

## The Dialectical Integration between Classical and Digital Theories: A Hybrid Management Model for Vuca Environments

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### ABSTRACT

The objective of this paper is to propose a hybrid adaptive management model that arises from the dialectical integration between classical theories and digital paradigms. The study identifies a research gap by pointing out that, although the literature has addressed the challenges of the VUCA environment and the emergence of new approaches, it has failed to systematically articulate a synthesis that reconciles the structural soundness of traditional theories with the agility and resilience of digital paradigms. The methodology consists of an integrative narrative review of the literature. The novelty lies in the proposal of this dialectical integration as an epistemological imperative. This approach goes beyond the mere description of both paradigms and develops a framework of articulation that does not nullify classical principles, but rather enhances them with the capabilities of digital approaches. As its main theoretical contribution, the article presents a conceptual management model that allows organisations not only to withstand uncertainty, but to thrive in it, establishing a bridge between tradition and the avant-garde. The model demonstrates how stability and innovation can coexist, becoming the axis of a new organisational praxis.

**Keywords:** Theories, VUCA, environments, companies, integration.

## INTRODUCTION

Have classical business science theories lost their relevance in the face of rapid digital transformation and the growing complexity of the contemporary world? This question invites reflection on the nature and scope of the theoretical frameworks that underpin the study and practice of organisational management. Far from being obsolete, classical theories constitute the epistemological foundation that allows us to understand the structures, dynamics, and contingencies inherent in organisations. According to (Calderón Márquez et al., 2025), modern organisations continue to establish certain principles such as efficiency, productivity, hierarchical organisational structures and specialisation, among others. Their value lies in offering universal principles and rigorous analytical tools that remain essential for interpreting and guiding strategic decision-making in complex scenarios.

However, these theories now face an ontological paradox. On the one hand, they are essential for understanding the structural and functional nature of organisations; on the other, their formulation and scope are limited in addressing the dizzying speed and planetary interconnectivity that characterise the digital age. The exponential acceleration of technological change and the constant emergence of disruptive innovations challenge the rigidity implicit in some classical models, which were conceived in less volatile and less interrelated contexts. In this sense, classical theories require a rethinking and expansion towards new paradigms that incorporate flexibility, agility and adaptability as fundamental attributes.

Integration with digital and emerging theories should not be understood as a replacement, but rather as a dialectical synthesis that enriches and strengthens the theoretical heritage. The incorporation of concepts such as collective intelligence, connectivism, and agile management allows organisational phenomena in VUCA environments to be addressed with an approach that goes beyond mere predictability to embrace uncertainty, ambiguity, and increased complexity. This epistemological fusion enables managers and academics to build more holistic models, where stability and innovation coexist and mutually reinforce each other.

In short, classical theories continue to be the essential foundation for organisational understanding and analysis, but their relevance and effectiveness today depend on their ability to engage with new trends that capture the dynamic and disruptive essence of the present. Only through this integration can a theoretical praxis emerge that responds with depth and creativity to contemporary challenges, contributing to strategic thinking that is both rigorous and adaptable, universal and contextualised to a VUCA environment.

This exploration is justified by the need to understand how traditional theoretical frameworks, which have been fundamental to the structural analysis of organisations, can be complemented by more recent approaches capable of responding to the volatility, uncertainty, complexity and ambiguity of today's environment. Far from being mutually exclusive, both approaches offer valuable perspectives that, when integrated, allow for the development of a more comprehensive and flexible understanding of contemporary organisational phenomena ( ). In this context, the article seeks to contribute to a theoretical reflection that favours the construction of more adaptive and contextualised management models and, in doing so, develops a conceptual model for hybrid management that balances structural efficiency with the flexibility necessary to thrive in uncertainty.

With regard to the theoretical structure, three thematic areas are addressed. The first of these establishes the foundations and relevance of classical theories in organisational management as a section that argues the epistemological and practical value of classical theories in business sciences. The second theme refers to the challenges of the VUCA environment and the emergence of digital paradigms, describing the demands that this poses for organisational management. Finally, the third theme involves conceptual dialogue with dialectical integration towards a hybrid model of adaptive management. This section argues for the need and advantages of integrating classical and digital theories into a theoretical synthesis that allows for a more holistic and flexible understanding of organisations.

### **Fundamentals and Relevance of Classical Theories in Organisational Management**

A VUCA environment is a concept that describes the conditions of instability and constant change that organisations face today. The VUCA environment refers to the volatility, uncertainty, complexity and ambiguity that is evident in the new normal (Díaz, 2021, p. 59). In this context, according to Sarkar (2016), the term VUCA "has become a common phrase today, as a result of the rapid changes taking place on the political, economic, social and technological fronts, which are leading to an increase in VUCA in the organisational world". The term comes from English and is an acronym for: (V) Volatility: changes occur rapidly and without warning, such as abrupt price variations or sudden technological changes; (U) Uncertainty: difficulty in predicting what will happen; lack of clear or reliable information, such as not knowing how the market will react to a new regulation or event; (C) Complexity: when there are multiple interconnected factors that make decision-making difficult, such as a change in the economy that affects customers, suppliers, regulations, and technology at the same time; and (A) Ambiguity, which refers to when there is no clarity about the meaning of situations or events, or when the same

information can have several interpretations, such as a market trend that may seem like an opportunity or a threat, depending on how it is analysed .

While recent literature has explored various aspects of management in VUCA contexts, such as effective leadership (Allendes Díaz, 2020; Díaz, 2021), strategic anticipation (Génez-Puello, 2024), and the transition to new paradigms such as the BANI environment (Timana, 2023), few studies have addressed the issue from a theoretical synthesis perspective. Unlike these valuable contributions that analyse managerial responses or the evolution of environments, this paper stands out for proposing a conceptual model of integration that reconciles the legacy of classical theories with the adaptability of digital paradigms. This research fills a gap in the literature by establishing an epistemological bridge between tradition and the avant-garde, which allows organisations not only to react to uncertainty but also to build a management framework that is strengthened by it.

Faced with this scenario, classical management paradigms, centred on hierarchical control and rigid planning, are becoming obsolete and are failing to respond to changing contexts. In their place, digital paradigms and agile approaches have emerged that promote adaptability, collective intelligence, and continuous innovation. Connectivism, proposed by Siemens (2005), suggests that knowledge and learning are processes distributed across networks of connected nodes, facilitated by digital technologies that enable collaboration and real-time information transfer. This perspective redefines organisational knowledge management, transforming it into a dynamic and relational practice.

Pierre Lévy (1997) argues that collective intelligence is more than the sum of individual knowledge; it is an emergent phenomenon, a product of social and technological interaction, which enhances the ability to solve complex problems. This notion is crucial in a VUCA environment, where challenges exceed the capacity of individuals in isolation.

Complementing this, agile management (Rigby, Sutherland & Takeuchi, 2016) has become an essential operational paradigm. Agile methods, with their iterative cycles, constant feedback and self-organised teams, enable organisations to respond quickly to change. Examples such as Google and Tesla demonstrate that integrating these principles is key to maintaining a culture of innovation and adapting to the speed of the market.

These digital paradigms and agile approaches are not just a methodological change, but an epistemological transformation that redefines management practice, enabling organisations to thrive in volatile and uncertain environments. In summary, analysis of the challenges of a VUCA environment and the response of digital paradigms reveal the need for management that combines conceptual rigour with operational flexibility. Only through this synthesis is it possible to build resilient organisations capable of leveraging collective intelligence for continuous innovation.

### **Challenges of the VUCA Environment and the Emergence of Digital Paradigms**

The contemporary organisational environment is characterised by unprecedented complexity and dynamism, which invites us to describe the disruptive and changing nature of the markets and external conditions faced by companies (Bennett & Lemoine, 2014). This new reality challenges classic management models based on assumptions of stability and predictability and demands a theoretical and practical rethinking capable of integrating flexibility, agility, and resilience. As Díaz (2021) points out, "in an environment where information is partial and future scenarios are unpredictable, management must be oriented towards continuous exploration and iterative adaptation" (p. 45).

The emergence of digital paradigms is a direct response to the challenges posed by the VUCA environment. Complexity, in particular, requires systemic thinking that recognises the multidimensionality of the organisational phenomenon, going beyond simplistic cause-and-effect relationships (Morin, 2007).

Given the inadequacy of classical theories to address VUCA dynamics, digital paradigms are emerging that allow for more adaptive and collaborative management. Siemens' connectivism (2005) redefines knowledge as a distributed network of nodes, facilitating continuous learning and networked decision-making through digital technologies. This vision enhances collective intelligence, which according to Lévy (1997) is an " " or "emerging capacity of groups and communities to create and share knowledge through social and technological interaction," which is fundamental in complex contexts.

At the same time, agile management, as defined by Rigby, Sutherland and Takeuchi (2016), is based on iterative cycles and self-organised teams that enable organisations to respond quickly to change. Thus, the adoption of these digital paradigms is crucial for building a new managerial praxis that allows organisations to thrive in uncertainty.

From this perspective, understanding the nature of the VUCA environment and the emergence of digital paradigms is crucial for developing organisational capabilities that enable effective navigation of uncertainty. This epistemological integration redefines managerial praxis, promoting a model that combines scientific rigour, philosophical creativity and strategic adaptability, essential conditions for survival and prosperity in an increasingly interconnected and dynamic world.

## Dialectical Integration: towards a Hybrid Model of Adaptive Management

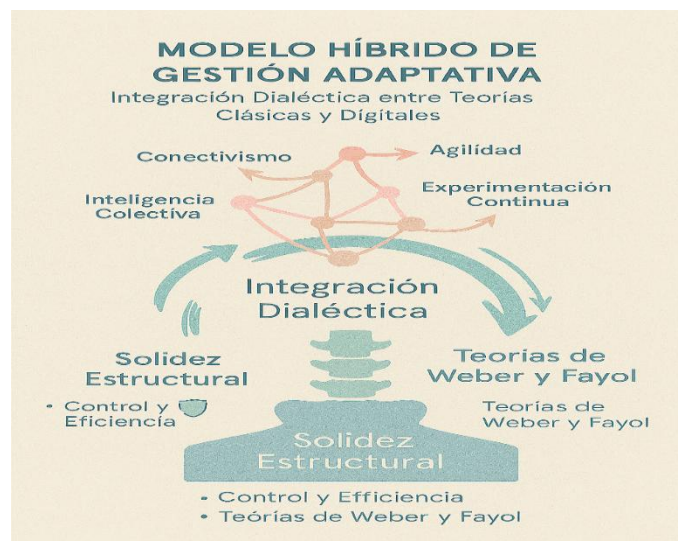
In the current context, business management faces the urgent need to integrate its theoretical and practical frameworks to respond to the challenges of a rapidly changing environment. The dialectical integration between classical and digital theories emerges not only as a strategy but also as an epistemological imperative to build a hybrid model of adaptive management that transcends the limitations of each paradigm separately.

On the one hand, classical management theories (Weber, 1947; Fayol, 1949), based on rationality and hierarchical control, are the fundamental basis for organisational structure and efficiency. On the other hand, digital paradigms (Siemens, 2005; Rigby et al., 2016), such as agile management and connectivism, respond to the need for flexibility, adaptability, and collaboration. Hence, the effective integration of both approaches requires a dialectical understanding, understood as a process of tension and synthesis (Hegel, 1807). This synthesis does not nullify the previous paradigms, but rather elevates them, articulating stability and change, control and autonomy, rigidity and flexibility. The hybrid model recognises the need for solid formal structures to maintain order, along with fluid spaces for creativity and adaptation. Amazon is a clear example of this structural duality and , combining rigorous logistical processes with a culture that encourages experimentation and agility (Brynjolfsson & McAfee, 2014).

From an epistemological perspective, the hybrid model of adaptive management conceives organisational knowledge as a dynamic and relational phenomenon, where ongoing dialogue between theory and practice becomes central (Argyris & Schön, 1978). This view aligns with complexity theories, which emphasise the emergent nature of contemporary organisations (Morin, 2007).

Furthermore, this adaptive management is based on the development of capacities for anticipation and experimentation. It is about developing 'antifragile' organisations (Taleb, 2012), which not only withstand uncertainty but are strengthened by it. To this end, dialectical integration requires transformative and distributed leadership capable of managing the tension between traditional hierarchy and collaborative governance. This leadership must foster a culture open to continuous learning, recognising collective intelligence as a strategic resource (Lévy, 1997).

Hence, the proposed theoretical diagram consists of two main overlapping layers that illustrate the relationship between classical and digital theories, with the lower layer being the backbone (classical theories) and the upper layer being the nervous systems (digital paradigms). The first layer proposes the structural soundness and control of traditional theories that provide the necessary foundation for organisational coherence. On this basis, digital paradigms, such as connectivism and agility, function as nervous systems that facilitate flexibility, continuous experimentation, and rapid response to change. This synthesis not only articulates stability with flexibility, but also strengthens the organisation, making it anti-fragile (Taleb, 2012). Leadership must be able to manage this tension, encouraging continuous learning and leveraging collective intelligence (Lévy, 1997) for decision-making. This model bridges scientific rigour and operational creativity, thus ensuring relevant and sustainable organisational praxis in the 21st century.



**Figure 1.** Hybrid model of adaptive management.

This hybrid proposal is a flexible framework that adapts and evolves according to the characteristics of each organisation. It combines the knowledge of the past with the demands of the future, establishing an epistemological bridge between the stability necessary for coherence and the flexibility essential for innovation. As a contribution,

the dialectical integration towards a hybrid model of adaptive management represents a key epistemological and practical contribution to the development of resilient, intelligent organisations capable of thriving in increasing complexity. This model articulates scientific rigour with operational creativity, stability with flexibility, and tradition with the avant-garde, ensuring relevant and sustainable organisational praxis in the 21st century.

## METHODOLOGY

This article adopts an integrative theoretical review methodology, aimed at the critical synthesis of classical and digital conceptual frameworks in the field of organisational management, with an emphasis on the challenges posed by VUCA environments. This review not only compiles relevant academic sources, but also establishes an interpretative dialogue between foundational theories of management and emerging paradigms mediated by digital technologies and principles of organisational agility. The choice of this methodology responds to the epistemological nature of the problem posed, which requires a complex, relational and evolutionary view of management models.

In line with this perspective, sources were selected from recognised academic databases such as Scopus, Web of Science and Google Scholar, using descriptors such as "classical management theories", "VUCA", "digital management", "connectivism", "collective intelligence" and "organisational agility". The inclusion criteria were academic articles and books published between 2000 and 2024 that addressed theoretical approaches or cases applied to digital transformation and organisational complexity, as well as key foundational references (e.g., Weber, Fayol, Morin, Lévy, Siemens, Rigby, Taleb).

The review process was supported by the use of digital tools for scientific knowledge management. Zotero was used as a reference manager to systematise sources and facilitate the extraction of relevant citations. In addition, open and axial coding protocols were used through software such as ATLAS.ti and Notion, which allowed the emerging dimensions to be categorised into three thematic axes: a) foundations and relevance of classical theories, b) challenges of the VUCA environment and the emergence of digital paradigms, and c) integrative proposal towards a hybrid model of adaptive management. This procedure allowed not only to organise the information, but also to identify patterns and theoretical tensions that underpin the need for a dialectical synthesis.

From an epistemological perspective, the analysis was carried out using a hermeneutic-interpretative approach, recognising the discursive and contextual nature of organisational knowledge. Cross-readings between theories were privileged, avoiding linear or reductionist views, in line with the perspective of complexity proposed by Edgar Morin (2007), for whom "complex thinking does not separate, but unites without confusing" (p. 15). This methodological approach allows us to understand how the structural rigidity of classical approaches can be articulated with the adaptive flexibility of digital models, overcoming dichotomies and proposing integrative frameworks.

The methodology employed is not limited to a passive review of documents, but incorporates an active stance of theoretical construction, where concepts are re-signified through the contrast between paradigms. This work thus sits at the frontier between theoretical research and epistemological innovation, proposing an interpretative model that articulates tradition and avant-garde to address the challenges faced by organisations in volatile, uncertain, complex and ambiguous contexts. As Siemens (2005) argues, knowledge- t digital environments is constructed in networks and in motion, and it is precisely this logic that guides the methodological architecture of this article.

## FINDINGS

The findings are a fundamental part of the process of generating new knowledge, especially in theoretical review studies such as this one, where rigorous analysis of conceptual frameworks allows not only the identification of epistemological trends, but also the proposal of paths for critical articulation between consolidated theories and emerging paradigms.

In this case, the results provide a deeper understanding of how classical and digital theories can be integrated to effectively address the challenges of the VUCA environment, thus framing a theoretical contribution of relevance to contemporary organisational management.

In relation to the objective of the study, which focused on the theoretical basis of a hybrid model of adaptive management arising from the dialectical integration of classical theories and digital paradigms in the field of organisational management, the analysis showed that such integration is not only possible but necessary. Traditional models continue to offer solid principles of structure, control, and efficiency that remain relevant in

certain contexts; however, the review demonstrated that these tools must be updated and complemented with adaptive approaches that prioritise flexibility, decentralisation, and the capacity for continuous learning, which are central aspects of digital frameworks.

Regarding the research question of whether classical theories have lost their relevance in the face of contemporary challenges marked by digital transformation and the complexity of the VUCA environment, the findings reveal that these theories have not lost their relevance entirely, but their effectiveness is conditioned by their ability to dialogue with new approaches. In other words, it is not a question of discarding the legacy of classical theory, but rather of reconfiguring it into a systemic and adaptive logic, as required by today's organisational reality.

With regard to classical theories, the study identified that principles proposed by authors such as Weber and Fayol remain useful for analysing elements such as hierarchical structure, division of labour, process rationalisation and strategic planning. However, their static and predictive nature presents limitations when applied to highly volatile and uncertain environments. The review showed that these theories are most effective when used as a structural basis or frame of reference for understanding organisational order, but they need to be modulated according to change and contingency.

On the other hand, findings on emerging and digital theories, such as connectivism, collective intelligence, and agile management, show that these provide particularly powerful tools for addressing the dynamism, interdependence, and ambiguity inherent in VUCA environments. In particular, Siemens' connectivist model (2005) and the organisational agility approach proposed by Rigby et al. (2016) stand out for their focus on the decentralisation of knowledge, collaborative networking and iterative and distributed decision-making. These characteristics make digital theories not only reactive but also proactive in the face of uncertainty, acting as catalysts for innovation and organisational resilience.

As for the dialectical integration of classical and emerging theories, it was identified that this is not simply a sum of elements, but a critical synthesis that allows the individual limitations of each approach to be overcome. The hybrid models resulting from this integration allow the structural soundness of classical theories to be combined with the agility and adaptability of emerging ones. This dialectical synthesis translates into more robust and contextualised organisational management, capable of maintaining a balance between stability and innovation. Cases such as Amazon, which combines rigorous logistical procedures with an experimental and flexible culture, illustrate this theoretical possibility in practice.

Finally, the analysis reveals that the state of new knowledge generated by this review can be characterised as a second-order integrative theoretical proposal. In other words, an interpretative model that does not deny the contributions of the past, but reinterprets them in light of the demands of the present, proposing a holistic, complex and adaptive vision of management. This new understanding enables an organisational praxis that transcends both structural determinism and constant change relativism, thus offering a powerful conceptual framework for approaching management in the 21st century from a critical, flexible and resilient perspective.

## CONCLUSIONS

The conclusions that emerge from this study are not a mere reiteration of the findings, but rather a critical synthesis that allows for broader implications for the field of organisational management to be projected. Firstly, it is concluded that the historical tension between the classical and the digital in management theory should not be approached as an exclusive dichotomy, but as an opportunity to develop more comprehensive and situated theoretical approaches. The review has shown that we are not facing the end of a paradigm, but rather the reconfiguration of its validity under new environmental conditions.

The contemporary understanding of organisations requires us to move beyond the linear and deterministic thinking that characterised many of the classical formulations. However, this does not mean discarding these contributions, but rather reading them critically in light of current needs. In this sense, management theory can no longer be based exclusively on principles of hierarchical control and mechanical efficiency, but must open up to continuous learning, distributed intelligence and systemic adaptation as guiding principles for its epistemological renewal.

The incorporation of digital perspectives should not be limited to the adoption of technological tools or agile methodologies, but implies a deeper shift: an ontological shift that redefines what we understand by organisation, knowledge and decision-making. From this perspective, the VUCA environment is not only an operational challenge, but also a structuring framework that forces us to rethink the fundamental categories of management.

Likewise, it is recognised that any attempt at theoretical integration between the classical and the emerging must consider not only a conceptual articulation, but also a critical review of the ethical, political and epistemological assumptions underlying each paradigm. Management is not neutral; every theoretical proposal implies a vision of power, knowledge and collective action. Therefore, integration is not juxtaposition, but rather reconfiguration based on a critical awareness of the implications.

This work concludes that the dialectical integration of both paradigms is essential to thrive in the current era, offering a practical framework with clear implications for managers, academics and public policy makers. For managers, this translates into a roadmap for building an "antifragile" organisation, capable of resisting and strengthening itself in the face of uncertainty. The hybrid model of adaptive management requires leadership that combines the structural soundness of processes with the flexibility to encourage experimentation and collective intelligence.

For academics, the work invites a new research agenda that explores the convergence between formal structure and agility, using methodologies that capture the richness of this synthesis. Finally, for public policy makers, the study highlights the need to foster an environment that supports this transformation, through policies that promote training in agile management and regulatory frameworks that encourage innovation and business resilience.

## REFERENCES

- Adamson, C. (2012). Designing online learning in a volatile world. Retrieved from Online Learning and Distance Education Resources: <https://www.tonybates.ca/2012/11/13/designing-online-learning-in-a-volatile-world/>
- Allendes Díaz, B. A. (2020). *VUCA environment: facing organisational challenges through effective leadership* (Doctoral dissertation, Universidad del Desarrollo. Faculty of Engineering). <https://repositorio.udd.cl/server/api/core/bitstreams/41050d23-38ba-43d0-89c3-efa98e979465/content>
- Allendes Díaz, B. A. (2020). *VUCA environment: facing organisational challenges through effective leadership* (Doctoral dissertation, Universidad del Desarrollo. Faculty of Engineering). <https://repositorio.udd.cl/server/api/core/bitstreams/41050d23-38ba-43d0-89c3-efa98e979465/content>
- Argyris, C., & Schön, D. A. (1978). *Organisational learning: A theory of action perspective*. Addison-Wesley.
- ATLAS.ti. (n.d.). *Qualitative Data Analysis Software*. ATLAS.ti Scientific Software Development GmbH. <https://atlasti.com/>
- Bennett, N., & Lemoine, G. J. (2014). What VUCA really means for you. *Harvard Business Review*, 92(1/2), 27–42. <https://hbr.org/2014/01/what-vuca-really-means-for-you>
- Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. W. W. Norton & Company.
- Dadhich, M. A., & Vadher, K. (2025). An analysis of enriching education in the VUCA (Volatile, Uncertain, Complex & Ambiguous) world. *International Journal of Progressive Research in Engineering Management and Science (IJPREMS)*, 5(6), 2330-2334. <https://doi.org/10.58257/IJPREMS41974>
- Díaz, A. (2021). *Organisational management in volatile environments: challenges and strategies*. Editorial Universitaria.
- Díaz, C. D. R. (2021). Innovative leadership as a method for dealing with new VUCA environments. *Business Innova Sciences*, 2(1), 53-66. <https://innovasciencesbusiness.org/index.php/ISB/article/view/33/38>
- Díaz, C. D. R. (2021). Innovative leadership as a method for facing new VUCA environments. *Business Innova Sciences*, 2(1), 53-66. <https://innovasciencesbusiness.org/index.php/ISB/article/view/33/38>
- The College of Chihuahua Calderón Márquez, P., Rivera Auld, P., & Gómez García, C. (2025). The classical school of administration and its far-reaching impact on organisations. In A. Y. Reyes Escalante & P. Calderón Márquez (Eds.), *Epistemology of administrative sciences: approaches and reflections* (pp. 67–89).
- Fayol, H. (1949). *General and Industrial Management*. Pitman Publishing.
- Génez-Puello, L. S. (2024). Organisational foresight: Strategies for strategic anticipation in VUCA environments. *Scientific journal Amphibians*, 7(1), 24-36. <https://www.revistaanfibios.org/ojs/index.php/afb/article/view/145/207>
- Génez-Puello, L. S. (2024). Organisational foresight: Strategies for strategic anticipation in VUCA environments. *Amphibians Scientific Journal*, 7(1), 24-36. <https://www.revistaanfibios.org/ojs/index.php/afb/article/view/145/207>
- Hegel, G. W. F. (1807). *Phenomenology of Spirit*. Oxford University Press (2001 edition).
- Holley, D., Coulson, K., Buckley, C., & Corradini, E. (2022). Wellbeing in the workplace: exploring the VUCA approach. *Journal of Learning Development in Higher Education (Special Issue 25)*, 1-9. <https://doi.org/10.47408/jldhe.vi25.954>
- Lévy, P. (1997). *Collective intelligence: Mankind's emerging world in cyberspace*. Perseus Books.
- Morin, E. (2007). *Human complexity* (2nd ed.). Barcelona: Gedisa.
- Ndapewa-Ithindi, S. (2024). Training Language Teachers in a Vuca World. *International Journal of Social Science and Human Research*, 7(4), 1221–1224. <https://doi.org/10.47191/ijsshr/v7-i02-42>
- Notion. (n.d.). *All-in-one workspace*. Notion Labs Inc. <https://www.notion.so/>
- PRISMA Group. (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Med*, 6(7), e1000097. <https://doi.org/10.1371/journal.pmed.1000097>

- Rigby, D. K., Sutherland, J., & Takeuchi, H. (2016). Embracing Agile. *Harvard Business Review*, 94(5), 40-50. <https://hbr.org/2016/05/embracing-agile>
- Rouvrais, S., F., W., & Leicht-Scholten, C. (2023). VUCA and resilience in engineering education – lessons learned. 19th International CDIO Conference. Trondheim: NTNU. Retrieved from <https://hal.science/hal-04089351v1>
- Sarkar, A. (2016). We live in a VUCA World: the importance of responsible leadership. *Development and Learning in Organisations*, 30(3), 9-12. DOI: <https://doi.org/10.1108/DLO-07-2015-0062>
- Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1), 3-10. Retrieved from [http://www.itdl.org/Journal/Jan\\_05/article01.htm](http://www.itdl.org/Journal/Jan_05/article01.htm).
- Taleb, N. N. (2012). *Antifragile: Things that gain from disorder*. Random House.
- Timana, G. R. (2023). VUCA and BANI environments in intelligence: Implications. *Escpogra PNP Journal*, 3(1), 105–116. <https://revistaescpograpnp.edu.pe/ojs/index.php/1/article/view/43/31>
- Timana, G. R. (2023). VUCA and BANI environments in intelligence: Implications. *Escpogra PNP Journal*, 3(1), 105-116. <https://revistaescpograpnp.edu.pe/ojs/index.php/1/article/view/43/31>
- Weber, M. (1947). *The theory of social and economic organisation* (A. M. Henderson & T. Parsons, Trans.). New York: Oxford University Press. (Original work published 1922).
- Yacob, N. S., Yunus, M. M., & John, D. S. (2023). Global education movement: English as a second language teachers' perceptions of integrating volatility, uncertainty, complexity, and ambiguity elements in lessons. *Frontiers in Psychology*, 14(1007970), 01-09. <https://doi.org/10.3389/fpsyg.2023.1007970>
- Zotero. (n.d.). *Zotero Reference Manager*. Centre for History and New Media, George Mason University. <https://www.zotero.org/>