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Case Study

Strategic Biomimicry for Organisational Sustainability: case of Zimbabwe's Sports and Tourism Sectors

**Biomímesis estratégica para la sostenibilidad organizacional :
estudio de caso en deportes y turismo de Zimbabwe**

**Biomimética Estratégica para a Sustentabilidade
Organizacional : estudo de Caso em Desporto e Turismo do
Zimbabué**

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Abstract

This study sought to develop a strategic management framework that draws on principles from nature to enable organizations in the Zimbabwean sport and tourism sectors to adapt, survive and attain their strategic goals under the prevailing volatile, uncertain, complex and ambiguous (VUCA) operating conditions. The study used an



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embedded mixed-methods research strategy where data was collected from forty-eight (48) organizations using a predominantly qualitative questionnaire with a small quantitative strand nested within it. The findings suggest that most organizations in Zimbabwe's sports and tourism sectors fail to achieve organizational sustainability because they use strategic management approaches misaligned with their prevailing VUCA operating environment. The study also established that nature offers rich lessons that can inform organizational decision-making and strategy in these two sectors and used the findings to construct the Strategic Biomimicry Framework for Organisational Sustainability. According to the framework, just like in the natural environment where organisms, plants and animals develop behavioural and physiological mechanisms to adapt to adverse environmental conditions for survival, organisations operating under VUCA conditions can use these lessons to develop pragmatic strategies for adaptation to the volatile, uncertain, complex and ambiguous environments, as this will enable them to achieve optimum organisational sustainability.

Key Words: Strategic Biomimicry, Adaptability, Organisational Resilience, Organisational Sustainability, Strategic Agility.

Resumen

Este estudio buscó desarrollar un marco de gestión estratégica que se base en principios de la naturaleza para permitir que las organizaciones de los sectores deportivo y turístico de Zimbabwe se adapten, sobrevivan y alcancen sus objetivos estratégicos bajo las condiciones operativas prevalecientes, volátiles, inciertas, complejas y ambiguas (VUCA). El estudio utilizó una estrategia de investigación integrada de métodos mixtos en la que se recopilaron datos de cuarenta y ocho (48) organizaciones utilizando un cuestionario predominantemente cualitativo con una pequeña sección cuantitativa incorporada en él. Los hallazgos sugieren que la mayoría de las organizaciones en los sectores de deportes y turismo de Zimbabwe no logran lograr la sostenibilidad organizacional porque utilizan enfoques de gestión estratégica



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que no están alineados con su entorno operativo VUCA predominante. El estudio también estableció que la naturaleza ofrece ricas lecciones que pueden informar la toma de decisiones y la estrategia organizacional en estos dos sectores y utilizó los hallazgos para construir el Marco Estratégico de Biomímesis para la Sostenibilidad Organizacional. Según el marco, al igual que en el entorno natural donde los organismos, plantas y animales desarrollan mecanismos fisiológicos y de comportamiento para adaptarse a condiciones ambientales adversas para sobrevivir, las organizaciones que operan bajo condiciones VUCA pueden utilizar estas lecciones para desarrollar estrategias pragmáticas para la adaptación a lo volátil, entornos inciertos, complejos y ambiguos, ya que esto les permitirá alcanzar una óptima sostenibilidad organizacional.

Palabras clave: Biomímesis Estratégica, Adaptabilidad, Resiliencia Organizacional, Sostenibilidad Organizacional, Agilidad Estratégica.

Resumo

Este estudo procurou desenvolver um quadro de gestão estratégica que se baseia em princípios da natureza para permitir que as organizações dos sectores desportivo e turístico do Zimbabué se adaptem, sobrevivam e atinjam os seus objetivos estratégicos sob as condições operacionais voláteis, incertas, complexas e ambíguas (VUCA) prevalentes. O estudo utilizou uma estratégia de pesquisa incorporada de métodos mistos, onde os dados foram recolhidos de quarenta e oito (48) organizações utilizando um questionário predominantemente qualitativo com uma pequena vertente quantitativa aninhada no mesmo. As conclusões sugerem que a maioria das organizações dos sectores desportivo e turístico do Zimbabué não conseguem alcançar a sustentabilidade organizacional porque utilizam abordagens de gestão estratégica desalinhadas com o seu ambiente operacional VUCA prevalente. O estudo estabeleceu ainda que a natureza oferece lições ricas que podem informar a tomada de decisões e a estratégia organizacional nestes dois setores e utilizou as



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conclusões para construir o Quadro Estratégico de Biomimética para a Sustentabilidade Organizacional. De acordo com a estrutura, tal como no ambiente natural onde organismos, plantas e animais desenvolvem mecanismos comportamentais e fisiológicos para se adaptarem a condições ambientais adversas para a sobrevivência, as organizações que operam sob condições VUCA podem usar estas lições para desenvolver estratégias pragmáticas de adaptação ao volátil, ambientes incertos, complexos e ambíguos, pois isso permitir-lhes-á alcançar a sustentabilidade organizacional ideal.

Palavras-chave: Biomimética Estratégica, Adaptabilidade, Resiliência Organizacional, Sustentabilidade Organizacional, Agilidade Estratégica.

Introduction

This study sought to develop a strategic management framework based on the principles of biomimicry in order to enable organizations in Zimbabwe's sports and tourism sectors to adapt and attain their strategic goals under the prevailing volatile, uncertain, complex and ambiguous (VUCA) operating conditions.

A review of fiscal and monetary policy statements issued in the last five years has shown that organizations in Zimbabwe's sports and tourism sectors are currently operating in a dynamic and unpredictable environment which is characterised by economic, socio-cultural and political volatility, uncertainty, complexity and ambiguity. In this regard, one would expect these organisations to adopt adaptive strategic management approaches for survival and success under the VUCA operating conditions. However, a study by Charumbira (2014) showed most Zimbabwean organizations were using strategic management approaches which emphasise predetermined strategies and highly structured and rigid strategic plans. Strategy implementation follows the top-down approach with very little room for flexibility to adapt to evolving operating conditions. According to McGrath (2013), stability not change is the state that is most



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dangerous in highly dynamic competitive environments. This stems from the fact that stability creates wrong reflexes since it allows people to fall into routines, creates the conditions for turf wars and organizational rigidity and inhibits innovation (McGrath, 2013). According to Wheelen et al., (2020), these traditional approaches do not suit organisations operating under VUCA conditions. As a result, there is a growing need to develop pragmatic strategies that will enable organizations in Zimbabwe's sports and tourism sectors to adapt, survive and thrive under VUCA operating conditions.

Although recent advancements in biomimicry have shown that nature offers rich lessons that can inform organizational decision-making and strategy in such fields as engineering, architecture and business. Their application in the sports and tourism sectors remains largely unexplored and this study therefore sought to explore how lessons from the adaptive strategies of plants, animals and other organisms can be translated into a practical and implementable strategic framework for Zimbabwe's sports and tourism sectors.

Research Methods

The study followed an embedded mixed-methods research strategy in which data was collected data from sixty (60) purposively sampled organisations drawn from the Zimbabwean sport and tourism sectors using a semi-structured questionnaire consisting of primarily open-ended questions but with a small quantitative strand consisting of closed questions nested within this predominantly qualitative instrument. Non-probability sampling procedures were used because the total population of organisations in Zimbabwe's sport and tourism sectors is unknown and it was impossible to specify the probability of each organization within the two sectors being selected.

The sixty (60) questionnaires were distributed online in February 2024, of which fifty-two (52) were completed and returned. The completed questionnaires were thoroughly scrutinised, and those that were not fully completed were excluded from the final analysis, leaving forty-eight (48) usable questionnaires, for an effective response rate of eighty (80) percent. The NVivo 14 software was used to organise data generated by



open-ended instruments into themes. Quantitative data were subjected to descriptive statistical analysis and one-sample t-tests.

Research Findings

The Strategic Management Approaches Used by Organisations in the Zimbabwean Sport and Tourism Sectors

The respondents were asked to indicate the strategic management approaches used by their organisations. The responses from the forty-eight (48) usable questionnaires were coded into seven (7) categories in NVivo 14. The findings were organized into two themes by clustering related codes together as presented in in Table 1.

Table 1: Thematic Organization of the Strategic Management Approaches Used in the Zimbabwean Tourism and Sports Sectors

Theme	Conceptualization	Total Number of Mentions
Strategic Biomimicry	A nature-inspired approach which entails providing flexible and context-specific solutions to the challenges presented by the VUCA operating conditions.	36
Captive Approach	A rigid, highly structured and top-down approach where organizations are prisoners of top management's preferred or predetermined strategies.	46

This shows that the captive approach was the dominant approach to organizational strategy in the Zimbabwean Tourism and Sports Sectors.

The respondents were further asked to indicate what influenced the selection of the strategic management approaches they are currently using. The NVivo 14 software was used to organize the findings into two themes by clustering related codes together as presented in in Table 2.

Table 2: Thematic Organization of the Determinants of the Strategic Management Approaches Currently Being Used in the Zimbabwean Tourism and Sports Sectors.

Theme	Conceptualization	Total Number of Mentions
Operating	Strategic choices influenced by the need to provide	6



Environment Dictates	context-specific solutions to the challenges presented by the VUCA operating conditions.	
Management and Statutory Dictates	Strategic choices influenced by top management's preferences or the need to adhere to laws and policies.	76

The findings suggest management and statutory dictates were the main determinants of the strategic management approaches currently used in the Zimbabwean tourism and sports sectors. On the other hand, the dictates of the operational environment were an insignificant determinant of the strategic management approaches currently used in these sectors.

The Appropriateness of the Strategic Management Approaches Used by Organisations in Zimbabwean’s Sport and Tourism Sectors

The respondents were asked to indicate the asked if the strategic management approaches used by organisations in the Zimbabwean sport and tourism sectors allow them to achieve adaptive strategic success under VUCA operating conditions.

A One-Sample T-test ($\alpha = 0.05$) with a Test Value of 3.0, indicating the midpoint of a 5-point Likert-type scale, was used to analyse the resultant data as summarized in Table 3. Two hypotheses were generated as follows:

Ho: The strategic management approaches used by organisations in the Zimbabwean sport and tourism sectors do not allow them to achieve adaptive strategic success under VUCA operating conditions.

H1: The strategic management approaches used by organisations in the Zimbabwean sport and tourism sectors allow them to achieve adaptive strategic success under VUCA operating conditions.

Table 4: The Extent to Which Current Strategies Allow Organisations in the Zimbabwean Sport and Tourism Sectors to Achieve Strategic Success Under VUCA Operating Conditions

One-Sample Test				
Test Value = 3				
t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference



					Lower	Upper
The strategic management approaches used by organisations in the Zimbabwean sport and tourism sectors allow them to achieve adaptive strategic success under VUCA operating conditions.	-17.413	47	.000	-1.667	-1.86	-1.47

The T value is -17.413 and is less than the Significance Level $\alpha = 0.05$, as a result, the null hypothesis that the strategic management approaches used by organisations in the Zimbabwean sport and tourism sectors do not allow them to achieve adaptive strategic success under VUCA operating conditions was accepted and the alternate hypothesis that the strategic management approaches used by organisations in the Zimbabwean sport and tourism sectors allow them to achieve adaptive strategic success under VUCA operating conditions was rejected.

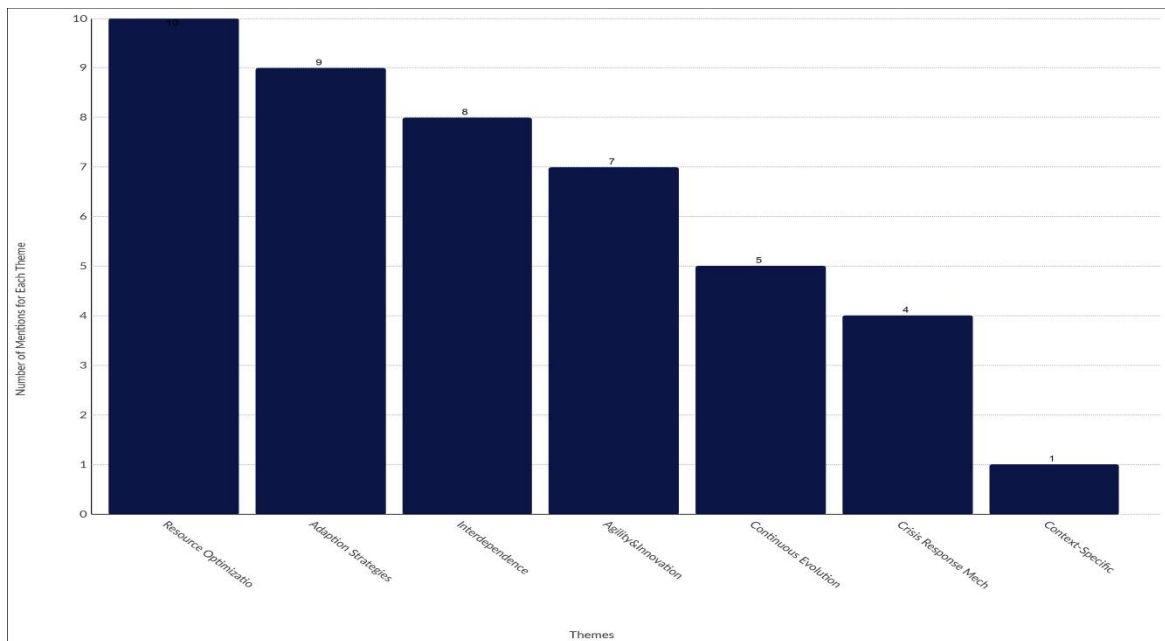
The results suggest that the strategic management approaches used by organisations in the Zimbabwean sport and tourism sectors are inappropriate as they do not allow them to achieve adaptive strategic success under the prevailing VUCA operating conditions.

This is consistent with the findings from a study by Charumbira (2014) which established the high rate of strategy implementation failure in Zimbabwean profit and non-profit organizations was partly due to their failure to align their strategic planning approaches with the dictates of their internal and external environments.

The respondents were asked to explain how organizations in Zimbabwe's tourism and sports sectors can use lessons from the adaptations that plants, animals and organisms make in response to environmental changes or adverse conditions to inform

their strategic planning under VUCA operating conditions. The resultant data was organized into themes using the NVivo 14 Software.

Figure 1: The Lessons that Organisations in Zimbabwe's Tourism and Sports Sectors can Draw From Nature to Inform their Strategic Planning Under VUCA Operating Conditions



The results suggest that lessons from nature can provide valuable guidance to organizations in Zimbabwe's tourism and sports sectors on the adaptive strategies they need to survive and thrive under the prevailing VUCA operating conditions. The study identified such lessons as resource optimization (10 mentions), adaption strategies (9 mentions), collaboration and interdependence (8 mentions), agility and innovation (7 mentions), continuous learning and evolution (5 mentions), crisis response mechanisms (4 mentions) and context-specific solutions (1 mention) as presented in Figure 5.

This explains why these research findings were used to develop the Strategic Biomimicry Framework for Organisational Sustainability which draws on principles from nature to enable organizations in the Zimbabwean sport and tourism sectors to adapt and attain their strategic goals under the prevailing VUCA operating conditions.



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Strategic biomimicry framework for organisational sustainability

Introduction

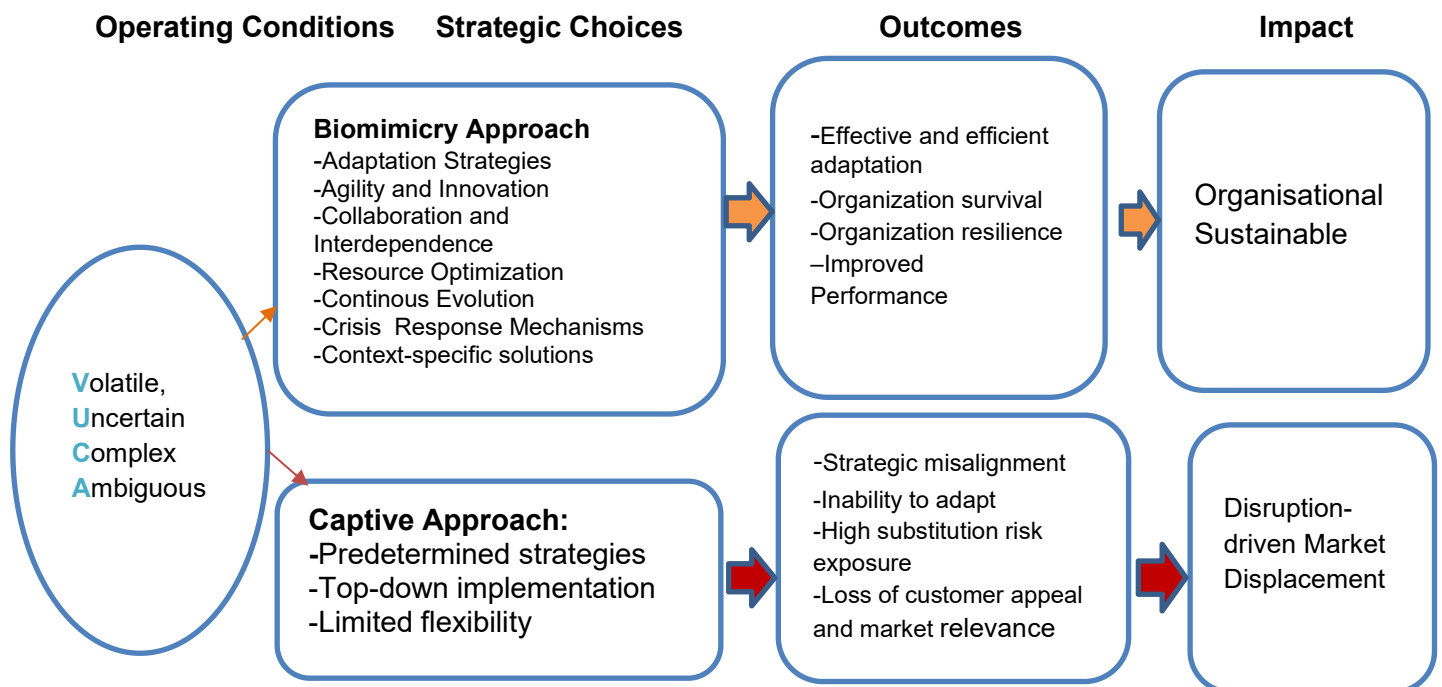
The findings were used to develop the Strategic Biomimicry Framework for Organisational Sustainability. The framework was inspired by the adaptive survival and growth strategies employed by plants, animals and organisms operating under adverse natural environment conditions. The framework is centred around the biomimicry notion that nature offers rich lessons that can inform organizational decision-making and strategy. As a result, decision-makers in organisations need to understand how plants, animals and other organisms adapt and thrive under adverse conditions. This can allow them to transfer the knowledge to the development of adaptability, resilience, resource efficiency, agility, innovativeness, continuous learning and improvement orientation, and interdependence culture for their organizations to survive and thrive under VUCA operating conditions.

The approach mirrors the natural environment where adverse temperature, sunshine, moisture and water availability conditions, and other competing species, create survival problems for organisms, plants and animals and survival is a preserve for those species that can adapt to ever-changing environmental opportunities and threats around them. As a result, just like organisms, plants and animals which develop behavioural and physiological mechanisms to adapt to adverse environmental conditions for survival, organisations do not have to be the prisoners of particular strategic management approaches. They need to develop flexible, blended, and context-specific strategies for adaptation to VUCA environments, as this will enable them to survive and achieve sustainable strategic success.

On the other hand, organizations following the **Captive Approach** to organizational strategy are prisoners of top management preferred or consultants preferred strategic management approaches. They emphasize predetermined strategies and highly structured and rigid strategic plans which are implemented without frequent

revisions to adapt to evolving operating conditions. This results in such outcomes as the inability to adapt to VUCA conditions resulting in a *disruption-driven market displacement* which occurs when agile and pragmatic competitors introduce innovative products, services, technologies, or business models which fundamentally alter the competitive arenas and displace established brands and practices.

Figure 6: The Strategic Biomimicry Framework for Organizational Sustainability



The Dimensions of the Strategic Biomimicry Framework for Organizational Sustainability Operating Conditions

The approach suits organisations operating under volatile, uncertain, complex and ambiguous (VUCA) business conditions. These conditions resemble the natural environment where adverse temperature, sunshine, moisture, water availability and other competing species, create survival problems for organisms, plants and animals.

Strategic Choices

The Strategic Biomimicry Framework for Organisational Sustainability require organizations in the sports and tourism sectors to respond to the VUCA operating



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conditions in the same way as organisms, plants and animals which develop behavioural and physiological mechanisms to adapt to adverse environmental conditions for survival. It requires these organisations to respond by developing pragmatic strategies for adaptation, survival and competitive advantage. This entails:

- Formulating and implementing *adaption strategies* by crafting new strategies or adjusting existing strategies in response to the VUCA operating conditions in the same manner as plants, animals and other organisms which develop mechanisms to cope with changes in temperature, moisture, and food availability, among other factors. This can also entail developing tailored *context-specific strategies* in response to unique challenges or opportunities presented by the VUCA operating conditions.
- Drawing from the deciduous trees in the country which shed leaves in response to seasonal changes to conserve moisture and energy during the cold and dry seasons and *optimise resources* (financial, human and technological) by reducing cost, improving operational efficiency and brand equity,
- Develop *innovative and agile strategies* in response to VUCA operating conditions in the same manner as reptiles like chameleons which can change colour to blend into their surroundings in response to opportunities and threats. This can also entail *Blending* different strategic management methodologies in response to specific opportunities and challenges induced by the VUCA operating conditions.
- Draw lessons from the *collaboration and interdependence* of species in nature which rely on each other for survival by forming strategic alliances, joint ventures and collaborations with other organizations in response to opportunities and threats induced by the VUCA operating conditions.
- Just like animals and organisms which continuously refine their survival strategies in response to external and internal factors, organisations must *continuously learn and evolve* in response to changing opportunities and threats in their operating environment.



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- Some organisms possess inbuilt *crisis management mechanisms* which enable them to navigate extreme conditions by hibernating or migrating and returning to normal settings when conditions improve. Organisations can draw lessons from this and develop similar survival strategies in response to economic downturns, natural disasters or political crises.

Outcomes

Adopting the Strategic Biomimicry Framework for Organisational Sustainability may result in such strategic outcomes as effective and efficient adaptation to the VUCA environment, organization survival, organizational resilience and improved organizational performance.

Impact

The long-term impact of adopting the Strategic Biomimicry Framework for Organisational Sustainability is to build the capacity to dynamically, effectively and efficiently manage the operating environment's volatility, uncertainty complexity and ambiguity and achieve sustainable strategic success.

Key Success Factors

The key factors required for the successful implementation of the Biomimicry Framework for Organizational Strategy include strategic agility, leadership agility, continuous learning and improvement, data-driven decision-making, technology integration, and stakeholder engagement:

Qualitative Expert Validation

The Strategic Biomimicry Framework for Organisational Sustainability was qualitatively validated through a series of in-depth interviews with five (5) seasoned professionals in the sports and tourist sectors, and three (3) strategic management consultants each with over ten years of experience in strategic management. As the interviews progressed recurring themes emerged. These recurrent themes were used to refine and validate the framework and assure its practical relevance. However, the approach was not subjected to quantitative expert validation.



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Conclusions

Thus, the Strategic Biomimicry Framework for Organisational Sustainability provides a flexible framework for organizations to operate efficiently and effectively in VUCA environments. Its emphasis on agility, context-specific solutions, and continuous learning and adaptation offers practical guidance for achieving sustainable competitive advantage in volatile, uncertain, complex and ambiguous operating conditions. The framework shows that nature offers rich lessons that can inform organizational decision-making and strategy. As a result, decision-makers in organisations need to understand how plants, animals and other organisms adapt and thrive under adverse conditions.

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