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Strategic Leadership and VUCA environment
(Volatile, Uncertain, Complex and Ambiguous)

Le Leadership Stratégique et l'environnement VUCA
(Volatile, Incertain, Complexe and Ambigu)

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Abstract

The VUCA environment is characterized by a variety of challenges, including wicked problems, which could sometimes occur simultaneously, putting Leaders in difficulty, mainly at the Strategic Level. In this regard, this article aims to contribute to the literature review through the definition and the development of the purely Anglo-Saxon concepts "VUCA" and "Wicked problems" on one hand; and to put at the disposal of the Strategic Leaders, particularly for the Moroccan large organizations, the American conceptual model based on a systemic analysis of the internal and external environments on the other hand. Therefore, these Strategic Leaders have to better understand the environment at the strategic level, both internal and external, in order to develop a clear, realistic, and evolving vision to design and plan appropriate strategies to ensure the competitiveness and sustainability of their organizations. This requires minimum requisites of SL, including personal and interpersonal skills combined with conceptual competencies, such as systemic thinking and analysis, critical and creative thinking, and innovation in line with an effective implementation of control and oversight mechanisms.

Keywords: VUCA; Wicked; Strategies; System thinking; Oversight.

Résumé

L'environnement VUCA est caractérisé par d'énormes défis, dont des problèmes très épineux, qui peuvent parfois survenir simultanément, mettant en difficulté les Dirigeants, particulièrement au Niveau Stratégique. C'est justement dans cette optique que cet article se propose de contribuer à la revue de littérature à travers la définition et la mise en valeur des concepts purement anglosaxons « VUCA » et « Wicked problems » d'une part ; et mettre à la disposition des Leaders Stratégiques, particulièrement au niveau des grandes organisations Marocaines, le modèle conceptuel Américain reposant sur une analyse systémique des environnements internes et externes d'autre part. En effet, il s'agit pour ces leaders de mieux cerner l'environnement au niveau stratégique, tant interne qu'externe, afin de pouvoir développer une vision claire, réaliste et évolutive à même de concevoir et planifier des stratégies appropriées pour assurer la compétitivité et la pérennité de leurs organisations. Ceci nécessite des prérequis minimums des LS dont entres-autres des aptitudes personnelles et interpersonnelles conjuguées à des compétences conceptuelles, dont notamment la capacité d'analyse et de pensée systémiques, la pensée critique et créative, l'innovation sur fond d'une mise en œuvre effective de mécanismes de contrôle et de supervision.

Mots clés : VUCA ; Epineux ; Stratégies ; Analyse Systémique ; Supervision.

Introduction

Before shedding light on the importance of Strategic Leadership (SL), as an added value to enhance large organizations performance and outcomes, especially in VUCA ("Volatile, Uncertain, Complex, and Ambiguous) environment, let us first remind some critical definitions which corroborate the necessity of SL in performing in these kinds of environments.

> "*The ability of an experienced, senior leader who has the wisdom and vision to create and execute plans and make consequential decisions in the volatile, uncertain, complex, and ambiguous strategic environment.*" (Guillot, W., 2003);
>
> "*A person's ability to anticipate, envision, maintain flexibility, think strategically, and work with others to initiate changes that will create a viable future for the organization.*" (R. Duane Ireland and Michael A. Hitt, 1999);
>
> "*The process used by a leader to affect the achievement of a desirable and clearly understood vision by influencing the organizational culture, allocating resources, directing through policy and directive, and building consensus within a volatile, uncertain, complex, and ambiguous global environment which is marked by opportunities and threats*". (Stephen J. Gerras, 2010);
>
> "*The set of activities directed toward the development and management of the organization as a whole, including all of its subcomponents, to reflect long-range policies and purposes that have emerged from the senior leader's interactions within the organization and his or her interpretations of the organization's external environment*" (Zaccaro, 1996).

So, what is Strategic Leadership? The United Stated Army War College (USAWC) has traditionally defined SL as: The process used by a leader to affect the achievement of a desirable and clearly understood vision by influencing the organizational culture, allocating resources, directing through policy and directive, and building consensus within a volatile, uncertain, complex, and ambiguous global environment which is marked by opportunities and threats. Differing slightly from the USAWC version, in 2008 Chief of Staff of the Army General George Casey asserted[1]: "*Strategic leaders guide the achievement of their organizational vision within a larger enterprise by directing policy and strategy, building consensus, acquiring, and allocating resources, influencing organizational culture, and shaping complex and ambiguous external environments. They lead by example to build effective organizations, grow the next*

[1] General Casey, presentation to the USAWC, September 22, 2008. Cited with permission of Office of Chief of Staff.

generation of leaders, energize subordinates, seek opportunities to advance organizational goals, and balance personal and professional demands".

Providing another perspective, Rich Hughes and Katherine Beatty from the Center for Creative Leadership argue that individuals and teams enact strategic leadership when they think, act, and influence in ways that promote the sustainable competitive advantage of the organization (Richard L. Hughes and Katherine C Beatty, 2005).

Thus, these definitions may offer some common characteristics of SL. First, SL often involves a comprehensive assessment and interpretation of the external environment which, if interpreted effectively, is eventually aligned to *(contribute to inform?)* the organization's vision. Second, although strategic leaders lead at the enterprise level and enjoy great autonomy, they often need to build consensus across a wide range of stakeholders to ensure the proper execution of their decisions. Third, aligning their organization with a rapidly changing environment implies that SL is about leading and managing change, in order to include the need to build a strategy and to align the resources and priorities to realize their vision. In short, SL focuses on strategic decision that binds the organization's future over a long period (NMILI M. & BOUAOULOU M., 2021).

The objective of this article is to shed light on American Strategic Leadership conceptual framework and the role and importance of the development and implementation of the right vision where system thinking and innovation strategies are improving large organizations' performance and competitive advantages, particularly in VUCA environment. In this regard, two main relevant questions arise: Which strategies should be adopted by Strategic Leaders to better perform in VUCA environment? and what is the necessary prerequisite should they develop to achieve their organizations' strategic objectives, especially during crisis?

To answer our problematic, and after having presented the conceptual framework in the first part, we will try in the second part to define the VUCA environment concept and its challenges for strategic leaders, in the third part we will present the different strategies to develop to face any kind of scenario within the VUCA environment and in the last part we will specify the most important strategic leadership implications especially for large organizations.

1. Conceptual Model

The methodology followed in developing this article is based on the American industry framework on Strategic Leadership where large organizations, firms, administrations and even the Military and Defense industry have been increasingly confronted with the uncertainty

within the VUCA environment. It is true that those organizations/administrations, whether they are small, medium, or large may for sure encounter VUCA situations at the tactical and operational levels, but it is at the strategic level that organizations face it the most. That is why SL serves as one of the overarching conceptual themes and intellectual foundations in such areas because the leaders are transitioning from direct supervisory at tactical level and operational responsibilities to more general oversight and higher-level leadership roles within organizations which requires more specific SL skills and competencies when compared to leadership at lower organizational levels. Moreover, the coherence between all these levels combined with the implementation of internal and external control and oversight mechanisms are able to ensure the competitiveness of these organizations and their sustainability.

Therefore, the United States have been convinced over time that the development of effective Strategic Leaders who are able to conceive a vision and lead in uncertainty has been the best approach to deal with these challenging parameters because of the nature and dynamics of change, the speed of change forces and change catalysts. For instance, in the US large organizations such as Boeing or IBM, Strategic Leadership has been an effective approach to better manage complexity where the multiplex of forces, the confusing of issues, no cause-and-effect chain are surrounding the environment of these organizations. SL has also helped to take off ambiguity such as the haziness of reality, the potential for misjudges, and the mixed meanings of conditions in a multidimensional environment. Indeed, at this level of leadership, these firms have gained incommensurable values which enhanced their performance and ensured their sustainability.

However, it should be emphasized that only the mastery of the various tools related to the strategic level remains the keystone of the success of these organizations in VUCA environment, such as personal, conceptual, interpersonal skills and system thinking competencies.

2. What is the VUCA environment about?

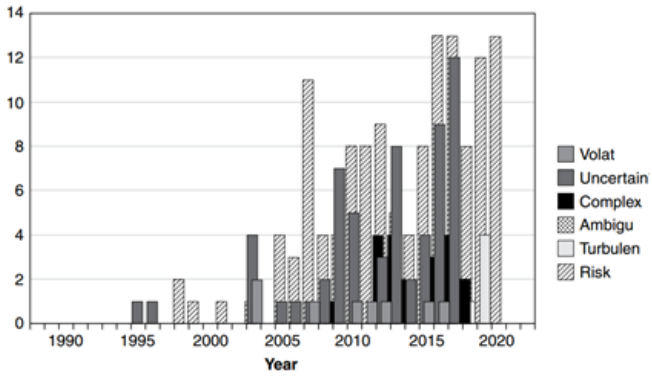
2.1. Literature review

The acronym VUCA, which stands for “Volatile, Uncertain, Complex, and Ambiguous” was used for the first time in the US Army, in the late 1980s to define conditions military leaders encounter on the battlefield (Whiteman, 1998) and to describe the geopolitical environment created by the fall of the iron curtain and the emergence of a more fragmented landscape with unclear alliances and allegiances (Millar, Groth, & Mahon, 2018; U.S. Army Heritage and

Education Center, 2018). It is a concept to know the definition of a competitive environment in relation to digital economy that can be rectified by appropriate technology adaptation to thrive in environmental change at proper time and right stages (Bennett & Lemoine, 2014).

Moreover, this acronym has increasingly been used as a short-hand characterization along with other similar key words such as turbulence and risks. There are also a number of related concepts such as "chaos," "insecurity," "paradoxical," "unintended consequences," "wicked problems," "complicated," "controversial," and "black-swan," but these concepts hardly received any hits, that's why they were not included in this analysis. However, the use and the combination of the following key words in academic research highlights the actual trend of international environment over time especially in the last decade (See details in Figure 1 below). In fact, since the outset of the 21st century, the world has indeed become more complex, volatile, ambiguous, and uncertain along with a lot of turbulence and risks in almost every domain particularly in International Business and politics (ROB VAN TULDER et al., 2020). VUCA has since been adopted by corporate executives, management consultants, leaders, and some scholars to summarize in one word the arguably unprecedented levels of turbulence that are challenging not only the business world (Millar et al., 2018), but also political, diplomatic, and international relation including security and defense matters as well. In fact, the sources of turbulence are numerous and may include, among others, globalization, technological change (Boston Consulting Group, 2012; Kaivo-ija & Lauraeus, 2018), the development of emerging markets and their new middle-class (Jayakumar, 2013), Generation Z (Francis & Hoefel, 2018), the rise of Emerging Market Multinational Enterprises (EMNEs) (Frynas, Mol, & Mellahi, 2018), nuclear and biological weapons, cybernetic attacks, global warming, and the pandemic outbreaks such as Covid-19, … So, what is the VUCA environment about?

Figure 1: VUCA Relevant Scholarship over the Years – Key Words (1990–2018).



Source: Rob van Tulder, Barbara Jankowska and Alain Verbeke "Introduction: progress in international business research in an increasingly VUCA world"

2.2. Definition of VUCA Acronyms

The table Number 01 below shows some general characteristics of each of these four key words ***Volatility***, ***Uncertainty***, ***Complexity*** *and* **Ambiguity** (**VUCA**), along with some relevant associations in order to better understand their meanings in the international relation and politics fields for instance.

Table 01: General characteristics and relevant associations in VUCA environment

VUCA	General characteristics	Relevant associations
Volatility	The challenge is expected or unstable and may be of known duration; but it is not necessarily hard to understand; knowledge is often available. **Examples:** - Price fluctuations after a natural disaster, -dramatic increase in extreme weather events, - Arab Spring that led to the departure of four head of state, a civil war in Syria, the rise of the Islamic State, and a massive refugee crisis in Europe.	-Economic volatility (Currency and exchange rate fluctuation, stock market volatilities, turbulent markets, exchange, stock risks…), -Turbulence business environments and volatile firm performance, -International crises, turbulent events, Hyper turbulent contexts, -Political instability, -Technological turbulence and dynamic capabilities. -Volatile environments (Climate risks…)
Uncertainty	Despite a lack of other information, the event's basic cause and effect are known; change is possible but the means to predict are unavailable **Examples:** - a competitor's pending product launch messes up the future of the business and the market, - Ebola outbreak in West Africa in 2014 and 2015, - Covid-19 outbreak since 2020.	-Possible new entrants in the domestic market, -Uncertainty avoidance (Cultural distance…), -Trade and Monetary uncertainty, -Political uncertainty, -Technology and managerial uncertainty, -Environmental uncertainty, -Uncertainty mitigation, -Cooperation and merger-acquisition; Hedging…
Complexity	The situation has many interconnected parts and variables; some information is available but can be difficult to process. **Examples:** - doing business in many countries, all with unique regulatory environments, tariffs, and cultural values, - The US subprime mortgage crisis, which led to the GFC, the Eurozone crisis and numerous other global economic woes,	-Country portfolio management, - Regulatory and administrative distance, -Institutional complexity, -Global business complexity, -Multinationality-performance relationship, -Systemic complexity, -Environmental complexity, -Complex relationships, -Negotiating complexity…

	- the evolution of China as a global superpower and ongoing tensions surrounding claims to islands in the South China Sea.	
Ambiguity	Causal relationships are completely unclear; no precedents exist; you face "unknown unknowns". Examples: Launch of products beyond core competencies. Catastrophic global warming, Cryptocurrencies as a new currency (Bitcoin)?	Internationalization in immature markets, Causal ambiguity, Knowledge ambiguity, Ambiguous relationships, Identity duality (paradoxical lens), Cultural and competing values, Foreign-friendliness paradoxes…

Source: Based on Bennett and Lemoine (2014).

Therefore, it is convenient at this stage to highlight the most critical challenges that large organizations or enterprises/firms' strategic leadership face while they are performing their activities, especially in such environment (VUCA).

3. Strategic Leadership challenges in VUCA Environment

Across many industries, a rising tide of volatility, uncertainty, and business complexity is shaking markets and changing the nature of competition.'' (Doheny, Nagali, & Weig, 2012). A diverse set of powerful trends in the political, diplomatic, social, economic, environmental, and technological spheres is currently reshaping the international network connections of state actors and organizations especially the large ones. At the strategic level, leaders can often legitimately interpret events in more than one way and the likelihood of misinterpretation is high particularly when it is about decision making process in VUCA environment. Among those trends, SL are facing the following challenges which may sometimes occur simultaneously:

- The rapid advances in technology (Internet, social networks, big data, bitcoins…);
- The superdiversity and super-mobility and the fluctuation of national budgets;
- The dynamics of a changing threats (Asymmetric warfare, Trans-Organized Crimes, Cyber, Chemical, Nuclear, Radiological and Biological weapons, viruses, ….);
- The changes in geopolitical and international coalitions;
- The shifting of national and international public opinions and attitudes;
- The changing of demographics and global warming;
- The election of new extremist governments;
- Wicked problems such as epidemies and pandemics (Covid-19)...

Having presented some challenging aspects in SL environment, let us define the meaning and the properties of "*Wicked problem"*.

3.1. Wicked problems definition

Most strategic leaders at some point face wicked problems – those encompassing not only the difficulties just outlined but also those intertwined with other problems or systems. Wicked problems have not clearly identifiable or single root cause or precedent as there is no definitive formulation for their appearance. Wicked problems do not have a reliably describable set of potential solutions, yet they present an immediate impact with no time for experimentation or no margin for error. The elements of complexity can become so vague and ambiguous that the SL never knows her/his capacity to control the human, physical, and other forces involved in a small task or a large-scale operation. This VUCA situation makes the strategic leader more accountable for *unknown futures* created in whole or part by her/his decisions and choices. For instance, the conflicts in Syria and Libya are two wicked problems for SL in these countries inasmuch unknown parameters along with the variety of direct and indirect stakeholders are complicating the VUCA environment which already prevails.

3.2. Properties of Wicked Problems (Rittel, and al., 1973)

In general, most organizations tend to "tame" wicked problems. However, in reality, problems that are so complex, they exceed the capacity of simple systems analysis or linear problem-solving methodologies **(**Rittel, and al., 1973) because they are interactively complex & ill-structured problems. Their properties are as follows:

- There is no definitive formulation of a wicked problem;
- Wicked problems have no stopping rule;
- Solutions to wicked problems are not true-or-false but good-or-bad;
- There is no immediate and no ultimate test of the solution to a wicked problem;
- Every solution to a wicked problem is a "one-shot operation";
- They don't have an exhaustively describable set of potential solutions;
- Every wicked problem is essentially unique;
- Every wicked problem is a symptom of another problem;
- The cause of a wicked problem can be explained in numerous ways;
- Problem solvers are held liable for the consequences of any actions they take.

Furthermore, as wicked Problems are very complex, we expect senior leaders to look at them with an open mind and a steady hand because of the unknown parameters they do not always get in advance while performing their strategic planning. Nowadays, Covid-19 pandemic outbreak and global warming still are relevant examples of wicked problems human being has ever known. On one hand, global warming, complexity is involving an extensive set of components engaged in multiple interactions on an unknown number of levels. As such, it has no definitive formulation, no stopping rule, no immediate nor ultimate solution, every issue can be considered as a manifestation of another problem and every solution is a one-shot operation that gives no opportunity to be wrong. On the other hand, COVID-19 pandemic has been one of the greatest threats in recent human history as the virus has spread swiftly worldwide, affecting not only lives and livelihoods of billions of people, but also creating economic turmoil where several States' political and regulatory institutions, economies, and organizations have been ruined because the complexity of this super wicked problem has exceeded the capabilities of experienced managers and leaders to efficiently respond in this VUCA environment. This pandemic, which have had significant ramifications and caused crises across all the spectrum of public policies (Health care, social care, education, social policy, employment policy and immigration policy), created a series of interconnected unprecedented crises embedding exactly the characteristics of these 'wicked problems' – uncertainty, complexity, interdependence, unpredictability… According to the International Monetary Fund (IMF) (2021), the world economic downturn resulting from the COVID-19 pandemic has been the worst recession since the end of World War II. The IMF reports a 3.4% decline in world economic activity associated with this recession. Coupled with the disappearance of the 3.5% projected world economic growth anticipated prior to the onset of the pandemic, this represents a nearly 7% loss in world economic activity in 2020. It is an example of wicked problems that have been very challenging not only for the organizations and firms' leadership decision making processes, but also for the governments at all levels (National, regional, and international).

Hence, we are entitled to ask ourselves how strategic leaders, especially those in charge of large organizations, firms/enterprises, and administrations, will become innovative strategic thinkers and change agents who can lead organizations in a VUCA strategic environment and therefore conduct strategic leader decision-making? (Mark McGuire; Lynne C. Thompson, 2015/2016).

4. Which strategies under VUCA environment?

Almost all managers and leaders are able to deal with routine activities within and outside their organizations while the environment is steady, simple, clear, and stable. However, as soon as uncertainties, risks, conflicts, constraints, unknowns, and ambiguities arise, these organizations need leaders who can develop appropriate strategies in order to efficiently respond in such VUCA environment. That is why it is important for a leader, especially at strategic level, to understand the interdependent relationship between the assessment, the development of strategy, and the feasibility of its execution. For example, actions taken to solve or address a problem will change the nature of the problem or at least our understanding of it. Consequently, strategies have to be fluid and adapt to circumstances as they evolve (Mintzberg, 1994). Therefore, a strategic leader must also recognize that implementing a new or different strategy to deal with any new parameters is a change management process.

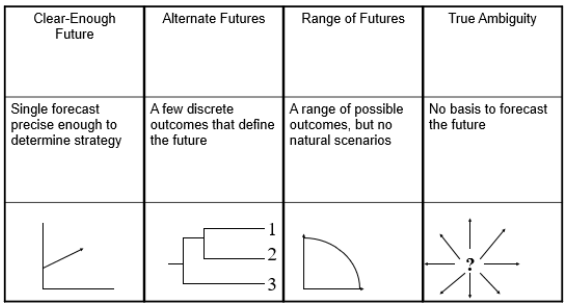
In this regard, SL must always have a deeper understanding of the challenges inherent while designing and implementing the relevant strategy especially under various and different levels of uncertainty and the difficulties of realizing them especially when the problems being faced are "wicked". Meanwhile, SL must always assess in advance during their strategic planning for actual sensitive information before deciding which strategy they will apply depending on which future environments scenarios would face while leading their organizations. In fact, among the three kinds of information (Known knowns; Known unknowns and Unknown unknowns), the most important issue SL should know is h*ow to plan for the Unknown Unknowns?"* To answer this question, we refer to the US Department of Defense (DoD) where the policy makers understand that they may not know where the next threat may come from. That's why the way they deal with this challenge is to "*plan to be surprised …There are going to be all kinds of things that are going to arise that nobody can anticipate… We want as much predictability as an unpredictable world allows*"[2].

In the same vein, Mintzberg has suggested four necessary steps to develop/design the best strategies to anticipate and manage VUCA environment (Mintzberg, 1994).

[2] Douglas J. Feith Undersecretary for Policy, Defense Link, 30 June 2004.

4.1. Identify the levels of Uncertainty and future environments (See fig. 02 below)

Figure 02: possible and likely scenarios



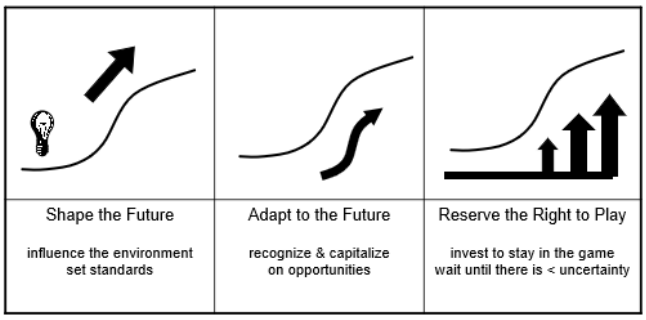
Source: Adapted from "Strategy under uncertainty", Harvard Business Review, Nov-Dec 1997.

4.2. Choose a strategic posture

There are in general three Strategic Postures (See figure 03 below):

1. Shape the Future, influence the environment and set standards;
2. Adapt to the Future, recognize, and capitalize on opportunities;
3. Reserve the Right to Play, invest to stay in the game and wait until there is uncertainty.

Figure 03: Strategic postures



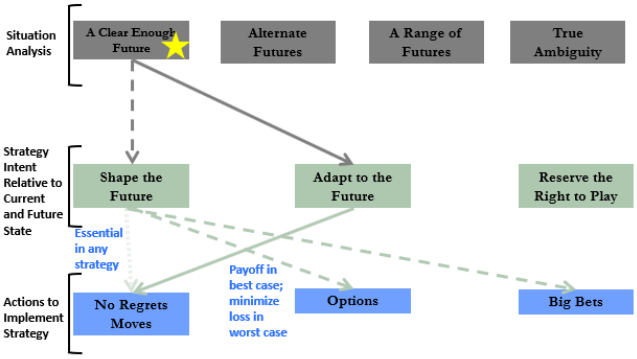
Source: Adapted from "Strategy under uncertainty", Harvard Business Review, Nov-Dec 1997.

4.2.1. Strategy to a "Clear Enough Future" (See figure 04 below)

In this kind of environment, which is very predictable, a single forecast is precise enough for strategy development. The SL may improve business systems without changing industry. Standard strategy tool kit-market research, analysis of competitors costs and capacity, value chain analysis are conducted in conformity with Michael Porter's 5 forces framework (Supplier power, buyer power, competitive rivalry, threat of substitution and the threat of new entry) (Porter, 1980).

For the second posture, the SL choose where and how to compete while the adaptation becomes more about being able to respond rapidly to evolving conditions as uncertainty increases. Finally, SL have always the urge to preserve right to play, depending on options, knowing that while shaping the environment, SL add uncertainty as they intend to implement their strategies.

Figure 04: Strategy to a "Clear Enough Future"

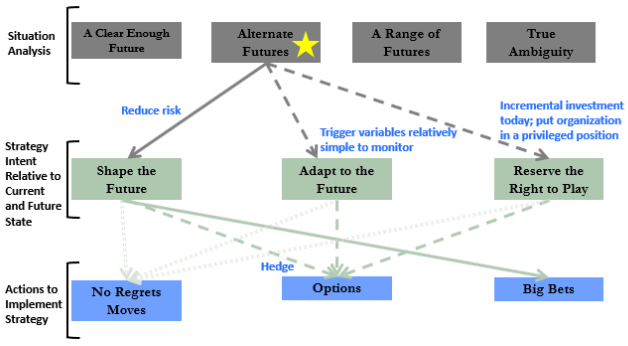


Source: Adapted from "Strategy under uncertainty", Harvard Business Review, Nov-Dec 1997.

4.2.2. Strategy to a "Alternate Futures" (See figure 05 below)

SL try to develop discrete scenarios based on key variables/uncertainties based on priorities placed on developing actual probabilities. For example, SL are closely following a pending regulatory legislation to pass or not through a rigorous screening of timing and all relevant data information. They have also the possibility to identify winners and losers in each type of future environment given alternative strategies options which enable them to make more investments in the beginning and therefore put their organization in a privileged position – wait and see posture till the uncertainty is reduced.

Figure 05: Strategy to a "Alternate Futures"



Source: Adapted from "Strategy under uncertainty", Harvard Business Review, Nov-Dec 1997.

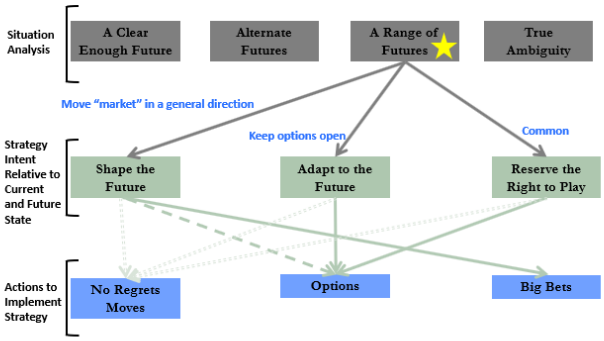
4.2.3. Strategy to a "A Range of Futures" (See figure 06 on page 14)

In this kind of future environment, SL have to be more skillful to be able to identify a set of scenarios which can be hard as it relies on spotting trigger events that signal every change in the organization outcome such as a "market movement". It is obviously easier to think about boundary scenarios, but it is much harder between the likely future range because the scenarios are limited, and account therefore for few probable outcomes, not necessarily for the entire range. That is why SL invest in organizational capability to keep options open, especially when they are competing without having deep pockets. The example of technology and innovation scenarios which are very limited by a number of key variables would have a restricted scale outcome because of the high degree of uncertainty.

4.2.4. Strategy to a "True Ambiguity" (See figure 07 on page 14)

In this fourth environment ambiguity is so important that decision-makers may not even understand the relevant variables, especially in a very rare or a transitory trend to migrate toward one of the other levels over time. The companies that were making major entry investment in post-Communist Russia were operating in a True Ambiguity environment, because there were no relevant known variables for the executive leaders to identify patterns, and therefore make the investment in the future.

Figure 06: Strategy to a "A Range of Futures"



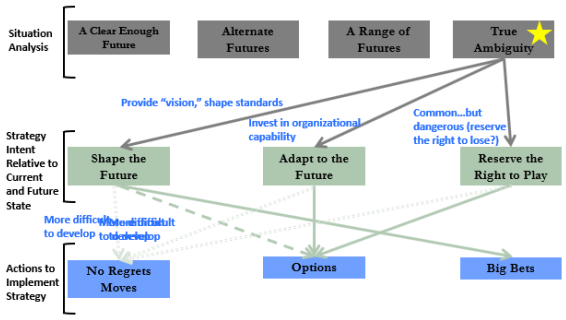
Source: Adapted from "Strategy under uncertainty", Harvard Business Review, Nov-Dec 1997.

In such environment, no one knows the best strategy. Leaders can only shape the future of their organization by providing vision and standards; but without engaging in a huge bet, which could pull back their credibility at this point.

The second strategy could be to adapt to this environment by keeping all the options open while making investments only in organizational capabilities of the organization.

Finally, as the last response scenario is the "right to play" which could be dangerous for the organization, and it is just as likely to be the "right to lose?". That is why leaders look for low cost without getting locked in.

Figure 07: Strategy to a "True Ambiguity"



Source: Adapted from "Strategy under uncertainty", Harvard Business Review, Nov-Dec 1997.

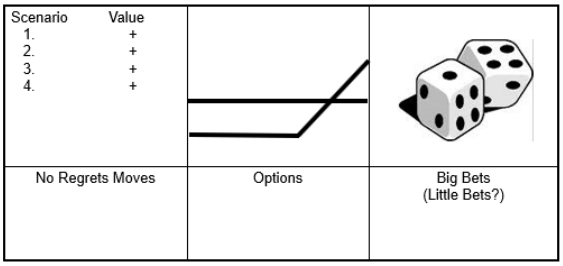
4.3. Build a portfolio of actions (See figure 08 page 15)

SL will be anticipating the known unknowns and unknown unknowns in VUCA environment by preparing the planed actions depending on strategic information gathered and analyzed.

4.4. Actively manage the strategy What is the concept of Emergent Strategy?

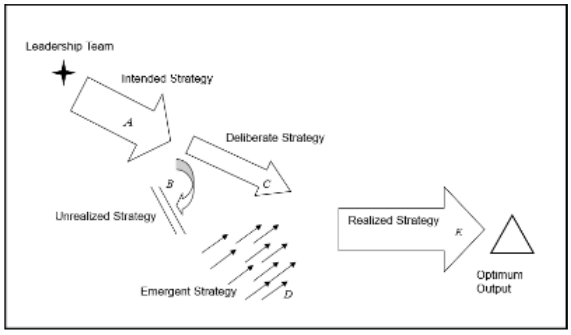
Finally, should the intended strategy developed to deal with a specific wicked problem/crisis scenario and the actions taken to implement this strategy fail, SL would have to systematically analyze another back-up strategy which Mintzberg calls "Emergent Strategy", as shown in figure 09 below, in order to achieve the organizations' strategic objectives (Mintzberg, 1994).

Figure 08: Portfolio of Actions



Source: Adapted from "Strategy under uncertainty", Harvard Business Review, Nov-Dec 1997.

Figure 09: Concept of Emergent Strategy



Source: "The rise and fall the of Strategic Planning", by Henry Mintzberg, Harvard Business Review, Jan-Feb 1994.

To sum up, every strategy under VUCA environment should take in account several parameters during the strategic planning phase where SL need to develop and design appropriate strategies in order to efficiently manage uncertainties and be able to rely on alternative strategies as a contingency back-up plan. This will have several implications on SL in VUCA environment.

5. Which implications for Strategic Leadership in VUCA environment?

The development and implementation of these strategies in VUCA environments imply, beyond general competencies required form any leader in the 21st century (ZAMANI, H., & AIT SOUDANE, J.; 2020), *specific prerequisite skills* from Leaders at strategic level, especially environmental scanning, critical and creative thinking to better interpret and proactively manage the organization's environmental changes and external driving forces to face the VUCA challenges to compete more effectively. Meanwhile, SL should build up the *strategic executive team* (Strategic Board) to assist them in developing the organization's vision and strategic planning to achieve the strategic objectives in line with the values and ethics. In this regard, several oversight mechanisms should be also set up in order to guarantee the coherence between all the levels (strategic, operational/organizational, and tactical levels) especially through a comprehensive approach where Leaders and Managers are closely implementing the vision of the organization (Zamani. H; Ait Soudane. J (2021)).

In this context, as will be demonstrated, skills and competencies are the most appropriate response to VUCA inasmuch it allows the strategic leaders to develop new ways of controlling and mitigating these new challenges by fully understanding the nature of environment in which they operate and thinking strategically to best posture the organization's effectiveness to meet the VUCA demands of the environment (ROB, and al., 2020).

5.1. Improvement of general Leadership Skills and Abilities

Leaders at all levels require skills and abilities in three broad areas:

5.1.1. Technical knowledge and skills required in the position, especially about executive information systems if one is operating at high mid-level or at the top. The leaders have to be very insightful about the dynamics of largescale organizations and other systems, and how large-scale systems interact in the global environment – able to design systems so as to achieve desirable second and third order effects;

5.1.2. Interpersonal / communication knowledge and skills: SL should genuinely be interested in people and concerned that they have good lives, able to stimulate and empower others to aspire to high achievement, good at networking and building consensus;

5.1.3. Conceptual skills which allow the leaders to cope with the level of complexity associated with a particular position. With these skills, leaders are more reflective, inquisitive, logical, substantial conceptual "grasp," and long future vision mindset.

The balance between technical, inter-personal, communication and conceptual changes across levels is shown in the figure below. Interpersonal and communicative skills are important at all levels. Some would say they are even more important at the top—and indeed at all levels—than is suggested by the chart below. However, the more important comparison is between technical and conceptual skills. The category called "technical" is broader at the base of the organization because that is where the organization applies technology to the execution of tasks dealing with tangible products.

5.2. Development of specific Requisite Strategic Leaders' Skills

In order to gain and maintain their organizations' competitive advantage in VUCA environment, which is changing over time, SL must be effective scanners both of their internal and external environments through the development of their Systems thinking.

5.2.1. Internal and external Environmental scanning abilities

The environmental scanning is defined as: "*the activity of acquiring information… about events and relationships in [an organization's] outside environment, the knowledge of which would assist [strategic leaders] in [their] task of charting the [organization's] future course of action.*" (F.J. Aguilar, 1967). Environmental scanning is a method of accomplishing the initial part of decision-makers challenges inasmuch it enables them to understand the internal and

external environments and the interconnections of their various sectors and to translate such understanding into the organization's planning and decision-making processes.

First, the primary dimension of scanning process is about mastering the internal environment and its challenges through the acquisition of the internal processes of knowledge, the sense making of this knowledge, and how well SL would predict the results of their actions especially in VUCA environment to achieve agility through the ability to move fast and easily between alternatives – as the rational business responses to volatility (Bennett and Lemoine; 2014a). That is why the organization structure must be in tune with its internal environment mainly in three aspects: its formal structure, processes as embodied in its SOPs, its rules, regulations, and policies and its culture/climate.

Second, the external environment, generally filled with VUCA, is generally characterized with systems of interacting organizations, agencies, and governments is so complex that it is virtually impossible to have a complete knowledge of the factors governing strategy decisions. Thus, it is very difficult for SL to determine the levers to pull, and the right timing to do so, in order to achieve the organizations' desired outcomes. Therefore, as those decisions must be made with incomplete understanding and all the associated risk that brings, Strategic Leaders have to engage in external environmental scanning as a mechanism to analyze future contexts in which the organization must make decisions and solve problems (Jacobs, 2009).

Thus, external environmental scanning helps SL to manage their organizations because both internal and external complexities affect directly and indirectly the resourcing, structuring, and operational performance of such organizations.

5.2.2. Systems, Critical and creative thinking enhancement

- **Systems thinking**

In order to be able to efficiently lead organizations in VUCA environment, SL have to build up specific skills required such as systems, critical and creative thinking (Jacobs, 2009). The compound word "systems thinking" is used in different ways—systematic thinking, holistic thinking, integrative thinking...

As VUCA environment has very long-time frames, it really challenges decision makers especially those who are transitioning upward from decision-making at the operational level and for strategic leaders who must integrate inputs from mid-level sources. The problem is that higher levels of the organization deal with increasingly complex and more abstract issues that are not always amenable to rational analysis. However, SL may operate according to, at least,

some principles such as decomposing large and complex systems into sub-systems and using the appropriate leverage to get things done as opposed to instinctive force directly applied as is so often done at lower or even mid-levels of organizations.

Moreover, the most important is the way strategic leaders think, they understand the dynamic systems within which they and their organizations must operate, and they understand where the power levers are. Even more important, they tend to be masters of their own thought processes. Rather than being committed to one "style" or discipline, they are aware of the "style" or discipline they are using and are able to evaluate its adequacy within the existing context. In this way, they are typically able to take a perspective on themselves as actors within the context and thus take action to modify their own approach as necessary thanks to the big picture they have always got. Indeed, with the assistance and involvement of their strategic executive team, they are always seeing the whole picture and not just the parts. They are understanding interrelationships and different dynamic process within and outside their organization. They are applying rigorous logic where possible and understanding where logic does not apply while mastering indirect effects on their organizations' outcomes (Harrison, Ross. 2013).

- **Critical and Creative Thinking**

If critical thinking is analysis, creative thinking is synthesis. It is the production of an integrated whole that did not exist before, at least for that leader. As might be imagined, there are strong linkages between preference and creative thinking. A preference for the abstract, imaginative, and original is clearly associated with creative thinking and creativity. Therefore, SL must be critical thinking in order to be able to develop proactively the right strategies and implement them whatever is the upcoming unpredicted scenario. Critical thinking is not being critical in the conventional sense of the word, though a critical thinkers may look for errors in the thinking processes of others, and indeed of themselves. Rather, critical thinking is a kind of disciplined rational evaluation of the logic behind and support for statements of "fact," propositions, and/ or conclusions.

To develop innovative strategic thinkers and change agents who can create and lead agile, effective organizations in a VUCA world, leaders will need to develop supra-dynamic capabilities and be more resilient in the face of daunting challenges and changes to attend diverse stakeholders' (including governments) interests (Hitt et al., 2021). Such changes, along with imagination and ingenuity may be needed to design innovative strategies (domestic and international) and implement them rapidly to compete in the pandemic and post-pandemic

world (dis)order. In this regard, the covid-19 pandemic, as a super "wicked problem" is an illustrative example in VUCA environment which needs more innovative strategic thinkers. It is true that some innovations have helped reduce exposure to the coronavirus and increased health care capacity, such as engineering firms creating ventilator machines (Alison K. Cohen; Johnathan R. Cromwell, 2021) and a team of 20 researchers, academics and industrialists 100% Moroccan have set up a breathing apparatus, using available components on the national market (HAFNAOUI A. & RHAZI Z., 2021); however, some scholars and scientists argue that to help solve this global, wicked, and dynamically changing problem, the public health sector must continue to support, promote, and even expand on these innovative efforts by using creative problem-solving techniques. These huge challenges which characterize the VUCA environment require from SL to become more sophisticated in risk management assessment and mitigation to better plan and implement their strategies.

5.3. An effective involvement of the organization's Board

Effective strategic leaders understand that they cannot know everything and value members who add value by contributing to the overall "mental model" needed to solve complex problems. In fact, the unstable turbulence in the VUCA Environments is constantly countering the strategic decision process. That is why large organizations need to have a strategic-executive board who could face and manage in advance the increased level of risks specific to VUCA environment.

The **C**hief **E**xecutives **B**oard (**CEB**) and his strategic team must help the organization to setup and implement the organization vision through appropriate structures and processes that best assist the achievement of strategic objectives and interests. Therefore, they have to continuously develop and revalidate a strategy which is evolving with the organization vision and ensure the coherence of SL decision-making process at all levels. First, this needs obviously a systematic environmental scanning, depending on the kind and the size of each industry, in order to assess the most relevant opportunities for the perennity of the organization. Then, the strategic board will have to evaluate any competitive advantages by examining either the existing competitive edge or developing new one on sustainable basis. Finally, a business plan will follow up to implement the best competitive advantages at all the levels.

Of course, this process must be supported by a decentralized structure where the CEB and his team will be monitoring not only the risk management and control functions and activities of

the organization but also empowering the operational managers to better oversee how these functions are being performed in the different entities within the organization.

Moreover, the CEB and his team must develop creative and critical thinking skills for all the managers and leaders in the organization through a mandatory Personal Leadership Development Plan (PLDP) that are essential for quality strategic leadership and decision-making (Mark McGuire, and al., 2015-2016). These PLDP will help those leaders and managers to better understand their individual strengths and development needs and to learn how to develop their skills and abilities to turn their needs into strengths, especially in strategic decision-making process within a team. In fact, quality decisions will need increasingly to be the product of a diverse group with high commitment, especially in the joint and inter-agency arenas. Moreover, all these qualities should be embedded in the Executive Assessment and Development Program (EADP) of the organization strategic board members and all the leaders and managers at all the levels of the organization. By engaging in these processes (PLDP and EADP), especially at the higher levels, leaders add value by enhancing the competitive advantage of their organizations, by understanding, interpreting, and mastering the strategic environment, on the one hand, and by integrating functions and processes within the organization, on the other hand (Mark McGuire, and al., 2015-2016).

Finally, it is important to highlight that despite how good the involvement and commitment of the organization's strategic board is effective; it is always necessary to reinforce the leadership process with accountability mechanisms, especially in VUCA environment.

5.4. Oversight mechanisms reinforcement

Control and accountability are vital for any organization's sustainability. Therefore, they should be fully implemented especially in VUCA environment through several oversight mechanisms. To a major extent, the nature of the environment, particularly its turbulence, will determine not only what control mechanisms are likely to work best, but also how much control is the best.

To better get the big picture and understand the oversight mechanisms, using the experience acquired through our deployment in United Nations (UN) in Democratic Republic of Congo (DRC), where the environment is a VUCA one, we will take the example of accountability which is the main important mechanism that allows the extraordinary functioning of this universal large organization. The accountability, as endorsed by the General Assembly in its resolution A/RES/64/259, is set up as an accountability system where all the shareholders and stakeholders are held accountable for the exercise of the authority and management of the public

resources entrusted to them. Thus, the six Components of UN accountability system (UN Charter, the Programme Planning and Budget documents, the Internal Control System, the Results and Performance, the Ethical standards and integrity and the oversight functions) in addition to Member States, that oversee the functioning of the UN through the intergovernmental organs, the oversight functions provide independent assurance on the stewardship of the organization's resources, the achievement of results, and the level of compliance with the regulations, rules and policies and deter mismanagement and corruption.

Conclusion

The acronym VUCA, which was used for the first time in the United States Army, in the late 1980s to define conditions, military leaders encountered on the battlefield (Whiteman, 1998), has increasingly been used in the 21st century where the world has indeed become more complex, volatile, ambiguous, and uncertain because of a lot of turbulence and risks in almost every domain particularly in International Business and politics. In VUCA environment, organizations are actually facing several challenges which may sometimes occur simultaneously such as the superdiversity and super-mobility, the technologies rapid advance, the dynamics of a changing demographics, threats, and geopolitical and international relations…

To deal with those challenges, SL need to develop appropriate strategies in order to efficiently respond in such VUCA environment. That is why it is important for a leader, especially at strategic level, to understand the interdependent relationship between the assessment, the development of strategy, and the feasibility of its execution especially when the problems being faced are "wicked or super wicked". In this regard and depending on the level of the future environment uncertainty, SL develop the appropriate strategy by identifying the nature and extent of residual uncertainties and choose the best strategic posture. Then, they have to build a portfolio of actions in order to actively manage this strategy and therefore either be able to shape the future, influence the environment and set standards or adapt to the Future, recognize, and capitalize on opportunities or reserve the right to play, invest to stay in the game.

SL in VUCA environment has a lot of managerial and leadership implications which any large organization must develop and implement in its structure, policies, and procedures. Besides the improvement of general Leadership Skills and Abilities, Strategic leaders have to develop specific Skills required at strategic level especially the ability to scanning internal and external

environments along with the Systems thinking, critical and creative thinking competencies to be able to assess and mange any potential risks.

Finally, SL generally requires a strategic leader-led visioning process to create the alignment between the organization's strengths and weaknesses and the future internal and external environments challenges. In this regard, an effective implementation of an appropriate accountability system is a vital support for any large organization to fulfil its mission and achieve its strategic objectives and interests. Therefore, strategic leaders have first to set up adequate structures and processes along with specific and adhoc skills and competencies of all the managers and leaders at all the levels. CEOs and their strategic board leaders understand the importance of vertical and horizontal alignment, ensuring the vision and strategy of the organization align with the processes, structures, culture, and technology of the organization. They are the change agents that enact the constant realignments required in the 21st century's VUCA environment in line with relevant oversight mechanisms to ensure the organization perennity and its competitive advantages.

Scientific implications

This article has allowed us to examine how the development of effective Strategic Leaders is too challenging, especially in VUCA environment. In fact, as the speed of change is too high, Strategic Leaders have to quickly catch-up with the technology and science exponential trends, through a continuous Personal Leadership Development Plan improvement.

In this context, the strategic leadership in VUCA environment would certainly have several implications on how to manage and lead large organization in a scientific manner through more innovation, collective intelligence, and a complex industry database. This will certainly require the development of new scientific tools and approaches to quickly assess and scan the internal and external environments including all relevant stakeholders' interests, such as the 3D mapping tool which enhances increasingly the decision-making process. Therefore, Morocco for instance needs to set up adhoc laboratories and universities dedicated to strategic leadership as a scientific skillset in the perspective of preparing the upcoming digital generation of Strategic Leaders who will certainly be more challenged by big data and other new social media.

Limitations and Future Research Avenues

One of the major limitations of this article about SL and VUCA environment is that these theoretical studies are drawn from specific cultural, political, industrial and socioeconomical backgrounds, precisely those of the US of America, where Strategic Leadership has been

generalized to almost all the organizations in general and particularly large ones. Even better, and alongside with other regular universal standards audits – Quality management, technical, safety and security, financial, environmental, all these large US firms and organizations are subjected to periodic external audits dedicated exclusively to Strategic Leadership skills and competencies' assessment.

Therefore, in the prospect of adapting all these theoretical concepts to Moroccan organizations and administrations' culture, social and economic realities, values, and religion, specific audits questionnaires will have to be developed and applied in the field to some national large organizations' strategic leaders to assess the degree of implementation of these concepts, especially in VUCA environment.

However, the implications are subject to few limitations. SL vision, strategies and plans applied to industrial private sector will be likely different from those in other private sectors or governmental such as military, security and defense administrations.

Finally, this article and ideas would contribute to pave the way for future research in SL in Morocco. Thus, it would be very convenient to bring this theoretical corpus closer to the reality of the field, especially at strategic level, in order to better assess the various aspects of SL in VUCA environment, through an empirical study to ensure the veracity of the statements highlighted in this article and likely adapt them to the specificities of Moroccan society, culture and religion...

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