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## **Enhancing Sustainable Management Through the Integration of Project Resilience**

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### **ABSTRACT**

#### **Purpose of the paper**

In today's dynamic business environment, sustainability and resilience have emerged as critical factors for organisational success. This paper will present the connection between sustainable management and project resilience and provide insights into how organisations can enhance their ability to adapt and thrive through challenges. It will further highlight the significance of integrating project resilience into sustainable management practices to promote organisational agility, adaptability, and long-term viability.

#### **Main findings**

The relationship between sustainable management and project resilience is examined, identifying the synergies between the two concepts and presenting how organisations can leverage resilience strategies to enhance their sustainability initiatives. Furthermore, the benefits of incorporating resilience principles into sustainable management approaches and critical factors such as leadership, organisational culture, and stakeholders are presented.

#### **Type of paper**

Through a Systematic Literature Review, key themes included the definition and conceptualisation of sustainability and resilience, the importance of integrating resilience into project management practices, and the challenges and opportunities associated with adopting sustainable and resilient strategies. By synthesising the findings from the literature, this paper provides valuable insights and recommendations for practitioners and researchers in the field.

#### **Keywords**

Systematic Literature Review; Project Resilience; Sustainable Management

## **1. INTRODUCTION**

Project management emerged in the 20th century as a method of organising and executing work (Ika et al., 2020). Its significance has progressively grown in recent decades, becoming essential for developing resilient, sustainable, and scalable systems. Resiliency is one of the most important aspects of delivering continuous

value and services even during unanticipated events by recovering quickly from setbacks and bringing the operations back to a normal state (Dhooper, 2020). Project management methodologies are anticipated to be adaptable and predictable to handle risks and efficiently communicate the impacts of various events. Hence, this study examines the ramifications of sustainability and resilience in project management, addressing the various events influencing project outcomes.

Sustainability, defined as meeting present needs without compromising future ones (Brundtland, 1987), has become a prevalent strategy across sectors managing projects in contemporary times. Its integration into project management has gained importance, with potential positive impacts on project success and ensuring a sustainable future. Institutions and businesses increasingly integrate sustainability into their strategies and practices, aiming to incorporate it into project management (Dubois, O and Silvius, G, 2020).

The concept of resilience in project management, introduced by Hamel and Välikangas (2003), emphasises the necessity for organisations and project managers to anticipate sudden revolutionary changes. While project success was traditionally threatened primarily by risks and uncertainties, the concept of project resilience, as articulated by Kutsch et al. (2016), expands beyond these factors to include managing disruptions caused by shocks or stresses, such as unpredictable shareholder demands and environmental volatility.

Identifying and adapting sustainability within project management practices will lead to favourable project outcomes (Silvius and de Graaf, 2019). This integration is a promising area in academic literature, linking sustainability with project success (Sabini et al., 2019). However, there remains a scarcity of structured literature research describing this relationship, with many studies relying solely on qualitative analyses (Khalifeh, Farrell, & Al-edenat, 2019).

As project success rates remain low during a project's lifespan and projects often deviate from their objectives (Rahi, Bourgault, and Robert, 2019), the concept of resilience becomes crucial. By incorporating sustainability and resilience into project management, projects can increase their success rates by adapting to variations and effectively sustaining situations (Naderpajouh et al., 2020).

In summary, the correlation between sustainable project management and project success remains inadequately addressed within the existing literature, particularly concerning traditional project success factors such as budget, time, and cost. Similarly, past literature reviews (Blay, 2017) have not sufficiently explored project resilience for project success or identified the four dimensions of successful projects: proactivity, coping ability, flexibility, and persistence. These gaps warrant further discussion and analysis for future studies to establish the connection between sustainability, resilience, and project success rates.

## **1.2 Research Gap**

Previous research on the relationship between sustainability, resilience, and project management remains broad. In contemporary economies, project success is increasingly evaluated based on sustainability and resilience criteria. However, evaluating project success, including sustainability and resilience measures, presents challenges for project managers (Banihashemi et al., 2017).

In the dynamic field of project management, increasing complexity and frequent disruptions challenge the efficacy and sustainability of projects and organisation management. Despite growing recognition of project management resilience as a crucial factor for enhancing sustainable management, a significant gap remains in systematically integrating project management resilience strategies into sustainable management practices.

Organisations often face resistance to change, lack a thorough understanding of the benefits of resilience, and lack a cohesive framework to measure and implement resilience effectively. Consequently, projects, as a vital part of an organisation, become vulnerable to unforeseen challenges, jeopardising their long-term sustainability.

Developing and implementing project management resilient methodologies and strategies that can withstand and adapt to changing environmental, technological, and socio-economic conditions is essential.

To address these gaps, a Systematic Literature Review is presented, exploring how resilience can be integrated into project management to fortify projects against disruptions and ensure their success and sustainable management in an uncertain world.

Having identified the research gaps, three research questions were defined:

1. How is resilience currently conceptualised within the context of project management?
2. How can integrating project resilience strategies enhance sustainable management practices in organisations?
3. What specific project resilience strategies most effectively promote sustainable management?

## **Aim**

This paper presents the research results from a systematic literature review summarising the connection between sustainable management and project resilience, offering insights into how organisations can enhance their ability to adapt and thrive through challenges.

## **2. METHODOLOGY**

The methodology employed in this study involved a systematic review of secondary data obtained from scholarly literature, including academic journals, books, and conference proceedings. The search strategy was focused on identifying relevant articles that discuss sustainable management and project resilience within organisational contexts.

### **2.1 Systematic Literature Review Methodology**

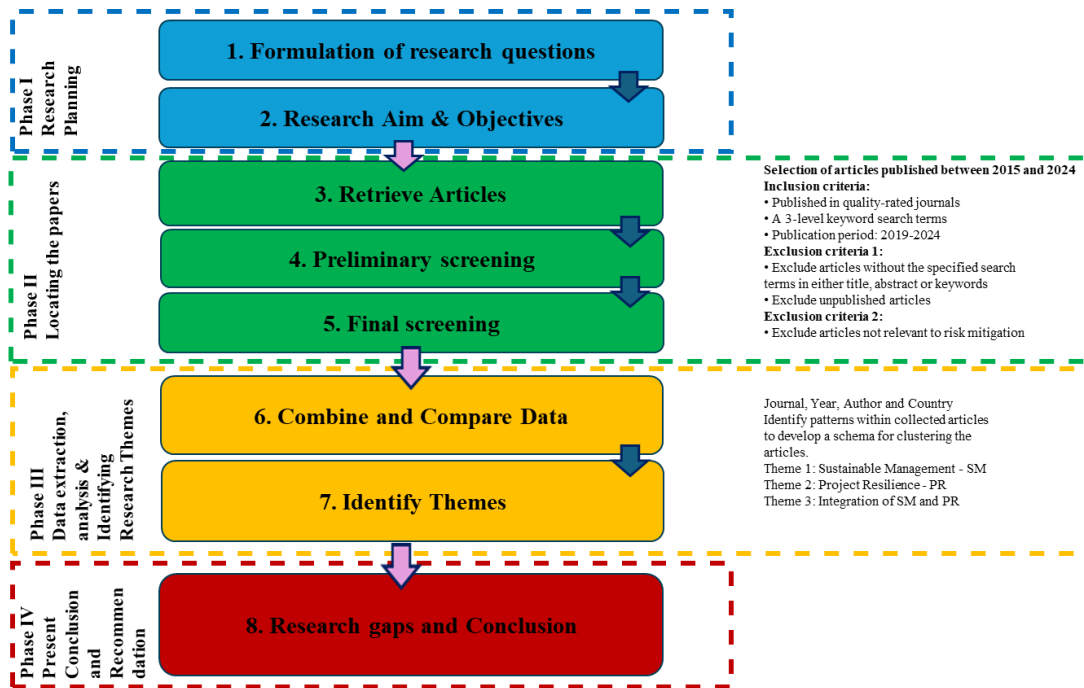
The secondary data from the literature review incorporated various aspects of sustainable management and project resilience. Key themes explored included the definition and conceptualisation of sustainability and resilience, the importance of integrating resilience into project management practices, and the challenges and opportunities associated with adopting sustainable and resilient strategies. The systematic literature review also highlighted best practices and empirical evidence illustrating the benefits of incorporating resilience principles into sustainable management approaches.

### *2.2 Research Philosophy*

For the systematic literature review, the interpretivism research philosophy was chosen to deeply comprehend the complex, context-dependent theories of resilience and sustainability in project management. Interpretivism focuses on understanding the meanings individuals or groups assign to social phenomena, making it well-suited for this study. It facilitated a comprehensive investigation into how these concepts are integrated within various organisational cultures and influenced by multiple stakeholder perspectives (Alharahsheh and Pius, 2020). Interpretivism captures this specificity, crucial for understanding varied conceptualisations and implementations of resilience (Von Danwitz, 2018). Furthermore, resilience and sustainability are complex and subjective. Interpretivism allows for exploring these interpretations and identifying underlying assumptions and values in project management practices (Moser et al., 2019). By focusing on qualitative insights, interpretivism provides a deep understanding of the phenomena, synthesising broad theoretical perspectives and empirical findings into coherent conclusions about enhancing project resilience (Gephart et al., 2019). Interpretivism also encourages a holistic view, exploring deeper meanings and implications. This approach was crucial for understanding not just the 'what' and 'how' of resilience integration but also the 'why'—the reasons for its value within different project environments (Tracy, 2019) and finally interpretivism supports theoretical richness and complexity, essential for addressing the diverse aspects of project resilience. It enabled the study to provide a nuanced theoretical discussion reflecting real-world complexities in project management (Jones et al., 2021).

### **2.3 Research Strategy**

The research methodology sections are presented in Figure 1. in a logical order to clarify their sequence:



**Figure 1. The methodological framework of the review (Authors own, 2024)**

This chronological sequence presented in Figure 1. typically followed the logical progression of how research was planned, executed, and evaluated in a systematic review. It started with defining the overall research philosophy and strategy, followed by how data would be searched and retrieved, criteria for including or excluding studies, the time frame considered, methods for data collection, and the process for screening and selecting relevant literature. This order ensured a systematic and structured approach to conducting research and synthesising findings.

## Phase I - Research Planning

### 1. Identify the Research Questions

The initial stage involved identifying the specific questions—integrating project resilience into management practices to enhance sustainability. This was based on the observed need within project management to address increasing complexity and uncertainty due to technological, environmental, and socio-economic changes.

Review existing literature to understand what has been studied to ensure that the question can be answered through empirical investigation or theoretical, systematic literature review analysis.

### 2. Defining Research Aim & Objectives

Define the research aim, which is a broad statement of the study's overall purpose. It outlines what should be achieved and gives a general overview of the study's direction.

## Phase II - Locating the papers

### 3. Retrieve Articles

#### Inclusion and Exclusion Criteria

Inclusion and exclusion criteria were predefined conditions used to determine study eligibility. Inclusion criteria specified characteristics such as publication year, language, and subject relevance, ensuring the research was focused, relevant, and high quality. Exclusion criteria outlined factors disqualifying certain studies, ensuring a systematic analysis of the most relevant, recent, and peer-reviewed literature, and aiding in drawing valid conclusions and recommendations relevant to project management (McKenzie et al2019).

	Criteria	Inclusion	Exclusion
1	Year of Publication	2015-2024	Before 2015
2	Language	English	Other languages than English
3	Length	Articles accessed Full-text	Articles that couldn't be accessed in Full text
4	Quality	Peer-reviewed research journals and articles, Published dissertations, Conference papers	Non-peer-reviewed articles, Unpublished, Opinions
5	Publication Type	Empirical and Conceptual Studies	General articles in newspapers, working papers in magazines
6	Publication sectors	Business, Construction, Supply Chain, Information Technology, Environment, Social, Entrepreneurship, Production and Services	Medical and health sectors, fashions and others that don't contribute to the relevant topic

**Table 1. Inclusion and Exclusion Criteria**

### Locating, evaluating, and screening papers

#### Initial Screening:

A cursory review of titles and abstracts quickly excluded articles outside the research scope, significantly reducing the volume of articles.

#### Research Strategy

An extensive secondary study was employed to examine the diverse array of existing literature, industry reports, and case studies on resilience and sustainable project management. The research scope was defined during a detailed planning phase, shaping the research questions and guiding the literature search (Ruggiano & Perry, 2019).

#### Search Strategy

A comprehensive search strategy was meticulously developed to ensure the collection of relevant and high-quality scholarly articles. Keywords such as "project resilience," "sustainable management," "integration strategies," and "project management" were used in various combinations. The search included academic databases like Emerald, Scopus, Web of Science, ResearchGate, and Google Scholar, supplemented by manual searches through specific journals and conference proceedings. Strict inclusion and exclusion criteria were applied based on publication date, relevance, and academic rigour, ensuring only the most pertinent and high-quality literature was reviewed (Orieno et al., 2024).

#### 4. Preliminary screening

##### Full-Text Review

Each article was thoroughly read to evaluate its contribution, depth of discussion, methodological rigour, and empirical evidence.

##### Quality Assessment

Articles were assessed based on clarity of objectives, theoretical grounding, analytical rigour, and relevance and impact of findings.

##### Study Design

The systematic literature review used a cross-sectional time horizon, analysing data collected at a single point in time. This was suitable for consolidating existing knowledge and synthesising diverse research findings.

### **Focus and Scope**

The review focused on studies published from 2015 onwards to capture the most recent advancements and insights, reflecting contemporary trends and innovations in project resilience and sustainable management.

### **Secondary Study Strategy**

The secondary study strategy leveraged existing data, avoiding time-consuming primary data collection. This approach synthesised knowledge across project management, organisational behaviour, and sustainability, facilitating a comprehensive and up-to-date review of well-established theories and recent research developments.

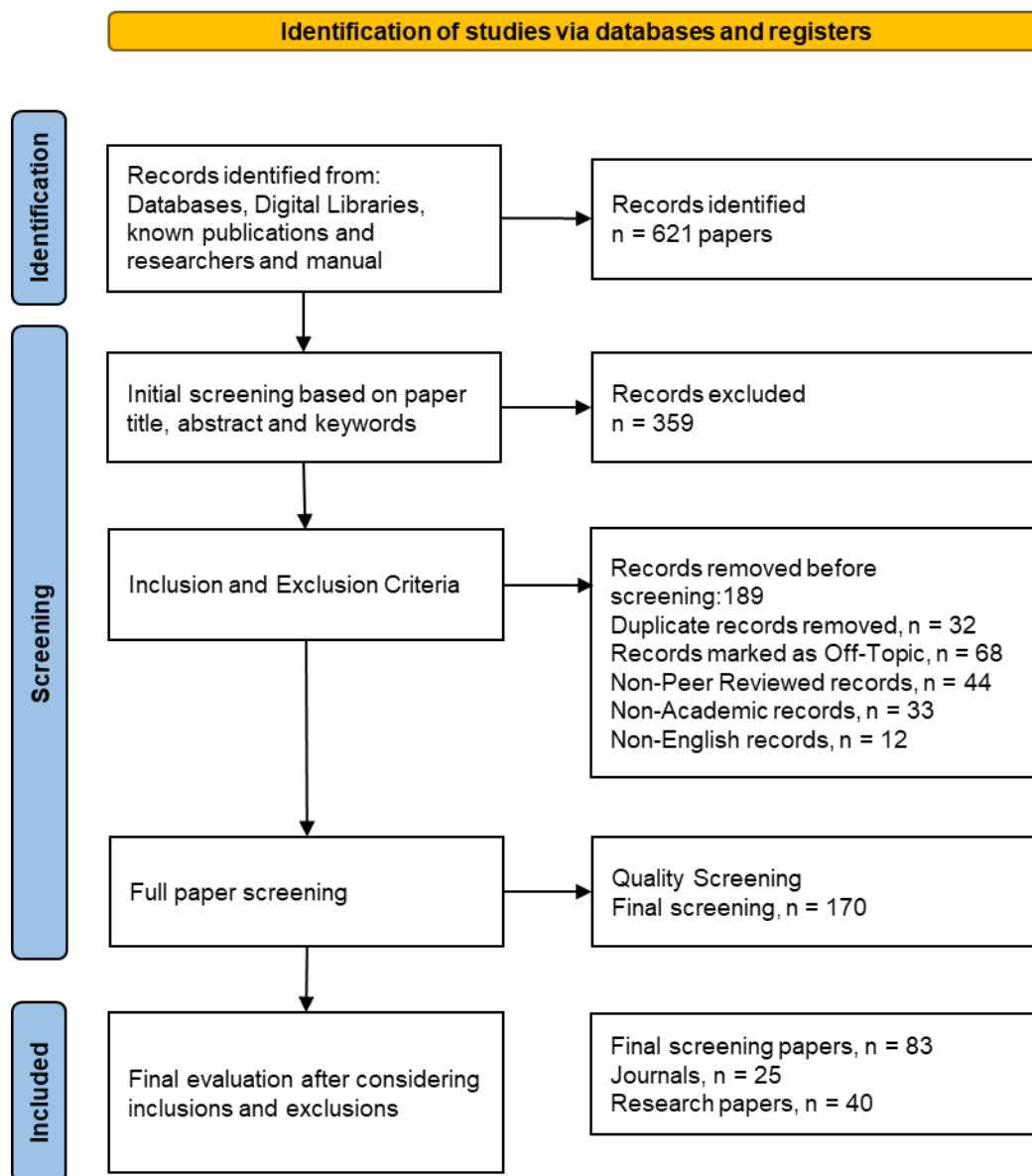
## **5. Final screening**

A two-stage screening process involved a title and abstract review followed by a full-text review, ensuring that only the most relevant articles were included in the final review (Tawfik G. M. et al.2019). Detailed documentation was maintained for search terms, databases accessed, and the number of articles retrieved and reviewed, ensuring reproducibility and transparency.

The data screening process was meticulously designed to ensure the selection of the most relevant and high-quality articles from an initial pool of 621. The screening was conducted in several stages:

**Detailed Abstract Review:** The abstracts were examined more closely to assess relevance to the specific themes of resilience and sustainability within project management contexts.

**Final Selection:** The rigorous screening process resulted in 83 articles that met all specified criteria, providing a solid foundation for conducting a comprehensive and insightful systematic literature review.



**Figure 2. Selection Process for final paper – Prisma chart**

Initially, 621 papers were identified through searches in digital libraries, manual searches, and references from known authors and related works. The abstracts of these papers were then screened, excluding those irrelevant to the topic, resulting in 359 selected publications. These were further refined by removing duplicates and conducting a detailed review, narrowing down to 170 quality publications. After applying inclusion and exclusion criteria, 83 papers were ultimately considered relevant.

The following table shows the selected research papers with the year of publication as per the keywords:

**Table 2. Selected Sources for Resilience**

Year	Sources
2016	Harris, K. Hynes, W., Trump, B., Love, P. and Linkov, I. Kutsch, E., Hall, M., & Turner, N. Thakur, H. Thomé, A.M.T., Scavarda, L.F., Scavarda, A. and Thomé, F.E.S. de S.
2017	Blay, K.B. Linnenluecke, M.K.
2018	Iivonen, K.

	Stoverink, A.C., Kirkman, B.L., Mistry, S. and Rosen, B.
2019	Linkov, I. and Trump, B. Rahi, K. Rahi, K., Bourgault, M. and Robert, B.
2020	Chadwick, I. C., & Raver, J. L. Cotta, D., & Salvador, F. Dias, N., Amaratunga, D., Haigh, R., Malalgoda, C. and Nissanka, S. Naderpajouh, N., Matinheikki, J., Keays, L.A., Aldrich, D.P. and Linkov, I. Peñaloza, G.A., Saurin, T.A. and Formoso, C.T. Yang, J. and Cheng, Q.
2021	Bailey, K., & Breslin, D.
2022	Frone, S. and Constantinescu, A. Zarghami, S.A. and Zwikael, O.

**Table 3. Selected sources for Sustainability**

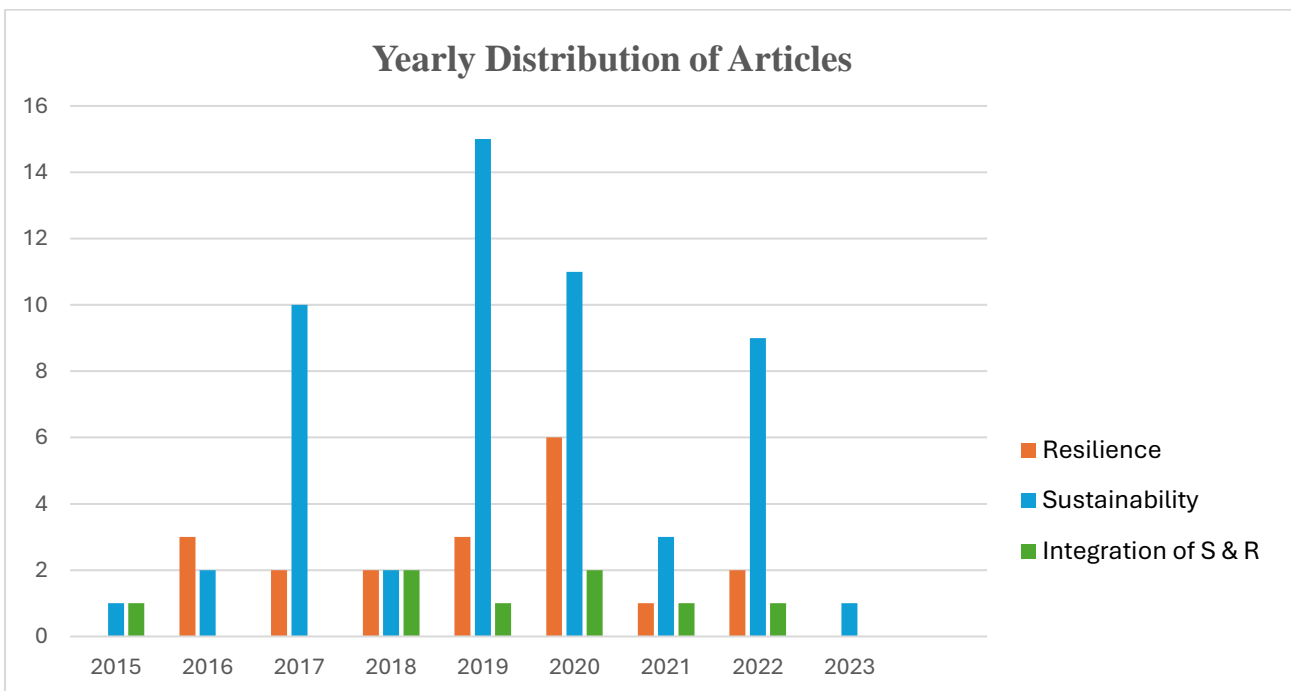
Year	Sources
2015	Marcelino-Sádaba, S., González-Jaen, L.F. and Pérez-Ezcurdia, A.
2016	Martens, M.L. and Carvalho, M.M. Silvius, A., & Schipper, R.
2017	Aarseth, W., Ahola, T., Aaltonen, K., Økland, A. and Andersen, B. Banihashemi, S., Hosseini, M. R., Golizadeh, H., & Sankaran, S. Carvalho, M.M. and Rabechini, R. El Khatib, M., Alabdooli, K., AlKaabi, A. and Al Harmoodi, S. Etzion, D., Gehman, J., Ferraro, F. and Avidan, M. Huemann, M. and Silvius, G. Martens, M. L., & Carvalho, M. M. Sabini, L., Muzio, D. and Alderman, N. Schaltegger, S., Hörisch, J. and Freeman, R.E. Silvius, G.
2018	Carol Carollo, L. and Guerci, M. Salas-Zapata, W.A. and Ortiz-Muñoz, S.M.
2019	Armenia, S., Dangelico, R.M., Nonino, F. and Pompei, A. Béné, C., Oosterveer, P., Lamotte, L., Brouwer, I.D., de Haan, S., Prager, S.D., Talsma, E.F. and Khoury, C.K. Bradley, P. Chofreh, A.G., Goni, F.A., Malik, M.N., Khan, H.H. and Klemeš, J.J. Dittman, A. GlobeScan   Know your world. Lead the future. Ioannou, I. and Serafeim, G. Khalifeh, A., Farrell, P. and Al-edenat, M. Marnewick, C., Silvius, G. and Schipper, R. Mohd Zawawi, N.F. and Abd Wahab, S. Ruane, A. Danilevicz and Palazzo, J. Shad, M.K., Lai, F.W., Fatt, C.L., Klemeš, J.J. and Bokhari, A. Silvius, A.J.G. and de Graaf Tejedor et al.
2020	Abangbila, L., An, X., Fomude, A.H. and Lamptey, Aghaegbuna, O., Tasmiah, C., Zanoxolo, B. and Nikiwe, M. Boiral, O., Talbot, D. and Brotherton, M., Cuganesan, S., Floris, M. Danso, A., Adomako, S., Lartey, T., Amankwah-Amoah, J. and Owusu-Yirenkyi, D. Larsson, J. and Larsson, L.,



	Malik, M.F., Khan, R.A., Khan, M.M. and Humayon, A.A. Pinto, L. Silvius, G. and Schipper, R. Toljaga-Nikolić, D., Todorović, M., Dobrota, M., Obradović, T. and Obradović, V. Zaman, U., Abbasi, S., Nawaz, S. and Siddique, M.
2021	Ismayilova, A., & Silvius, G. Shaukat, M.B., Latif, K.F., Sajjad, A. and Eweje, G. Silva, C.S., Pereira, C. and Magano, J.
2022	Allen, L Chabbra, A, Gomes Silva, F.J., Kirytopoulos, K., Pinto Ferreira, L., Sá, J.C., Santos, G. and Cancela Nogueira, M.C. Johnson, C Keshavarzian, S. and Silvius, G. Mollenkamp, D. Palombini, A Silvius, G. and Schipper, R.
2023	Saulick, P., Bokhoree, C. and Bekaroo, G.

**Table 4. Selected Sources for both Sustainability and Resilience**

Year	Sources
2015	Achour, N., Pantartzis, E., Pascale, F. and Price, A.D.F.
2018	Kazmi, S., Baig, A., and Rehman, M. Marchese, D., Reynolds, E., Bates, M.E., Morgan, H., Clark, S.S. and Linkov, I.
2019	Fahimnia, B., Sarkis, J., & Talluri, S.
2020	Ivanov, D. Zhu, Q. and Krikke, H.
2021	Negri, M., Cagno, E., Colicchia, C. and Sarkis, J. Rajesh, R.
2022	www.mckinsey.com. (n.d.).
2023	Concetta Carissimi, M., Creazza, A. and Colicchia, C.



### Figure 3. Yearly Article Distribution

#### Quality Assessment

The quality assessment process mainly refers to evaluating the methodological quality in the qualitative approach and presenting the relevance of primary studies. In this research, quality assessment was performed based on questionnaires that followed the guidelines and criteria of Kitchenham and Charters (2007). These questions were structured according to the evidence of relevance, reliability, validity, and applicability of the gathered studies with the stated subject. The following questions were considered in the selected studies:

1. Does the research aim objectives are specified?
2. Are the studies designed to achieve these aims?
3. Does the research paper clearly state the research methodology used for the study?
4. Are the keywords adequately used for the search of literature?
5. Were the data collected well carried out?
6. How well are the context and data resources portrayed?
7. Does the research study answer all the research questions adequately?
8. Does the research paper describe all the gaps in findings while incorporating sustainability and resilience in project management?

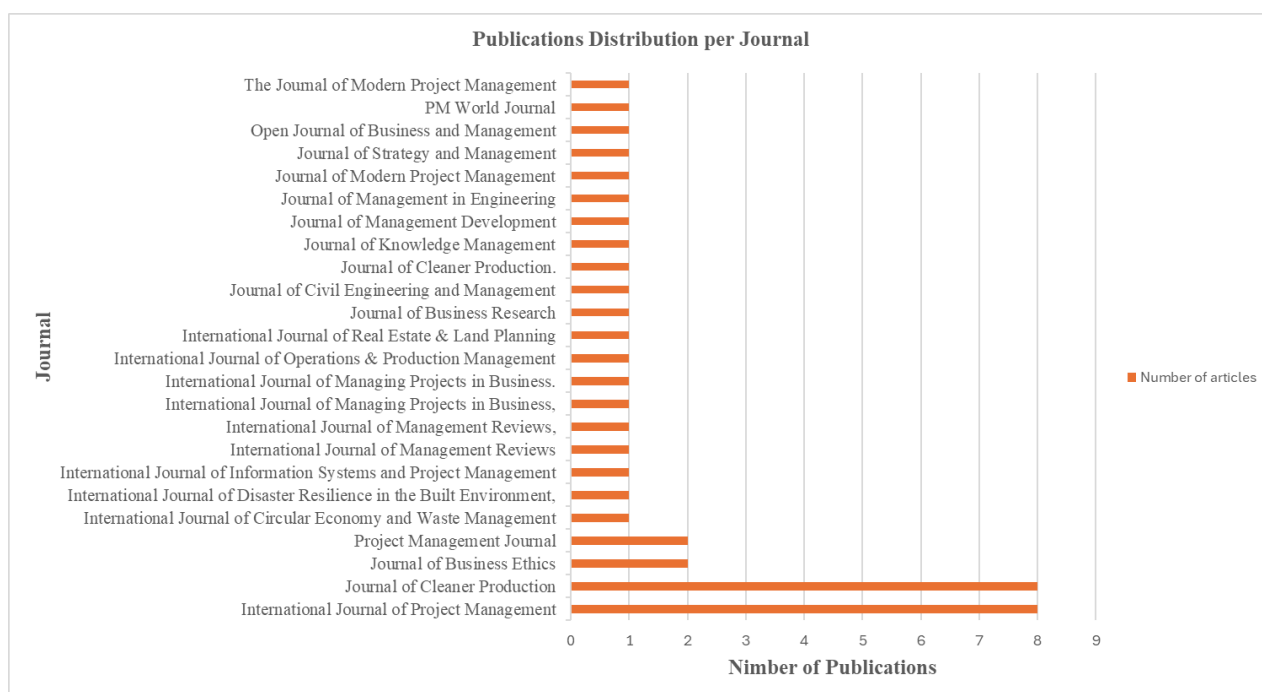


Figure 4. Journal Distributions

Figure 4. presents the evidence collected from three academic databases focusing on the concepts of sustainable management and project resilience. These databases were searched using specific keywords and phrases pertinent to understanding sustainable management, the integration of project resilience, and its impact on project success. The searches were confined to studies published in the English language from the period 2015 to 2023.

This step involved collating and summarizing the conclusions of the primary studies. As the study was heterogeneous, we adopted the qualitative approach. The current study encouraged the interpretative research methodology, as it doesn't involve formulating the hypothesis but rather reviewing the existing theory to discuss the variables of the research questions (Ganesha H. R. and Aithal, 2022).

#### Phase III - Data Extraction, Analysis & Identifying Themes

Identify patterns within collected articles and develop a schema for clustering the article.

## 6. Combine and Compare Data

Findings from various studies were synthesised to identify common themes, discrepancies, and patterns. This critical analysis involved comparing methodologies, findings, and conclusions to build a cohesive understanding of the topic.

The collected data was interpreted to conclude the state of research on project resilience and its integration into sustainable management practices. The findings were then organised into a structured format to present a clear and comprehensive review.

## 7. Identify Themes

**Read and Annotate:** Carefully read through the selected articles and made notes on key points relevant to the research questions.

After collecting and analysing the data in detail, the report was produced in the final stage of the review protocol. The motive of the SLR ensured the proper presentation of the study and presentation to the targeted audience.

**Initial Coding:** Developed a thematic scheme to categorise the data. Themes were labelled and described a segment of text.

Themes:

1. Sustainable Management- SM
2. Project Resilience - PR
3. Integration of SM and PR

## Phase IV - Present Conclusion and Recommendation

### 8. Research gaps and concluding

The research gaps and conclusion underscored the importance of integrating resilience and sustainability in project management. The review was reported as a discussion after summarising all the key details in the findings to draw conclusions. By addressing the identified research gaps, future studies could further advance the field and contribute to the development of sustainable and resilient project management practices.

## 3. SYSTEMATIC LITERATURE REVIEW (SLR)

In the evolving landscape of business and environmental stewardship, the concept of sustainable management has taken centre stage, underscoring the necessity for organisations to pivot toward practices that ensure long-term ecological, social, and economic health (Cook and Wirén, 2024). Sustainable management refers to the process of managing a firm's resources in a way that prioritizes sustainability goals alongside traditional economic goals. This approach involves strategic decision-making that seeks to balance profit with the needs of the environment and societal expectations, aiming to minimise environmental damage and maximize resource efficiency over the long term (Jahan, 2024). As businesses navigate the complexities of global markets and environmental constraints, resilience in project management emerges as a crucial element. Resilience, in this context, refers to the ability of a project to anticipate, prepare for, respond to, and adapt to incremental changes and sudden disruptions to maintain acceptable project performance. It is not merely about returning to a previous state but evolving to a better state post-challenge. This adaptive capacity is especially important in today's fast-paced and often unpredictable business environments, where projects must consistently deliver results under varying conditions (Falsarone, 2022).

The interconnection between resilience and sustainability in project management is both profound and essential (Stanitas et al, 2021). Integrating resilience into sustainable management practices means designing projects in a way that they not only endure but thrive amidst environmental, social, and economic shifts. For instance, a resilient project in the construction industry might use materials and methods that are not only environmentally sustainable but are also capable of withstanding unexpected climatic events (Elmqvist et al., 2019). Similarly, in information technology projects, resilience might involve adaptive project methodologies

that allow for rapid changes in scope or direction in response to new technological advancements or shifts in market demands (Carr, 2019). This synthesis of resilience and sustainability extends the focus from merely achieving short-term project goals to ensuring long-term viability and success. Projects designed with these principles in mind are more likely to contribute positively to the sustainable goals of their hosting organisations and to the wider community.

Moreover, the demand for integrating resilience into project management practices is growing as stakeholders increasingly recognise the long-term benefits and as regulatory frameworks evolve. Governments and international bodies are beginning to require that projects not only comply with sustainability standards but also demonstrate resilience against an expanding range of risks and uncertainties. This shift is driven by the recognition that resilient projects are more likely to achieve sustainability targets, reduce costs associated with project failures, and enhance the adaptive capacity of the broader economy (Balogun et al., 2020)

The theoretical underpinnings of integrating sustainability and resilience in project management draw from a rich tapestry of interdisciplinary frameworks and models. These theories provide the conceptual scaffolding for understanding and applying the principles of sustainability and resilience in the complex environment of project management (Sturiale and Scuderi, 2019)

### **3.1. Theme 1 - Theories in Sustainability**

At the core of sustainable management theory is the concept of sustainable development, which was popularized by the Brundtland Commission in 1987 (Dahl, 2024). This concept emphasises development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Diemer, 2019). In the realm of project management, this translates into practices that consider environmental, social, and economic impacts—a tripartite model often referred to as the Triple Bottom Line (TBL). Further elaboration on this concept is seen in the Sustainable Development Goals (SDGs) established by the United Nations in 2015. The SDGs provide a broad framework of 17 interlinked goals that cover a range of sustainability issues, from environmental sustainability to economic growth and social inclusion. Project managers can align projects with specific SDGs to ensure that their outcomes contribute to broader global agendas (Grunkemeyer and Moss, 2020)

The basic concept of sustainability has always been fulfilling the needs and requirements of the current generation without impacting and affecting the future generation (Mollenkamp, D. 2022). In today's era, sustainability is one of the most important factors, and every business organisation is making strategies and approaches for achieving sustainability within its business operations. The term sustainability is most likely concerned with balancing economic, social, and environmental well-being in any project or organisation. It is a holistic approach that supports business organisations in reducing the impact of a particular industry on the economic, social, and environmental factors (Salas-Zapata and Ortiz-Muñoz, 2019) periodically and has the ability to maintain a process over a longer period.

Furthermore, Dittman (2019) adds that 'Sustainability' is the way through which companies protect the social, environmental as well as economic factors by using sustainable development strategies and goals. The main focus of the term sustainability is to make in the current scenario of the company without impacting prospects. There are three major pillars of sustainability: Environmental Sustainability, Social Sustainability, and the final one are Economic Sustainability. Nevertheless, attraction to corporate social responsibility with economic gain as social sustainability as well as an add-on to the economic value of the corporation supporting the third pillar, economic sustainability.

Allen (2022) also added that sustainability is an approach that is used to meet the current and existing needs of the company without damaging the future needs of the business. In other words, it is adaptive management that ensures the proper use of scarce resources. It concerns the future welfare of the stakeholders who are directly involved or impacted by the action. However, sustainability can be more than economic, environmental, and social considerations it focuses on the strategy that provides the solution to the problems involving management, organisation, process, and an economic dimension (Saulick, Bokhoree, and Bekaroo, 2023). In summary, sustainability can be said to be a common practice for survival that includes environmental,

economic, and social aspects and can be a strategy that empowers the competitive advantage (Ioannou and Serafeim, 2019).

### **3.2. Theme 2 - Theories Related to Resilience**

Similar to sustainability in today's dynamic business world, either the organisation or projects has to face unforeseen events (Duchek, 2020), and to be successful and stay on the floor with holistic competition resilience is taking a high interest. Generally, resilience is explained in multiple social, economic, political, psychological, and biological contexts. Furthermore, in context of the economic resilience is the capability of the entities to withstand shocks and adjust or recover after sudden change or re-bounce without permanent rupture. Resilience can be resisting the disturbance or revising the previous equilibrium to adjust the changes. Next, can be the ability to return to equilibrium after a shock and to lodge multiple threats.

According to Linkov and Trump, 2019, in contrast, to the more established field of sustainability, resilience theories often focus on systems' abilities to withstand and adapt to change (Linkov and Trump, 2019). Resilience Engineering, for instance, emerged from the field of systems safety and emphasizes the ability of systems to function under varying conditions of stress and disturbance. In project management, this means designing projects that are not just robust against known risks but are also adaptable in the face of unforeseen changes. Adaptive Management is another key theoretical model in resilience. It is a systematic process for continually improving management policies and practices by learning from the outcomes of operational programs. This iterative learning-based approach is particularly suited to project management, where conditions can change unpredictably, and flexibility is essential for success (Linkov and Trump, 2019)

Resilience in project management primarily enhances the ability of projects to withstand and recover from adverse events, such as economic downturns, natural disasters, or technological disruptions. This capacity for resilience is vital for maintaining project stability and continuity under stress. For instance, resilient practices can lead to risk reduction by incorporating risk assessment and management strategies that identify potential threats and develop appropriate responses. This proactive approach ensures that projects are not derailed by unexpected setbacks, safeguarding investments and outcomes. Moreover, adaptability, another cornerstone of resilience, enables projects to respond to environmental or requirements changes. This flexibility can be particularly advantageous in long-term projects where project scopes and goals may evolve. Adaptive project management allows for iterative revisions and refinements, ensuring the project remains relevant and aligned with current needs and conditions.

Resilience has four pressing challenges that can affect the implementation of resilience in the workplace. The challenges in planning are getting quicker replies to complex questions or the situation, getting evidence to the assumption, convincing shareholders to plan and invest, and enhancing the competencies for resilience planning and execution. Hundreds of questions can arise with the scenarios of 'What if', and it's hard to answer with resilience planning, and the assumptions for these questions should be logical as well accepted by the shareholders. In the bottom line, the leader or the project managers must have the skills to plan for the resilience of uncertain events and find the adaptive solution with logical assumptions.

### **3.3. Theme 3 – Integration of Resilience into Sustainable Management**

Business practices promoting sustainability in their practices has been norm for a some time but it is merely done with the concept of capital benefits such as higher productivity, competitive advantages and additionally for sustainable growth (Silva et al. 2021). Nevertheless, with this target or concern and numerous studies on the topic as sustainability in practice escalated, the new topic revealed (Aarseth et al., 2017; Huemann & Silvius, 2017; Sabini et al., 2017) in the stream of project management; incorporation of sustainability in PM (Sabini et al., 2019).

Bridging the concepts of sustainability and resilience in project management has led to the development of integrated models that seek to ensure both the longevity and adaptiveness of project outcomes (Sanchez and Haas, 2018). One such model is the Resilient Sustainability Framework, which combines elements of

ecological resilience with sustainable development principles. This framework emphasises the importance of maintaining essential functions and services in the face of stress and disturbance and ensuring that these functions are managed in a way that does not deplete the natural, social, or economic resources on which they depend (Kerzner, 2022).

The concept of sustainable management in project management aims to provide benefits to the stakeholders involved in the process. Also, it supports them in completing the project in an ethical way, which includes the participation of proactive stakeholders (Toljaga-Nikolić et al., 2020). The author added that keeping the goal of sustainability in mind before starting the project is one of the essential factors for productive outcomes. The role of sustainability in project development helps project managers to direct the consumption of resources, and they will help to look at the inside-outside organisation over the entire period of the project (IPM, 2021). There are various resources for which sustainability plays a crucial role in the development of a project, such as providing climate change, affordability, helping communities and societies, and the last one is health and safety. All these factors cover the three central pillars of Sustainability in project development.

Another integrated approach is seen in the concept of Sustainable Resilience (or Resilient Sustainability), which highlights the need for projects to be designed in ways that are both environmentally sustainable and resilient to changes. This approach often involves scenario planning and foresight strategies to anticipate potential future challenges and incorporate flexibility into the project planning and implementation stages (Sossa et al., 2021). In applying these theories, project managers can use tools such as the Sustainability Project Management Model (SPMM), which integrates traditional project management processes with sustainability assessment methods. The SPMM ensures that all phases of a project, from initiation through to closure, are conducted with an eye toward sustainable outcomes (Meyerowitz, Lew and Svensson, 2018). Similarly, the Resilience Matrix, a tool used in resilience planning, helps project managers identify potential vulnerabilities and develop strategies to enhance resilience across different project dimensions—physical, informational, cognitive, and social (Fathi, 2022)

As per the view of Armenia et al. (2019), sustainability in project management deals with three major factors which are environmental, economic, and social factors. The concept of environmental sustainability in project management supports using sustainable resources, reducing pollution, and also reducing the effect of the project on climate change conditions. This requires evaluating equipment and resources used in developing the project. Using the option of fair trade is most effective for ensuring that the project leaders are using sustainable approaches in the process, as this is how companies gain a relationship between sustainability and equitable trade. The next factor is economic sustainable management in the project development process, and economic sustainability can be achieved by examining the project's contribution to the organisation's broader strategy as well as its long-term viability and by looking beyond the return on investment (ROI). The last factor is the social factor in which sustainable strategy will focus on improving society. With the help of social sustainability, the project leader ensures that the culture and working environment of the team is good and positive and uses renewable and recyclable products in the project as well.

These theoretical models and tools are vital for practitioners aiming to implement sustainable and resilient project management practices. They provide a structured way to incorporate environmental stewardship, social responsibility, and economic viability into project management while also building the capacity to adapt to new challenges and opportunities. The relationship between sustainability and resilience theories in project management is more than just a theoretical exercise; it represents a practical and necessary evolution in the way projects are planned and executed in an increasingly uncertain world. By understanding and integrating these theories, project managers can contribute to a sustainable future that is not only desirable but also attainable and enduring (Rahi, 2019).

### **3.3.1. Importance of Resilience in Sustainable Management**

The intersection of resilience and sustainability in project management is crucial for fostering robust, adaptable, and enduring systems capable of facing the multifaceted challenges of the 21st century. This integration ensures that projects are not only designed to meet present needs without compromising future resources but are also equipped to adapt and thrive in an uncertain and dynamic environment (Fathi, 2022).

The long-term impacts of incorporating resilience into project management are profound, particularly in the context of sustainability. By fostering systems that can adapt to changes, resilience contributes to sustainability in several key ways. Firstly, resilient practices promote the efficient use of resources by enabling systems to recover and readapt existing resources without the need for substantial external inputs. This not only reduces waste but also minimises the environmental impact associated with resource extraction and consumption. Furthermore, resilience enhances the durability of project outcomes, ensuring that they continue to deliver benefits over an extended period. This durability is essential for sustainable development, which seeks to create long-lasting value and benefits.

Resilience also plays a critical role in fostering social and economic stability. By ensuring that projects can continue to function and meet their objectives in the face of disruptions, resilience contributes to the stability of communities and economies. This stability is crucial for sustainable development, which relies on steady economic growth and social cohesion. Resilient projects thus help to build a foundation for sustainable development by creating robust systems that support consistent progress and development (Sellberg et al. 2018).

### **3.3.2. Integrating Resilience and Sustainability**

The integration of resilience into sustainable project management is facilitated by a variety of methodologies and tools that bridge these concepts. Strategic planning, risk management, and adaptive management are among the key approaches used to enhance resilience in projects. These approaches involve thorough planning, continuous monitoring, and the flexibility to adjust as project conditions change. By incorporating these practices, project managers can ensure that projects are not only sustainable in their goals and outcomes but are also resilient to the inevitable changes and challenges they will face. Moreover, the focus on resilience in project management is increasingly supported by technological advancements and innovations. Information technologies, for example, can provide real-time data that aids in monitoring project performance and environmental conditions, allowing for rapid adjustments. Similarly, advancements in materials science can lead to the development of more durable and adaptable materials, further enhancing the resilience of projects (Naderpajouh et al., 2020).

Therefore, resilience is a critical component of sustainable project management. By enhancing risk reduction, adaptability, and long-term sustainability, resilient practices ensure that projects are capable of withstanding and thriving in the face of challenges. The integration of resilience into sustainability efforts not only enhances the immediate effectiveness and reliability of projects but also contributes to the broader goal of creating sustainable systems that can endure and prosper over time (Sellberg et al., 2018). This holistic approach to project management is essential for addressing the complex and interconnected challenges of today's world, ensuring that our projects and systems are robust, adaptable, and sustainable (Nachbagauer, 2022)

Various criticisms arise concerning the assumptions and arguments presented by some researchers and theorists in the literature. These criticisms are instrumental in clarifying and reinforcing the theoretical perspective that emphasizes a balanced and nuanced approach to integrating resilience and sustainability in project management (Orieno et al. 2024).

Existing studies on sustainable management are more focused on the internal and external environmental effects, neglecting other factors, such as economic and social, and overlooking the challenges of trade-offs that managers must incur (Silvius and Schipper, 2020).

Sustainability and resilience have divergent explanations from academic researchers and implementers (Concetta Carissimi, Creazza and Colicchia, 2023). The combination of two elements 'sustainability' and 'resilience' is well defined in some contexts (Marchese et al., 2018, Negri et al., 2021) but other researchers have a different view as the boundaries between them are not clear whether the attribute of the resilience integrates with sustainability and vice-versa (Ivanov, 2020, Zhu and Krikke, 2020). Most of the researchers and other businesspeople use sustainability and resilience interchangeably as the similarities and differences between resilience and sustainability are still blurred with ambiguity in interpretation (Marchese et al., 2018).

The application of these two elements focuses on the system for the smooth operation of the projects and response the adversity with the ultimate goal of achieving the project objectives.

One common criticism pertains to the assumption that resilience automatically leads to enhanced sustainability. Several authors propose that simply incorporating resilience strategies, such as redundancy, robustness, and resourcefulness will invariably result in sustainable outcomes. However, this assumption can be overly simplistic and may overlook the complexities involved in aligning resilience with sustainability goals. For example, redundancy, while increasing resilience, can lead to resource inefficiencies if not managed carefully, potentially contradicting sustainability objectives that aim to optimise resource use. This critique underscores the need for a theoretical perspective that advocates for a more discerning application of resilience strategies, ensuring they are tailored to complement and enhance sustainability rather than work at cross purposes (Grasso, 2021).

## **4. CONCLUSIONS and RECOMMENDATIONS**

### **4.1. Conclusions**

The systematic literature review conducted in this study provides a detailed examination of the integration of project resilience into sustainable management practices. The core thesis of this inquiry has centred around how resilience, when strategically incorporated into project management, not only prepares projects to deal effectively with disruptions but also significantly enhances their ability to contribute to sustainable outcomes. The culmination of this research presents a compelling argument for the necessity of resilience as an integral component of contemporary project management strategies, which are increasingly challenged by the complexities and unpredictability of modern project environments.

Resilience and sustainable management, while complex, hold significant value and competitive advantages. They play a crucial role in mitigating risk, recovering from adversity, and seizing opportunities to bounce back stronger. This not only contributes to sustainable growth but also ensures the continuity and success of projects.

Q1. Resilience, within the context of project management, is currently conceptualised as a multifaceted capability that enables projects to effectively anticipate, respond to, recover from, and adapt to adversities, thereby ensuring project continuity and success despite various uncertainties and changes. This concept is increasingly recognized as a critical component in the strategic framework of modern project management, reflecting a significant evolution from traditional project management approaches that focused primarily on efficiency and control. This shift signifies the progress and innovation in the field, paving the way for more sustainable and resilient projects.

Q2. The integration of resilience into project management to enhance sustainability is not a one-dimensional process. It involves a combination of strategic, operational, and cultural shifts, all of which are crucial for enabling projects to adapt, survive, and thrive in the face of disruptions. This comprehensive approach, which blends insights from management science, behavioural science, and environmental science, ensures that projects are not just sustained but potentially improved over time.

Q3. In project management, certain resilience strategies play a pivotal role in promoting sustainable management. By integrating ecological, social, and economic considerations into project planning and execution, these strategies ensure that projects are not only resilient to disruptions but also advance sustainable development goals. One of the key strategies is implementing resource efficiency measures and embracing circular economy principles. Projects that optimize resource use and manage waste through reuse and recycling are more sustainable and resilient. Utilizing modular construction techniques is one example where waste is minimised, and resource use is optimized. This approach not only conserves materials but also allows for quicker adaptation of physical spaces to changing needs, thereby enhancing the project's resilience.

Resilience, traditionally viewed as the capacity to recover from challenges, is redefined in the context of project management as a proactive and anticipatory strategy essential for sustaining long-term project success. This study has systematically parsed through varied literature to unravel the multifaceted role of resilience in



projects, illustrating that its integration goes beyond mere survival of immediate disruptions—it fosters an adaptive and thriving project environment under varied conditions. Resilience in project management has been shown to involve a range of practices from robust risk management and stakeholder engagement to the adoption of advanced technologies and innovative practices that collectively boost a project's capacity to handle and adapt to change.

One of this study's core findings is that resilience is not a standalone feature but a synergistic component that enhances the sustainability of management practices. It involves embedding flexibility, foresight, and adaptability into the DNA of project management. Such integration enables projects not only to withstand environmental, technological, and market fluctuations but also to capitalise on these changes, turning potential threats into opportunities for growth and improvement. This dynamic approach is vital in today's fast-paced and ever-evolving project landscapes.

The evidence gathered through this review underscores that the systematic integration of resilience can significantly improve project outcomes. Projects endowed with resilience mechanisms are better equipped to maintain continuity, meet deadlines, manage budgets effectively, and achieve project goals despite adverse conditions. These projects utilise resources more efficiently, maintain higher levels of stakeholder satisfaction, and exhibit enhanced capability to align with broader sustainability goals such as environmental stewardship, social responsibility, and economic viability.

Moreover, the importance of organisational culture in fostering resilience has been a critical discovery area. The study highlights that for resilience to be effectively integrated into project management, there must be a cultural shift within organisations. This shift entails valuing flexibility, proactive planning, and continuous learning. Organisations that cultivate these values manage to navigate disruptions more smoothly and emerge stronger, more agile, and more innovative.

However, the study also acknowledges that the path to integrating resilience is fraught with challenges. These challenges range from the initial high investment costs in training and technology to the inertia of existing organisational structures and processes resistant to change. Overcoming these barriers requires a deliberate and sustained effort, strategic resource allocation, and, crucially, strong leadership committed to embedding resilience into the fabric of project management.

Therefore, this systematic literature review firmly establishes the integration of resilience into project management as a critical strategy for enhancing sustainable management. It convincingly argues that the future of project management lies in its ability to adapt, evolve, and respond to the complexities of the modern world through the lens of resilience. As such, project managers and organisational leaders are called upon to re-envision their approaches to project planning and execution, incorporating resilience not just as a safety net but as a strategic asset that drives project success and sustainability.

## **4.2. Recommendations**

As examined in this literature review, the systematic integration of project resilience into sustainable management practices underscores a critical need for adaptive strategies in contemporary project management. To harness the full potential of resilience in enhancing sustainability, this study offers a set of tailored recommendations aimed at practitioners, policymakers, and researchers. These recommendations are designed to facilitate the operationalisation of resilience in project management and ensure that projects are equipped to handle disruptions and positioned to contribute positively to sustainable development goals.

To anticipate and prepare for emergent challenges, Project Managers should develop comprehensive risk management frameworks beyond identifying and mitigating known risks. This involves continuous risk assessment and adapting strategies to accommodate new insights and changing conditions. Additionally, fostering an adaptive project culture is crucial. This can be encouraged through training programs focused on adaptive leadership, resilience building, and agile methodologies, ensuring the project team is well-prepared to respond to changes and disruptions effectively. Implementing advanced technological tools such as predictive analytics, artificial intelligence, and real-time data monitoring can foresee potential disruptions and optimise response strategies, significantly enhancing decision-making and project agility. Enhanced

stakeholder engagement is another critical area. Project managers should actively involve all relevant stakeholders, including suppliers, clients, and community representatives, in the planning and execution phases of projects. This ensures that diverse perspectives are considered and enhances buy-in and support, which is crucial for the successful implementation of resilience strategies. Practising scenario planning by engaging in simulations of potential disruptions and their likely impact on the project helps develop flexible strategies that can quickly adapt as circumstances evolve.

More empirical research is needed to validate the effectiveness of different resilience strategies across various industries and project types. Researchers should focus on longitudinal studies that provide insights into the long-term benefits and challenges of integrating resilience into project management. Investigating the unique resilience needs and challenges of different sectors can help develop more targeted resilience strategies that are effective in specific project environments.

Developing metrics for measuring resilience and studying the interplay between resilience and sustainability are also crucial. Research should aim to understand how these two concepts can be integrated most effectively to support project longevity and their ability to contribute to broader environmental, social, and economic goals. Lastly, establishing platforms for disseminating research findings and best practices related to project resilience can help bridge the gap between research and practice, ensuring that the latest insights and methodologies are accessible to practitioners.

Implementing these recommendations requires a coordinated effort among all project management and organisation stakeholders. By embracing these strategies, organisations can enhance their resilience, adapt more fluidly to changes, and ensure that their projects survive and thrive in the face of adversity, contributing effectively to sustainable development.

## 5. REFERENCES

- Achour, N. et al. (2015) 'Integration of resilience and sustainability: from theory to application', *International Journal of Disaster Resilience in the Built Environment*, 6(3), pp. 347–362.
- Allen, L. (2022). What are the three pillars of Sustainability? Available through <https://www.treehugger.com/what-are-the-three-pillars-of-sustainability-5189295> [Accessed on 3 February 2024].
- Alex, I. and Devis, A. (2023) 'Project Risk Management, Project Resilience And Project Efficiency. A Case Of Health Cbos In Busoga Region', (December).
- Alharahsheh, H.H. and Pius, A. (2020) 'A review of key paradigms: Positivism VS interpretivism', *Global Academic Journal of Humanities and Social Sciences*, 2(3), pp. 39–43.
- Alshehri, T. et al. (2021) 'Qualitative secondary analysis as an alternative approach for cross-cultural design: A case study with Saudi transnationals', in *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, pp. 1–15.
- Andrade, C. et al. (2024) 'Historical Changes and Future Projections in Köppen – Geiger Climate Classifications in Major Wine Regions Worldwide'.
- Armenia, S. et al. (2019) 'Sustainable project management: A conceptualization-oriented review and a framework proposal for future studies', *Sustainability*, 11(9), p. 2664.
- Azizi, S.M., Soroush, A. and Khatony, A. (2019) 'The relationship between social networking addiction and academic performance in Iranian students of medical sciences: a cross-sectional study', *BMC psychology*, 7, pp. 1–8.
- Balogun, A.-L. et al. (2020) 'Assessing the potentials of digitalization as a tool for climate change adaptation and sustainable development in urban centres', *Sustainable Cities and Society*, 53, p. 101888.
- Banihashemi, S., Hosseini, M. R., Golizadeh, H., & Sankaran, S. (2017). Critical success factors (CSFs) for integration of sustainability into construction project management practices in developing countries. *International Journal of Project Management*, 35(6), 1103-1119.
- Becker, P. (2023) *Sustainability science: Managing risk and resilience for sustainable development*. Elsevier.

- Carr, E.R. (2019) 'Properties and projects: Reconciling resilience and transformation for adaptation and development', *World Development*, 122, pp. 70–84.
- Blay, K.B. (2017). Resilience in projects: definition, dimensions, antecedents and consequences. [online] repository.lboro.ac.uk. Available at: [https://repository.lboro.ac.uk/articles/thesis/Resilience\\_in\\_projects\\_definition\\_dimensions\\_antecedents\\_and\\_consequences/9454760/1](https://repository.lboro.ac.uk/articles/thesis/Resilience_in_projects_definition_dimensions_antecedents_and_consequences/9454760/1) [Accessed 2 Apr. 2024].
- Charles, S.H., Chang-Richards, A.Y. and Yiu, T.W. (2022) 'A systematic review of factors affecting post-disaster reconstruction projects resilience', *International Journal of Disaster Resilience in the Built Environment*, 13(1), pp. 113–132.
- Concetta Carissimi, M., Creazza, A. and Colicchia, C. (2023). Crossing the chasm: investigating the relationship between sustainability and resilience in supply chain management. *Cleaner Logistics and Supply Chain*, p.100098. doi:<https://doi.org/10.1016/j.clscn.2023.100098>.
- Cook, P.H. and Wirén, L. (2024) *Embedding Sustainability: How to Drive Organisational Transformation*. Kogan Page Publishers.
- Crnogaj, K., Tominc, P. and Rožman, M. (2022) 'A conceptual model of developing an agile work environment', *Sustainability*, 14(22), p. 14807.
- Curry, D.S. (2020) 'Interpretivism and norms', *Philosophical Studies*, 177(4), pp. 905–930.
- Dittman, A. (2019). The importance of sustainability. [online] [www.pearson.com](https://www.pearson.com/ped-blogs/pearsonstudents/2019/10/the-importance-of-sustainability.html). Available at: <https://www.pearson.com/ped-blogs/pearsonstudents/2019/10/the-importance-of-sustainability.html>.
- Dahl, M.B. (2024) 'The Brundtland report in Denmark: An analysis of the reception of the Brundtland report in a Danish political context', *Culture and History: Student Research Papers*, 8(1), pp. 135–151.
- Von Danwitz, S. (2018) 'Organizing inter-firm project governance—a contextual model for empirical investigation', *International Journal of Managing Projects in Business*, 11(1), pp. 144–157.
- Daraojimba, E.C. et al. (2024) 'Comprehensive review of agile methodologies in project management', *Computer Science & IT Research Journal*, 5(1), pp. 190–218.
- Diemer, A. (2019) 'Six key drivers for sustainable development', *International Journal of Environmental Sciences & Natural Resources*, 18(4), pp. 128–156.
- Dittman, A. (2019). The importance of sustainability. [online] [www.pearson.com](https://www.pearson.com/ped-blogs/pearsonstudents/2019/10/the-importance-of-sustainability.html). Available at: <https://www.pearson.com/ped-blogs/pearsonstudents/2019/10/the-importance-of-sustainability.html>.
- Di Vaio, A. et al. (2024) 'Digitalization and artificial knowledge for accountability in SCM: a systematic literature review', *Journal of Enterprise Information Management*, 37(2), pp. 606–672. Available at: <https://doi.org/10.1108/JEIM-08-2022-0275>.
- Dhooper, G. (2020). *Achieving Resiliency And Sustainability Through Project Management & PMOs PM Today*.
- Dubois, O and Silvius, G (2020), *The Relation Between Sustainable project Management and Project Success*, *International Journal of Management and Sustainability*.
- Duchek, S. (2019). Organisational resilience: a capability-based conceptualization. *Business Research*, [online] 13(1), pp.215–246. doi:<https://doi.org/10.1007/s40685-019-0085-7>.
- Ebekozien, A. et al. (2024) 'Managing construction project risks in turbulent times: a stakeholders perspective', *International Journal of Building Pathology and Adaptation*, 42(7), pp. 35–54. Available at: <https://doi.org/10.1108/IJBPA-01-2024-0003>.
- Elmqvist, T. et al. (2019) 'Sustainability and resilience for transformation in the urban century', *Nature sustainability*, 2(4), pp. 267–273.
- Falsarone, A. (2022) *The impact challenge: Reframing sustainability for businesses*. Taylor & Francis.
- Fathi, K. (2022) *Multi-Resilience-Development-Sustainability: Requirements for securing the future of societies in the 21st century*. Springer Nature.
- Gaudenzi, B., Pellegrino, R. and Confente, I. (2023) 'Achieving supply chain resilience in an era of disruptions: a configuration approach of capacities and strategies', *Supply Chain Management*, 28(7), pp. 97–111. Available at: <https://doi.org/10.1108/SCM-09-2022-0383>.
- Gephart, R.P., Cassell, C. and Cunliffe, A.L. (2018) 'Qualitative research as interpretive social science', *The SAGE handbook of qualitative business and management research methods: History and traditions*, pp. 33–53.

Grasso, M.E. (2021) *Resilience and Sustainability in Law: Theoretical and Critical Approaches*. Cambridge Scholars Publishing.

Greenwalt, J., Raasakka, N. and Alverson, K. (2018) 'Building urban resilience to address urbanization and climate change', in *Resilience*. Elsevier, pp. 151–164.

Grunkemeyer, W. and Moss, M. (2020) 'Key Concepts in Sustainable Development'.

Hamel, G., & Välikangas, L. (2003). The quest for resilience. *Harvard Business Review*, 81(9), 52-63

Guest, G., Namey, E. and Chen, M. (2020) 'A simple method to assess and report thematic saturation in qualitative research', *PloS one*, 15(5), p. e0232076.

Ganesha H. R., and Aithal, P. S.(2022), *Approaching Research in Different Ways - How to Choose an Appropriate Research Approach/Reasoning During Ph.D. Program in India?* *International Journal of Philosophy and Languages (IJPL)* 2022, 1(1), 59-74., Available at SSRN: <https://ssrn.com/abstract=4263413> or <http://dx.doi.org/10.2139/ssrn.4263413>

Haass, O. and Guzman, G. (2020) 'Understanding project evaluation—a review and reconceptualization', *International Journal of Managing Projects in Business*, 13(3), pp. 573–599.

Harari, M.B. et al. (2020) 'Literature searches in systematic reviews and meta-analyses: A review, evaluation, and recommendations', *Journal of Vocational Behavior*, 118, p. 103377.

Ika, L.A., Söderlund, J., Munro, T. L., Landoni, P. (2020), *Cross-learning between project management and international development: Analysis and research agenda*, *International Journal of Project Management*

Ioannou, I. and Serafeim, G. (2019). *Yes, Sustainability Can Be a Strategy*. [online] Available at:[https://clsbe.lisboa.ucp.pt/sites/default/files/hbr\\_-\\_yes\\_sustainability\\_can\\_be\\_a\\_strategy.pdf](https://clsbe.lisboa.ucp.pt/sites/default/files/hbr_-_yes_sustainability_can_be_a_strategy.pdf).

IPM, 2021. [Online]. *Sustainability in Project management*. Available through<<https://www.projectmanagement.ie/blog/sustainability-in-project-management/>> [ Accessed on 27 February 2024].

Ishiwatari, M. et al. (2024) 'Enhancing Disaster Resilience for Sustainable Urban Development: Public–Private Partnerships in Japan', *Sustainability (Switzerland)* , 16(9). Available at: <https://doi.org/10.3390/su16093586>.

Ivanov, D. (2020). *Viable supply chain model: integrating agility, resilience and sustainability perspectives—lessons from and thinking beyond the COVID-19 pandemic*. *Annals of Operations Research*. [online] doi:<https://doi.org/10.1007/s10479-020-03640-6>.

Jahan, I.M. (2024) 'Adaptation of ecosystem strategies in continuously evolving environments for sustainable growth'.

Jesse, B.-J., Heinrichs, H.U. and Kuckshinrichs, W. (2019) 'Adapting the theory of resilience to energy systems: a review and outlook', *Energy, Sustainability and Society*, 9, pp. 1–19.

Jiang, W. et al. (2024) 'Study on Resilience Evaluation for Construction Management of Major Railway Projects', *Buildings*, 14(3), pp. 1–19. Available at: <https://doi.org/10.3390/buildings14030732>.

Jones, S.R., Torres, V. and Arminio, J. (2021) *Negotiating the complexities of qualitative research in higher education: Essential elements and issues*. Routledge.

Jović, M. et al. (2024) 'Measuring the Efficiency of Innovative Logistics Projects ' Resilience : ePcenter project Experience', (June). Available at: <https://doi.org/10.5281/zenodo.11351230>.

Kerzner, H. (2022) *Project management metrics, KPIs, and dashboards: a guide to measuring and monitoring project performance*. John Wiley & sons.

Kesmodel, U.S. (2018) 'Cross-sectional studies—what are they good for?', *Acta obstetricia et gynecologica Scandinavica*, 97(4), pp. 388–393.

Khalifeh, A., Farrell, P. and Al-edenat, M. (2019). *The impact of project sustainability management on project success: A systematic literature review*. *Journal of Management Development*, Vol. ahead-of-print. Available at:<https://doi.org/10.1108/JMD-02-2019-0045>

Khatibi, H. et al. (2024) 'Navigating Climate Change Challenges through Smart Resilient Cities: A Comprehensive Assessment Framework', *Land*, 13(3), pp. 1–19. Available at: <https://doi.org/10.3390/land13030266>.

Kitchenham, B., & Charters, S. (2007). *Guidelines for performing systematic literature reviews in software engineering*. Technical report, EBSE Technical Report EBSE-2007-01.<https://www.cs.auckland.ac.nz/~norsaremah/2007%20Guidelines%20for%20performing%20SLR%20in%20SE%20v2.3.pdf>

- Lame, G. (2019) 'Systematic literature reviews: An introduction', in Proceedings of the design society: international conference on engineering design. Cambridge University Press, pp. 1633–1642.
- Larsson, J. and Larsson, L. (2020) 'Integration, application and importance of collaboration in sustainable project management', *Sustainability*, 12(2), p. 585.
- Lefebvre, C. et al. (2019) 'Searching for and selecting studies', *Cochrane Handbook for systematic reviews of interventions*, pp. 67–107.
- Li, T., Higgins, J.P.T. and Deeks, J.J. (2019) 'Collecting data', *Cochrane handbook for systematic reviews of interventions*, pp. 109–141.
- Lin, Y.F. et al. (2022) 'Iot for environmental management and security governance: an integrated project in Taiwan', *Sustainability (Switzerland)*, 14(1), pp. 1–12. Available at: <https://doi.org/10.3390/su14010217>.
- Linkov, I. and Trump, B.D. (2019) *The science and practice of resilience*. Springer.
- Lo, A.Y. et al. (2019) 'Community business resilience: adaptation practice of micro-and small enterprises around the Pearl River Estuary', *Climatic Change*, 157(3), pp. 565–585.
- Madureira, R.C. et al. (2022) 'Think twice to achieve a sustainable project management: from ecological sustainability towards the sustainable project management cube model', *Sustainability*, 14(6), p. 3436.
- Maleke, M.B. (2022) 'The adaptation of soft skills training for project managers in road design projects in response to disruptive events'. University of Johannesburg.
- Manyena, B., Machingura, F. and O'keefe, P. (2019) 'Disaster Resilience Integrated Framework for Transformation (DRIFT): A new approach to theorising and operationalising resilience', *World development*, 123, p. 104587.
- Marchese, D. et al. (2018) 'Resilience and sustainability: Similarities and differences in environmental management applications', *Science of the total environment*, 613, pp. 1275–1283.
- Marnewick, C., Silvius, G. and Schipper, R. (2019). Exploring Patterns of Sustainability Stimuli of Project Managers. *Sustainability*, 11(18), p.5016. doi:10.3390/su11185016.
- Martin-Breen, P. and Anderies, J.M. (2011) 'Resilience: A literature review'. Sponsored by Rockefeller Foundation, September.
- Martinsuo, M. and Geraldi, J. (2020) 'Management of project portfolios: Relationships of project portfolios with their contexts', *International Journal of Project Management*, 38(7), pp. 441–453.
- McKenzie, J.E. et al. (2019) 'Defining the criteria for including studies and how they will be grouped for the synthesis', *Cochrane handbook for systematic reviews of interventions*, pp. 33–65.
- Mengist, W., Soromessa, T. and Legese, G. (2020) 'Method for conducting systematic literature review and meta-analysis for environmental science research', *MethodsX*, 7, p. 100777.
- Meyerowitz, D., Lew, C. and Svensson, G. (2018) 'Scenario-planning in strategic decision-making: requirements, benefits and inhibitors', *foresight*, 20(6), pp. 602–621.
- Mollenkamp, D. (2022). What is Sustainability? [online] Investopedia. Available at: <https://www.investopedia.com/terms/s/sustainability.asp>. [Accessed on 3 February 2024].
- Moser, S. et al. (2019) 'The turbulent world of resilience: interpretations and themes for transdisciplinary dialogue', *Climatic change*, 153(1), pp. 21–40.
- Mundra, S. (2018) *Enterprise agility: Being agile in a changing world*. Packt Publishing Ltd.
- Nachbagauer, A. (2022) 'RESILIENT PROJECT MANAGEMENT.', *Journal of Modern Project Management*, 10(1).
- Naderpajouh, N. et al. (2020) 'Resilience and projects: An interdisciplinary crossroad', *Project Leadership and Society*, 1, p. 100001.
- Naderpajouh, N. et al. (2023) 'Resilience science: Theoretical and methodological directions from the juncture of resilience and projects', *International Journal of Project Management*, 41(8), p. 102544. Available at: <https://doi.org/10.1016/j.ijproman.2023.102544>.
- Nawijn, F. et al. (2019) 'Quality of reporting of systematic reviews and meta-analyses in emergency medicine based on the PRISMA statement', *BMC emergency medicine*, 19, pp. 1–8.
- Negri, M. et al. (2021) 'Integrating sustainability and resilience in the supply chain: A systematic literature review and a research agenda', *Business Strategy and the environment*, 30(7), pp. 2858–2886.

- Novalia, W. and Malekpour, S. (2020) 'Theorising the role of crisis for transformative adaptation', *Environmental science & policy*, 112, pp. 361–370.
- O'Laughlin, K.D., Martin, M.J. and Ferrer, E. (2018) 'Cross-sectional analysis of longitudinal mediation processes', *Multivariate behavioral research*, 53(3), pp. 375–402.
- Orieno, O.H. et al. (2024) 'Sustainability in project management: A comprehensive review', *World Journal of Advanced Research and Reviews*, 21(1), pp. 656–677.
- Page, M.J. et al. (2021) 'The PRISMA 2020 statement: an updated guideline for reporting systematic reviews', *bmj*, 372.
- Pantović, V. et al. (2024) 'Data-Driven Decision Making for Sustainable IT Project Management Excellence', *Sustainability (Switzerland)*, 16(7). Available at: <https://doi.org/10.3390/su16073014>.
- Pervin, N. and Mokhtar, M. (2022) 'The interpretivist research paradigm: A subjective notion of a social context', *International Journal of Academic Research in Progressive Education and Development*, 11(2), pp. 419–428.
- Piwowar-Sulej, K. and Iqbal, Q. (2024) 'The nexus of project management approaches in sustainable development: innovative behaviors as a mechanism in the Polish financial industry', *International Journal of Managing Projects in Business*, 17(2), pp. 338–359. Available at: <https://doi.org/10.1108/IJMPB-09-2023-0219>.
- Dhooper, G (2020) *Achieving Resiliency And Sustainability Through Project Management & PMOs*, PM Today, (2020) Available at: <https://www.pmtoday.co.uk/achieving-resiliency-and-sustainability-through-project-management-pmos/>
- Rahi, K. (2019) 'Project resilience: a conceptual framework', *International Journal of Information Systems and Project Management*, 7(1), pp. 69–83.
- Rahi, K. et al. (2023) 'Scale to measure project resilience for the construction sector to cope with hazards', *International Journal of Disaster Resilience in the Built Environment* [Preprint], (April 2024). Available at: <https://doi.org/10.1108/IJDRBE-04-2023-0058>.
- Rahi, K., Bourgault, M. and Robert, B. (2019) 'Benchmarking project resilience', *The Journal of Modern Project Management*. <https://doi.org/10.19255/JMPM01901>.
- Ramos, C. and Pavhlichenko, I. (2022) *Creating Agile Organisations: A Systemic Approach*. Addison-Wesley Professional.
- Reez, N. (2020) 'Foresight-based leadership. decision-making in a growing ai environment', in *International Security Management: New Solutions to Complexity*. Springer, pp. 323–341.
- Ruggiano, N. and Perry, T.E. (2019) 'Conducting secondary analysis of qualitative data: Should we, can we, and how?', *Qualitative Social Work*, 18(1), pp. 81–97.
- Sacco, F. and Magnani, G. (2023) 'Sustainability and Resilience in the Extended Value Chain: The Case of STMicroelectronics', (February 2023), pp. 197–218. Available at: <https://doi.org/10.1108/s1876-066x20230000037011>.
- Sadhvani, K. and Eldho, T.I. (2023) 'Assessing the Vulnerability of Water Balance to Climate Change at River Basin Scale in Humid Tropics: Implications for a Sustainable Water Future', *Sustainability (Switzerland)*, 15(11). Available at: <https://doi.org/10.3390/su15119135>.
- Salas-Zapata, W.A. and Ortiz-Muñoz, S.M. (2018). Analysis of meanings of the concept of sustainability. *Sustainable Development*, 27(1), pp.153–161:<https://doi.org/10.1002/sd.1885>.
- Sanchez, B. and Haas, C. (2018) 'Capital project planning for a circular economy', *Construction management and economics*, 36(6), pp. 303–312.
- Saulick, P., Bokhoree, C. and Bekaroo, G. (2023). Business sustainability performance: A systematic literature review on assessment approaches, tools and techniques. *Journal of Cleaner Production*, [online] p.136837. doi:<https://doi.org/10.1016/j.jclepro.2023.136837>.
- Sellberg, M.M. et al. (2018) 'From resilience thinking to Resilience Planning: Lessons from practice', *Journal of environmental management*, 217, pp. 906–918.
- Shamsuddin, S. (2020) 'Resilience resistance: The challenges and implications of urban resilience implementation', *Cities*, 103, p. 102763.
- Sileyew, K.J. (2019) *Research design and methodology*. Cyberspace.

- Silva, C.S., Pereira, C. and Magano, J. (2021). The value of project management to competitiveness: key factors from a holistic and practical perspective. *International Journal of Managing Projects in Business*.
- Silvius, A.J.G. and de Graaf, M. (2019). Exploring the project manager's intention to address sustainability in the project board. *Journal of cleaner production*. [online] Available at: <https://agris.fao.org/agris-search/search.do?recordID=US201900026921> [Accessed 22 March. 2023]
- Silvius, G. and Schipper, R. (2022) "Sustainability Impact Assessment on the project level; A review of available instruments", *The Journal of Modern Project Management*, 8(1). Available at: <https://journalmodernpm.com/index.php/jmpm/article/view/384> (Accessed: 01 March 2022).
- Sossa, J.W.Z. et al. (2021) 'Foresight by scenarios-a literature review', *International Journal of Foresight and Innovation Policy*, 15(4), pp. 230–249.
- Spector, P.E. (2019) 'Do not cross me: Optimizing the use of cross-sectional designs', *Journal of business and psychology*, 34(2), pp. 125–137.
- Sprake, A. and Palmer, C.A. (2022) 'Understanding the interpretive paradigm: A guide for sports students learning through qualitative research', *Journal of Qualitative Research in Sports Studies*, 16(1), pp. 45–68.
- Stanitsas, M., Kirytopoulos, K. and Leopoulos, V. (2021) 'Integrating sustainability indicators into project management: The case of construction industry', *Journal of Cleaner Production*, 279, p. 123774.
- Sturiale, L. and Scuderi, A. (2019) 'The role of green infrastructures in urban planning for climate change adaptation', *Climate*, 7(10), p. 119.
- Taherdoost, H. (2021) 'Data collection methods and tools for research; a step-by-step guide to choose data collection technique for academic and business research projects', *International Journal of Academic Research in Management (IJARM)*, 10(1), pp. 10–38.
- Tawfik, G.M. et al. (2019) 'A step by step guide for conducting a systematic review and meta-analysis with simulation data', *Tropical medicine and health*, 47, pp. 1–9.
- Toljaga-Nikolić, D., Todorović, M., Dobrota, M., Obradović, T. and Obradović, V. (2020). *Project Management and Sustainability: Playing Trick or Treat with the Planet*. Sustainability, [online] 12(20), p.8619. doi:<https://doi.org/10.3390/su12208619>.
- Tracy, S.J. (2019) *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact*. John Wiley & Sons.
- Ungar, M. (2018) 'Systemic resilience', *Ecology and society*, 23(4).
- Wang, R.Y., Storey, V.C. and Firth, C.P. (1995) 'A framework for analysis of data quality research', *IEEE transactions on knowledge and data engineering*, 7(4), pp. 623–640.
- Wang, X. and Cheng, Z. (2020) 'Cross-sectional studies: strengths, weaknesses, and recommendations', *Chest*, 158(1), pp. S65–S71.
- Wijayasekera, S.C. et al. (2022) 'Data analytics and artificial intelligence in the complex environment of megaprojects: Implications for practitioners and project organizing theory', *Project Management Journal*, 53(5), pp. 485–500.
- Wilkinson, C. (2012) 'Social-ecological resilience: Insights and issues for planning theory', *Planning theory*, 11(2), pp. 148–169.
- Wisdom Ebirim et al. (2024) 'Leveraging Project Management Tools for Energy Efficiency in Hvac Operations: a Path To Climate Resilience', *Engineering Science & Technology Journal*, 5(3), pp. 653–661. Available at: <https://doi.org/10.51594/estj.v5i3.863>.
- Zada, M. et al. (2024) 'Linking sustainable leadership with sustainable project performance: mediating role of knowledge integration and moderating role of top management knowledge values', *Journal of Knowledge Management [Preprint]*, (February). Available at: <https://doi.org/10.1108/JKM-01-2023-0019>.
- Zangirolami-Raimundo, J., de Oliveira Echeimberg, J. and Leone, C. (2018) 'Research methodology topics: Cross-sectional studies', *Journal of Human Growth and Development*, 28(3), pp. 356–360.