

The Challenges of Human Capital Management in the VUCA Era

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Abstract

The global crisis caused by the sudden onset of COVID 19 has put emphasis on the VUCA (Volatility, Uncertainty, Complexity and Ambiguity) phenomenon. The COVID 19 pandemic has highlighted the extremely unstable environment in which our world is evolving. Overnight, organizations around the world found themselves switching to teleworking mode, several people suddenly found themselves unemployed and several companies have gone bankrupt. The VUCA phenomenon, linked to rapid and unpredictable changes, makes us wonder how organizations deal with the issue of human capital management. Indeed, questions are emerging regarding a new paradigm for the management of human capital in the era of industrial revolution 4.0 that must take into consideration the question of technological singularity and its consequences on man-machine balance, skills instability, job design, career management, generational and cultural gaps and reconfiguration of work (reengineering, telework, crowdsourcing, etc.). In this article, we aim to highlight the challenges and stakes of human capital management in the era of disruptions and “black swans” caused by the VUCA phenomenon. Our article aims to present the VUCA model, specify its components and expose the state of knowledge concerning its effects on the ethos of human capital management. The results of our research demonstrate that VUCA factors have deleterious effects on human capital unless serious accompanying measures are established.

Keywords

VUCA, Human Capital Management, Emerging Technologies, Uncertainty

1. Introduction

In a futuristic prognosis, [Toffler \(1970\)](#) predicted in his book “Future Shock” that in the era of a super-industrial society, individuals will experience a huge and accelerated technological and social change, in too little time causing suffering, stress and disorientation. He predicted that people of super-industrial society will feel shock from rapid changes and will change their profession and their workplace often because jobs will quickly become outdated, precarious and more temporary. As Toffler forecasted, it is almost a truism to argue that organizations are facing today increasingly unstable environments due to rapid pace of change they are undergoing. The acronym “VUCA” which stands for Volatility, Uncertainty, Complexity, and Ambiguity was coined in the 1990 to designate this dynamic and the various dimensions of an instable and uncontrollable environment.

The “VUCA” sounds the death knell for existing models to deal with complexity and uncertainty ([Mack & Khare, 2016](#)). The emergence of political, economic, ecological, technological and sociological phenomena contributed to the intensification of the VUCA scope. Nevertheless, more specific trends affect the working population, among which we cite, collaborative economy, quantum computing, artificial intelligence, machine learning, deep learning, the Internet of Things Iot, cyber currencies, virtual and augmented reality, cyber hacking, neurotechnology, gene-editing, multi-sided digital platforms, and innovations such as robotics, self-driving cars and drones. All these phenomena put an acute challenge on organizations to adapt their human capital management and require the population of workers to enter a spiral of adaptation ad infinitum. By all accounts, the chaotic has become the “new normal”. The Taylorist and Fordian paradigms for managing human capital are largely outdated in the era of VUCA. In the VUCA era, planning and forecasting are no longer automatically reliable. According to the [World Economic Forum \(2018\)](#), 50% of companies expect that automation will lead to some reduction in their full-time workforce by 2022 and that the digital economy will lead to the reconfiguration of 85% of professions by 2030. In the same report, WFF expected that jobs will undergo great modifications either by the extension of tasks to new roles or squarely the creation of new ones. The survey carried out with several companies for the purpose of this report revealed their intention to recourse to contractualization and engaging workers in a more flexible manner, utilizing remote staffing beyond physical offices and decentralization of operations.

2. Problem Statement

The VUCA context has specific implications and challenges for human capital. Organizations need to deal with volatility associated with technology prevalence, uncertainty related to various disruptions, complexity connected with the using new management frameworks. In the midst of all these challenges, the question that arises is: *what are the challenges for human capital management in the VUCA*

era? In other words, what will be the new trends in the ethos of human capital in the near future characterized by uncertainty, complexity, volatility and ambiguity?

From a literature review, we will proceed to the analysis of a range of variants, which involves the management of human capital from the point of view of new technologies and new frameworks. According to (Mulcahy & Meister, 2016), in the VUCA era, the work configuration will be overturned on many levels: what we expect from our work, where we work, how we work, when we work, and with whom we work, is being disrupted.

3. The VUCA Origins and Development

In 1987, the VUCA acronym was introduced by the U.S. Army War College based on the leadership theories of Warren Bennis and Burt Nanus to describe the more volatile, uncertain, complex, and ambiguous, multilateral world, which resulted from the end of the Cold War. The VUCA concept found its full meaning after the 2008 financial crisis and was subsequently adopted to describe the chaotic, turbulent, and rapidly changing business environment (Doheny et al., 2012; Bennett & Lemoine, 2014). Friedman (2005) brought it to the business context as a frame for understanding the impact of technology at high speed on the success of companies. In the managerial sphere, the concept is now linked to many fields such as strategic management literature, strategic decision-making, risk management, and problem-solving. For Bennett & Lemoine (2014), the concept defines the competitive environment of the digital economy. Actually, the acronym accurately describes the situation of business scenario post Industrial Revolution 4.0 (Parween & Deepak, 2019). It reflects the consequences of the high mobility of people and goods triggered by state border dissipation, as well as the evolving technical interconnectivity (Codreanu, 2016).

Both managers and academics have been giving this concept an increasingly prevalent relevance in their researches. However, these researches are not systematized and the concept despite its prevalence still fails to find a well-established academic framework. According to (Codreanu, 2016), VUCA is becoming a cliché in the absence of a more profound analysis. To uncover its causes would take comprehensive studies that cover multiple areas such as economy, sociology, psychology, history, etc. From an epistemological point of view, the VUCA concept has not yet succeeded in winning its letters of nobility and the interaction between all of its components is still not clear. In view of the cascade of changes that will come, it would be interesting to consider the question. Current research related to the VUCA concept focuses on its consequences for leadership and strategic development and the challenges to adapt the mindsets of managers and decision-makers to these new conditions. However, according to the literature review, researches on the subject of the relationship between VUCA and human capital management are not numerous. Despite the fact that the latter is at the centre of the ruptures caused by the VUCA and it is completely impacted

by it.

Concepts Definition

Volatility: refers to frequent change having no predictable pattern (Sullivan, 2012; Bennett & Lemoine, 2014). It designates the inconsistency of the situations encountered, which can evolve very quickly toward variable amplitudes (Brunet & Longcôté, 2018). Silberzahn (2017) stated that a volatile system can experience a relatively moderate evolution for a certain time. Then, suddenly, evolves with a strong variation in relative value, which is difficult to estimate. Volatility captures sudden, extreme and multi-layered fluctuations in economy, sociopolitics, geopolitics and indicates the difficulty of identifying and describing these changes in a pattern like manner as it used to be the case in a stable world where certainty about the course of events was the salient feature. Thus, experiences and best practices no longer provide solid and reliable indicators for identifying solutions for the present, or for the future. Given the incapacity to read the present through the lenses of past, that is “to sift, discern or decide”. It becomes obvious that the predictability of future is more than uncertain, which “makes forecasting extremely difficult and decision making challenging”.

Uncertainty: indicates lack of knowledge related to the frequency and significance of environmental change (Bennett & Lemoine, 2014). It refers to the difficulty of predicting the future. Truly uncertain environments are those that do not allow any prediction. According to (Silberzahn, 2017), uncertainty is a lack of objective information about a given environment. Uncertainty results in a fundamental indeterminacy of the future and a heterogeneity of the events that can occur, these being neither classifiable nor categorizable. According to (Brunet & Longcôté, 2018), uncertainty means being unable to understand the situation objectively, establishing cause and effect relationships, foreseeing the consequences of decisions.

Complexity: means the abundance of parameters influencing the situation, their interdependence and their interaction. It is difficult to identify the components, their behaviour and to disentangle the different relationships between them (Silberzahn, 2017; Brunet & Longcôté, 2018).

Ambiguity: refers to a lack of clarity about how to interpret a situation (Silberzahn, 2017). More generally, it refers to fuzziness and vagueness in ideas and terminology. The more ambiguous the world is, the harder it is to interpret.

4. Methodology

The objective of this prospective exploratory research is to identify the factors that, according to prospective experts, determine the changes that will take place in the management of human resources in the VUCA era. We first explored the different dimensions underlying the futuristic developments of human resources, in order to define a basis from which to study the changes that will take place in this field.

We carried out a literature review from March to May 2021 on emerging models in human resources management, electronically (in the three databases that are JSTOR, Web of Science and Google scholar), by operating a selection of references from the title and abstract of the articles. For practical reasons, the articles had to be available in full and in English or French. The bibliographies presented at the end of the selected articles as well as those of the studies and syntheses of which we were already aware, were also used.

In order to query the databases mentioned above, we used combinations of keywords referring to the VUCA model, emerging and disruptive technologies, and industry 4.0. We selected prospective studies, published between 2019 and 2021, carried out in industrialized countries, which had, on the one hand, to measure and analyze as the main independent variable the “management of human capital”, and, on the other hand, the consequences that this capital will suffer in the VUCA era.

Theoretical Model and Research Hypotheses

Our research model, resulting from the literature review, leads us to suppose that the current trends, which tend towards robotization, the use of artificial intelligence, will dramatically shape the ethos of human resources. These changes highlight the contingent nature of human capital management, which is influenced by an environment that changes all the time (internal and external environment). Thus we mobilized for our conceptual framework the theory of contingency which is part of the strategic management of human resources (Woodward, 1965; Burns & Stalker, 1961; Fiedler, 1972). The contingency theory states that the anthropological, cultural, economic, political, religious, sociological and technological environment influences cause changes in the management of organizations. According to (Burns & Stalker, 1961) demonstrated that the form of organizations varies according to the more or less stable nature of their environment. From their work concluded that depending on the nature of the environment (stable or unstable) two types of organizations could emerge. Stable environments favor the emergence of “mechanistic” organizations. Unlike unstable and uncertain environments, which develop “organic” type organizations. They are organized more around responsibility rather than command. Lateral and informal communications are encouraged to gain flexibility and adaptability.

As part of this research, we have opted for a developed positivist positioning. Indeed, our research will first lead us to analyze the literature relating to the constructs of our research, namely the VUCA and Human Capital. We therefore formulated two hypotheses, which are as follows:

H1: The VUCA model will lead to a negative transmutation of human capital.

H2: The VUCA model will bring positive changes to human capital management.

The results of the research made it possible to judge the importance of different trends influencing the management of human resources in the era of VUCA.

5. Human Capital Implications in VUCA Era

The configuration of work is undergoing radical transformations under the VUCA era, which affects drastically human capital management. In the 1990s, the impact of the automation and the application of a new framework management such as the Business Process Reengineering (BRP) contributed to the elimination of a considerable amount of jobs, in particular those of middle managers (Rifkin, 1995). The trends confirm the orientation of corporations toward a project based of work configuration, rather than hierarchical, and this will mean that workers may be selected on a project basis, or may want to apply for single projects. Rifkin (1995) characterizes the situation by “requiem of the working class”. He defends his idea by the fact that the reengineering has generated 92% increase in profits. However, these profits went more to the top managers whose wages multiplied at a dizzying rate more (220% to 350%). While the working class has been impoverished since 75% of workers accepted wages lower than those paid to them 10 years earlier. According to Rifkin (1995), new technologies separate the population of the world in two forces: new elite controlling technologies and productive forces, and a growing mass of workers constantly tossed around, with little hope to find meaningful employment in the new global economy. Those millions of workers, victims of increasing stress more intense in an ultra-technical working environment and where the precariousness of employment is increasing. Rifkin (1995) qualifies the workforce by the new reserve army which will feed the wheels of the temporary work. The European Parliamentary Research Service (2018) in its report (Global Trends to 2035) confirmed this view. The report attested that the “gig economy” would give rise to what is called the “contingent workforce”. It will reinforce the phenomenon of self-employment, temporary positions which can become the norm for an increasing number of people. This will fundamentally alter traditional employment relationships and may restrict the ability of workers to reap the rewards of potential increases in productivity and economic growth.

Yet there is deep fear that technological disruptions driven by emerging technologies Artificial Intelligence (AI), Machine Learning, Deep Learning, Robotics, the Internet of things (IoT), The Internet of me, Neuromorphic Computing, Quantum computing, Biocomputing, SMAC (Social, Mobility, Analytics, and Cloud) put pressure on employees to deal with these accelerated changes in terms of job displacement and skills erosion. Kurzweil (2005) predicted that AI will certainly be able to perform the vast majority of tasks that human beings perform today. There are also questions about the impact of human augmentation or what is called “Human 3.0” software, which can be executed directly by Nano computers inside the human body on the world of work. “Human softwarisation” or “mind downloading”. Human augmentation puts us face to face with a new reality that relating to the fact that from now on human beings will no longer rely solely on the current brain and body to live in the future world rich in information. The Pervasiveness of those technologies put the skills of em-

employees at the stakes. [Mulcahy & Meister \(2016\)](#) assume that we are only half way through the century long transformation moving us from automating physical work to automating knowledge work. It is uncertain to predict the effects of widespread technological changes on job creation and destruction.

Another vuca factor, which raises many questions, relates to the Internet of Things. As stated by (IHS Markit), 125 billion devices will be connected in 2030. As the hubs of these interconnected devices will be the human body, this will transform the Internet of Things into what the “Internet of me”. Of course, the more sophisticated the AI, the more likely the accomplishments: this may itself bring more inequality. The impact of the insemination of these devices among workers is not clear yet.

Regarding robotization and cobotization [Graetz & Michaels \(2015\)](#) found that robots appear to reduce the share of hours worked by low-skilled workers and leading to job losses. On this subject, [McKinsey \(2017\)](#) estimates that up to 30% of the hours worked globally could be automated by 2030. This will place downward pressure for lower-paid and lower-skilled workers. Thus, deflating wages and increasing inequality. [Graetz & Michaels \(2015\)](#) claim that AI will be “a game changer” for total factor productivity and growth, by gradually rising as a third pillar of production, together with labor and capital. [Brynjolfsson & Syverson \(2014\)](#), attest that the most impressive capabilities of AI, particularly those based on machine learning, have not yet spread widely and their full effects will not be realized until waves of complementary innovations are developed and implemented.

In their book “Heteroatom, and Other Stories of Computing and Capitalism”, [Ekbia & Nardi \(2017\)](#) have exposed the questions on the relationship between man-machine and their impact on workers. [Ekbia and Nardi \(2017\)](#) coined the term “heteroatom” to designate the genesis of a new form of work. Heteroatom includes many kinds of self-service, collaborative and volunteer work, crowd-sourcing, micro work, and a wide range of other activities that provide economic value to companies and organizations, but little or no monetary compensation to laborers. According to [Ekbia and Nardi \(2017\)](#), the digitization of the economy has transformed the division of labor between humans and machines, shifting many people into poorly compensated work, or accepted as part of being a “user” of digital technology.

The employees are in awe of a radical new condition of permanent insecurity, a future full of sporadic layoffs, endless efforts to upgrade job skills, and perpetually recombining work teams of insiders and “outsourcers”. [Mulcahy & Meister \(2016\)](#) argue that technological unemployment will affect 7.1 million jobs by 2020. Another question to be addressed concerns the question of career management. The question that arises regarding this point: can we still speak of a career in the era of VUCA? As it becomes more and more difficult to work for a single organization throughout one’s life, we can deduce that it becomes increasingly difficult to talk about a career. This situation was already foreseen by [\(Hall, 1996\)](#) who proclaimed, “the career is dead-long live the career”. This means that

employees will increasingly have to change employers several times throughout their lives, and as a result, it will become increasingly difficult for them to build a career.

Culturally, organizations today are a melting pot of ideas, religions, ethnicities, nationalities and so on. There is also a generational shift in demographics (Baby boomers, Generation Y and generation Z). Each generation has its own aspirations and needs. The three generations working together side by side and it is becoming commonplace for a younger boss to manage an older employee. This creates generational conflicts. The critical role of management in the current scenario of VUCA era is to propose a new paradigm that contains a set of precepts capable of ensuring the well-being of the employees while saving the interests of organizations. The focal points of this paradigm should consider the following points:

1) The recruitment process

The function of human resources management is itself in the vuca spiral since robots will be responsible for the recruitment operation. Indeed, several companies have already started to subcontract this function to machines. What must be retained is that human capital management procedures have been completely overturned in the era of VUCA. Several companies have turned towards a tough selection of talents using Artificial Intelligence and robotics. AI would rate the interviews by comparing it with the expressions and responses of the top performers hired for those positions. If the score of the applicants were low then the executives responsible for hiring may not look at the videos but if the scores were pretty good the applicants videos would be is considered and the candidates selected for a further process with the firm. To this end, questions should be asked on the future role of the HR function, on the human dimension in robotic recruitment process and equal opportunities between candidates.

2) Configurations for work organization

All of the landmarks that characterized organizations seem to be falling apart: a physical and fixed place, well-determined schedules, or by a set of homogeneous employees. Your best colleague may be a robot. Even though flexible work arrangements have tremendous benefits but at the same time it is going to increase the level of stress on management & workforce that has to be dealt well (Anderson, 2002). For Millar et al. (2018), effective approaches to treat VUCA require a better understanding the effects of innovation at organizational, functional and individual levels (financial and operational performance of the company, organizational commitment and employee involvement, ambidexterity of capacities, etc.) in relation to an individual level (for example, well-being , creativity, objective, agility, etc.).

3) The changes in the world of work induced by excessive automation

According to an OECD (2019) study, 32% of current jobs are set to be profoundly transformed by technology, which requires the implementation of new policies of cohabitation between man and machine and the mobilization of new skills. Currently, it is very difficult to assess exactly the impact of automation on

work and to what extent certain jobs cause them to be transformed or even disappear. It is also difficult to guess which sectors will be the most affected. There is also reason to ask the question about the configuration of emerging jobs and how the transition will take place in terms of skills, socialization, and legal arsenal relating to the protection of human rights.

4) Managing multi-generational gap

Organizations these days have employees belonging to multi generations who fall under various age groups. These generations are classified as Baby Boomers I, Generation Jones or Boomers II, Generation X, and Generation Y. Generation X, Y born people are known to be better aware of technology, and they like to use new techniques of working. They prefer to adopt new philosophies and they are considered innovative, while baby boomers & boomers II feel comfortable with their traditional ways and they do not like to come out of their comfort zone. It is important for an organization to retain both sets of people, as both categories are equally essential to organizations success. The task of HR manager is to respond to their needs accordingly.

5) Managing multi-cultural workforce

Bringing together skills from diverse backgrounds, countries and cultures helps breed the type of innovation and creativity required to compete in today's extremely competitive environment. This is truer for organizations now, more than ever.

6) Motivating employee

With the emergence of Y and Z generation, financial benefits are no longer considered a tool for retaining employee. The development of cross-functional and multicultural management, restructuring and globalization are required for retaining talent. Building internal capability is one of the methods to motivate employees. This involves providing employees with hard and soft skills training as well as improving these problem-solving skills and knowledge of technology.

6. Discussion and Validation of Hypotheses

The weakening of workers and the precariousness of their conditions and even their exclusion, dehumanization, inequalities and the split between skilled and unskilled workers are the risks caused by emerging trends in the world of work. The challenges caused by the VUCA world on human resources, lead us to question social policies (pensions, unemployment benefits and health insurance) which should protect all workers who will find themselves victims of the excessive automation as well as labor law which must accompany all these changes and be compatible with these new forms of work.

In addition to regulation, the emergence of new forms of employment requires the establishment of an effective system of lifelong training, which opens up new prospects for the less qualified those whom automation threatens in the first place.

Robotics and AI are a well-established reality. Therefore, knowing how to find a modus vivendi between man and machine is more than essential. For this, an

integrating model must be found to facilitate human-machine collaboration while guaranteeing the rights of employees. Suggestions have been made by a number of experts regarding the establishment of a universal basic income to safeguard the rights and dignity of workers (Rifkin, 2005).

In view of all the above, our first hypothesis which postulates that the VUCA model will lead to a negative transmutation of human capital is proven. However, the second hypothesis, which assumes that the VUCA model will bring positive changes to the management of human capital, is invalidated.

Thus, we believe that all these changes will require a reconfiguration of training programs and leadership styles. VUCA puts pressure on leaders to change and adapt their mindset. It is strongly expected of leaders that they respect their qualities of mentoring and their ability to motivate, but also to make decisions in an ethical and moral manner.

7. Conclusion

Peter Drucker once said that “the greatest danger in times of turbulence is not the turbulence; it is to act with yesterday’s logic”. To this end, the issue of human capital management must be seriously rethought in the light of the great changes that are taking place in the VUCA dynamic. Considering the different variants that we analyzed in the article, there is an urgent need for alternatives to the traditional workplace paradigm. What is to be feared that this VUCA environment will lead to a selection among the labor force, widen inequalities and reinforce social injustice. The paradigm in question must find the difficult equation between all of these variants. Rifkin (1995) proposes an exit so as not to break the social order based on work or to aggravate inequalities and violence. He believes that it is necessary in a new social contract and developing a non-market “third-sector” capable of occupying job seekers. Today’s employees need to be able to adapt to the changes brought about by the VUCA dynamic and all the precariousness it brings. This implies a large-scale change at the cultural, educational and even societal level. The issues of VUCA implications are beyond traditional institutional boundaries. A single actor or sector cannot resolve them. Governments, businesses, civil society actors, employees, thinkers, academics, citizens and consumers must work together, negotiate, and agree on novel ways of doing things.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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