learning from crises

OR, in this state, is a collaborative problem, which needs continuous adaptation and learning at many levels (Heinimann & Hatfield, 2017), and experience from similar crisis stimulate individual resilience and therefore group resilience (Bonanno et al., 2010). With experience, individuals improve their reflexive level and allow organization to adopt necessary and required modifications (Madsen & Desai, 2010).

Here, organizational culture seems to be determinant in creating favorable climate for encouraging attention errors, accept them and report them. May create a climate that will encourage attention to errors and willingness to report them.
Learning from individual and collective errors permit to facilitate required adjustments (H€allgren et al., 2018).

This still related to organizational (single and double loop; Metallinou, 2017). Single-loop learning permits action delimited by existing means, while double loop modifies original assumptions to achieve goal and define new procedures (Metallinou, 2017). This is a continual process to prepare crisis by identifying vulnerability and developing capabilities (Kovoor-Misra, 1995).

With such process, organization is able to build experiences and define an expanded organizational perspective of any eventual crisis. In this sense, organization will be ready to adjust change and increase resilience capacity to existent crisis and for the future.

**H4. Learning from crisis Stimulate OR**

1.5.1. **DC and OR**

The integration of DC with OR perspective provide an analytical and theoretical foundation for this study. We support that DC through its analytic specificities (Teece, 2007) will help us to understand how OR can be supported, maintained and developed. For more details, DC permits to organization to adopt, gain and sustain competitive advantage in a turbulent and dynamic environment (Dang et al., 2020), so, it can reach resilience and survive under any conditions (predetermined or unexpectable).

A theoretical review dealing with OR and DC is needed to explore, identify and understand how organization can develop resilience as response based on DC and further define a sustainable tourism under disturbances of COVID-19 pandemic.

As concluded in the previous section, OR can be an ability, capillarity or a process which allow organization to respond effectively to a specific situation (unexpected event, change or disaster); in our case, it will be difficulties and crises generated by COVID-19, to survive and transform before, during and after crisis (continuity of OR).

In fact, we support a dynamic process considered by some scholars in the development of OR (T. A. Williams et al., 2017; Hollnagel et al., 2006).

So, we think that this processual and dynamic perspective of OR is well-aligned and rimes with a DC perspective which suppose that organizations is able to respond change and gain competitive advantages through the accumulation, the reconfiguration and the acquisition of their resources as support by Teece et al. (1997), Teece (2007).

This dynamic approach is confirmed and amplified by the criticism of the traditional static RBV according to which such initial conception of resources as nonsubstitutable, valuable, rare and inimitable (Walker et al., 2004) did not explain how resources can be maintained and developed in a dynamic environment (Choi et al. 2018).

At this level, the DC framework was proposed to match the behavior of organizations with their resources to generate rapid change to sustain or gain competitive advantage (Fainschmidt et al. 2016; Helfat & Winter, 2011).

Here, DC permits and assists organization to capture and read environmental change in a high-level process based on its existent resources to adopt new strategies and develop new opportunities (Barrales-Molina et al., 2014; Teece, 2007). Furthermore, through DC, an organization can alter operational capabilities to operate according to changes in its environment (Helfat & Winter, 2011).
To operationalize the concept of DC through the lens of OR, the literature review permits us to identify three main capabilities of DC as defined by Teece (2007): seizing opportunities, sensing new opportunities or/and threats and reconfiguring of resources to sustain competitiveness over the time. In spite of being the most used approach (Zhou et al., 2017), this classification is considered abstract and failed to define an appropriate measurement approach and it is more appropriate to use four processes to appreciate DC: sensing, integrating, learning and coordinating (Pavlou & El Sawy, 2011). This conceptualization seems to be more adequate and has been adopted by many recent researchers (Nieves et al., 2016; Rashidirad & Salimian, 2020). For us, the second matches easier with our research interest.

1.6. Sensing capacity and OR
Sensing capabilities is an organizational ability to detect and observe emergent opportunities or/ and threats in changing environment (Teece, 2007) which can arise from competitors moves, evolving needs, competitor moves, and technological developments (Pavlou & El Sawy, 2011). It is important to remember that these opportunities are not easily recognized and require a constant scan to localize them and explore their external and internal environments.

This scanning process can be facilitated through the technological factors which collect and analyze information (external and internal). Also, organizational factors, such as organizational structure, can make the exploitation of internal resource easier to respond opportunities and make decision to avoid threats.

1.7. Integrating capacity and OR
Integration capabilities permit to organization to operationalize and concretize the new sensed opportunity by defining new processes, new service or new product (Kindström et al., 2013).

It makes the opportunity and/or threats already sensed in reality. In practice, this capability requires an organization to invest in innovation or/and to improve the existing offer and practices (Dang et al., 2020).

To engage such process, individual factors in terms of competencies and know-how must be engaged.

1.8. Coordinating capacity and OR
As a response of different change introduced by seizing capabilities, organizations have to reconfigure and recombine their capabilities and resources to maintain their growth (Pavlou & El Sawy, 2011).

It is about realignment of organizational strategy and redesign of organizational business model and structure proportionally to new need of the new change operated.

H 5. DC mediatizes the interrelationship between OR factors and OR.

1.8.1. DC, resilience and sustainable tourism
For the first time, we consider that OB during or after the crisis is very important for the tourism industry to ensure sustainable growth (Hall et al., 2018). Thus said, we support the complementarity between residence and sustainability in tourism. But the question still: how this complementarity can be developed and maintained?

DC believes that a sustainable competitive advantage depends on a high organizational process of knowledge and abilities to manage effectively resources (internal and external; Hall et al., 2018). As a strategic value, sustainability requires the definition of capabilities to constantly evaluate the implementation of solutions and results. The decision of following sustainability as a strategic
value requires the development of capabilities that constantly assess the implemented results and solutions (Souza et al., 2017).

Barreto (2010) argues that DC rise as the main potential to deal with sustainability problems. Added to this, long-term sustainability constitutes a critical aspect for the organization (Fiksel et al., 2014) and to be maintained as long as possible, the corresponding sustainable practices must be flexible to adapt. Choussa and Caastro (2011) present resilience as a DC which can bring abilities and new skills to help, maintain and assist sustainability in organizations. The most relevant aspect in this definition deals with the nature of OR in its self as a DC. And with this resilience, organizations can renew most organizational practices at an adequate level and well in advance (Choussa & Caastro, 2011). Also, resilience combined with a DC allows assimilation and monitoring of different changes before they occur on the future (Fiksel, 2003). It is a preventative approach of changes to guarantee adaptability and consequently sustainability. As defined by Teece (2007), DC permits to manage resources for a competitive advantage, and this generates innovative sustainable actions to absorb changes and generates adaptations to the new imposed conditions (Eisenhardt & Martin, 2000).

**H 6. DC moderates the effect of OR on SST**

At all, four main mediating hypotheses can be defined for individual factors, organizational factors, environmental factors and learning from crisis by DC based on four dimensions. And one moderating hypothesis related to the moderating effect of DC between OR and SST.

Figure 1 represents the final version of our research model and Table 1 details all research hypothesis.

### 1.9. Research design

This research adopted a quantitative approach based on the survey method. Such method facilitates the collection of data and information needed from the adequate population to analyze it.
The questionnaire was developed, pretested and administered. In fact, a link with google form was defined and shared with tourism community in Saudi Arabia in different regions (including religious tourism in Makkah and Medina). The data collected were analyzed using SPSS to test the multidimensionality and internal stability of the variables and scales used. Then, a structural equation model by AMOS was conducted for the hypothesis test.

The existence of latent variables and interdependent relationships in our research model explains the use of structural equation modeling (SEM). In fact, this methodology is considered as a powerful technique that can be used in different studies to evaluate and test causal-multivariate relationships and differs from the existing modeling approach in its ability to appreciate direct and indirect effects (Fan et al., 2016).

2. Study population

2.1. Sampling size and sampling procedures

A cross-sectional survey method was adopted to collect data from respondents. Sample was composed of all hotels, guesthouses and lodges in Saudi Arabia (Qassim, Khobar, Riyadh, Makkah and Medina). For the first time, a pilot study was performed with managers/directors and owners (if it was possible) of 50 hotels in the regions cited below. Two specialized academics in management have examined the questionnaire to evaluate facial validity. Based on this, minor modifications were made to finalize the questionnaire and proceed with its administration. Data were collected between October 2019 and January 2020, in the same period of the COVID-19 pandemic. The questionnaire was composed of four sections: demographic characteristics, dimensions of DC, OR and SST. At all, 200 questionnaires were collected and analyzed.

Participants were selected using a simple sampling method. Respondents were formally contacted by emails and telephone calls to increase the probability of their response. A combined approach of self-administration questionnaire and interactive communication process via zoom, google meet and teams is also performed if it was accessible.
Table 2. Variables, dimensions, number of items and references

| Variable                      | Dimensions                      | Number of items | References                        |
|-------------------------------|---------------------------------|-----------------|-----------------------------------|
| DC                            | Sensing capability (SC)         | 4               | Nieves et al., 2016               |
|                               | Learning capability (LC)       | 5               | Nieves et al., 2016               |
|                               | Integrating capability (IC)    | 5               | Nieves et al., 2016               |
|                               | Coordinating capacity          | 5               | Nieves et al., 2016               |
| Learning from crisis (L)      | Learning single loop           | 4               | J. F. Tantri Tasic & Amir, 2019   |
|                               | Learning double loop           | 3               |                                   |
| Organizational factors (OF)   | Resilience leadership (RLA)    | 8               | Morals et al. (2019)              |
|                               | Resilience culture (RC)        | 8               | Morals et al. (2019)              |
|                               | Management and organizational  | 7               | Morals et al. (2019)              |
|                               | capabilities (MCO)             |                 |                                   |
| Individual factors (IF)       | Awareness cognition (AC)       | 5               | Lee et al. (2013)                 |
|                               | Change readiness (CR)          | 4               | Sweya et al. (2020)               |
|                               | Commitment to resilience (CRS) | 3               | Lee et al. (2013)                 |
| Organizational resilience (OR)| Robustness (R)                 | 4               | Kantur and Iseri-Say (2015)       |
|                               | Agility (AG)                   | 3               |                                   |
|                               | Integrity (IT)                 | 2               |                                   |
| Sustainable tourism (SST)     | Sustainable destination        | 7               | Maisarah and Salmi (2020)         |
|                               | management                     |                 |                                   |
|                               | Sustainable business           | 8               |                                   |
|                               | management                     |                 |                                   |
| Environmental Factors(EF)     | Organizational culture         | 4               | J. F. Tantri Tasic & Amir, 2019   |
|                               | Stakeholders’ relationship     | 4               |                                   |

Names of hotels and respondents were not requested in the questionnaire to guarantee anonymity and confidentiality. Telephone calls or emails were also used to remind participants to complete the survey if they did not receive a response after one month. Items used in questionnaire were extracted from different previous studies dealing with OR, DC and SST and a cover page was inserted to introduce study and its corresponding objective in such sensible period of pandemic and its negative effects in tourism activity all over the world. Table 2 summarizes items used for each variable in addition to the corresponding reference.

3. Results

3.1. Response rate and biographical detail
Based on the results in Table 3, the major part of the respondents is aged between 25 and 45 (88.3%), with a large proportion of males (81.9%). For qualifications, approximately 54.8% of the respondents had a bachelor’s degree and a smaller proportion had a master’s degree (14.5%).

Other criteria which were adopted in this case and seem to be very important are the relative proportions of Saudi and foreign employees in tourist sites. Here, the proportion is approximately equal at 53% foreigners against 47% Saudis.

Explorative approach
After descriptive analysis, an explorative approach was adopted to test the multidimensionality of the construct, based on a component analysis using SPSS 16.

The loading factor of the items was measured at this level to decide its contribution to the construction in the model tested. To be acceptable, its value must be greater than 0.5. All items with a low contribution were deleted.

The discriminant and convergent validity was then calculated to test the reliability of the elements. Here, Cronbach’s alpha was used to assess internal coherence and reliability. The recommended average alpha is 0.7 according to Hair et al. (1995).

Added to this, AVE (average variance extracted) for each construct was measured to test the validity of convergence (Wong, 2013), which must be 0.5 or greater.

Composite reliability (CR) was also used for every construct and can be considered acceptable if it ranges to 0.5 (Bagozzi & Yi, 1988).

For the first construct, contrary to the literature review, in this case, organizational factors were measured on two axes. Only one dimension, resilience culture, seemed to be representative, but was divided into two levels. This aspect deserves to be consolidated and examined in detail.

Items RC1, RC5 and RC7 were deleted.

For individual factors, the second construct, CR, explains 29% of this construct, added to commitment to resilience (PAL) with 12%. So, two dimensions are selected to represent IF. CR3, CR4 and PAL 1 are deleted at this level.

Environmental factors are composed of a single dimension for the sample, which is the tourism system. However, it should be clarified that this dimension represents only 15% of the information. This means that environmental factors need to be reviewed to determine the factors that matter in the study.

Resilience is made up of two dimensions: robustness (37%) and integrity (11%).

Artificial intelligence capabilities are divided into two dimensions: Identifying and analyzing vulnerabilities (24%) and network and relationship (15%). IAV1, NR2 and NR4 were deleted.

The development of DCs is based on learning and knowledge creation with 30% of the total variance explained and LKC2 was removed (loading = 0.314).
| Constructs                        | Items   | Loadings | Cronbach's alpha | CR   | AVE  |
|----------------------------------|---------|----------|------------------|------|------|
| **Organizational factors (OF)**  | RC2     | 0.544    | 0.820            | 0.733| 0.705|
|                                  | RC3     | 0.525    |                  |      |      |
|                                  | RC4     | 0.544    |                  |      |      |
|                                  | RC6     | 0.570    |                  |      |      |
|                                  | RC8     | 0.685    |                  |      |      |
| **Individual factors (IF)**      | CR1     | 0.680    | 0.760            | 0.722| 0.677|
|                                  | CR2     | 0.795    |                  |      |      |
|                                  | PAL2    | 0.610    | 0.706            | 0.843| 0.785|
|                                  | PAL3    | 0.788    |                  |      |      |
| **Environmental Factors (EF)**   | TS1     | 0.698    | 0.900            | 0.898| 0.878|
|                                  | TS2     | 0.743    |                  |      |      |
|                                  | TS3     | 0.783    |                  |      |      |
|                                  | TS4     | 0.801    |                  |      |      |
| **Learning from crisis**         | IAV2    | 0.594    | 0.760            | 0.754| 0.802|
|                                  | IAV3    | 0.546    |                  |      |      |
|                                  | IAV4    | 0.664    |                  |      |      |
|                                  | NR1     | 0.645    | 0.699            | 0.876| 0.696|
|                                  | NR3     | 0.692    |                  |      |      |
| **Organizational resilience (OR)**| R1     | 0.597    | 0.846            | 0.898| 0.729|
|                                  | R2     | 0.616    |                  |      |      |
|                                  | R3     | 0.639    |                  |      |      |
|                                  | R4     | 0.680    |                  |      |      |
|                                  | IT1     | 0.587    | 0.787            | 0.754| 0.833|
|                                  | IT2     | 0.612    |                  |      |      |
| **Dynamic capabilities (DCs)**   | LKC1    | 0.534    | 0.771            | 0.674| 0.675|
|                                  | LKC3    | 0.548    |                  |      |      |
|                                  | LKC4    | 0.592    |                  |      |      |
|                                  | LKC5    | 0.664    |                  |      |      |
|                                  | LKC6    | 0.603    |                  |      |      |
|                                  | LKC7    | 0.605    |                  |      |      |
|                                  | LKC8    | 0.645    |                  |      |      |
|                                  | LKC9    | 0.654    |                  |      |      |
|                                  | LKC10   | 0.544    |                  |      |      |
|                                  | LKC11   | 0.701    |                  |      |      |
|                                  | LKC12   | 0.503    |                  |      |      |
|                                  | LKC13   | 0.554    |                  |      |      |
|                                  | LKC14   | 0.534    |                  |      |      |
| **Sustainable tourism (ST)**     | SDM5    | 0.730    | 0.767            | 0.766| 0.758|
|                                  | SDM6    | 0.744    |                  |      |      |
|                                  | SDM7    | 0.762    |                  |      |      |
|                                  | SBM2    | 0.705    | 0.745            | 0.789| 0.697|
|                                  | SBM3    | 0.765    |                  |      |      |
|                                  | SBM5    | 0.579    |                  |      |      |
|                                  | SBM7    |          |                  |      |      |
Sustainable tourism is related to sustainable destination management (21%) and sustainable business management (15%). SDM1–SDM4 were deleted, as well as SBM1, SBM4, SBM6 and SBM8.

Table 4 shows all these indicators: for each item, loading is mentioned and for each construct, Cronbach’s alpha, AVE and CR are presented.

3.2. Structural equation modeling

3.2.1. Measurement model
The appreciation of measurement depends on the level of factors loading (>0.7), Cronbach’s alpha (> 0.700), composite reliability (CR) (>0.790) and AVE (>0.500) (Hair et al., 2019). Table 2 details the results of the measurement model. All the values of the Cronbach alphas obtained are greater than 0.700, the CR values are also acceptable and range from 0.831 to 0.899 and the AVE values from 0.552 to 0.659. This implies an acceptable level of construct validity. The AVEs ranged between 0.566 and 0.658, suggesting a good convergent validity of the scales. Discriminant validity was appreciated through the Fornell and Larcker criteria. Results show that the values, in diagonal, of the square roots of AVEs are greater than the relative corresponding correlation coefficients of constructs. We can conclude that the corresponding measurement model is largely satisfactory.

3.2.2. Structural model
3.3. Mediating effect
This step consists of hypothesis testing and was performed using AMOS 23. Relationships between constructs were measured and quantified. Bootstrapping was adopted, and a hypothesis was admitted at a level of acceptance of 5%.

Indices of direct and indirect effects were examined through the path coefficient and t-statistic. Dependent variables are represented by different factors identified in the literature review and purified and tested in the first step of the analysis. The independent variable is sustainable tourism, as measured by the development of two specific practices, and the mediating-moderating variables deal with DC development with four dimensions.

Table 5 shows the path coefficient, p-value and t-statistics, in addition to the acceptance or rejection of the hypotheses developed in this research. The correlation matrix is also calculated, and variables are intercorrelated.

Table 5. Fit index of structural model

| CMIN/df | RMSEA | GFI  | CFI  |
|---------|-------|------|------|
| 1.657   | 0.0226| 0.954| 0.965|

The validity of the structural model depends on the goodness of fit, the Q2 and R2. Table 5 summarizes fit index of the corresponding model. Table 6 indicates the result of t-statistics and path coefficient.

The results as depicted in Table 4 show that three dimensions of DCs (sensing, learning and coordinating) have direct and significantly positive relationships with performance. The effect of integration is positive but insignificant.

Many interesting relationships can be noted at this point:

Organizational factors are strongly related to DC development;
Table 6. Structural model

| Path       | Estimate ($\beta$) | Statistics | P    |
|------------|------------------|-----------|------|
| LKC ← RC   | .542             | 1.869     | .000 |
| LKC ← CR   | .011             | 2.135     | .032 |
| LKC ← LAV  | 1.297            | 9.328     | .058 |
| LKC ← PAL  | -.125            | 1.810     | .000 |
| LKC ← TS   | .056             | 1.243     | .004 |
| IT ← LKC   | .325             | 2.057     | .000 |
| R ← RC     | -.829            | 2.849     | .000 |
| IT ← RC    | -.643            | 3.934     | .015 |
| R ← CR     | -.111            | 2.457     | .002 |
| IT ← CR    | -.111            | 2.273     | .001 |
| R ← PAL    | .322             | 1.385     | .000 |
| IT ← PAL   | .576             | 1.624     | .000 |
| R ← TS     | .138             | 1.072     | .005 |
| R ← LAV    | -.848            | 2.599     | .039 |
| IT ← LAV   | -.506            | 2.333     | .033 |
| R ← NR     | -.017            | 3.048     | .002 |
| R ← LKC    | .690             | 2.424     | .000 |
| SDM ← R    | -.015            | 3.102     | .048 |
| SBM ← R    | .109             | 2.904     | .000 |
| SDM ← IT   | .023             | 2.215     | .000 |
| SBM ← IT   | -.020            | 3.230     | .042 |
| SDM ← LKC  | .076             | 1.089     | .053 |
| SBM ← LKC  | .122             | 2.121     | .000 |
Individual factors have a great effect on agility as a dimension of OR;

Coordinating capacity is difficult to determine;

Learning from crisis and organizational factors has a limited effect on DC;

Environmental factors are negatively correlated with DC; here, organizational culture regains importance for the development of DC.

3.4. Moderating effect
For the test of the moderating effect of DC between OR and SST, a multiplicator term was calculated in SPSS 16 and integrated into the model to test its significance. A new model between DC, *SST and OR was defined and tested by AMOS 23. The model is still significant with the integration of this variable (CMIN/df = 1.654; RMSEA = 0.039; GFI = 0.991; CFI = 0.992).

Table 7 summarize the results of the hypothesis test.

4. Discussion
This study tried to appreciate and measure the effect of four main dimensions of DC on OR by a mediating-moderating effect to generate a sustainable tourism. A mediating effect of DC between determinants factors of resilience and OR is investigated in addition to a moderating effect between OR and sustainable tourism. We examined if these corresponding effects are significative or not. This is due to the importance of sustainability as a vital aspect of organizational survival after crisis. Although DC is determinant for understanding organizational competitive advantage, empirical research focusing on tourism industry still limited. Also, we cannot find in the existent literature review a consensus about a pragmatic approach of this concept. Results indicated that learning and sensing are the most significative. The contribution of integration and coordination are limited, and coordinating capabilities significantly affect the performance of hospitality firms.

According to Rashidirad and Salimian (2020), the sensing capability permit to search opportunity and /or threats to interpret and shape market opportunities. The recognition of new opportunities is facilitated by network resilience and coordination to make the right decision in the right time. Learning capability enables organization to use and transform resources appropriately (Zott, 2003) and this can contribute to the resilience especially agility because organization will be able to react effectively and in real time.

Coordinating capability helps organization to deal rapidly with changes in business environment which means that basic resources are redirected and realignment (Rashidirad & Salimian, 2020), such action stimulates integrity. Findings of study are consistent with some previous studies on DC and resilience but in our case there is a differentiated effect of different dimensions (sensing, learning, integrity and coordinating).

Results confirm the mediating role of DC between OR resilience factors and OR, but this effect differs from dimension to another and from factor to another. The positive and greater effect is related to the mediating effect of sensing between environmental factor and agility. Sensing is also determinant between individual factor and robustness.

Independently of its determinants and their relative importance, findings show that resilience is a constructive concept which requires continuity to think, to prevent, analyze and prepare a functional plan.
4.1. Theoretical and managerial contributions

This study demonstrates that resilience as a concept is not an objective, because being resilient must be applied according to a preventive approach. OR is also necessary for sustainability in tourism, but its effect depends on DC as a moderating variable to reinforce this interdependence.

It provides a new configuration of DC and treats them differently through dimensions to enrich the existing literature on OR and DCs. Our main contribution is represented by the definition of a critical pathway for both resilience and sustainability.

It makes a positive contribution to the tourism field and can therefore be useful in this context, which has been the most affected by this pandemic. Another important aspect of this paper is the integration of a sustainable dimension, which is the main objective of Vision 2030 in Saudi Arabia. The study looks to a new aspect of an embryonic sector in Saudi Arabia, but one with great potential importance based on the new consideration of a new economy "after oil".

All of these findings can help to provide new insights to better understand how to plan tourism strategy-oriented resilience and sustainability.
4.2. Limitations and future research works
Despite this, some limitations must be considered which could serve to orient future researchers. The first is related to the optics and shifting perspective of the tourism industry from exploitative to constructive, which may affect the survival of this industry. Second, the construction of the model for this study seems to be dynamic and unpredictable, and thus, a longitudinal study may be more appropriate, to identify other important and emergent factors for resilience. Third, a comparative approach and spillover effect could provide more pertinent conclusions about sustainable tourism. Also, it is recommended that future research concentrates on how sustainable tourism can effectively stimulate sustainable development goals in the post-pandemic time.

5. Conclusion
The research investigated the role of DC on OR in Saudi Arabia. DC was appreciated by four dimensions: sensing, learning, coordinating and integrating capacity. We examined this effect through a mediating and moderating role. Our research model is composed of two main parts: the first is looking for a mediating effect of DC between OR determinants and OR measured by three dimensions (agility, integrity and robustness). The second part is related to the moderation effect of DC on the effect of OR on Tourism sustainability which means that DC with its dimensions increase the possibility of sustainability through resilience.

Our major results demonstrate that only two dimensions of DC matters with a great and positive effect which are learning and sensing as mediating. Coordinating and integrating have a positive effect too but not important. All hypothesis of mediating effect is accepted: two with a total mediation effect and two with a partial mediating effect. In our sample, individuals’ factors and organizational factors are the most determinants for OR with a high level of contribution. In addition, the studies examined the mediating effect of product innovation in the relationship between DC and performance. The results indicated that three dimensions of DC (sensing, learning and coordinating) have significant positive relationships with performance. Product innovation mediates the relationship between sensing and learning capabilities and performance. The study has some theoretical contributions. First, the study conceptualised DC as a multidimensional construct made up of four variables rather than treating the construct as unidimensional. Thus, the study was able to determine the effect of each DC variable on performance. In addition, the study examined the mediating effect of innovation in the relationship between DC and performance. Theoretically, the study established that the relationship between DC and performance can be direct and indirect.

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Author details
Ragmoun Wided1,2
E-mail: wragmoun@qu.edu.sa
ORCID ID: http://orcid.org/0000-0002-8782-6782
1 Department of Business Administration, College of Business and Economics, Qassim University, Buraidah 51452, Saudi Arabia.
2 Department of Business Administration, Faculty of Economics and Management of Nabeul, University of Carthage, Tunisia.

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