

Resilience Factors of Construction Sector Companies: A Narrative Literature Review

****AMINE HAZAM, *OUHNA LAILA**

*Professor Researcher

EREGO (Research Team in Economics and Management of Organizations)

IBN ZOHR UNIVERSITY

**Ph.D. student in Management Science

EREGO (Research Team in Economics and Management of Organizations)

IBN ZOHR UNIVERSITY

ABSTRACT

The construction sector has been the largest consumer of materials for almost a century. It absorbs two fifths of the world flows of materials and energy while it presents 40% of the total flow of raw materials in the world each year(Horvath, 2004). However, companies in this sector have encountered multiple challenges stemming from several crises, such as the Covid-19 pandemic and the conflict between Ukraine and Russia, the soaring prices of building materials due to international tensions, supply difficulties, the shortage of certain products. These factors are hurting the real estate sector, hampering its projects and slowing down its construction sites. Property developers are finding it increasingly difficult to meet delivery deadlines. These increases and shortages of raw materials lead to delays and even work stoppages. And it is the entire production chain that is impacted(MHPV.GOV.MA, 2022). The aim of this contribution is to provide a literature review on the factors influencing the resilience of companies operating in the construction sector.

Résumé

Le secteur de la construction est le plus grand consommateur de matériaux depuis près d'un siècle. Il absorbe deux cinquièmes des flux mondiaux de matériaux et d'énergie et représente 40 % du flux total de matières premières dans le monde chaque année (Horvath, 2004). Cependant, les entreprises de ce secteur ont rencontré de multiples défis découlant de plusieurs crises, telles que la pandémie de Covid-19 et le conflit entre l'Ukraine et la Russie, la flambée des prix des matériaux de construction due aux tensions internationales, les difficultés d'approvisionnement et la pénurie de certains produits. Ces facteurs nuisent au secteur immobilier, freinent ses projets et ralentissent ses chantiers. Les promoteurs immobiliers ont de plus en plus de mal à respecter les délais de livraison. Ces hausses de prix et les pénuries de matières premières entraînent des retards, voire des arrêts de travail, impactant ainsi toute la chaîne de production (MHPV.GOV.MA, 2022). L'objectif de cette contribution est de fournir une revue de la littérature sur les facteurs influençant la résilience des entreprises opérant dans le secteur de la construction.

Introduction

Recently, the construction sector plays a crucial role in the Moroccan economy, making a significant contribution to economic growth. As an economic pillar, it generates ripple effects that affect the entire national economy. In the Moroccan economy, companies operating in this sector generate an annual turnover of more than 30 billion dirhams(Zarouali, 2014) .

However, the construction sector has confronted severe consequences due to recent crises, particularly the Covid-19 pandemic. In this challenging context, approximately 60% of sector, many companies were forced to suspend their activities (*HCP*, 2022). Furthermore, inflation reached 10.1% by the end of February, adding another challenge to the post-Covid period (*HCP*, 2022).

Nevertheless, a portion of companies at the national and international levels have adopted flexible strategies, implemented emergency measures, and restructured their operations to adapt to this new reality. They have demonstrated resilience and overcome these challenges. Resilience refers to a company's capacity to absorb constraints and maintain its functioning despite adversity. It entails the ability to recover or bounce back after difficult events, learn, and progress, based on experiences of resilience (Tengblad & Oudhuis, 2018).This contribution employs a narrative review methodology to examine a set of researches on the factors influencing the resilience of construction companies. The objective is to address the following question:

What are the key factors that contribute to the resilience of companies in the construction sector?

I. The Concept of Resilience

1.1 A Complex and Interdisciplinary Concept

Resilience derives from the English verb "resile," which comes from the Latin word "Résilire" meaning "to bounce back." In English, "resile" means "to return to a former state or position" (Cecilia Alfredsson, 2013). The earliest known definition of resilience in the dictionary comes from the *Glossographia* compiled by lawyer and antiquarian Thomas Blount (1618-1679). It attributes a dual meaning to resilience: bouncing back and retracting one's word (Alexander, 2013). An ecosystem's ability to encounter changes and disturbances without transitioning to another state, allowing for risk distribution and increasing opportunities for reorganization after a disturbance (Cecilia Alfredsson, 2013). In psychology, the term resilience is used to describe the process by which individuals, families, and human groups face adversity, trauma, or stress and manage to come through without psychological disorders, continuing to live as before (or almost) and even displaying better psychological functioning than before, thanks to what is known as post-traumatic development (Ionescu & Jourdan-Ionescu, 2010).

1.2 Organizational Resilience

Organizational resilience is a continuous process that should be integrated into the organization's strategy, involving its capacity to adapt to crisis situations or unexpected events (Burnard & Bhamra, 2019). Indeed, organizational resilience has become a major concern in an increasingly complex and uncertain global environment where organizations must face various disruptions, such as economic crises, natural disasters, cyber-attacks, and rapid market changes (Abdullah et al., 2013). Organizations are constantly confronted, with challenges such as rapid environmental changes, economic crises, natural disasters, social conflicts, or technological disruptions that can jeopardize their survival. In this context, it is crucial for organizations to develop and maintain their resilience to effectively cope with these challenges and ensure long-term sustainability (Sawalha, 2015). Non-resilient organizations risk significant losses and may even cease to exist. According to Sawalha (2015), these challenges can be divided into five categories: resource-related challenges, change management challenges, organizational culture challenges, complexity challenges, and communication challenges. To understand and assess an organization's resilience

capacity, (Abdullah et al. ,2013) propose that organizations should enhance their ability to cope with disruptions and adapt effectively to a constantly changing environment. This capacity for organizational resilience encompasses five key dimensions: monitoring capacity, learning capacity, adaptation capacity, robustness capacity, and regeneration capacity. These dimensions are interconnected to form an organization's overall resilience capacity (Abdullah et al., 2013). (Bégin & Chabaud, 2010) propose three dimensions: the capacity for absorption, allowing the organization not to collapse in the face of the unexpected or shock; the capacity for renewal, enabling the organization to invent new futures; and the capacity for appropriation, allowing it to become stronger from its experiences.

1.3 Social Resilience

Social resilience describes society's ability to develop and manage change without reducing well-being or freedom of choice for its future. For example, recovery after a natural disaster, environmental changes, or social, political, and economic disruptions. It involves self-organization and learning to adapt (Cecilia Alfredsson, 2013). All definitions of social resilience pertain to social entities, whether individuals, organizations, or communities, and their abilities or capacities to tolerate, absorb, cope with, and adapt to environmental and social threats of all kinds (Obrist et al., 2010).

1.4 Economic Resilience

Economic resilience refers to an economy's policy-induced capacity to recover from or adapt to the negative impacts of negative exogenous shocks and benefit from positive shocks. On the one hand, having the ability to quickly recover from a shock, associated with an economy's flexibility, allows it to bounce back after being negatively affected by a shock. This capacity is strengthened when the economy has discretionary policy tools it can use to counteract the effects of negative shocks, such as a strong budget position. On the other hand, resilience involves resisting the impact of a shock so that the final effect of a shock is neutralized or rendered negligible. This type of resilience occurs when the economy has mechanisms in place to mitigate the effects of shocks, which can be referred to as shock absorption (Briguglio et al., 2009).

II .METHODOLOGY

Narrative review, also known as literature review, is a review that is based on narratives, and analyses of existing papers research and works. It aims to provide a synthesis and interpretation of the current knowledge on a specific topic (Grant & Booth, 2009). They assist in the development of new research projects based on the synthesis and interpretation of the results from a non-systematic selection of scientific publications. In order to optimize reading and synthesis (Saracci & Mahamat, 2019) a qualitative methodology is used to synthesize the available evidence on a specific topic based on a selection of relevant studies and publications (Demiris et al., 2019).

Following the steps of conducting a narrative review explained in the book by (Demiris et al., 2019), we conducted this research as follows:

- Step 1: Search in relevant databases and identification
- Step 2: Identification of keywords
- Step 3: Reviewing abstracts and articles
- Step 4: Documenting the results

III. RESULTS AND DISCUSSION

Step 1: Search in relevant databases and identification

It is important to search, in multiple databases to ensure, that the majority of relevant studies have been identified . In this study, the literature search was conducted using the following databases: SCOPUS, CLARIVATE, SPRINGER, GOOGLE SCHOLAR, CAIRN .

Step 2: Identification of keywords

Authors provide several keywords when publishing their research so that others can identify the work during database searches. In this study, we conducted the search using the following keywords: -In English: Business resilience and construction sector -In French: La résilience des entreprises du secteur de construction

Step 3: Presentation of articles:

From a total of over 100 articles obtained from databases such as Scopus (40 article), ScienceDirect (20 article), Clarivate (15 article), and Google Scholar (30 article), we have carefully selected 15 articles that are considered sufficient to address the objectives of this study. These selected articles cover a variety of relevant aspects and perspectives related to our research topic. Furthermore, the narrative literature review provides an informal synthesis and discussion on a given topic, based on a non-necessarily systematic and exhaustive examination of the literature (Saracci & Mahamat, 2019).

The articles included in this study are as follows:

	Title of the Article	Authors	Journal	Publisher	Date of publication
1	Building up resilience of construction sector SMEs and their supply chains to extreme weather events	(Wedawatta et al., 2010)	International Journal of Strategic Property Management	Taylor and francis group	2010
2	Making the Construction Industry Resilient to Extreme Weather: Lessons from Construction in Hot Weather Conditions	(Alshebani & Wedawatta, 2014)	Procedia Economics and Finance	Science Direct	2014

3	A conceptual framework for understanding resilience of construction SMEs to extreme weather events	(Wedawatta & Ingirige, 2016)	Built Environment Project and Asset Management	Emerald	2016
4	Improving construction sector resilience	(Wilkinson et al., 2016)	International Journal of Disaster Resilience in the Built Environment	Emerald	2016
5	Investigating the resilience of civil infrastructure firms in New Zealand (7th International Conference on Building Resilience; Using scientific knowledge to inform policy and practice in disaster risk reduction, ICBR2017, 27 – 29 November 2017, Bangkok, Thailand)	(Pascua & Chang-Richards, 2018)	Procedia Engineering	Science Direct	2018
6	Building Organisational Resilience for the Construction Industry: Strategic Resilience Indicators	(Sapeciay et al., 2019)	Earth and Environmental Science	IOPscience	2019
7	The Impact of Supply Chain Capabilities on Logistic Efficiency for the Construction Projects	(Shahbaz et al., 2019)	Civil Engineering Journal	Civilejournal.org	2019

8	Monitoring Mechanism of Resilience of the Anti-Crisis Potential System of the Construction Enterprise in the Long-Term Period	(Stetsenko et al., 2020)	Economics, Finance And Management Review	Public SCNCHub	2020
9	Résilience active, pivot de la compétitivité de l'entreprise Post-Covid 19 : cas des entreprises du secteur industriel au Maroc	(Alami et al., 2021)	Revue Management & Innovation	Cairn.info	2021
10	COVID-19 impact in supply chain performance: a study on the construction industry	(Cherian & Arun, 2022)	International Journal of Productivity and Performance Management	Emerald	2022
11	Firms' solidity before an exogenous shock: Covid-19 pandemic in Italy	(Costa et al., 2022)	Economic Analysis and Policy	Science Direct	2022
12	The impact of relationship management on manufacturer resilience in emergencies	(Yang et al., 2022)	Kybernetes	Emerald	2022
13	Impact of covid-19 on supply chain management in construction industry in Kashmir	(Farooq et al., 2023)	Asian Journal of Civil Engineering	Springer	2023

14	Evaluating the COVID-19 Impacts on Sustainable Procurement: Experiences from the Australian Built Environment Sector	(Caldera et al., 2022)	Sustainable Procurement: Challenges and Opportunities)	MDPI	2023
15	The role of management control and integrated information systems for the resilience of SMEs	(Roffia & Dabić, 2023)	Review of Managerial Science	Springer	2023

Table 1: List of articles in the study

This narrative review includes a selection of 15 articles, with 14 articles in English and only one article in French.

The articles, listed by publisher and year of publication, are as follows:

Publisher	Article number
EMERALD	4
SCIENCE DIRECT	3
SPRINGER	2
MDPI	1
cairn.info	1
Taylor and francis	1
civilejournal.org	1
IOPscience:	1
Public SCNCHub	1
Total	15

Table 2: Article Publishers

Année de pub	Nbr d'article
2010	1
2014	1
2016	2
2018	1
2019	2
2020	1
2021	1
2022	3
2023	3
Total	15

Table 3: Year of publication

The selection of articles for this study is based on:

- Their direct relevance to the research topic, by specifically selecting those that address the question of factors influencing the resilience of construction sector companies.
- Special attention is given to the use of academic databases, to ensure the quality and credibility of the consulted sources.
- The recency of existing works is also taken into account in the selection of articles, prioritizing those that have been recently published to include the most up-to-date and relevant information for understanding the key factors of resilience in construction companies.

In this table, we present the resilience factors extracted from each article.

Article No.	Factors Related to Resilience in Construction Companies
1	- Adequate preparation- Adaptability- Communication and collaboration (close collaboration with supply chain partners)
2	- Experience (local knowledge, learning)- Workforce management- Advanced planning
3	- Leadership commitment- Effective resource management- Adaptability and flexibility- Networks and collaborations- Awareness and training- Supply chain risk management- Evaluation and learning
4	- Leadership and culture (strong and committed leadership, employee involvement)- Networks (effective partnerships, breaking organizational silos, internal resources)- Change preparedness

5	<ul style="list-style-type: none"> - Leadership and management (effective company management and decision-making)- Network robustness (strong supply chain and social capital)- Access to external resources- Adaptability to changes-- Preparedness for unexpected events- Market sensitivity- Aligned business practices- Innovation and diversification- Essential workforce skills- Knowledge and information utilization- Situation awareness- Thoughtful business model
6	<ul style="list-style-type: none"> - Leadership- Staff engagement- Decision-making- Situation awareness- Planning strategies- Internal resources- Proactive posture- Effective partnerships- Innovation and creativity- Unity purpose- Resilience testing plan- Breaking silos- Knowledge utilization
7	<ul style="list-style-type: none"> - Flexibility (ability to quickly change inputs/outputs or reception/delivery mode)- Collaboration in the supply chain
8	<ul style="list-style-type: none"> - Financial resilience (capital recovery period)- Financial profitability- Owners' equity investment- Degree of digitalization in activities
9	<ul style="list-style-type: none"> - Clean production resources (ecological innovation, clean technologies)- Behavioral resources (learning culture, voluntary ecological commitment, regulatory proactivity, ethical responsibilities, good stakeholder relations) - Communication resources (motivating internal communication, collaborative mindset, external communication with stakeholders)
10	<ul style="list-style-type: none"> - Diversification of sourcing- Digitization (facilitating communication)- Remote collaboration- Process optimization (inventory management)- Adoption of flexible work practices

11	- Economic size- Performance- Internal organization- External organization- Digitization and innovation
12	- Ability to anticipate, respond, and recover- Importance of formal and informal relationships
13	- Technology- Finance- Marketing and promotion- Government and policies- Operations and supply chain
14	- Transparency- Optimizing production and distribution capacity in the supply chain - Evaluating realistic demands - Technology adoption- Risk assessment- Alignment with sustainable initiatives
15	- Management control tools (budgets and contingency plans)- Integrated information systems- Availability of additional financial resources -Entrepreneur's resilience skills- Presence of women on the board of directors

Table 4: Resilience Factors Extracted from Each Article

The table 4 presents approximately 78 factors identified as contributing to the resilience of companies in the construction sector. These factors can be grouped into several key categories:

- Planning and Risk Management
- Evaluation and Learning
- Collaboration and Partnerships
- Communication and Transparency
- Human Resources Skills
- Leadership
- Organizational Culture
- Supply Chain Management
- Technology and Innovation

- Financial Factors, Performance, and management Control
- Regional Resilience Factors (External Support and Environment)

It is important to note that certain axes may overlap and exhibit cross-cutting relationships. This classification aims to group the factors based on their central themes for a better understanding.

STEP 4: DISCUSSIONS:

- **Planning and Risk Management**

Business continuity planning is a strategic approach aimed at ensuring the resilience and survival of an organization in the face of major disruptions (Wedawatta & Ingirige, 2016). This involves identifying potential risks and implementing measures to mitigate them. Risk management plays a crucial role in this process by identifying, assessing, and managing potential risks faced by the organization. Advance planning is essential to anticipate disruptions and develop appropriate strategies to address them (Alshebani & Wedawatta, 2014). This includes change preparedness, recognizing that business environments are dynamic and preparing to adapt to changes. Planning strategies should be developed considering organization-specific factors, such as market sensitivity and external changes (Pascua & Chang-Richards, 2018). A resilience-testing plan is necessary to assess the effectiveness of business continuity measures and identify potential gaps (Wilkinson et al., 2016). Risk management in the supply chain is also crucial to ensure the availability of necessary resources. Additionally, an organization needs to be aware of potential risks, such as natural hazards and critical infrastructure failures, and prepare accordingly. Lastly, it is essential for business practices to align with applicable regulations to ensure compliance and minimize legal risks (Caldera et al., 2022).

- **Evaluation and Learning**

Regular evaluation of resilience measures and continuous learning from experiences are crucial practices to enhance risk management and business continuity planning (Wedawatta & Ingirige, 2016). By utilizing multi-level risk assessment tools, organizations can gain an in-depth understanding of potential risks in various areas such as the supply chain, internal

operations, and external changes. Furthermore, assessing realistic demands from end customers enables organizations to adapt their resilience measures effectively to meet these needs (Caldera et al., 2022). By evaluating existing sustainable initiatives, such as quality standards, organizations can identify business practices aligned with regulations, thus promoting sustainability and strengthening their resilience while reducing non-compliance risks.

- **Collaboration and Partnerships**

Networks and collaborations play a crucial role in organizational success (Pascua & Chang-Richards, 2018). Companies that establish effective partnerships with other industry actors can benefit from knowledge sharing, complementary resources, and growth opportunities. It is also crucial to break internal silos by encouraging seamless communication and cross-departmental collaboration (Sapeciay et al., 2019). This fosters innovation, operational efficiency, and informed decision-making. Furthermore, maintaining good relationships with stakeholders such as customers, suppliers (Yang et al., 2022), and local communities is essential for maintaining a trusted image and social responsibility, as well as gaining their support and commitment. These elements contribute to the resilience and overall performance of the organization.

- **Communication and Transparency**

Motivating internal communication, external communication with stakeholders, creating transparency at multiple levels, and transparency in business operations play a fundamental role in business management and resilience. Motivating internal communication helps mobilize employees, strengthen their engagement, and foster a resilient corporate culture (Alami et al., 2021). It facilitates the sharing of relevant information, encourages collaboration, and maintains cohesion within the organization. External communication with stakeholders is essential for establishing trust relationships (Yang et al., 2022), sharing resilience efforts, and managing the expectations of customers, partners, and other external actors. It helps build strong connections, gather valuable feedback, and maintain a positive reputation. Creating transparency at multiple levels involves openly sharing information about business continuity plans, identified risks, and measures taken to address them (Caldera et al., 2022). This enables all stakeholders to have a clear understanding of the

situation and actively contribute to the resilience of the business. Finally, transparency in business operations, particularly regarding financial and contractual practices, is crucial for establishing trust, reducing fraud risks, and strengthening overall business resilience.

- **Human Resources Skills**

Employee participation, the presence of women on the board of directors (Roffia & Dabić, 2023), essential staff skills, and investments in human resources play a fundamental role in business resilience (Costa et al., 2022). By encouraging active employee participation, organizations enhance their adaptability to challenges (Wedawatta et al., 2010). Furthermore, gender diversity on the board promotes balanced decision-making and better representation of interests. Essential staff skills are crucial for navigating changes and fostering innovation. By investing in human resources, including through training and skill development (Wedawatta & Ingirige, 2016), businesses strengthen their capacity to withstand disruptions and bounce back quickly. In summary, these dimensions serve as essential pillars for enhancing business resilience and fostering long-term success.

- **Leadership**

Leadership engagement is essential for promoting organizational resilience (Wedawatta & Ingirige, 2016). Leaders must demonstrate a strong commitment to resilience, communicate a clear vision, and mobilize the entire organization toward that goal (Sapeciay et al., 2019). Furthermore, effective management with leadership engagement is necessary for making informed decisions (Sapeciay et al., 2019), strategically allocating resources, and anticipating upcoming challenges. Leaders should be capable of guiding the company through difficult periods and maintaining team cohesion. Additionally, the personal resilience skills of the entrepreneur play a decisive role in the company's ability to withstand pressures and changes (Pascua & Chang-Richards, 2018). A resilient entrepreneur possesses skills such as adaptability, stress management, and the ability to overcome obstacles (Roffia & Dabić, 2023). These skills influence how the entrepreneur manages challenges and inspires other members of the organization to demonstrate resilience. In summary, leadership engagement, effective management, and the personal resilience skills of the entrepreneur are crucial factors in enhancing the resilience of construction businesses in the face of challenges and disruptions.

- **Organizational Culture**

The corporate culture plays a crucial role in organizational resilience. Firstly, a shared sense of purpose within the organization is fundamental in promoting collective resilience (Sapeciay et al., 2019). A culture that emphasizes common and shared goals helps align the efforts of all members of the company towards resilience in the face of disruptions. Furthermore, behavioral resources such as a sense of belonging, ecological commitment, and ethical responsibilities enhance the company's ability to tackle challenges (Alami et al., 2021). A culture of belonging encourages a willingness to learn from experience and adjust practices accordingly, while ecological commitment and ethical responsibilities demonstrate the importance placed on sustainability and social responsibility. Environmental awareness and voluntary ecological engagement are also dimensions of corporate culture that foster resilience. A culture that encourages awareness of environmental issues and voluntary commitment to sustainable practices strengthens the company's capacity to address environmental challenges and regulatory requirements. Additionally, the ability to leverage knowledge and information is another important aspect of corporate culture for enhancing resilience (Sapeciay et al., 2019). A culture that values knowledge-seeking, collaboration, and information sharing promotes adaptability and informed decision-making, which are crucial in addressing changes and disruptions. Lastly, situational awareness is a key element of corporate culture in promoting resilience (Sapeciay et al., 2019). A culture that encourages vigilance, environmental monitoring, and early detection of weak signals enables quick responses to changes and preventive measures to minimize the impact of disruptions. In summary, corporate culture, through shared purpose, behavioral resources, environmental awareness, voluntary ecological engagement, the ability to leverage knowledge and information, and situational awareness, plays a determining role in organizational resilience by fostering adaptability, responsibility, and informed decision-making. These elements contribute to strengthening a construction company's capacity to withstand, adapt, and recover from disruptions and challenges in crisis contexts

- **Supply Chain Management**

Collaboration within the supply chain is essential for enhancing resilience by facilitating information exchange, activity coordination, and joint decision-making (Shahbaz et al., 2019). Effective risk management within the supply chain is also crucial for identifying, assessing, and mitigating potential risks that can disrupt operations (Wedawatta & Ingirige, 2016). Diversification of sourcing contributes to reducing dependence on a single supplier and mitigating negative impacts in case of disruptions (Cherian & Arun, 2022). Optimizing inventory management processes helps maintain adequate stock levels to meet fluctuating demands and avoid supply disruptions (Cherian & Arun, 2022). Supply chain flexibility, particularly through the use of adaptive technologies and practices, enables quick adaptation to changes and meeting evolving market needs (Farooq et al., 2023). Lastly, close collaboration with supply chain partners fosters the exchange of best practices, proactive problem-solving, and the building of trust relationships (Yang et al., 2022). By combining these aspects, companies can strengthen their resilience by ensuring a robust, adaptable, and disruption-resistant supply chain.

- **Technology and Innovation:**

Investments in technology allow companies to have advanced infrastructures, while the adoption of digital technologies improves their efficiency and agility (Costa et al., 2022). Innovation and diversification enable companies to adapt to market changes, while digitalization promotes innovation and enhances adaptability (Pascua & Chang-Richards, 2018). Access to external resources, particularly technological resources, and the integration of integrated information systems facilitate coordination and informed decision-making (Stetsenko et al., 2020). The use of digital tools for decision-making and communication improves responsiveness, while innovation and creativity stimulate the search for innovative solutions (Cherian & Arun, 2022). In summary, technological investments, the adoption of digital technologies, innovation, digitalization, access to

external resources, integrated information systems, and creative innovation are essential for strengthening business resilience and enabling them to adapt to unexpected changes.

- **Financial Factors, Performance, and Management Control:**

Business resilience is influenced by various factors such as performance, effective management, economic size, and access to additional financial resources. Strong performance, measured by productivity, profitability, and cost competitiveness, enhances a company's ability to face challenges and overcome disruptions (Costa et al., 2022). Effective internal and external management enables informed decision-making, process optimization, and meeting market needs. The economic size of the company can also play a role as it provides advantages in terms of scale, resources, and diversification (Costa et al., 2022). Access to additional financial resources, such as credit lines or investments, offers flexibility and increased adaptive capacity in the face of disruptions (Roffia & Dabić, 2023). Effective resource management, including planning and judicious resource allocation, contributes to resilience (Wedawatta & Ingirige, 2016). Adopting environmentally innovative practices and clean technologies allows companies to position themselves favorably in terms of environmental sustainability while promoting business resilience (Alami et al., 2021). Marketing and promotion help maintain visibility and attract customers (Farooq et al., 2023), while management control tools monitor and evaluate business performance (Roffia & Dabić, 2023). Lastly, optimizing production and distribution capacity allows for effective response to demand and adaptation to market fluctuations (Caldera et al., 2022). By integrating these factors, companies can strengthen their resilience by improving their performance, management, resource access, environmental sustainability, and adaptive capacity.

- **Regional Resilience Factors (External Support and Environment):**

Business resilience is strongly influenced by external factors and the regional environment in which they operate. Regional resilience plays a crucial role in providing external support to businesses. Reliable infrastructure, efficient public services, and appropriate regulations contribute to operational stability and continuity (Farooq et al., 2023). Furthermore, the

availability of a strong network of suppliers and partners in the region enhances companies' ability to overcome disruptions (Pascua & Chang-Richards, 2018). Regional institutions such as economic development organizations and chambers of commerce can provide resources, information, and collaboration opportunities that strengthen business resilience. Similarly, an environment conducive to innovation and entrepreneurship encourages adaptability and diversification of activities. Government policies that support job creation and economic growth also support business resilience by fostering a favorable business climate (Farooq et al., 2023). In summary, business resilience is closely linked to regional resilience, which offers external support, strong partnerships, an innovation-friendly environment, and policies conducive to economic growth. This enables companies to better cope with disruptions and recover more quickly.

Conclusion

This article has presented the resilience factors of construction sector businesses using a narrative review methodology. The resilience of construction companies relies on several interdependent factors that enable them to face challenges and bounce back after disruptive events. Firstly, risk planning and management play a crucial role. By identifying and assessing potential risks, companies can take preventive and mitigating measures to reduce the impact of disruptions. Additionally, continuous evaluation and learning are essential for improving resilience. By examining past successes and failures, companies can adjust their strategies and practices to better cope with future challenges. Moreover, collaboration and strong partnerships with stakeholders such as suppliers, subcontractors, and clients enhance resilience by creating support networks and sharing resources and knowledge. In terms of communication, transparency and openness are key resilience factors. By sharing relevant information with internal and external stakeholders, companies can build trust and cooperation, which is essential in emergency situations. Furthermore, the skills of the personnel play a crucial role. A qualified and well-trained workforce

is capable of quickly adapting to changes and finding creative solutions to encountered problems. Leadership is also essential in promoting resilience. Strong and visionary leaders inspire and motivate employees, foster innovation, and maintain a clear strategic direction even in turbulent times. The corporate culture, infused with values of resilience and adaptability, promotes creativity, initiative, and employee engagement, thus strengthening the collective resilience of the company. Additionally, effective supply chain management ensures the availability of necessary resources and minimizes potential interruptions. The adoption of relevant technologies and innovations improves operational efficiency and enables construction companies to adapt to new market trends and requirements. Financial factors, such as performance and management control, are also essential in ensuring the stability and sustainability of construction companies. In the Moroccan context, an exploratory study could be conducted to specifically identify the factors contributing to the resilience of construction businesses. This study would provide a better understanding of the characteristics and practices of construction sector companies in Morocco, as well as the specific challenges and opportunities they face. The findings of this study could provide valuable insights for enhancing the resilience of construction companies in Morocco and inform strategic decisions and supportive policies.

Tables list:

Table 1: List of study articles

Table 2: Article Publishers

Table 3: Year of publication

Table 4: Resilience Factors Extracted from Each Article

Bibliographic references

1. Abdullah, N. A. S., Noor, N. L. M., & Ibrahim, E. N. M. (2013). Resilient organization : Modelling the capacity for resilience. *2013 International Conference on Research and Innovation in Information Systems (ICRIIS)*, 319-324.
<https://doi.org/10.1109/ICRIIS.2013.6716729>
2. Alami, S., Rhouri, M., & Marghich, A. (2021). Résilience active, pivot de la compétitivité de l'entreprise Post-Covid 19 : Cas des entreprises du secteur industriel au Maroc. *Revue Management & Innovation*, 4(2), 135-155.
3. Alexander, D. E. (2013). Resilience and disaster risk reduction : An etymological journey. *Natural Hazards and Earth System Sciences*, 13(11), 2707-2716.
<https://doi.org/10.5194/nhess-13-2707-2013>
4. Alshebani, M. N., & Wedawatta, G. (2014). Making the Construction Industry Resilient to Extreme Weather : Lessons from Construction in Hot Weather Conditions. *Procedia Economics and Finance*, 18, 635-642. [https://doi.org/10.1016/S2212-5671\(14\)00985-X](https://doi.org/10.1016/S2212-5671(14)00985-X)
5. Bégin, L., & Chabaud, D. (2010). La résilience des organisations. Le cas d'une entreprise familiale. *Revue française de gestion*, 200(1), 127-142.
6. Briguglio, L., Cordina, G., Farrugia, N., & Vella, S. (2009). Economic Vulnerability and Resilience : Concepts and Measurements. *Oxford Development Studies*, 37(3), 229-247.
<https://doi.org/10.1080/13600810903089893>
7. Burnard, K. J., & Bhamra, R. (2019). Challenges for organisational resilience. *Continuity & Resilience Review*, 1(1), 17-25. <https://doi.org/10.1108/CRR-01-2019-0008>

8. Caldera, S., Mohamed, S., & Feng, Y. (2022). Evaluating the COVID-19 Impacts on Sustainable Procurement : Experiences from the Australian Built Environment Sector. *Sustainability, 14*(7), Article 7. <https://doi.org/10.3390/su14074163>
9. Cecilia Alfredsson. (2013). *Resiliens : Begreppets olika betydelser och användningsområden*. <https://www.msb.se/sv/publikationer/resiliens--begreppets-olika-betydelser-och-anvandningsomraden/>
10. Cherian, T. M., & Arun, C. J. (2022). COVID-19 impact in supply chain performance : A study on the construction industry. *International Journal of Productivity and Performance Management, ahead-of-print*(ahead-of-print). <https://doi.org/10.1108/IJPPM-04-2021-0220>
11. Costa, S., Sallusti, F., Vicarelli, C., & Zurlo, D. (2022). Firms' solidity before an exogenous shock : Covid-19 pandemic in Italy. *Economic Analysis and Policy, 76*, 946-961. <https://doi.org/10.1016/j.eap.2022.10.007>
12. Demiris, G., Oliver, D. P., & Washington, K. T. (2019). Chapter 3—Defining and Analyzing the Problem. In G. Demiris, D. P. Oliver, & K. T. Washington (Éds.), *Behavioral Intervention Research in Hospice and Palliative Care* (p. 27-39). Academic Press. <https://doi.org/10.1016/B978-0-12-814449-7.00003-X>
13. Farooq, S. A., Indhu, B., & Jagannathan, P. (2023). Impact of covid-19 on supply chain management in construction industry in Kashmir. *Asian Journal of Civil Engineering, 24*(2), 429-438. <https://doi.org/10.1007/s42107-022-00509-w>
14. Grant, M. J., & Booth, A. (2009). A typology of reviews : An analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal, 26*(2), 91-108. <https://doi.org/10.1111/j.1471-1842.2009.00848.x>

15. HCP. (2022, juin 1). www.hcp.ma.
<https://www.hcp.ma/downloads/?tag=Conjoncture+entreprise>
16. Horvath, A. (2004). Construction Materials and the Environment. *Annual Review of Environment and Resources*, 29(1), 181-204.
<https://doi.org/10.1146/annurev.energy.29.062403.102215>
17. Ionescu, S., & Jourdan-Ionescu, C. (2010). Entre enthousiasme et rejet : L'ambivalence suscitée par le concept de résilience. *Bulletin de psychologie, Numéro 510(6)*, 401-403.
<https://doi.org/10.3917/bupsy.510.0401>
18. MHPV.GOV.MA. (2022). *NOTE DE CONJONCTURE IMMOBILIERE N°14*.
<http://www.mhpv.gov.ma/wp-content/uploads/2021/10/NCI-2020-speciale-covid-19-VF.pdf>
19. Obrist, B., Pfeiffer, C., & Henley, R. (2010). Multi-layered social resilience : A new approach in mitigation research. *Progress in Development Studies*, 10(4), 283-293.
<https://doi.org/10.1177/146499340901000402>
20. Pascua, M. C., & Chang-Richards, A. (Yan). (2018). Investigating the resilience of civil infrastructure firms in New Zealand. *Procedia Engineering*, 212, 286-293.
<https://doi.org/10.1016/j.proeng.2018.01.037>
21. Roffia, P., & Dabić, M. (2023). The role of management control and integrated information systems for the resilience of SMEs. *Review of Managerial Science*.
<https://doi.org/10.1007/s11846-023-00657-6>
22. Sapeciay, Z., Wilkinson, S., Costello, S. B., & Adnan, H. (2019). Building Organisational Resilience for the Construction Industry : Strategic Resilience Indicators. *IOP Conference Series: Earth and Environmental Science*, 385(1), 012068. <https://doi.org/10.1088/1755-1315/385/1/012068>

23. Saracci, D. C., & Mahamat, M. (2019). Comment rédiger un article -scientifique de type revue narrative de la littérature ? *REVUE MÉDICALE SUISSE*.
24. Sawalha, I. H. S. (2015). Managing adversity : Understanding some dimensions of organizational resilience. *Management Research Review*, 38(4), 346-366.
<https://doi.org/10.1108/MRR-01-2014-0010>
25. Shahbaz, M., Bhatti, N., Soomroe, Z., Zafarullah, M., & Soomro, M. A. (2019). The Impact of Supply Chain Capabilities on Logistic Efficiency for the Construction Projects. *Civil Engineering Journal*, 5, 1249-1256. <https://doi.org/10.28991/cej-2019-03091329>
26. Stetsenko, S., Bolila, N., Sorokina, L., Tsyfra, T., & Molodid, O. (2020). MONITORING MECHANISM OF RESILIENCE OF THE ANTI-CRISIS POTENTIAL SYSTEM OF THE CONSTRUCTION ENTERPRISE IN THE LONG-TERM PERIOD. *Economics, Finance and Management Review*, 3, Article 3. <https://doi.org/10.36690/2674-5208-2020-3-29>
27. Tengblad, S., & Oudhuis, M. (2018). *The Resilience Framework : Organizing for Sustained Viability*. <https://doi.org/10.1007/978-981-10-5314-6>
28. Wedawatta, G., & Ingirige, B. (2016). A conceptual framework for understanding resilience of construction SMEs to extreme weather events. *Built Environment Project and Asset Management*, 6(4), 428-443. <https://doi.org/10.1108/BEPAM-06-2015-0023>
29. Wedawatta, G., Ingirige, B., & Amaratunga, P. (2010). Building Up Resilience of Construction Sector SMEs and Their Supply Chains to Extreme Weather Events. *International Journal of Strategic Property Management*, 14, 362-375.
<https://doi.org/10.3846/ijspm.2010.27>

30. Wilkinson, S., Chang-Richards, A. Y., Sapeciay, Z., & Costello, S. B. (2016). Improving construction sector resilience. *International Journal of Disaster Resilience in the Built Environment*, 7(2), 173-185. <https://doi.org/10.1108/IJDRBE-04-2015-0020>
31. Yang, J., Liu, Y., & Kholaf, M. M. N. H. K. (2022). The impact of relationship management on manufacturer resilience in emergencies. *Kybernetes, ahead-of-print(ahead-of-print)*. <https://doi.org/10.1108/K-08-2022-1198>
32. Zarouali, M. J. E. (2014). Le Secteur des BTP au Maroc : Aspects économiques et Sociaux. *Dossiers de Recherches en Économie et Gestion*, 3(1), Article 1. <https://doi.org/10.34874/IMIST.PRSM/doreg-v3i1.15163>