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Opportunity or Threat?

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Opportunity or Threat?

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The Symposium is designed to create a friendly atmosphere among senior scholars, PhD students, researchers, and business practitioners.

While focusing on Systemic methodology the Symposium is also open to all scientific approaches in order to foster constructive debates and confrontations to create new paths of research and practice.

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COMPLEXITY AND SYSTEM THINKING IN THE ERA OF GREAT RESET

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The Complex Challenges of World Economic and Political Situations in the Post-Covid-19 Period

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ABSTRACT

On March 11, 2020, the World Health Organization (WHO) declared a global public health emergency (PHE) for Covid-19 until May 5, 2023, or May 11 2023 in the USA (WHO, 2023). Regarding social impact, it should be noted that the pandemic has affected the global economy and that the first cracks between international economic actors were evident during the pandemic. For example, the European Union and the United States have intensified their relations with Russia due to the Ukraine war. China's growing aspirations to become a global superpower and for its currency to replace the US dollar as the international means of payment have also led to a short circuit between the US and China. In the process, China and Russia have begun to create a parallel economic policy environment within the BRICS member states. Whether this could become a new global movement of non-aligned countries, the medium and long-term consequences of COVID-19 for the worldwide supply chain will also coincide with the economic effects of the war in Ukraine, economic sanctions against Russia, and possible changes in geostrategic spheres of influence and political and economic distribution (Astrov et al., 2022). Fears are

growing in international markets that the Ukrainian crisis could halt the post-pandemic recovery and, due to rising inflation, lead to a prolonged period of limited economic growth amid solid price increases, which could lead the world into a period of stagflation (COFACE, 2022).

It should be noted that the economic sanctions against Russia have prompted the European Commission to present a draft plan to make the EU boldly independent of Russian fossil fuels before 2030, starting with gas. In addition, the Brussels plan foresees faster installation of solar panels on roofs, accelerated issuance of permits for renewable energy sources (RES), decarbonization of industry, and increased use of biomethane and hydrogen by the end of 2030 (Deutsche Welle, 2022). Therefore, the Ukrainian crisis has accelerated the green transformation of the economy, especially in the US and the EU. However, the green change makes energy resources more expensive in EU member states and requires companies to prepare for widespread technology diffusion and digital transformation. All this increases the cost of doing business and, with the rise in environmental standards, reduces the competitiveness of EU companies (Mollet and Pilati, 2021). Thus, in 2023, the global economy faces challenges and threats ranging from green and digital transformation, changing consumer behaviour and widening income disparities to geopolitical tensions and health concerns. Each of these factors profoundly impacts the global economy and political dynamics. Threats include i) increased competition in the digital domain, ii) increased regulation and compliance requirements, and iii) supply chain disruption.

On the other hand, opportunities are emerging, such as i) new markets opened up by digital transformation, ii) government stimulus and support packages, and iii) opportunities for local sourcing and diversification. This theoretical essay aims to provide policymakers and economic practitioners with insight into the complex challenges and threats emerging or emerging in the post-pandemic era's global economic and political environment. The following Research Questions (RQs) come to the fore:

1. How has the Covid-19 pandemic affected the complexity of the global economy and political situation?

2. What are the major challenges and threats to the global economy in the post-pandemic era?

3. How do complexity theory and cybernetics provide insights into these economic and political changes in the post-pandemic era?

4. What strategies can be used to mitigate these threats and manage the complexity of the post-pandemic world?

This topic is approached through the prism of complexity theory and cybernetics. It is through the application of cybernetics and complexity theory that it is possible to understand the challenges and threats of the post-COVID-19 era. Both approaches make it possible to deal with the complexity of the world situation. Both directions emphasize the importance of feedback loops, adaptation strategies and interconnectedness in the systems that shape the world (Heylighen and Joslyn, 2001). For example, complexity theory is based on the proposition that systems behave in complex ways because of the interactions between their parts and that change often leads to unpredictable outcomes. Cybernetics focuses on the regulatory processes of systems and their ability to maintain stability during transition. Both theories provide insights into the complex economic and political dynamics currently facing the world (Smith, 2020).

Keywords: *global economy, post pandemic world*, *cybernetics, digital transformation*.

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Living the Reality of Start-ups' Digital Social and System Entrepreneurship

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ABSTRACT

From Complex, Wicked Spaces to Social and System Entrepreneurs

Introducing complex, potentially game-changing, digital innovations into markets encounters unique challenges as socio-techno-cultural contexts in which prospective clients are immersed tend to limit their appreciations to just those states and scenarios within their actual perspectives (trapped in paradigm lock-ins).

For entrepreneurs, venturing into such spaces harbors its own challenges as the often multi-disciplinary problem solving skills are in short supply, and added complexities also add levels of risk which may hamper their success in funding rounds. Additional team members, however, do not yield proportionally more absorptive capacity , as coordination needs , creative peer pressures, or social dynamics claim their own share of time and attention.

So-called 'wicked' problem spaces add further uncertainties as they focus on transforming 'actual real worlds' into 'future possible worlds' via reasonable, feasible, suitable, acceptable, and viable 'Worldmaking Projections'. The term 'wicked' labels ill-defined challenges "characterized by incomplete, contradictory, and changing requirements and complex interdependencies" where the prioritization of the information one needs for understanding the problem or the paths for potential transformations "depends upon one's idea for solving [them]" (Rylander, 2009).

For entrepreneurs in incubation start-up schemes, considerable time also needs to be expended on business planning and acquiring resources, on pitching and informing stakeholders, on being mentored and developing demos or prototypes, and on staying alert for seizing entrepreneurial opportunities (EO). The perception and discovery of EOs depend on whether the information available about such an opportunity is compatible and memetically resonating with the team's collective ideation capacities (Schlaile and Ehrenberger, 2016).

The cluster of Social Entrepreneurship (SES) further takes on board "pressing societal problems that are neglected by existing institutions" to "generate positive external effects" while observing "special normative demands concerning their exploitation" of both the business opportunity and economic value created. "Developing and processing a viable business model that works in the respective intersection is [another step up in the hierarchy of] difficult (social) entrepreneurial and managerial challenge[s]" (Schlaile et al., 2021, 74, 76).

Advancing solutions by rising above technological and economic purposes for eliciting transformative paradigm shifts and sustainability often requires system interventions typified by radical change and is referred to as Dedicated Innovation Systems (DIS) pursued by a novel "species" of System Entrepreneurs (SE). SEs are confronted with high uncertainties of decision situations, subjective possibilities of affording disruptive remedies to systemic dilemmas, emerging co-creating opportunities alongside the paths opted for, and "the need to attract a critical mass of cooperating stakeholders to create a chain of commitments that reaches a tipping point" (Schlaile et al., 2021).

Two Social/System Entrepreneurs and their Start-up Projects.

This article focuses on the realities of two – until now independently acting – entrepreneurs who happened to operate under the umbrella of the same start-up scheme in Port Louis, Mauritius. As they face all the complexities and risks detailed above, the focus will be on their engagement as social and system entrepreneurs in the digital entrepreneurship ecosystem (DEE) space. Insights into such real-case scenarios are rare in academic literature; the paper may forewarn or inspire entrepreneurs or researchers engaging in these spaces and opportunities.

Elia et al's define a DEE as "self-organizing community of interdependent entrepreneurial agents able to capture (technology based) opportunities by leveraging the existence of a complex system of (digital) services and tools that enable actions and interactions throughout all the phases of the entrepreneurial process". A DEE represents "a 'community' of living and non-living components interacting as a system" sustained by ten key flows (Elia, Margherita and Passiante, 2020). The two entrepreneurs have identified

these ten flows as the common denominators between their projects and - for the purpose of this paper – the DEE is to be applied as a descriptive interface.

Entrepreneurs 1 and Entrepreneurial Quest

Entrepreneurial Quest is an innovative scenario-based digital application designed with a workflow specifically tailored to support African entrepreneurs. This approach draws inspiration from the DEE notion and applies the relevance of its interconnected flows to the entrepreneurial journey. The application guides entrepreneurs through a structured process, providing essential information and tailored questionnaires to transform their ideas into tangible realities. It places a strong emphasis on equipping entrepreneurs with the necessary knowledge and resources through effective training materials and questioning approaches.

The primary objective of Entrepreneurial Quest is to significantly reduce the failure rate of startups in Africa. This failure rate is largely attributed to the absence of proper planning and access to crucial information, hindering entrepreneurs from making informed decisions vital for business growth and implementation. Entrepreneurial Quest aspires to create an educational environment that fosters collaboration among all stakeholders in the entrepreneurial ecosystem. The ultimate aim is to elevate the success rate of new entrepreneurs across Africa.

Entrepreneurs 2 and Knowcations

Knowcations has been conceptualized as a Personal Knowledge Management System (PKMS) within longitudinal streams of Design Science Research (DSR) resulting in over thirty multi-disciplinary scopus-indexed publications along continually evolving design concepts and artefacts. Its 2022 complementing transition from an academic project to a Mauritian start-up venture has, hence, just been a further logical step towards system realization. Its focus also expanded towards a digital community platform for knowledge co-creation as detailed in two prior publications (Schmitt, 2022, 2023).

In contrast to organizational high-investment/maintenance KMS with their centralized, top-down approaches and fairly homogeneous user base, Knowcations aims for a cloud-based platform with affordable decentralized client applications serving members with diverse skills, ambitions, means, and contexts. Its knowledge-worker-centric approach focusses on personalization, mobility, generativity, and the reducing of entropy (e.g., replication, fragmentation, outdatedness, falsification).

With its Tech-4-Good and educational agenda, its objective is to narrow the widening opportunity divides across the world and support transformational skills for sustainable development as, for example, connectedness, complexity awareness, communication and co-creation skills.

The synergies between the ten DEE flows and Knowcations have been realized early, pointed out, and visualized (Schmitt, 2021). The common ground between entrepreneurs and creative authors is not surprising; Figure 1 shows how pairs of DEE flows (recommending/net¬working, requesting/inspiring, sharing/deciding, suggesting/creating, and transferring/conceptualizing) correlate closely with Knowcations five SICEE flows (effectuating, seizing, imbedding, collating, and encompassing).

Synergies between Entrepreneurs 1 and 2

Both, Entrepreneurial Quest and Knowcations, face similar challenges, including constraints related to space and capacity. They leverage their outputs not only as their client future products and services but also use and test them as tools to navigate and validate their own workflows and strategic directions.

Both entities are committed to developing complementary solutions, benefiting the creative class of both entrepreneurs and knowledge workers, while also bridging the gap in opportunities for the greater good. Both sensed an entrepreneurial opportunity to collaborate for advancing their individual development agendas by utilizing the other's outputs:

- Knowcations had just completed a prototype as proof of feasibility with respect to: 1. ease of understandability of its decentralized concept, 2. workability and acceptability of its user interface. Both are key ingredients to gain the trust and commitment of an engaging community. The next step was to test it thoroughly in cloud-based group settings across all authorship levels from simple lists to complex template-or-standards-based assessments.

- Entrepreneurial Quest's next step was to transform its concept into an IT-based hands-on demo version in order to showcase its potential and business planning capabilities.

While Entrepreneurial Quest benefits from getting its demo version created on Knowcations, it also extends Knowcations proof-of-concept concerning Knowcations viability and versatility. Both organizations embrace the potential of the digital entrepreneurship ecosystem framework and process flows to ensure a seamless alignment in their efforts and will present more of their endeavor in the presentation and full paper.

Figure 1: Correspondence between DEE and SICEE flows (Elia, Margherita and Passiante, 2020)

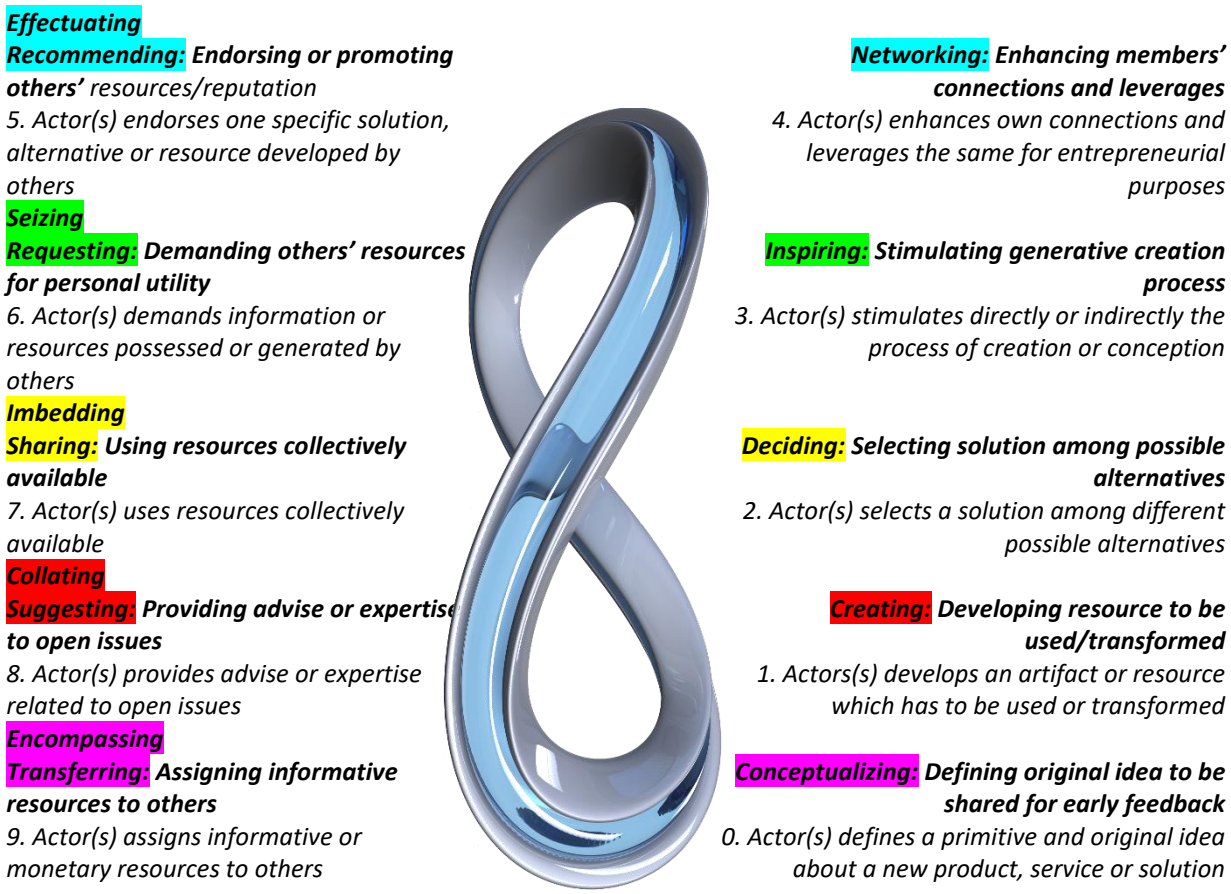

Table 1: Alignment of Synergies among the two Start-ups

Both are subjected to the problem, space, and capacity constraints referred to and use outputs not only as a potential product but as means to navigate and validate their own workflows.
Both are creating complementary solutions for entrepreneurs and knowledge workers to assist them to overcome these constraints and to narrow opportunity divides for the greater good.
Both are using each other's output to enhance own development agenda (Knowcations as means for IT-based EQ demo version, EQ demo for extending Knowcation proof-of-concept).
Both apply digital entrepreneurship ecosystem framework & process flows for alignments.

Keywords: *Social Entrepreneurship, System Entrepreneurship, Digital Entrepreneurship Ecosystem, Knowledge Management, Knowledge Co-Creation*

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System Attention for the Attention Economy's Great Reset

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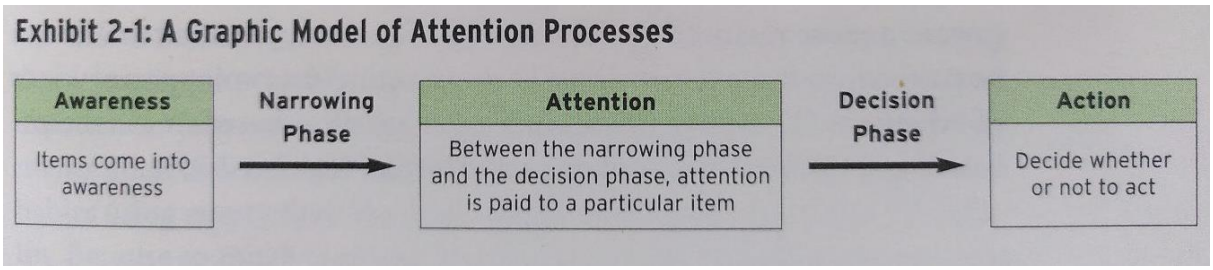
ABSTRACT

This contribution describes a core challenge of the current reset of the attention economy. It argues that the attention concept is indeed reduced to a commodity in the attention economy but that it is only criticised from a narrow individual perspective. It proposes that a reinterpretation of attention can help solve the challenges of the attention economy if it is broadened as more embedded in moral practice and considered from a system perspective.

Context

The current global use of AI is seen as a tremendous drive with endless opportunities. One core element in this development is the big tech's business model of the attention economy aiming to grab the individual's attention with digital applications. The work of Davenport and Beck (2001) has been a significant impetus in introducing technologies enabling the attention economy. They define attention linearly as "focused mental engagement on a particular item of information. Items come into our awareness, we attend to a particular item, and then we decide whether to act." (p. 20). "Awareness becomes attention when information reaches a threshold of meaning in our brains and spurs the potential for action." (p. 22).

Figure 1. Linear model of attention (Davenport & Beck, 2001: 22)



This attention economy business model has already been severely critiqued, aiming at a great reset. Attention-grabbing of digital applications is shown to have adverse effects on individuals, such as depression, loneliness, and concentration problems, and societies, such as democratic influences on elections and fake news (Crawford, 2015; Hari, 2023; Mark, 2023; Wu, 2017).

These mainstream critiques provide essential contributions to protect individual users' autonomy freedom and privacy. However, they start from the notion that attention is reduced to a commodified resource but do not elaborate on the rich and broad concept of attention it is reduced from. As such, they struggle to provide alternatives for understanding a broad concept of attention and reformulating broad societal alternatives. They focus on individualistic instead of systemic approaches. The concepts of craving and comfort are not sufficiently questioned as they are fundamental to the economic expectations in which the attention economy is embedded. And philosophically, the technology is considered as an external given instead of mediated. (Bombaerts et al., 2023; Citton, 2017; Hannes & Bombaerts, 2023). Among these existing critiques to the critiques of the attention economy, I elaborate the first two.

"Practice" - Toward a broader concept of moral attention for individuals or psychic systems

The mainstream approach of the attention concept in philosophy remains close to the linear approach of Davenport and Beck—Mole (2011, 2021), for example with state or access consciousness.

Other scholars, more peripheral in current philosophy, provide other answers. Phenomenologists, such as Maurice Merleau-Ponty, describe attention as "the passage from the indeterminate to the determinate, this continuous taking up again of its own history in the unity of a new sense, is thought itself." (Merleau-Ponty, 2012, p. 33). They bring forward the idea of the phenomenological field instead of a linear process. Ethics scholars, again peripheral in the ethics discipline, developed attention as an indispensable source for morality. The Irish novelist Iris Murdoch (2001), for example, analysed attention and "attending to" as "loving attention" and the fundamental and structural aspect of moral sensitivity. Murdoch and others,

such as Simone Weil (Weil, 1997) and Martha Nussbaum (Nussbaum, 1985), describe attention more as a practice than a commodity.

The Nobel Eightfold Path is central in Buddhist ethics and gives a summary of the Buddhist practices leading to a good life. "Right attention" ("sati" in the Pali language, also translated as "right mindfulness") is one of the eight practices of the Nobel Eightfold Path, closely connected to morality, ontology, practice and wisdom (Thanissaro Bhikkhu, 1993). Anālayo (2004) describes attention in Buddhism as "moment-to-moment awareness" but also as "memory", referring to a structure of meaning that helps to understand and interpret the context in an ethical way. Instead of a "downward" process in the attention economy in which attention is grabbed moment-to-moment and the meaning structure becomes more and more apathetic, Buddhism aims at a "upward" training of moment-to-moment attention and an equanimous

I introduce Niklas Luhmann to contribute two system approaches. His system approach can contribute to understand attention as a structure for consciousness (Luhmann et al., 2013: 188). He considers attention as the motor for consciousness in a psychic system (referring to an individual). As such, it is a fundamental concept for system theory as it is the motor of autopoiesis. It can also further explain the interaction between the individual and its environment via interpenetration (Luhmann, 1995: 195, 229) by activated attention (Luhmann et al., 2013: 243), linking psychic and social systems. In both cases, the core concepts time and structure of Luhmann's theory can be used to further develop moment-to-moment awareness and memory. System theory should be able to explain both the selections and the structure. A potential way is to consider attention as a cyclic process (see figure 2(a)) that interacts with consciousness in which time and structure are moment-to-moment shaped.

These could provide a solid basis for the theory of attention for morality and ethics at the individual level.

Table 1: Comparison of two key aspects in Anālayo's explanation of sati (attention) and Luhmann's two key aspects of a system.

Anālayo	**Luhmann**
Moment-to-moment	Time
Memory	Structure

Social System attention

The attention grabbed from a seven-year-old child on TikTok is not only an individual but also a systemic issue. Citton (2017) indicated methodological individualism, a central ontology scaffolding theories on individual rational actors in the economy, individual agency in psychology and cognitivism and a biological individual basis in neurosciences.

Several concepts have already been developed to explore attention as a non-individual phenomenon, such as shared attention (Garriy Shteynberg, …), social attention (Bernardo Huberman, …), collective attention (Jian-Guo Liu, Philipp Lorenz-Spreen, …), joint attention (Peter Mundi,…), or organisational attention (James March, William Ocasio, …). Although this current abstract reflects work that is only at its beginning, my first intuiting, however, is that many of these authors approach the collective aspect from a merely individual (or maybe even methodological individualist) perspective.

I want to contrast this with more system thinkers. Although Joanna Macy (1991) does not elaborate on attention, her book on mutual causation in systems might be helpful. Aylsworth and Castro (2022) plea for a "duty to be an attention ecologist". Dameski et al. (2022) analyse the interplay of individual and systemic values. Yves Citton (2017) talks about ecology (p. 107), ecosophy (p. 19), and echosystem (p. 29) of attention. Together with colleagues, I used ecology as a potential concept to develop a less individual approach (Bombaerts et al., 2023).

Here I want to focus on Luhmann who mentions attention ("Aufmerksamkeit") as the motor for consciousness and consciousness as the autopoietic driver of psychic systems. When he parallels this to the social system, he refers to communication as the autopoietic driver for social systems. However, he does not mention a concept like attention as a motor. This could be system attention.

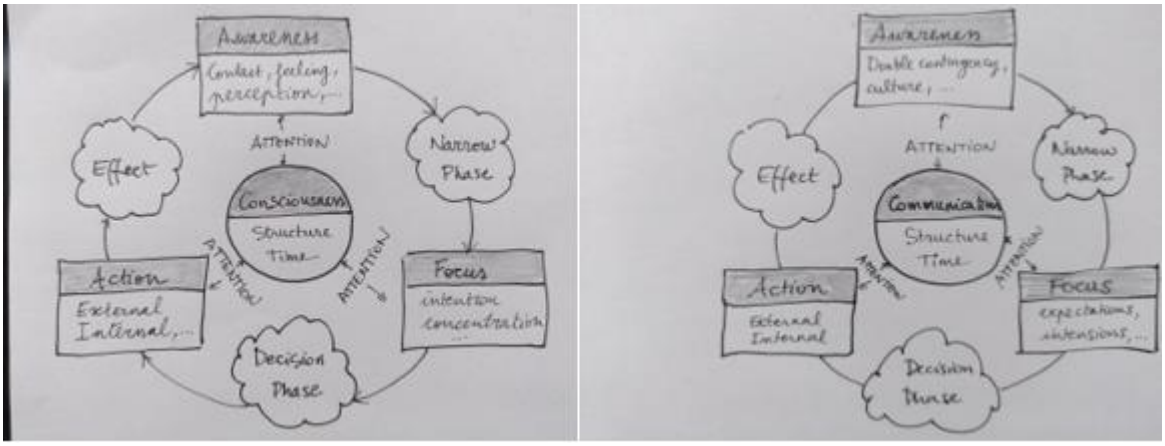
Table 2: Luhmann explains different systems and how "motors" define different operations. Luhmann seems not to have a "motor" for the social system operation communication. I propose "Social System Attention" here (Luhmann et al., 2013: 211).

System	**"Motor"**	**Operation**
Bio-organisms	Biochemical circularity	Life
Psychic systems	Attention	Consciousness
Social systems	***?? - System attention***	Communication

I propose analysing "system attention" as a motor for communication of social system autopoiesis. Sometimes, attention seems to be used for social systems. The attention mechanism in Luhmann's theory is a self-referential operation to select what is focused upon and what remains unnoticed (Luhmann, 1995: 415-6). From a Luhmannian perspective, social system attention can be promising to add to the existing non-individual attention theories. Attention, then, is the mechanism in the smallest-possible-temporal-atom event (Luhmann, 1995: 287) (moment-to-moment awareness for Anālayo, concentrated instability for Luhmann) in which selections are forced using expectations and norms (memory for Anālayo, structure for Luhmann).

I propose to also consider system attention as a cyclic process. As such, it could provide a solid basis for the theory of attention for morality and ethics at the individual level.

Figure 2: Cyclic representation of (a) psychic attention (individual focused); and (b) system attention (collective focused).



Conclusion

This contribution described a core challenge of the current reset of the attention economy. It argues that the attention concept is indeed reduced to a commodity in the attention economy but that it is only criticised from a narrow individual perspective. It proposes that a reinterpretation of attention can help solve the challenges of the attention economy if it is broadened as more embedded in moral practice and considered from a system perspective.

The above theory development clearly needs more elaboration. Theories of joint, shared, collective, or ecological attention might be relevant here. In social systems, both attention functions (moment-to-

moment awareness and memory) come back in the time or process and structure aspects, respectively. Also the role of morality in systems need to be further clarified (Bombaerts, 2023).

The structure/memory of the system attention refers to the assumptions of the market that are cyclic put into question at a moment-to-moment awareness. Although many concepts need to be still developed, system attention is therefore a promising concept as an important part of the answer to the reset of the attention economy.

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GENERAL PRINCIPLES OF PROBLEM SOLVING

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ABSTRACT

Living things with brain/mind apparatus of varying capability are engaged in generating a variety of thoughts concerning views, beliefs, calculations, emotions [Johnson-Laird, 1988]. Thoughts are produced by imagination or arise as a result of input from the sense organs, when they concern :

1. Maintenance of current states of affairs including self or survival or homeostasis, or
2. Achievement of a not yet existing state of affairs

we speak of problem solving.

Problem solving activity is innate and universal in living things and consists of:

a. Identification of a problematic issue (pi) and an envisaged, consistent, desirable, or not, state of affairs (sa),

b. The means of transformation from pi to sa referred to as appropriate interrelation, and

c. The means of creation of the interrelation by chance or design referred to as system or structure producing a product so as to enable it to exert the interrelation.

Living things predominantly humans, are incessantly and instinctively engaged in problem solving activity otherwise they would die or would not create novel states of affairs. According to A. Einstein 'Life is like a bicycle: if you stop pedaling you fall off'. However, living things when performing innate problem solving make use of points a., b. and c. Humans rarely if ever apply the three components in a systematic, comprehensive manner. People often suggest means when they hear a problematic issue without being aware of the appropriate interrelation hoping for an envisaged state of affairs. For example, people in public offices are prone to this kind of activity or hearing of an ailment of a friend a person

may suggest a remedy. Experience and professional knowledge can alleviate this situation. Currently there are suggestions for envisaged, comprehensive improvements of the life of people in societies with vaguely anticipated means of accomplishment and without detailed investigation [Schwab, Davis, 2018]. The inadequate thinking happens because the support by instinctive innate problem solving is not sufficient and current methods in problem solving are vague, fragmented and without agreed analytical support. This paper intends to initiate discussion of a more comprehensive, 'systems theory' which integrates the three components of problem solving giving a framework for more systematic thinking subject to peer scrutiny, further development, availability of software for working out the dynamics of scenarios and applications [Korn, 2022, 2023].

BASIC CONCEPTS

The intention is to express the preliminary notions described in the INTRODUCTION in more precise form. In the first instance it is suggested that we perceive things or parts of the world or objects or agents in their entirety resulting in images in the brain/mind and we react to or ignore them. When inquiring into the nature of things, this activity may be followed by making comments using defining characteristics or properties to arrive at a classification:

A. Natural inanimate things ranging from subatomic particles to galaxies created by chance or fortuitously or accidentally in nested hierarchy of increasing complexity;

B. Natural animate things ranging from cells to humans evolved in nested hierarchy of increasing complexity;

C. Artificial objects ranging from structures or static to dynamic systems or products created according to purpose in a nested hierarchy of increasing complexity or found in an environment by chance. The term 'nested' means that an entity at one stage of hierarchy is transferred to the next stage of higher complexity as a building block or whole leading to cumulative rather than one-off change. This type of entity was called holon by [Koestler, 1967].

The proposed principles lead to the symbolic structure or model of the 'systems theory' [Korn, 2022, 2023].

Principle of equilibrium

It is claimed that a part of the totality of A., B., C. or a thing selected by interest represents our experience aspects of which can be interpreted by arrangements of contingent properties into symbolic structures. Such structures can be seen to change from an initial equilibrium state to a final equilibrium state. Thus, we observe an incessantly evolving, developing or deteriorating world in direction of increasing or decreasing complexity as can be assessed by contingent properties of holons or wholes of which a particular thing is seen to consist. This kind of conclusion had been reached by Heraclitus in ancient Greece who asserted that 'you cannot step into the same river twice [Levene, 2010].

Principle of means of change of equilibrium.

Change of equilibrium state of a part of the world cannot change by itself, it needs an agent called system as expressed by Newton's 1st law of motion with reference to objects with mass. States of defined entities and agents are expressed in terms of properties and changes are seen in terms of these. This notion is shown diagrammatically in Figures 1. and 2. by the lines attached to contours.

Principle of emergence of functional structures.

Our perception of the world is that it is structural and there is no alternative. The elements of the symbolic structure of natural language for the representation of such a world are the smallest declarative, meaningful, context free sentences defined as ordered pairs. They can be directly expressed as logical conditionals in accordance with linguistic modelling and are called semi-holons because they cannot be broken down further. They are the elementary, structural properties of which increasingly complex, interacting structures or nested hierarchies can be constructed to model or to design a part of the world. Any such structure is viewed a holon or whole when a function can or cannot be assigned to it [Lipschutz, 1982, Korn, 2022, 2023].

Figure 1. Change of equilibrium states of inanimate things

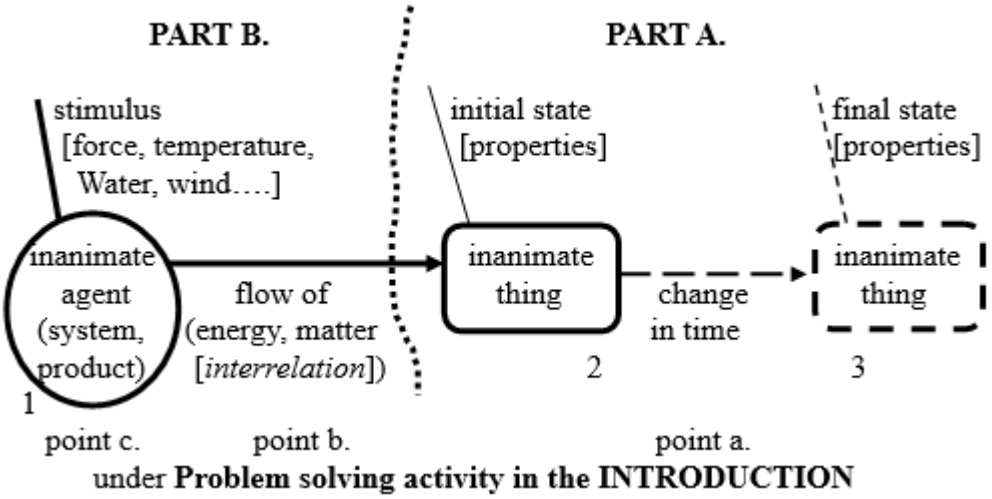
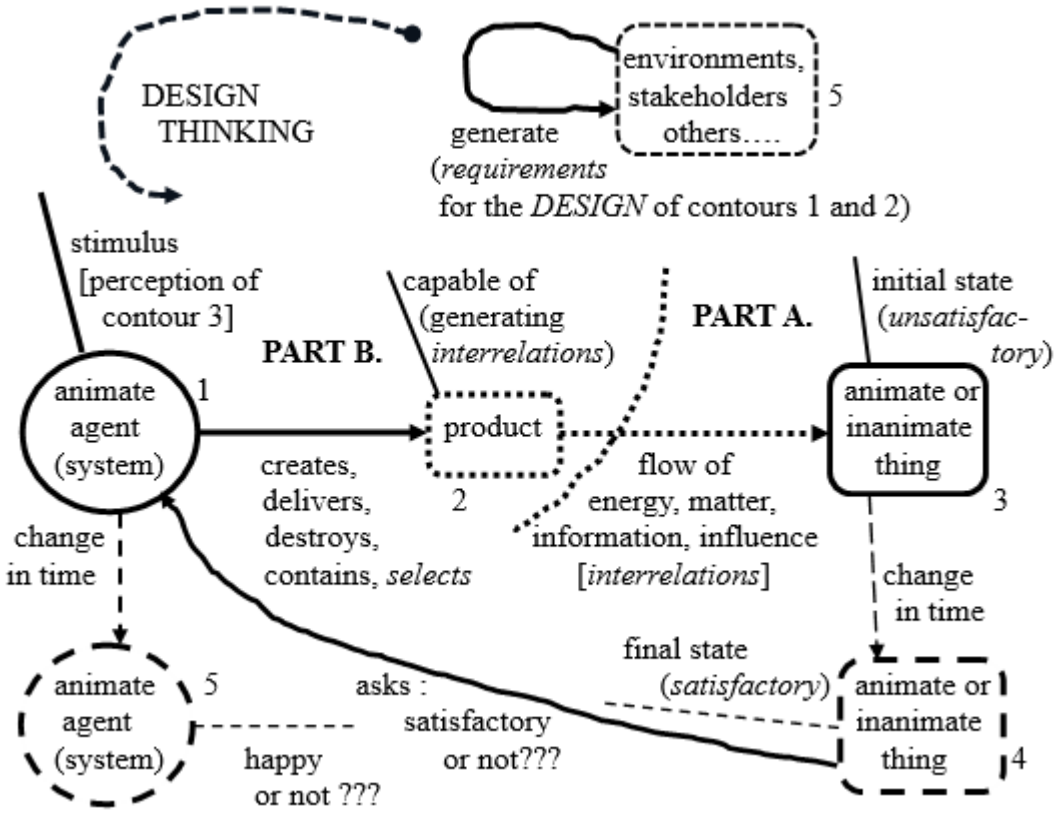


Figure 2. Change of equilibrium states of animate things



A sentence consists of noun phrases or images and a stative or dynamic main verb organised into a subject-predicate structure. Noun phrases and verbs are qualified by adjectives and adverbs which make

a sentence context dependent or falsifiable and called qualitative or quantitative properties [Popper, 1972].

Design thinking proceeds by selecting or constructing holons as qualified, static or dynamic structural units to form functional structures according to requirements generated by PART A. in Figure 2.

IMPLEMENTATION OF PART A. IN FIGURE 2.

'Story' of the problematic situation

The Prime Minister [PM] must return to 'basic values' to win the election, senior members of the political party warned. He was told tax cuts and house building would lure the many voters who stayed away from the polls resulting in recent defeats. The PM was also told to axe the 2030 ban on nonelectric cars.

1st STEP

To identify the initial state [IS] of Object with Problematic Issue, OPI [5] which can involve considerable discussion until an agreement between the parties invterested in the situation, is reached.

The IS of OPI [5] is: Election with defeat performed by the electorate.

(The term 'election' means = 'The mental/physical process of selecting by vote [to be cast] for an office one or more persons [candidate] by a group of people [the electorate]'.)

2nd STEP

To identify the User/consumer [7] and 'H/her initial, mental state or expectations' which involves discussions until selection is agreed upon.

User/consumer [7] and expectations: All members of the political party expects the election to be won.

3rd STEP

The observer or designer produces, invents a choice of possible, desirable, consistent Final State [FS] of OPI [6] which may or may not be acceptable to the interested parties

FS of OPI [6] is: Election with winning which means the candidate of the political party to have obtained the majority of votes by the electorate [there is no alternative]

4th STEP

Investigating the closeness of the Final State of OPI [6] to the expectation or IS of User/consumer [7] to allow the latter to become FS of User/consumer [8] leads to

FS of OPI [6] in the 3rd STEP is the only acceptable state for FS of User/consumer [8] to happen.

5th STEP

Selecting product [3] from a 'store of available products' judged and evaluated to be capable of exerting the kind of interrelation with suitable properties to accomplish the change of state from OPI [5] to OPI [6]

Interrelation: 'Affecting the mental state of the electorate so as to cast their vote for the candidate of the political party'

The 'material objects' possessing the appropriate qualities and quantities or product [3] capable of producing the interrelation are:

1. The political party is to recall and to act according to 'basic values',
2. The chancellor is to cut taxes,
3. The construction companies are to build houses,
4. The government is to drop the ban on non-electric cars by 2030

which are suggested from the ''Story' of the problematic situation', otherwise to be found by creative imagination or investigation, invention.

6th STEP

Suggesting the pertinent static and dynamic properties of the objects and agents involved in a problematic situation and using the Entailment Relation to generate the REQUIREMENTS for product [3] to cater for these properties. The objects and agents are

Interrelation (I)

OPI (O)

User/consumer (U)

Objects external but relevant and interested in Part A. such as the physical and social environments (E) which lead to 'product specifications'.

I – Interrelation,

1. The form of interrelation is 'information' to persuade. It needs to be designed and constructed so as to be of interest to the electorate [Korn, 2022]. In addition, information is to be delivered tactfully.

O – Electorate,

2. An electorate is usually a group of heterogenous people, here we assume that they are homogenous. They are elderly people preferring solid, time proven values, like tax cuts but not enthusiastic, live in their own houses, do not drive cars.

U – All members of the political party,

3. They are a mixture of elderly with a significant proportion of young people preferring new ideas, interested in tax cuts and house building, drive cars.

E – Opposition party,

4. Denies basic values, supports tax cuts and house building and preservation of the physical environment.

7th STEP

Matching the properties obtained in the 6th STEP to those of product [3] obtained in the 5th STEP using the Entailment Relation followed by the Object Selector Matrix [Korn, 2022].

The Entailment Relation is constructed as follows with the numerals referring to the properties of objects and agents in the 6th STEP.

A. *There are agents with properties of:*
Interrelation --- 1. Information of interest tactfully delivered,
Electorate --- 2. Elderly people with time proven values, like tax cuts but not enthusiastic, live in their own houses, do not drive cars,
All members of political party --- 3. There is a mixture of elderly with a significant proportion of young people preferring new ideas, interested in tax cuts and house building, drive cars,
Opposition --- 4. The opposition party denies basic values, supports tax cuts and house building and the preservation of physical environment.
B. *There is a product [3] with properties to fit those in A. which*
C. *REQUIRES properties of product [3]:*
Interrelation --- a. Well formulated information of interest advertised and delivered with consideration,
Electorate --- b. Prefer political party with emphasis on 'basic values',
All members of political party --- c. Members of the political party are interested in new values, tax cuts, house building and drive cars,
Opposition --- d. Opposition does not admit to basic values but they are all for tax cuts and house building also for banning nonelectric cars.

The Object Selector Matrix is ---

List of possible products [3]	Set of qualifiers of product [3] a	b	c	d
Political party with 'basic values'	1	1	0	0
Chancellor with taxes cut	1	0	1	1
Companies building houses	1	0	1	1
Government dropping the ban	1	0	1	0

Conclusions

The composition of the electorate is a major factor in generating the products [3]. Here one of the suggested products [3] is suitable to affect the state of mind of the electorate to vote for the political party. This is shown by the Object Selector Matrix. The PM was ill advised by the senior members of the party.

Keywords: *problem solving, equilibrium, linguistic modelling, logic.*

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Ways of Seeing Wholes: Systemic-PSM and the Problem of Adoption

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ABSTRACT

Softer forms of systems thinking and Soft-OR provide the theory, the methodology and the methods by which managers can see the situations they are trying to manage as "wholes". They facilitate what has commonly become known as "bigger picture" thinking and "bigger picture" analysis and are widely cited as effective tools for managing complexity. But despite over 50 years of development, the extent to which these ideas have penetrated mainstream management thinking and practice is still very limited. And yet the ideas and concepts continue to be vigorously debated in academic literature (see for example: Jackson, 2019). The widely held assumption that the methods and approaches are appropriate for a broad class of messy, complex, and inter-connected problems implies that there should be no shortage of demand for these ideas. But the record of adoption is at best patchy. Existing research suggests that take-up is frustrated by:

(1) the difficulties of developing the necessary expertise (Keys, 2006; Tavella, 2018),

(2) the perceived value of the methods in situations where the outcomes of intervention are unknown (Midgley et al., 2013; Tully, White, & Yearworth, 2019),

(3) the identity and suitable differentiation of systemic-PSM in relation to other management ideas (Smith & Shaw, 2019), and

(4) the notion that systems thinking is perceived to be "too radical" (Ackoff, 2006).

But questions about the adoption of systemic-PSM remain under-theorized because most published case studies report successful interventions which are designed to indicate specific advances in theory and practice. Reports of less successful interventions, or those with only modest levels of success, are fewer

in number (see for example, Connell, 2001), but are no less important in deepening the understanding of how managers receive and take-up, and sometimes repudiate, systemic-PSM.

This article and presentation use a qualitative multiple case study design to report findings from four interventions using systemic-PSM in four different organizations (two from the UK and two from Romania). The findings are reinterpreted through the lens of Luhmann's (2018) complex social systems theory. They advance our theoretical understanding of the adoption or acceptance of systemic PSM and the circumstances in which such methods will be rejected or even repudiated. Applications of softer forms of systems thinking, or Soft-OR, are better received and more likely taken-up by managers in situations where an existing organizational decision premise is contested and no longer functions as a stable reference point for future operations and decisions (Achterbergh & Vriens, 2009). In these circumstances, managers show greater curiosity in systemic-PSM and are more willing to adopt it as a means of addressing perceived deficiencies in ways of internally generating information, communication, and "ways of seeing". However, systemic PSM also presents managers with a paradox. Its methods can be used to speculate about an organization's future, and as a means of deciding what that future could be, but at the same time managers are reluctant to perform "bigger picture" analyses if the product of such thinking is perceived to over-specify a future direction that could be ill-adapted to a future which is unknown (Andersen & Grønbæk Pors, 2016). In such circumstances would-be users are likely to turn away from systemic-PSM and become skeptical about the value of its comprehensiveness.

This changes the way we think about interventions using systemic-PSM and leads to a theory that produces a more nuanced understanding of the circumstances in which systemic-PSM might be needed and effectively deployed. It has implications for systems research. Existing theory tends to focus on the problems and problem contexts that managers and organizations face. But the theory of ideal-type problem contexts, and their discovery, realization or near manifestation in actual practice does not automatically guarantee that systems-inquiring methods will be taken-up. It can ignore the inherent decision logic of the organization in which the intervention is carried out and can underestimate the organization's ability to create its own "secondary" complexity (Luhmann, 2018). The empirical material observed as part of this investigation and the theory of complex social systems suggests that systemic-PSM is more likely deployed as an exception rather than the rule and is likely to be in demand when existing ways of seeing have been exhausted.

Keywords: *Systems Thinking, Problem Structuring Methods (PSM), systemic-PSM, Critical Systems Thinking (CST), Soft-OR, complexity, autopoiesis, complex social systems theory, holism, decisions, decision premises*

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EDUCATION, LEARNING AND RESEARCH IN THE NEW GLOBAL SCENARIO

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Reimagine the Future through Educational Innovation in Business Education

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ABSTRACT

The world we live in has transformed, presenting new challenges across all societal domains. The recent situation caused by the SARS-CoV pandemic and its variants has propelled humanity into a transformative process where sustainability and the appropriate use of technologies hold special significance (WEF, 2020). These challenges need to be addressed through the education of individuals who can adapt to increasingly complex environments and develop the necessary competencies to tackle the issues that will shape the present and future generations. Education, in this context, assumes a fundamental role in shaping leaders to become effective agents of change within their respective contexts. This is particularly pertinent in the realm of business education, where students are presented with a unique opportunity to influence economic, social, and environmental dynamics. However, current higher education practices often fall short, failing to empower graduates with the critical thinking needed to address complex real-world problems. This shortfall is attributed to the prevalent use of abstract models with limited integration of theory and practice, ultimately impeding the positive transformations anticipated by these future professionals (Ar et al., 2023). To truly prepare students for the challenges they will face, a paradigm shift in business education is necessary.

In this scenario, these arises the need to develop new strategies that facilitate the transformation of traditional education into one focused on the development of high capabilities in citizens. In this new reality, the development of complex thinking is essential to address these challenges, making new methodologies and technologies that promote these necessary skills (Sanabria-Z et al., 2022). On the other hand, the integration of an approach that favors sustainability has also become a requirement, although there is still, work to be done to make it multidisciplinary and to turn it into a transformative

learning experience for students (Taimur and Onki, 2022). Given the rapid changes in our society's economic, geopolitical, and technological landscape during the 21st century, educators face the challenge of determining which skills and strategies will be most valuable to their students both now and in an uncertain future. Business education should involve creative thinking processes that cater to students' needs through multidisciplinary integration, experiential learning, soft skill development, adaptability to a global perspective as well as awareness of business ethics, social responsibility, and information technology.

Accompanying these needs there has been a growing development of emergent technologies that impact the potential revolution of the way we approach education and prepare students for future challenges. These technologies, such as virtual reality, augmented reality, and artificial intelligence, can provide immersive and interactive learning experiences that bridge the gap between theory and practice (Yang et al., 2022). This approach offers an opportunity for educational innovation in business education to reimagine the future of education, effectively preparing students to address complex sustainability challenges, integrate new competencies connected to practice and empower them to drive organizations toward innovation and sustainable performance (Guiwen, 2023). However, this transformation requires a change in business education that goes beyond traditional teaching methods and embraces innovative approaches to meet the evolving needs of students.

To address the shortcomings of current higher education practices it is crucial for business education to adopt a learner-centric approach. Instead of a one-way process of learning, education should foster critical thinking and active engagement from students, encouraging them to analyze and solve real-world problems (Marshall, 2018). This can be achieved through experiential learning, where students are exposed to teaching and learning in a more interactive and hands-on approach. Additionally, collaboration with industry professionals is necessary for faculty members who aim to instil knowledge effectively while fostering creative thinking and co-creation processes (Portuguez-Castro, 2023). This approach offers a holistic understanding of modern-day businesses, calling for commitment from all educational stakeholders.

This amalgamation of challenges and opportunities underscores the urgency for a comprehensive reassessment and reformulation in education, with a clear focus on the training of individuals capable of

facing a constantly changing world and contributing to a more sustainable and equitable future. This study will present the results of a Systematic Literature Review (SLR) that will guide efforts toward the transformation of business education for the future. In this review, we will seek to identify new trends used in business schools to develop competencies in complex thinking, entrepreneurial mindset, and sustainability awareness. Likewise, we will identify the main innovative pedagogies and technologies used in business education to propose new solutions and recommendations for designing formative experiences that lead to more significant and impactful learning outcomes for society. It is expected that this study will be of interest to educators, decision-makers, and industry stakeholders to drive the future of business education within an era of innovation and transformative learning.

Keywords: *educational innovation, business education, complex thinking, artificial intelligence, higher education.*

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Fostering Entrepreneurial Success: Unleashing the Potential of Generative AI through Task-Technology Fit. A Multi-case Study Approach

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ABSTRACT

Entrepreneurship is regarded as one of the primary drivers of economic prosperity and is thus considered a reasonable means to promote the growth of emerging economies and tackle the major challenges posed by poverty in developing countries (Soluk et al., 2021). However, entrepreneurs often encounter significant barriers to the success of their ventures. While inclusivity for individuals, regardless of their circumstances, is a fundamental concept in entrepreneurship, the lack of necessary financial capital and other types of missing resources or support can explain the difference between success and failure in entrepreneurship; moreover, in practical terms, the availability of these resources is not equitable and varies for different entrepreneurs based on various factors (Tran and Murphy, 2023). The emergence of generative artificial intelligence (AI) has created new possibilities for greater equity, increased access, and more comprehensive democratization of vital entrepreneurial resources. Generative AI has the potential to significantly impact entrepreneurial endeavors in various areas, encompassing core business functions like marketing, finance, and customer service, as well as core processes such as opportunity recognition, business modeling, and resource mobilization. Tools like ChatGPT or DALL·E for generating marketing strategy content can assist entrepreneurs in differentiating their products or services, reducing costs, optimizing risks, or delivering innovative offerings to society (Winkler et al.,

2023); generative AI stands out as a technology with immediate and widespread impact, and what sets it apart is its general accessibility to all (Mollick and Euchner, 2023).

To assess the potential contribution of Generative AI to the development of entrepreneurial functions, the Task-Technology Fit Theory allows us to explore, in this study, the alignment between business processes that entrepreneurs must undertake as marketing actions (tasks) typically associated with high entry costs, and the use of generative AI tools (technology). The Task-Technology Fit Theory proposed by Goodhue and Thompson (1995) is based on the notion that task effectiveness and performance are influenced by the relationship between task characteristics and the technology used to perform that task. To validate the effectiveness of the tools, various factors are evaluated, such as production timeliness, training and ease of use, system reliability, among others (Spies et al., 2020). Consequently, this article aims to investigate the impact of Generative AI technology on business tasks and the potential performance it can bring to entrepreneurs.

To this end, a multiple case study will be conducted involving various early-stage entrepreneurs operating in different sectors and locations across Peru. According to the Global Entrepreneurship Monitor (GEM) report, Peru ranks first in terms of the entrepreneurial spirit index in Latin America (LATAM) and fifth globally with a value of 0.37, making it one of the countries with the highest intention to engage in entrepreneurship in LATAM (PCVA, 2023).The selected sample will consists of entrepreneurship students from a leading business school in Peru, whose final projects must incorporate business processes to be developed, as well as the associated costs in their startup phase for subsequent financing and scaling support. Students will be trained in the use of Generative AI tools to outline their business proposal, and through the explanatory case study method, which allows for an understanding of a phenomenon within a real-world context (Yin 2009), the fit between technology and tasks to be performed will be evaluated. It is expected that this study will be of interest to educators, decision-makers, and industry stakeholders to drive the future of entrepreneurship, creating new possibilities for greater equity, access, and democratization of entrepreneurial resources.

Keywords: *Entrepreneurship, Generative artificial intelligence, task-technology fit, multi-case study.*

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A Proposal for a Centralized University Admission System in Romania. An Ex-ante Evaluation

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ABSTRACT

This paper unveils the results of an ex-ante evaluation regarding a proposal for the implementation of a centralized university admission system using the baccalaureate as a method of evaluation, in Romania. The developing of the proposal for this education policy change respects the principals of fair admission elaborated by Steven Schwartz (2004) to provide equal opportunities no matter the social or economic backgrounds. Thus, a fair admission system should be transparent, competency-based, to use reliable and valid evaluation, to minimize barriers that are irrelevant, and to be professional (Schwartz, 2004, pp. 7-8). Because in Romania there is not a unique (centralized) admission system in universities, an ex-ante study has the advantage of being able to refine and to establish realistic objectives and reference standards (benchmarks), in relation to the assumed costs (Gertler et al., 2016, p. 14). In this context, a mixt method research was employed to reach two objectives:

1. To understand the extent to which the baccalaureate is already utilized as an evaluation method in the undergraduate admission process by faculties;

2. To ascertain the perspectives of stakeholders regarding the proposed centralized admission system.

To accomplish the initial research objective, a content analysis of the methodologies employed for organizing and conducting admission competitions to undergraduate university study programs was executed between October and December 2021, amid the context of the Covid-19 pandemic. If these public documents did not provide the necessary information, we proceeded to an additional analysis of university or faculty websites. The sample consists of all the faculties (n=369) of the Romanian civil state and military universities (n=52).

In order to answer the second research objective, we conducted semi-structured in-depth interviews with 27 respondents, carried out between April and May 2021. The categories of people interviewed include experts from the Ministry of Education and the Romanian Agency for Quality Assurance in Higher Education, high school principals and teachers, persons with leadership positions in the university system (vice-rectors, deans, vice-deans), as well as pupils and students, as beneficiaries of the education system.

The findings show that about a half (53.4%) of the Romanian state faculties use solely the baccalaureate in the admission process, and for 69.9% the baccalaureate grades represent at least 50% of the average of the admission grade. The baccalaureate is not considered within the fields of study in the arts and is given less consideration in the fields of medicine, as well as physical and military education.

The qualitative research indicates a high level of agreement among pupils and students with this form of university admission system. However, interviewees from the universities display a notable reluctance towards this policy. They perceive the baccalaureate as not being relevant to their university or faculty, despite many of their institutions already employing it exclusively to establish a hierarchy in the admission process at the undergraduate level. This apparent paradox can be attributed to concerns that universities may lose their autonomy in the event of the implementation of a centralized admission system.

The findings show that a centralized university admission system using the baccalaureate must be developed and put into practice after a broad consultation with all the stakeholders. Furthermore, this system could be optional (initially, at least), to alleviate concerns among universities about losing autonomy. This would also allow faculties requiring artistic, physical, or psychological skills to continue organizing their specific admissions.

Keywords: *admission system, baccalaureate, centralized university admission system, ex-ante evaluation, fair mixed method.*

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ARTIFICIAL INTELLIGENCE (AI) AND ITS IMPACT ON BUSINESS AND SOCIETY

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Perspectives on Managing Cyber Security Risks for Sustainable Challenges in the Digital Era

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ABSTRACT

In the new world order of international interdependences, the digital component is creating new cyber security risks. The complexity and development speed of new technologies require a continuous revision of managing cyber security risks for managers both in the private and public sectors. Therefore, worldwide, professionals tend to assume, as a common goal, cybersecurity as a matter for the top management. Managing cyber security risks is not an easy job, implementing new updated strategies is a must and sharing best practices might guarantee a successful process. However, to achieve this, firstly cyber security should be seen as a human security issue and secondly top management should have a basic understanding of the cyber security risks in the information security field. Additionally, top managers should be aware of the legal perspectives in cybersecurity, of the expertise in the field and nevertheless they should encourage and facilitate the sharing of the best practices in managing the cybersecurity risks. In October 2022, Allianz für Cyber-Sicherheit, in partnership of the Internet Security Alliance and with the support of SAP published a "Handbook for German Boards of Directors" and a "Cyber-Risk Oversight Toolkit" following the above-mentioned principles, with the purpose of improving the organizational cybersecurity and contributing to the needs of the cyber-ecosystem. The six key principles that boards are recommended to assume within their strategies might be applied as a framework to each institutional level and contribute to the fulfilment of their cybersecurity responsibilities. The six principles, as identified within the handbook, are:1. Cybersecurity is more than an IT issue, 2. Awareness on the legal perspectives on cybersecurity;3. Access to expertise in the area; 4. Existence of a cybersecurity framework, 5. Demand of cyber risk assessment; 6. Sharing best

practices.[1] All these principles might be applied as a toolkit for each public and/or private institution to identify the strengths, the weaknesses, the threats, and vulnerabilities of cyber security and build better strategies within the organizational culture and nevertheless be able to answer efficiently to the sustainable challenges in the digital era. As for a future contribution to the cybersecurity ecosystem I plan to apply this framework to the Romanian country realities and disseminate the findings to the scientific community and interested actors.

Keywords: *cyber security, digital era, sustainability, management.*

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Managing Cyber Risk, A Handbook for German Boards of Directors, October 2023, available in English and German versions here: https://www.allianz-fuer-cybersicherheit.de/Webs/ACS/DE/Informationen-und-Empfehlungen/Empfehlungen-nach-Angriffszielen/Unternehmen-allgemein/Management-Handbuch/management-handbuch_node.html

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Profiling Malicious Actors in Social Networks using AI

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ABSTRACT

Malicious actors in social networks refer to individuals or entities who engage in harmful, deceptive, or unethical activities within online social platforms with the intent to cause harm, disrupt normal activities, or gain unauthorized benefits. These individuals often employ various strategies, such as spreading misinformation, cyberbullying, phishing, spamming, identity theft, or engaging in cyberattacks, to achieve their malicious objectives. Detecting and mitigating the activities of these malicious actors is crucial to maintaining the safety, security, and integrity of online social networks and protecting their users from harm. Certainly, the openness and freedom of online social networks have inevitably drawn the attention of new malicious actors who engage in behaviors that are disrespectful and ethically questionable. These actors engage in actions such as unauthorized data theft, dissemination of false information, and harassment of other network participants, as noted by Torregrosso et al. in 2020. Examples of their malicious behavior include spreading vaccine hesitancy, promoting climate change denial theories, or initiating disinformation campaigns aimed at manipulating public opinion to influence democratic election outcomes. Consequently, there exists a diverse array of tactics employed to subvert social networks and manipulate public discourse such as online trolls, "deepfake" creators, bot networks, hate groups and hate speech spreaders and many others.

The objective of this project is to uncover and identify the presence of malicious actors within online social networks. To achieve this goal, we adopt a multidisciplinary approach that involves experts in cutting-edge computational techniques from the fields of Artificial Intelligence and Computer Vision, as well as experts from the Behavioral Sciences domain. Through this holistic approach, we aim to enhance our understanding of malicious actors within Online Social Networks and develop effective.

The specific objectives of our project involve analyzing and profiling various types of malicious actors within online communities. However, we will place particular emphasis on addressing two significant issues: 1) Anti-Immigrants Movements: this objective entails studying and understanding the dynamics of anti-immigrant movements within online social networks. These movements can have significant societal and political implications, and our research aims to provide insights into their behavior and impact; 2) Anti-Vaccine Communities: Our second objective is to investigate and profile anti-vaccine communities present in online spaces. Given the potential health risks associated with vaccine misinformation, our research in this area is crucial for public health and safety. Both of these objectives are aligned with the EU Cyber Security Strategy and are relevant to addressing threats to the future of the European Union. By focusing on these specific challenges, our project aims to contribute to a safer and more informed online environment.

Keywords*:* *AI, malicious actors, disinformation, multidisciplinary approach.*

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Ensemble-Based Community Detection Bibliometric Analysis of Sustainability Trends in Digital Economics

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ABSTRACT

With digital technologies reshaping economic practices and enabling sustainable change, sustainable development and economics are merging in the digital age (Hediger 1997).

Due to digital technologies, businesses, governments, and civil society face new challenges and opportunities. Digital technologies can mitigate climate change in various ways (George et al., 2021, Sustainability in the Digital Age, Future Earth, and ClimateWorks Foundation. 2022). During this era of innovation, sustainable practices should be boosted. Technologies can galvanize climate action and champion green business models (Anadon et al. 2016). However, there are challenges: firm organization adaptation (Ye et al. 2020), burgeoning electronic waste, soaring energy consumption, and deepening economic inequality (for instance, Sustainability in the Digital Age, Future Earth, and ClimateWorks Foundation 2022). Despite its many benefits, the rapid expansion of digital technology requires careful consideration of its multifaceted impact on Sustainability.

So, business adaptations in the Digital Age are fundamental. Digital transformation is bringing new economic paradigms, putting businesses at a crossroads. As businesses attempt to balance profit-driven objectives with sustainable imperatives, Park et al. (2021) delve into this evolution. Technology-driven sustainability measures are essential to a business's Sustainability and resilience in this digital age.

There are also relevant **environmental implications in Digital Transformation**: with the help of digital technology, we can make better environmental decisions by accessing better data and Analysis (Feroz et al. 2021, Sustainability in the Digital Age, Future Earth, and ClimateWorks Foundation 2022). "In regions vulnerable to climate change, monitoring through machine learning techniques can enhance both food security and carbon absorption (Sustainability in the Digital Age 2022). With digital technology,

efficient and sustainable energy sources, like solar and wind power, can also be developed, thus reducing our reliance on fossil fuels (D'Odorico et al. 2017).

Despite its many advantages, the digital era has amplified concerns about climate change and environmental degradation. Ye et al. (2020) state that digital advances facilitate climate modeling, vigilant monitoring, and effective mitigation. It is impossible to ignore the shadows cast by the digital age, from the extraction of resources to the massive carbon footprint of data centers. The importance of balancing technological progress and environmental preservation cannot be overstated (Sustainability in the Digital Age, Future Earth, and ClimateWorks Foundation 2022 and Ye et al. 2020).

In this respect, an understanding of the digital economy is crucial in this day and age (see Cricelli & Strazzullo 2021, Rosário & Dias 2022, Ginters 2020). The benefits of digital technologies must be leveraged while simultaneously addressing their inherent challenges (Park et al. 2021). Embedding Sustainability into economic decisions requires cogent policies, rigorous research, and collaborative efforts. This work aims to explore and analyze the literature landscape of the existing scientific works. In this sense, it is crucial to identify the most essential core results and literature findings. Secondarily, there is a need to identify gaps in the literature and future possible developments.

Bibliometric Analysis in this context is relevant (Donthu et al. 2021, Aria and Cuccurullo 2017 and also in the analysis of scientific literature on the analysis of technologies see Drago et al. 2021). In order to perform the bibliometric analysis we have created the bibliometric dataset from Scopus using this query:

sustainability AND economics AND "Digital Era" OR "Digital Economy" OR "AI Era"

The data was collected the 6/9/2023. This study uses this approach considering, more specifically, a network analysis on the bibliometric data approach, sourcing data from the database. Using network analysis, relationships between various scholarly works were mapped, highlighting interconnections and clusters of related research. Community detection techniques were applied to identify distinct groups or communities within the network, representing cohesive thematic areas. Consensus clustering was then used to validate these communities, ensuring robustness and reliability in the identified clusters (Drago 2018 and Drago & Balzanella 2015). The procedure is particularly innovative and relevant to the problem considered because different community detection algorithms can yield different results (Leskovec et al. 2010). A consensus strategy approach in community detection allows one to consider all different

approaches and find a solution that "averages" the other, finding a robust result (see, for instance, in the topic of Corporate Governance and Sustainability Drago & Fortuna 2023).

Keywords: *Sustainability, Digital Transformation, Digital Economy, Bibliometric Analysis, Consensus Community Detection.*

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Constructing a Density-Based Composite Indicator to Analyze Public Awareness of Environmental Risks Using Google Trends for Italy

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ABSTRACT

With the rapid development of digital technology, public awareness of critical environmental issues has transcended traditional survey methods, increasingly relying on analyzing web-based data. In this respect, the usefulness of the query data (for instance, the data retrieved from Google Trends see Google Trends 2023) is relevant. Various possible applications were proposed in macroeconomics and business economics (Carrière-Swallow & Labbé, 2013; Drago, 2023). So, their relevance cannot be undervalued. Public opinion's role in "environmental sustainability" has become crucial since public interest patterns can be discerned online (Johnson et al., 2005; Wang et al., 2022). In the face of "global warming" and "climate change," a transition to cleaner energy sources is necessary, which is known as the "energy transition." Moving away from fossil fuels is required to bring about this change, and public sentiment significantly impacts this transition (Kim et al., 2021). In this case, composite indicators can be used to measure public interest awareness as a measure of complex concepts and constructs (Joint Research Centre-European Commission 2008).

In order to understand public awareness of environmental risks, this paper investigates the methods of constructing composite indicators using Google Trends, taking into account the specificities of the data it is possible to retrieve (in this respect, see Redondo et al. 2016; Effenberger et al., 2021).

Public perception of climate change, a primary environmental concern, is heavily influenced by media and news coverage (Cody et al., 2015). Digital platforms are increasingly used to inform, educate, and shape opinions, pointing to the need for an integrated approach that integrates traditional and modern

awareness metrics. Insights into the depth and breadth of public understanding can be gained from the digital footprint left by users searching for information about this topic. Using Google Trends data (Google Trends 2023), we construct a composite indicator to quantify this awareness and compare the different results by each region in Italy. Moreover, specific search volumes and central public terms indicate global concerns (Durmuşoğlu, 2017). So, this study aims to investigate the nuances of these searches, highlighting regions or topics of heightened interest.

Following Cha & Stow (2015), it is possible to affirm that analyzing the strengths and limitations of various platforms, such as Twitter, Wikipedia, and Google, provides further insight into environmental risk awareness. There could be potential discrepancies and synergies between different digital sources and platforms. We chose Google because of the popularity of their search engine in this specific context (see Durmuşoğlu 2017).

As a result, constructing a composite indicator using Google Trends provides a robust, scalable, and timely method of assessing public awareness of environmental risks. It provides stakeholders with actionable insights into the future of environmental studies by integrating multiple digital data sources and applying advanced analytical techniques.

So, in this sense, where the aim is to assess the public awareness of the environmental risks, we construct a new database based on four specific terms which are relevant for Italy: "surriscaldamento globale" (global warming), "cambiamenti climatici" (climate change), "combustibili fossili" (fossil fuels) and finally "transizione energetica" (energy transition as well aims to mitigate these environmental risks, it can also introduce new challenges and risks. Data are collected for Italy in the period 9/6/2022 – 9/6/2023. So the data source is Google Trends (the data are retrieved using the relevant considered query for the period; see Google Trends 2023).

These four terms allow us to measure the public awareness of environmental risks as our composite indicator. The approach is also innovative because the composite indicator proposed is based on an underlying Monte-Carlo helpful simulation to measure the uncertainty of the results based on different assumptions on the weighting system of the composite indicator. This analysis is instrumental because the assumptions on which a classical composite indicator is constructed are based on assumptions that are necessary to analyze more explicitly using sensitivity analyses; see in this respect Saltelli et al. 2005, Greco et al. 2019, and on uncertainty and sensitivity analysis (Saisana et al. 2005; Saisana & Saltelli 2010, Saltelli et al. 2008). A previous relevant approach to consider this problem and finalizing the

construction of composite indicators using Monte-Carlo simulation of relevant factors allows to measure uncertainty and representing the composite indicator as interval data based on interval was presented by Drago (2021, 2023), Drago and Gatto (2022) and Gatto and Drago (2020). Interval data was also considered in the context of the imprecise data, considering the Data Envelopment Analysis approach (Cherchye et al., 2011).

In this work, we represent the composite indicator as a density, expanding the analysis to understand the entire structure of the data generated by the simulations (which are simulations of the relevant composite indicator; see in this sense Saisana et al. 2005 for a different approach). A similar visualization based on beanplots (Kampstra, 2008) was used by Drago (2011), Drago, Lauro, and Scepi (2015), and Drago & Scepi (2011).

In this respect, the final results are based on densities (kernel density estimation and ridge plots) and not on single values (which show how explicitly the composite indicators vary depending on the underlying factors' assumptions as the weighting schemes). The innovation relies on the fact that it is essential to understand in this context. Observing the entire "structure of the data" of the composite indicator and their underlying varying factors (as weights) is also relevant.

Keywords: *Environmental studies, Google Trends, public awareness, composite indicators, density-based composite indicators.*

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Collaboration Among Stakeholders and A.I. for Fighting Fake News in a Digital Media Environment

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ABSTRACT

The dawn of the digital age and the subsequent proliferation of information and communication technologies have brought forth many opportunities, along with a series of unprecedented challenges, among which the phenomenon of "fake news" is particularly salient (Wang et al., 2023). The term "fake news" has embedded itself into the modern lexicon, signifying misinformation or disinformation that is spread with the intent to deceive, causing potential harm to individuals, communities, and societal structures at large (Tandoc et al., 2018). The rapid ascendancy and ubiquity of social media platforms, including but not limited to Facebook, Twitter, and YouTube, have been identified as the primary conduits for the dissemination of such deceptive information, with far-reaching implications for societal stability and harmony (Narwal, 2018; Vosoughi et al., 2018).

The spread of fake news has profound implications, ranging from the distortion of public discourse and the erosion of trust in institutions to the exacerbation of social polarizations and the undermining of democratic processes (Lazer et al., 2018). Nagi (2018) posits that fake news disrupts the informational ecosystem, fostering an environment of mistrust and suspicion, thereby eroding community bonds and precipitating challenges at both individual and national levels. Moreover, the volatility of the digital media landscape, marked by the confluence of user-generated content and the unbridled freedom of expression, further fuels the propagation of misinformation, necessitating innovative interventions (Watts et al., 2021).

In response to this burgeoning informational crisis, the scientific and technological communities have sought to harness the potential of Artificial Intelligence (A.I.) to combat the dissemination of fake news (Shu et al., 2017). A.I., with its multifarious capabilities, including Natural Language Processing (NLP), machine learning, and deep understanding, offers promising avenues for detecting, verifying, and

mitigating misinformation in the digital media environment (Zhou and Zafarani, 2018). Integrating A.I. into the informational ecosystem facilitates the rapid and efficient analysis of vast datasets, uncovering patterns, biases, and inconsistencies often imperceptible to human scrutiny (Bessi and Ferrara, 2016).

Furthermore, incorporating A.I. in the battle against fake news amplifies the capacity for stakeholder collaboration, bridging the divide between media users, journalists, researchers, and technology developers. Through synergistic collaboration, informed by AI-driven insights, stakeholders can develop a more harmonized, systematic, and adaptive approach to discerning the authenticity of digital information, thereby fostering an environment of enhanced media literacy and informed scepticism (McDougall, 2019; Rhodes, 2021). The adaptive nature of A.I. ensures the continual evolution of detection methodologies, enabling stakeholders to stay abreast of the ever-changing tactics employed by purveyors of fake news.

In conclusion, the introduction outlines the prevalent issue of fake news in the digital era, its implications, and the promising role of Artificial Intelligence in combating misinformation through enhanced detection and stakeholder collaboration. By exploring the integration of A.I. and its potential to revolutionize our approach towards misinformation, this research lays the foundation for a comprehensive exploration of collaborative strategies and innovative solutions to address the challenges of fake news in the digital media environment.

A.I. and Stakeholder Collaboration

Infusing Artificial Intelligence (A.I.) technologies into the media landscape is pivotal in fostering effective collaboration among stakeholders in combating fake news. A multifaceted approach, intertwining various domains of A.I. such as Natural Language Processing (NLP), machine learning, and deep understanding, serves as the linchpin for identifying, verifying, and mitigating the spread of misinformation across digital platforms (Zhou and Zafarani, 2018).

1. **Facilitating Communication and Information Sharing:** A.I. enhances communication channels and facilitates the seamless exchange of information among media users, journalists, researchers, and technology developers. By employing advanced algorithms, A.I. can analyze and filter vast data, identifying potential misinformation and enabling stakeholders to act promptly (Bessi and Ferrara, 2016). This real-time collaboration, underpinned by A.I., fortifies the collective efforts to scrutinize and validate digital content, reinforcing the integrity of information disseminated.
2. **Enhancing Media Literacy:** A.I. empowers stakeholders by providing tools and resources to bolster media literacy. Educational A.I. applications and platforms can tailor learning

experiences to individual needs, fostering critical thinking and equipping users with the necessary skills to discern between authentic and fabricated information (McDougall, 2019). Through such personalized learning experiences, stakeholders are better prepared to navigate the complexities of the digital media environment and contribute to the collective fight against fake news.

3. **Adaptive Countermeasures:** The dynamic nature of A.I. ensures that detection methodologies and countermeasures continually evolve in tandem with the shifting tactics employed by purveyors of fake news. Machine learning algorithms can learn and adapt to new patterns and strategies of misinformation, enabling stakeholders to stay ahead of the curve and respond effectively to emerging threats (Shu et al., 2017). This adaptability is fundamental in maintaining the resilience and efficacy of collaborative efforts against disseminating false information.

4. **Empowering User-Generated Content Verification:** A.I.'s ability to rapidly analyze and verify user-generated content is instrumental in minimizing the spread of fake news. By harnessing A.I., stakeholders can implement real-time verification tools that assess the credibility of sources and the authenticity of information, thereby mitigating the risks associated with user-generated content (Vosoughi et al., 2018). Such tools are vital in fostering a sense of responsibility and vigilance among digital media users.

5. **Socio-Cultural Considerations:** A.I., coupled with socio-cultural analytics, provides insights into different communities' varying influences and susceptibilities to fake news. Understanding these socio-cultural dynamics is pivotal for tailoring interventions and educational programs that resonate with diverse audiences, enhancing collaborative efforts' inclusivity and effectiveness (Rhodes, 2021).

6. **Ethical and Responsible A.I.:** The collaboration also necessitates a focus on the moral development and deployment of A.I. Ensuring transparency, accountability, and fairness in AI-driven solutions is integral to fostering trust among stakeholders and mitigating unintended consequences associated with the use of A.I. technologies (Zhou and Zafarani, 2018).

Global Practices and A.I. Implementation

Across the globe, nations and organizations are harnessing A.I. to implement various strategies and tools designed to combat fake news. These global practices offer a blueprint of how A.I. can be effectively utilized in diverse contexts and media landscapes. Implementing A.I. in the fight against fake news varies in scale and scope, with several countries and entities adopting cutting-edge technologies and innovative solutions.

One of the prevailing global practices is the deployment of AI-driven fact-checking systems. Organizations like Full Fact in the U.K. and FactCheck.org in the U.S. utilize machine learning algorithms to scan large datasets and identify claims that are likely false (Hassan et al., 2015). These systems expedite the fact-checking process, enabling timely responses to emerging misinformation and allowing for the correction of false narratives before they gain traction.

Another noteworthy practice is the application of deep learning techniques for fake news detection. Deep learning models, trained on vast amounts of labelled data, have proven highly effective in distinguishing between genuine and fabricated content (Conroy et al., 2015). These models analyze textual and visual elements, considering context and semantic nuances, to accurately identify deceptive information, making them invaluable assets in various nations' arsenals against misinformation.

Several countries are also exploring user engagement and crowdsourced verification as a means to combat fake news. Platforms such as Chequeado in Argentina and Africa Check encourage user participation in the verification process, leveraging the collective intelligence and diverse perspectives of the public. A.I. enhances this approach by prioritizing user-submitted content for verification and providing tools for collaborative analysis (Wright and Hinson, 2019).

Real-time monitoring and alert systems powered by A.I. have also been adopted globally. These systems continuously scan digital platforms for signs of misinformation and generate alerts for potential fake news, allowing for immediate intervention by fact-checkers and content moderators (Zhang et al., 2019). Countries like Singapore and France have integrated such technologies into their media ecosystems to maintain a constant vigil against misinformation.

Alongside technological solutions, the ethical implementation of A.I. and the development of comprehensive policy frameworks are crucial global practices. Ensuring the responsible use of A.I., addressing privacy concerns, and establishing guidelines for transparency and accountability are fundamental to building public trust and safeguarding democratic values (Ferrara et al., 2020). Several nations are actively discussing and collaborating to formulate international standards and best practices for A.I. in combating fake news.

In conclusion, the myriad of global practices in A.I. implementation showcases the versatility and adaptability of artificial intelligence in addressing the challenges posed by fake news. From AI-driven fact-checking to real-time monitoring and ethical considerations, these practices illustrate a multifaceted approach to leveraging technology for safeguarding truth and fostering an informed society.

Objectives

1. To conceptualize and actualize the notion of fake news in the digital environment, systematizing theoretical insights about its diversity, and exploring the role of AI in discerning and combating such misinformation.
2. To consolidate knowledge on the threats of fake news and elucidate global practices and AI methodologies for recognizing, marking, and eliminating such deceptive content.
3. To assess the perspectives, attitudes, and experiences of media users, journalists, and researchers toward fake news, focusing on their interaction with and utilization of AI tools in combating misinformation.
4. To identify and analyze the motivational factors encouraging media users, organizations, and researchers to participate in news verification, focusing on the adoption and efficacy of AI-driven solutions.
5. To develop and propose a conceptual model for stakeholder collaboration aimed at identifying, labelling, and eliminating fake news in the digital media environment, with AI integrated as a pivotal component for enhancing the effectiveness of this model.

This research explores and delineates the crucial role of Artificial Intelligence in augmenting stakeholder collaboration against fake news in the digital media environment. By delving into the theoretical underpinnings, evaluating diverse attitudes and experiences, and conducting a comparative study, this work aims to synthesize knowledge and propose a robust conceptual model. This model will encapsulate A.I.'s transformative capabilities to detect, verify, and mitigate fake news, fostering an informed, resilient, and literate digital society.

Keywords: *Artificial Intelligence, Fake News, Digital Media Environment, Stakeholder Collaboration, Misinformation, Information Verification, AI-driven Solutions, Media Literacy, Ethical Implementation, Policy Frameworks*

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Virtual and augmented reality - exploiting the opportunities and avoiding threats.

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ABSTRACT

Purpose: In this article, we explore VR in educational institutions, scientific research, and the business sector to enhance learning experiences, to examine behavioural patterns in near-real life situations, and to improve collaboration, employee training, and support working processes. Our article critically examines the VR potential, risks, ethical considerations, and the gap between the state of the art and the expected user experience. The mission of the paper is to examine the VR-related challenges, propose closing the gaps, and put forward VR future perspectives.

Method proposition: Based on literature analysis and practical VR environment exploration, an adapted Delphi method will be applied to multiple heterogenous panels consisting of researchers, students, professionals, and the local community members. Panel members will be stimulated by participating in a workshop, addressing their insights from multiple perspectives: technical feasibility, perceived user value-added, research impact, social and ecological implications.

Results: Focused on enhancing VR user experiences, we clearly map technical challenges like motion sickness, thus improving accessibility to drive broader adoption. Examining VR use cases

will highlight successful VR implementations, expose potential for future adoption, and identify VR-related risks. Additionally, the article will delve into VR ethics, discussing topics such as virtual harassment, addiction, and mental health impacts. This comprehensive exploration equips readers with a nuanced understanding of the challenges and responsibilities in the evolving VR landscape, aiming to contribute to informed engagement with this immersive technology.

The article highlights VR's potential for businesses, researchers, students, communities, and regulators. It addresses personal augmentation, innovative research, and, at the same time, ethical considerations, which require applying critical thinking.

Based on the fast-evolving field of virtual and augmented reality and the methodology proposed in the paper, we will highlight only the currently most promising trends, the identifiable threats and a limited number of mitigation strategies.

Keywords: *Virtual reality, Augmented reality, Learning, opportunities, threats, data privacy*

EMERGING CHALLENGES IN SUSTAINABILITY

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The importance of sustainable leadership towards employee engagement and wellbeing

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ABSTRACT

Running a sustainable workforce implies a combination of various factors including social responsibility, economic responsibility, transparency, innovation, and commitment. Key factors in a sustainable business should be considered a strong leadership and employee engagement. A main assumption is that a sustainable leadership significantly influences employee engagement and wellbeing, a strong leadership being critical for the success and sustainability of a business., A strong leadership can create a culture where collaboration and innovation are well values, fostering teamwork among employees while motivating their employees to work together towards a common goal.

Adding data from the most recent surveys conducted by the biggest consulting firms about the workforce reimagined leads to a workplace where authentic and pertinent leadership styles are prone to spur engagement and wellbeing and, as recent studies show, the present and the future urge leadership to rethink the human resources approach, the employee experience, by focusing on people, collaboration, and close communication.

Today, the chronic uncertainty dominating business organizations generates emergent ways of thinking and probabilistic models for creating solutions (Murgatroyd, 2015; Brătianu and Bejinaru, 2021), which determine even authentic leaders to adhere to different leadership styles. This is mainly because they have to redefine the company`s critical dynamic capabilities based on new knowledge structures and knowledge competences (Brătianu, Hadad, & Bejinaru, 2020). To support this idea, Deloitte has shown in one of its studies from July 2020, "Leadership styles of the future, How COVID-19 is shaping

leadership beyond the crisis", that the social and economic crisis caused by the current pandemic is an extreme but relevant example of the types of challenges leaders face today. Mastering crisis management requires a leadership style that would be perceived as an overly directive, actionist one-leader show during business as usual. In times of uncertainty, quick decisions are essential; these exceptional circumstances call for a more human-centric and radically driven leadership style.

In order to create a sustainable innovation or a sustainable leadership style, leaders must become innovation managers that have developed substantial leadership competence that focuses on the long-term survival of the organisation (McCann and Holt, 2010). The research revealed that a manager's charismatic, instrumental, strategic, or interactive leadership style contributed in a substantial way to the sustainable innovation processes that organisational leaders must support to create the sustainable organisation (Bossink, 2007).

Since challenges continue through the pandemic, sustainably improving mental health and generating wellbeing in the organisations have never been more important. Leaders need to think about wellbeing and mental health outcomes across a variety of domains as recent research shows. It should start with designing the workplaces to minimise harm, building both organisational and individual resilience. Taking action in this area can significantly bolster employee mental health and job satisfaction. There is no doubt that the wellbeing of the employees is one of the key factors that indicates high return value for both the individual as well as the organizational growth and productivity (Vătămănescu et al., 2018).

Leaders that pay close attention to their employees` intrinsic value preferences are likely to satisfy basic psychological needs and foster high engagement. To add on this idea, another research talking about the evolution of employee engagement demonstrates that high employee engagement sustains job satisfaction and performance among staff and indicates the fact that employee engagement could be a fundamental ingredient in shifting towards a human centered approach through which balancing individuals` wellbeing and performance.

Keywords: *sustainable leadership, employee engagement, wellbeing, organizational culture, mental health.*

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Bridging Sustainability Challenges and Intellectual Capital in the BPO Industry: A Contemporary Analysis

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ABSTRACT

This academic abstract presents a comprehensive examination of the current emerging challenges of sustainability within the Business Process Outsourcing (BPO) industry and highlights the critical role that the intellectual capital plays in addressing and mitigating these challenges.

The BPO sector is being targeted by international sustainability initiatives due to its significant environmental and social impacts. BPO companies must traverse the complex landscape of sustainability to maintain their competitiveness as governments, consumers, and investors call for greater corporate responsibility. BPO industry is under increasing pressure to match its operations with sustainable development objectives due to its significant environmental and social repercussions. BPO companies must incorporate sustainability into their basic strategy as the globe struggles with problems including climate change, resource scarcity, and social equality.

This study investigates how human, structural, and relational capital—collectively known as intellectual capital—can act as a catalyst for sustainability in the BPO industry.

BPO companies are increasingly realizing the value of intellectual capital in addressing these sustainability concerns. Human capital (the knowledge and expertise of employees), structural capital (organizational processes, systems, and intellectual property), and relational capital (external relationships and networks) are the three main categories used to describe intellectual capital, which includes knowledge, skills, and relationships that exist within an organization. For instance, human capital is crucial in creating a sustainable culture among staff members so they can develop and

implement eco-friendly procedures. Relational capital fosters partnerships with external stakeholders like local communities, regulators, and sustainability-focused partners, whereas structural capital aids in the creation of sustainability frameworks and the administration of sustainable operations. This study clarifies the methods through which intellectual capital may be utilized to improve environmental stewardship, social responsibility, and economic sustainability within BPO businesses by including a thorough assessment of the literature, empirical data, and case studies. Additionally, it evaluates the difficulties and roadblocks involved in incorporating sustainable practices and intellectual capital strategies into the BPO framework. Reducing carbon footprints, protecting natural resources, maintaining moral work standards, and positively influencing neighborhood communities are major problems. These issues have a negative effect on the market positioning and reputation of BPO companies, as well as having serious long-term economic repercussions.

However, there are obstacles to overcome in the BPO setting when integrating sustainability practices and using intellectual capital. These include the necessity for significant investments in education and training, the need to overcome resistance to change, and the difficulty of assessing the influence of intellectual capital on sustainability outcomes. However, this study asserts that tackling these issues will have significant advantages.

The results of this study have wide-ranging consequences for both academics and business, providing information on cutting-edge tactics that BPO companies may use to address sustainability issues, maximize resource use, and promote long-term competitiveness. It also emphasizes the need to redefine intellectual capital's function as a keystone in the BPO sector's transition to sustainability. This study adds to the continuing discussion on the relationship between sustainability and intellectual capital by illuminating new strategies BPO companies can use to traverse the modern sustainability landscape while also fostering economic growth and societal well-being. In conclusion, this study connects the fields of intellectual capital and sustainability in the BPO sector. It highlights that sustainability is a tactical imperative as well as a business obligation. Additionally, it emphasizes how intellectual capital can be a potent instrument for tackling sustainability issues and enhancing the long-term performance of BPO firms when it is appropriately harnessed..

Keywords: *Sustainability, Intellectual Capital, BPO Industry, Environmental Stewardship, Social Responsibility, Sustainability Challenges, Sustainable Development Goals.*

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Sustainability and organizational performance: post-pandemic approach

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ABSTRACT

Sustainability is a complex and current issue in the field of management and organizational development in the IT industry. This abstract explores the connections between sustainability and organizational performance in the specific context of the IT industry. The purpose is to understand how sustainability and organizational performance are closely related to each other and can be combined to create added value within the IT industry.

The current work aims to complete the academic studies done on this topic with new, post-pandemic information and, at the same time, to enrich the specialized literature. Sustainability issues are increasingly important in today's context, and the IT industry is no exception (Assoratgoon & Kantabutra, 2023).

The term sustainability was first used to stop the natural decline of the environment and its negative impact on human health, societal harmony, and the economy. For this reason, sustainability is defined as meeting the needs of the present without compromising the needs of future generations (Mohrman & Worley, 2010, p. 289). Promoting sustainability is done not only within the organization, but also within the industry and society. Authors Benn and Williams (2018) conclude that a company progresses through the six phases of sustainability. These phases are rejection, lack of response, compliance, efficiency, strategic proactivity, supporting corporation. Rejection implies an attitude on the part of corporate management that all resources are to be exploited by the firm for immediate economic gain. Lack of response refers to management's ignorance of employee and community issues.

To exemplify management's ignorance of employee needs, we can refer to the rigidity of organizations to accept homework for employees before the Covid-19 pandemic. Working from home supports an organization's sustainability goals by reducing CO2 emissions, thus enabling companies to strengthen their image as green companies that promote environmental education programs (Bouncken, Lapidus, &

Qui, 2022). Another example can be considered the effort of organizations to become more energy sustainable. In this sense, organizations have given up storing data on physical hardware and migrated data to the cloud area using the services provided by various vendors. They also invest in energy management systems and monitor consumption to identify areas for optimization. These decisions reduce the impact on the environment and give organizations EcoVadis certification.

The third phase of sustainability is efficiency. This refers to compliance that focuses on reducing the risk of sanctions for not meeting minimum standards as an employer or manufacturer (Benn et al., 2018). Efficiency is the increasing awareness and involvement of the organization's management in transforming the organization into a sustainable one, because of real advantages that can be obtained by proactively instituting sustainable practices. In the stage of strategic proactivity, management includes sustainability in the company's business strategy with the aim of obtaining a potential competitive advantage in the market. In the last stage, the organization has internalized the goal of operating in a sustainable world.

The lack of definition of sustainability and the multiple interpretations given to this concept have helped managers to define, understand, debate, and reflect on organizational initiatives that affect long-term business sustainability (Grana, 2020, p.108).

Keywords: *Sustainability, organizational development, IT industry, business strategy*

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Unlocking the Path to Long-term Prosperity: Exploring the Nexus between Intellectual Capital and Sustainability in Small and Medium-sized Enterprises (SMEs)

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ABSTRACT

The search for long-term success and sustainability has become a top priority for SMEs worldwide in an era of fast change and ongoing challenges. This literature review aims to explore and synthesize the existing research on the role of intellectual capital and how it impacts/influences the sustainability of the organization by taking into account the knowledge relationships. The goal is to present an extensive understanding of how intellectual capital affects knowledge management, which can foster organizational sustainability in different dimensions (social, economic, and environmental). This review attempts to identify major insights and findings in the field by looking at diverse empirical research, theoretical frameworks, and conceptual literature.

A systematic search of academic databases, journals, books, and relevant research sources was conducted in order to collect data for this paper. The search included keywords related to intellectual capital, performance, knowledge management, sustainability, SMEs. For the purpose of gathering pertinent data and insights, the chosen articles were rigorously examined. To detect patterns, themes, and linkages, the procedures entailed organizing and synthesizing the information.

A strategic asset that can influence an organization's future is intellectual capital (composed of human, structural, and relational capital). This paper explores these aspects and shows how they work together to support SMEs in their quest for sustainability. A comprehensive examination of the literature demonstrates how important intellectual capital is in fostering innovation within businesses. Particularly,

the human component encourages a work environment where information is shared and learning is ongoing, allowing firms to quickly adjust to shifting market conditions and technology improvements. A key component of sustainability, such adaptation ensures that businesses are robust and relevant over the long haul. In addition, intellectual capital is a key factor in an organization's ability to recruit, keep, and engage elite personnel. Moreover, in order to enhance an organization's competitiveness in the talent market, a strong human capital dimension made up of competent and motivated people enables it to efficiently satisfy changing client needs. Employee skill and competency development is important for the success of the business as well as for the stability and loyalty of the workforce. The structural aspect of intellectual capital, which includes knowledge management systems, is crucial in promoting the generation and diffusion of knowledge inside SMEs. It improves operational procedures even further, simplifying effectiveness and cutting expenses. This efficiency improvement can be a key factor in determining sustainability in SMEs with limited resources by ensuring that those resources are used wisely. Last but not least, the relational factor emphasizes the importance of SMEs' external networks, partnerships, and stakeholder interactions. Strong connections with clients, vendors, business partners, and communities give SMEs access to resources, markets, and priceless information. These relationships help SMEs retain their resilience in the face of economic shocks and market changes in addition to strengthening their competitive advantage.

In a nutshell this paper makes a strong case for intellectual capital's critical importance to the long-term viability of SME's. The human, structural, and relational capital work together to give SMEs the ability to innovate, recruit talent and forge vital external connections. SME's may manage the difficulties of a dynamic business landscape and ensure their sustained contribution to economic growth by recognizing and developing their intellectual capital, which can be the key to unlocking the route to long-term prosperity.

Keywords: *intellectual capital, performance, knowledge management, sustainability, SMEs.*

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The Startup Challenge: How to Approach Competitive Advantage in the Pursuit of Corporate Sustainability

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ABSTRACT

Startups are vital engines of economic growth and innovation, being key drivers of positive changes in many business areas and achieving increasing importance in modern economies. Their contributions go beyond material achievements, impacting the way societies approach challenges and fostering and nurturing a culture of innovation and entrepreneurship. They are well known for introducing disruptive ideas and business models, encouraging continuous innovation. From the economic growth perspective, they create jobs, they generate revenues and related taxes to the local state budgets, stimulating local economies and, moreover, improving regional results and impacting positively the economic development. More than this, they create diversity and keep the competition under continuous dynamics and creativity, being promoters of innovation within companies through improving their products and services and enhancing customer experience.

Most of the time, their unique proposals come together with a competitive advantage, enabling them to provide something valuable and distinct to customers. At an incipient stage, the agility of startups and their ability to adapt to the new in the market, allow them to identify and leverage these unique advantages swiftly. For startups, agility is a precious particularity. Being small-sized companies and lacking bureaucratic processes or more complex internal procedures, often enable rapid decision-making and implementation of new ideas. This is certainly an asset, given that agility allows startups to respond promptly to customer feedback, market changes and trends, providing them with a competitive approach over larger, more rigid competitors and allowing them to scale up rapidly. Startups' ability to quickly adapt to changing market requirements and needs and also to technological novelties (possibly, under

certain resource constraints) enables them to exploit gaps in existing markets and create new niches, establishing a disruptive competitive advantage.

One of the biggest challenges of startups is building corporate sustainability, that would set the course in a stronger manner, for a responsible long-term strategy that would comprise economic, social and governance impacts. As most of the startups might experience, there could be limited resources available in the early stages of startup development and fluctuating cash flow, they may struggle with financial constraints, that would limit their ability to invest in sustainable practices or initiatives. Sustainability regards a long-term period, with a proper risk management in place, that startups could be challenged to re-consider, due to their first need of securing external investment or funding. Their main focus is on rapid scale up and financial growth, referring more to short-term results, that could determine some of the managers to place long-term sustainability planning on low priority. Nevertheless, given the agile approach existing within startups, they can adapt easier and they have the advantage of a ESG compliant business start, despite bigger companies, that could find the ESG norms' set-up and applicability being more difficult to approach and implement.

Addressing these challenges should have solid grounds as strategic planning, financial management and a commitment to integrate sustainable practices into the company's business model, enriching the company's core values. Startups that successfully overcome these obstacles can build a sustainable future for their businesses and contribute to worldwide economic benefits.

Taking into consideration the challenges faced by startups in achieving both competitive advantage and corporate sustainability, the primary purpose of this paper is to analyze how startups are redefining competitive advantage strategies to achieve corporate sustainability and to examine existing sustainable practices in the modern business environment. The study will start from previous research in this respect, by using empirical reviews, discussing the notions of competitive advantage and corporate sustainability, outlining the importance of reaching and maintaining competitive advantage through adaptability and agility and the challenge of rethinking traditional strategies in the context of startups, aiming towards planning, and implementing sustainable practices, through a long-term responsible approach.

Keywords: *corporate sustainability, startups, competitive advantage, innovation, agility, ESG, sustainable practices, management strategies.*

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Enhancing SMEs Business Performance: Unleashing the Power of Internationalization, Sustainability and Digitalization

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ABSTRACT

This paper aims to explore, from a theoretical point of view, the interconnection between internationalization, sustainability, and digitalization in the economic context, emphasizing the relevance, dynamic evolution, and profound implications of these concepts for SMEs business performance and global competitiveness in today's rapidly changing economic landscape. These three elements are no longer isolated aspects, but rather interconnected concepts that significantly shape and influence managerial practices and business strategies. The paper serves as an introductory framework that sets the stage for further empirical investigations, emphasizing a context-driven perspective. In recent years, there has been a growing direction on the significance of sustainable practices in business operations, particularly for small and medium enterprises (SMEs) operating in highly competitive environments. Digitalization enables SMEs to integrate sustainability into their strategies, leveraging it as a competitive advantage for international growth. Companies prioritizing long-term sustainability and strategic investments in human capital and digitalization enhance their financial performance and maintain competitiveness. Sustainable practices and digitalization contribute to developing sustainable business models, allowing companies to thrive in the digital age and expand their market share. This combination fosters innovation, operational efficiency, regulatory compliance, and stakeholder engagement.

SMEs must adapt their business models to incorporate digitalization and sustainability as core elements to enhance competitiveness and adapt to market demands. By embracing sustainability practices and integrating digitalization, SMEs improve their reputation, brand image, and customer perception. Digitalization enhances operational efficiency, optimizes supply chains, and contributes to cost savings. Sustainability practices ensure compliance with regulations, mitigating legal and reputational risks. The

combination fosters innovation, enabling SMEs to develop products, services, and business models that meet consumer preferences and address sustainability challenges. SMEs can leverage digital platforms to expand their global presence and customer base. Challenges include financial constraints, lack of expertise, technological barriers, limited scalability, regulatory complexities, cybersecurity threats, and resistance to change. SMEs should proactively address these challenges, developing tailored strategies to maximize sustainability and digitalization benefits while mitigating drawbacks.

The literature has explored the question of whether and how "it pays to be green" (Wagner, 2007), as well as the drivers and inhibitors of environmental practices in SMEs. Drivers often stem from external pressures and expectations imposed by stakeholders such as competitors, customers, suppliers, and the social community (Tomaževič et al., 2017). For instance, investors are increasingly favoring sustainable companies (Eccless and Klimenko, 2019), customers are becoming more conscious of the environmental impact of products (Perez-Sanchez, Barton, and Bower, 2003), and suppliers can exert influence by advocating greener standards (Lindgreen et al., 2009). Additionally, many countries are implementing regulations, protocols, and guidelines to promote sustainability (Gadenne et al., 2009).

However, the findings in the literature are not entirely consistent, with some studies highlighting the positive impacts of these pressures/drivers, while others consider them as inhibitors (Cantele and Zardini, 2020). Moreover, SMEs face internal barriers. On average, they possess a lower level of environmental awareness compared to larger firms and perceive their environmental impact as negligible (Battisti and Perry, 2011). They have limited eco-literacy (Hillary, 2017; Revell and Blackburn, 2007), and their constrained resources often prevent them from appointing dedicated environmental managers (Schaper and Raar, 2001). Furthermore, these firms seldom proactively utilize sustainability to enhance relationships with customers and other stakeholders (McKeiver and Gadenne, 2005; Revell and Blackburn, 2007).

Keywords: *business strategies, competitiveness, digital technologies, digitalization, internationalization, managerial practices, organizational performance, SMEs, sustainability, sustainable growth.*

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(Un)weaving sustainable managerial relationships during the new normal: an internationalization-centric view

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ABSTRACT

The study seeks to address the influence of different antecedents of business-to-business (B2B) relationship marketing on the efficiency of international partnerships, by also taking into account the country-of-origin effect and the national culture. The focus falls on the factors that generate, frame, catalyze, sustain and strengthen sustainable managerial relationships and, subsequently, international business partnerships between organizations with converging interests, values, and strategies. In this vein, B2B relationship marketing in the international arena is analyzed by means of various angles such as the business context, interpersonal compatibility, business credibility and network interconnections as availed by the "new normal" triggered by the COVID-19 pandemic.

From the perspective of sustainable managerial relationships (carried out at the inter-organizational level), several aspects need to be highlighted. Firstly, relationships should always be seen as two-way, which requires managers to consider the aspirations, potential and expectations of all parties involved in the interchange if they are to ensure the clarity and coherence that are essential for a strong relationship. Secondly, managers need to take on board the complexity of relationships that can be described by a multiple system of variables with different effects and different potential for updating depending on the reference context. The situational diversity and the broad spectrum of variables likely to explain a given relationship indicate that there are no universally valid recipes for optimal partnership management. Third, whether a relationship is short or long term, at a given point in time, the basic characteristics of the interaction up to that point can be traced. The history of the relationship gives its intrinsic nature and simultaneously sets the premises for the future evolution of the relationship. A proper understanding of the history of the interaction is an essential milestone in prescribing the sustainable business relationship.

The acceptance of culture from the perspective of international relationship brings to the fore patterns related to values, norms, beliefs, perceptions, behaviors that influence how individuals evaluate different situations and lead to different processing and management of data from the environment. Given that B2B relationship marketing is founded on social interchange, it goes without saying that the impact of culture will be felt in all components of the interaction, marking the dynamics of norms, roles and expectations associated with the development of partnerships between organizations in different countries. Culture stands out as a moderator of business relationships, reflected in the way relationship marketing strategies are interpreted and responded to, especially in B2B interactions between small and medium-sized enterprises (SMEs) internationally. Culture will determine different types of engagement (social and emotional) on the part of potential partners belonging to different countries, constituting a catalyst versus a braking factor in the context of international collaborations. Cultural and national filters guide social judgement and condition to a certain extent the way in which information arising throughout the phases of an international collaboration is encoded and used.

Furthermore, from a B2B relationship marketing perspective, the country image is an important influencing factor, encompassing both a material dimension and a non-productive dimension, such as people. Most of the time, the expansion of an SME into a foreign market is done after management considers all the elements that might be relevant to the success or failure of the internationalization effort. The external "assessors" of the country in question need to focus on multiple dimensions to design effective market entry and positioning strategies.

Corroborating these issues, a questionnaire-based survey with over 100 managers coming from European industrial companies was carried out during November 2023 with a view to investigate the configuration and dynamics of B2B managerial relationships in the unprecedentedly turbulent business environment imposed by the COVID-19 systemic crisis. The study has both theoretical and practical implications by bringing forward a topical perspective of today’s architecture of international B2B relationships and its impact on the efficiency of sustainable collaborations.

Keywords: *sustainable managerial relationships, business-to-business (B2B), relationship marketing, Covid-19, new normal, internationalization.*

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Sustainability disclosure and financial performance. Evidence from European Tech Companies

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ABSTRACT

The sustainability concept was widely debated in the last two decades and became an important "asset" of the companies performing. Once with the introduction of the non-financial reporting by the 2014/95/EU European Directive the companies must reporting non-financial information starting with the 2017 financial year. Since then, the importance of non-financial reporting, well known as sustainability reporting, has become an important topic of the company's agenda. Based on this context and following the implementation of the new European regulation, organizations are obliged to develop strategies regarding aspects related to the environment, social activities, and governance. It is necessary to develop integrated reports to highlight to shareholders, stakeholders, and other involved entities how they engage in social and environmental issues. Even more, the stakeholders are interested to place investments in those companies that are friendly to the environment and are involved in the community. As the Tech has become an important industry, it is very important to see how these companies included the sustainability reporting in their annual agenda and what results they obtained from 2017 to 2022. The paper intends to investigate the relationship between sustainability disclosure and tech financial performance of European companies. The data was collected from Thomson Reuters for a five-year period and the data was analyzed using E-views data software. To take a comprehensive approach to the performance of companies in the tech sector, the evaluation of financial performance is carried out through ROE and ROA indicators. In addition, sustainability transparency is expressed through ESG scores, both in a combined way and for each aspect separately. Moreover, the econometric model includes three control variables, represented by indicators that consider the size of the company according to the total assets and the number of employees, as well as the leverage effect. The combined ESG factors show a positive impact on Return on Assets (ROA), while influencing Return on Equity (ROE) in a

negative direction and without statistical significance. On the other hand, the score associated with the environmental pillar reflects positively on ROA, but generates a negative impact on ROE, a finding that is also found in the case of the score corresponding to the social pillar. In addition, the score assigned to the governance pillar does not have a significant influence on ROE but exerts a beneficial impact on ROA. The results have significant implications for companies, shareholders, regulators, and government, as they indicate the level of compliance of companies in Europe's technology sector with European sustainability regulations. This study makes a valuable contribution to the literature by providing new insights into the relationship between sustainability and financial performance of tech companies. These conclusions emphasize the need to develop the relationship between sustainability disclosure and technology companies to provide more comprehensive information, thus supporting investors in substantiating their business decisions.

Keywords: *sustainability disclosure, financial performance, ESG data, Tech companies.*

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Sustainability through Diversity: Reducing Similarity Attraction Bias in Financial Institutions

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ABSTRACT

It is becoming increasingly apprehensible that diversity is not only a moral or ethical requirement, but also a tactical necessity as the global economy moves toward an era where sustainable practices are at the epicenter of companies' goals and missions. It is therefore reinforced that the pervasive influence of similarity attraction bias in hiring procedures is a crucial pain point that requires quick consideration in the context of financial institutions. This paper lays the foundation to comprehend the similarity attraction bias's presence and the associated impacts of complex nature in the financial sector. At the same time, practicable solutions for its efficient management will be explored and subsequently recommended.

In order to achieve this purpose, the current study encompasses a multidisciplinary manner to explore the complexity of similarity attraction bias, which refers to the recruiter's predisposition to unconsciously favor candidates that are similar to them in certain aspects. The depths of psychological processes and underlying mechanisms that underpin the creation and maintenance of bias in these institutions will be investigated, drawing on theories from social psychology, organizational behavior, and human resource management. Ultimately, the need for an urgent approach to this subject will be underscored, by fusing empirical research with knowledge drawn from the latest works of literature.

Furthermore, the present study intends to offer companies looking to promote diversity and sustainability a reassurance of opportunity. In addition to the theoretical foundation, the methodology intends to address the underlying factors that contribute to similarity attraction bias and subsequently identify efficient techniques to reduce and eliminate bias in recruiting processes.

The corresponding methodology promotes the use of structured interviews, algorithmic résumé screening, active sourcing of individuals from varied backgrounds, and thorough bias awareness training. These tactics naturally aspire to reduce bias, but they also follow sustainable principles.

Following this line of reasoning, the concept of sustainability, which was originally only applied to ecological and environmental issues, has expanded to include social and organizational sustainability. Herewith, sustainability refers to a persistent dedication to fostering work environments that value inclusion, diversity, and equity. Consequently, organizations support the sustainability of their employees and the wider societal framework by managing similarity attraction bias. Hence, addressing similarity attraction bias is not only an issue of social fairness; it is a strategic requirement for organizational viability, especially considering the important role that financial organizations play in societies. These institutions can improve creativity, decision-making, and overall performance by promoting diversity and minimizing bias, in line with the ideas of social and organizational sustainability.

This study holds important significance for both the academic community and the real world of financial organizations. It adds to the body of knowledge on this topic by providing a deeper understanding of similarity attraction bias in financial institutions. Moreover, it contributes to the continuing dialogue on bias reduction and diversity promotion by providing a theoretical framework for subsequent research.

The study's conclusions provide financial companies with a tangible road map for creating inclusive and fair hiring practices. These suggestions not only help to increase diversity but also pave the route for sustainability. Organizations that are sustainable understand the value of encouraging a diverse workforce because it fosters better innovation, better decision-making, and the creation of fair working conditions. These settings promote organizational effectiveness and promote long-term success.

Lastly, the analysis promotes variety and sustainability in the conclusions it draws. Financial businesses have the opportunity and can position themselves as advocates of sustainable practices in the corporate landscape, by recognizing and undertaking the problem of similarity attraction bias. This journey establishes the idea that workplaces where people, from all backgrounds, can succeed and make a real contribution to a sustainable future.

Keywords: *similarity attraction bias, diversity management, financial organizations, hiring processes, bias mitigation, organizational sustainability.*

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Navigating the Green Transformation: Challenges and Opportunities in Reinforcing Sustainability through Managerial Decisions.

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ABSTRACT

In the rapidly evolving world of business dynamics and inter-organizational relationships, the significance of cultivating an environment that fosters innovation, collaboration, and strategic alignment cannot be understated. The essence of sustainable success lies not just in the mechanisms of operational excellence but in the very culture that organizations nurture. As noted by leading scholars in organizational behavior and business strategy, The culture of an organization, more than its strategies or policies, determines its capacity to adapt, innovate, and sustain itself in the long run (Schein, 2017; Mumley, 2019; Rumini Dewa, A. & Martadiani, A. A., 2019; Strycharska & Ogórek, 2019; Cristopher & Edwinah, 2022).

Consequently, the purpose of this paper is to gain a deeper understanding of the relationship between managerial decisions and organizational culture. Although a significant amount of literature has been produced on this topic, there remains a great deal to be explored, particularly in terms of how different aspects of organizational culture affect managerial decisions and how these decisions, in turn, influence organizational culture (Strycharska & Ogórek, 2019). Recent studies have highlighted the strong link between organizational culture and managerial decision-making. Rumini Dewa, A. & Martadiani, A. A. (2019) found that high-performing organizations possess a culture that is aligned with their strategic objectives. Managers who are aware of their organization's culture make decisions that are more in line with these goals. Mumley (2019) similarly observed that organizations with a strong culture tend to have managers who make decisions that reflect the organization's values and beliefs.

Well-known companies such as Google and Apple attribute a significant portion of their success to their powerful organizational cultures. However, understanding the complex relationship between culture and managerial decision-making remains a challenging task. Schein (2017) and Christopher & Edwinah (2022) have emphasized that a strong organizational culture can lead to a variety of positive outcomes. Organizations with such a culture are inherently more innovative, adaptable, and better able to respond to changes in the market. This paper seeks to expand the academic discourse by examining the relationship between organizational culture and managerial decision-making from a sustainable perspective. This viewpoint uncovers the complex social, cultural, and relational influences that shape the decision-making process, providing a comprehensive understanding of the interplay between organizational culture and decisions made.

One of the key features of the present paper is its holistic approach. While most studies have focused primarily on the relationship between organizational culture and managerial decisions, this thesis aims to explore how managerial strategies shape organizational culture, providing a comprehensive picture of their mutual synergy, for the long run. By identifying how different cultural elements influence the decision-making process, this research is positioned to guide managers in making more informed decisions that align with and promote a positive, productive, and yet, "greener" culture, across all business levels.

Accordingly, this paper explores the intricate relationship between organizational culture and managerial decisions from a sustainable development viewpoint. Using a quantitative approach, it collects data via surveys from managers and employees, analyzed with tools like SPSS to uncover the influence of culture on decision-making within the sustainable framework. The study aims to emphasize the profound effect of management decisions on embedding sustainability in organizational culture. Highlighting the transition from traditional to sustainable practices, the research underscores leadership's crucial role in fostering an environmentally focused corporate ethos, presenting sustainability as a significant, multidimensional shift in business's future landscape.

In summary, this research aims to expand our knowledge of the complex relationship between organizational culture, managerial decisions, and sustainable development. By highlighting the significant impact of managerial choices on promoting sustainability within organizational culture, this study aims to provide valuable insights for managers. This enhanced perspective can aid in the transition from conventional to sustainable paradigm, emphasizing the critical role of leadership in shaping green-driven organizational principles and improving decision-making processes.

Keywords: *corporate transformation, sustainable leadership, managerial decisions, organizational culture.*

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Metaphors in Information Science: Shaping Concepts and Influencing Technology

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ABSTRACT

Metaphors are often perceived as poetic devices or extraordinary linguistic constructs. However, they are pervasive in everyday language and play a crucial role in shaping our conceptual system, being the products of long-term cultural development, influencing basic concepts and their interactions with daily life. This paper explores the impact of metaphors on the description and development of technologies, particularly emerging technologies, and their effects on our perception of everyday life. We investigate the metaphors underlying both the understanding of the brain and the field of information science, highlighting the connections between them. By examining these metaphors, we demonstrate how they influence our comprehension of one area based on our understanding of the other. Metaphors shape our understanding of abstract concepts and new technologies and have a significant impact on our perception of the world around us. Examining these metaphors can help us better understand the ways in which our understanding of the brain and information science are connected.

Keywords: *conceptual metaphors, information technology, information science.*

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The prevalence of Emotionality and Spirituality over Rationality in Knowmads' career decision making - a qualitative case study

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ABSTRACT

The knowmad workforce represents a novel yet distinctive group, present across the global market, in different domains. Proposed early into the third millennium (Moravec, 2008), the concept bears an intricate connection with systems defined by uncertainty, digitalization, and technological developments, in the context of globalization. Due to continual events influencing global trends, the theoretical limits of the concept remain fluid (Moravec, 2013b). What this means is that, by definition, the knowmad's potential for adaptation does not have a predetermined limit.

Backed by e-awareness and technological, informational, digital, and media literacy (Cobo & Moravec, 2011) and driven by self-management and multicultural competencies (Bratianu, Paiuc & Iliescu, 2021) the knowmads understand the market crises and evolutions and can follow them, flowing smoothly from project to project, from field to field, ultimately painting their careers as bricolages of experiences and expertise. This very nature defined by grit and resilience (Hokanson & Klarkson, 2013) emphasizes their skills and courage to jump onto and foster the next unknown challenge and to be part of the vanguard teams defining our futures, fearless in the face of failure.

Their set of core characteristics drastically differentiates knowmads from other groups and generations of workers active in the global business arena. Generally, the knowmad is portrayed in the literature as the creative, imaginative, and innovative engine of businesses in volatile, uncertain, complex, and ambiguous systems (Moravec, 2008, 2013a, 2013b; Cobo & Moravec, 2013). More specifically, several authors analyzed the phenomenon from different angles, revealing aspects like the preference for geographical mobility (Bardhi & Eckhardt, 2017; D'Andrea, 2009), or for flexible working arrangements (Lewis, 2003; Cobo & Moravec, 2011; Moravec, 2013a, 2013b, 2013c) as well as their inclination for

continuous learning and development (Moravec, 2008, 2013a, 2013b). Few studies have instead focused on understanding knowmads from a knowledge management perspective by analyzing the rational, emotional, and spiritual knowledge dynamics involved in the individual decision-making of becoming a knowmad.

The present study builds on the existing knowledge and contributes to the development of the knowmads field by performing a qualitative analysis from a knowledge dynamics perspective. Bratianu (2013) has proposed the triple helix of knowledge as a viable alternative to the traditional tacit-explicit knowledge dichotomy. This novel framework encompasses rational, emotional, and spiritual knowledge, which are seen as essential dimensions of knowledge. More specifically, the purpose of this research is to explore and grasp the rational, emotional, and spiritual motivators and to further understand their dynamics in the decision-making process of adopting a knowmad working philosophy.

The research goal has been achieved through two qualitative methods: a focus group and seven in-depth interviews performed with the help of self-identified and validated knowmads between January and May 2023. The validation of key knowmad characteristics has been ensured by the author in line with the literature in the field and the established criteria are:

- Having experience in a multicultural professional or learning setting for more than half of a year.
- Having worked exclusively remotely or in a hybrid setup for more than half of a year.
- Having more than one year of experience as an independent contractor or business owner.
- Operating under flexible employment contracts at the moment of the research (collaboration contracts, several part-time contracts, etc.)
- Being experienced in their field of expertise at the moment of the research.

Furthermore, our study relies heavily on the professional experience of our respondents as a significant factor influencing their mindset and professional decision-making. From this perspective, two of the respondents are dedicated to the tech field as full-time programmers, three of them mix e-commerce, financial consulting, and marketing with the tech field at an entry level. The other three knowmads had relevant experience in the social support fields as part of NGOs or CSR advisers, while the final category is composed of three knowmads activating exclusively in creative domains.

The results of our study are developed progressively from the focus group results to the in-depth interview results. In the focus group results, we aimed to grasp the main rational, emotional, and spiritual enablers in knowmads' career decision-making. Out of these, we name financial needs, the desire for self-development, individual progress, and diversification of activities as some of the rational enablers. Next, the need for feedback and recognition, personal intuition, and feelings resulted as emotional enablers. Finally, the clash or match of values reflects part of the spiritual enablers during our group discussion with knowmads.

Building on these initial findings, we went into more detail with seven knowmads aiming to understand the dynamics of rational, emotional, and spiritual knowledge in their career decision-making through one-hour discussions guided by a semi-structured interview guide.

In line with the knowledge dynamics principles developed by Bratianu (2015), our findings show how rationality, emotionality, and spirituality interact without any physical limitations in the decision-making process. Nevertheless, in the specific case of knowmads, certain patterns and inclinations can be depicted.

The interview findings emphasize the importance of emotionality and spirituality in our respondents' career decision-making. The conclusions are supported by multiple references to decisions to leave or join a new project due to emotional or spiritual reasons. Some of the most frequently indicated motivators behind critical decisions in their careers refer to lack of appreciation and feedback, communication gaps with previous key figures, clash of values described as a sense of not fitting in within the team's core philosophy or culture as well as the need for autonomy, independence, and freedom. For example, not just one of our respondents decided to leave stable and financially rewarding collaborations due to their moral stand regarding the industry where a potential new client activated.

While spirituality and emotionality result as important elements in career decision-making for knowmads, it is important to mention that rationality remains an important underlying facet, represented by a well-acknowledged need for development, a desire for lifelong learning, and an inclination towards new challenges. Nevertheless, intuition, feeling and values are definitory in a world full of possibilities, for highly adaptable and performing professionals like the knowmads are.

The limits of the present study are represented by the relatively scarce character of the literature on knowmads and by the reduced panel of respondents. As such, future research shall aim to target larger populations of knowmads or to quantitatively test the present obtained results.

Keywords: *emotionality, knowledge dynamics, knowmads, rationality, spirituality, triple helix of knowledge.*

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Challenging the conventional wisdom: navigating change from traditional leadership to neuroleadership in the knowledge economy

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ABSTRACT

The global leadership frameworkh as transformed significantly in recent years, driven by the rapid and constant change which governs the knowledge economy. This paper aims to bring a novel perspective by highlighting the evolution of how leaders work with people and how the leadership landscape evolved over years in organizations. By employing a qualitative research method, namely a comparative literature analysis, the paper's objective is to to challenge the conventional wisdom surrounding leadership and outline the compelling paradigm shift from traditional leadershis. to neuroleadership. The outcome is to shed light on the novel insights, competences, and skills that neuroleadership brings to the way we lead people in the dynamic, innovation-driven knowledge economy.

To achieve this objective, the research explores the most important studies in leadership, neuro-based leadership, psychology and knowledge management to connect all findings in order to highlight the main similarities and differences between traditional leadership and neuroleadership. Traditional leadership theories, which are rooted in hierarchical structures and command-and-control models, have been the foundation of how leaders work with people to achieve success, meet organization's objectives and perform. They later evolved towards a more transformational and people-first approach. However, in the knowledge economy, these models still lacking the human brain focus to really understand why people act and react in certain ways, what triggers them to perform and how leaders can understand various signals about themselves and their people.

To navigate this mindset shift, there has been more and more studies about how integrating neuroscience, namely how our brain works, can help leaders work better with people. Therefore, neuroleadership comes

to life: an emerging interdisciplinary field that integrates neuroscience, psychology, and leadership to incorporate insights into how neurological mechanisms can grow leadership effectiveness in projects and organizations. By employing a qualitative research methodology and perform a comprehensive comparative literature analysis of seminal works in traditional leadership and cutting-edge research in neuroleadership, this paper helps us to examine the essential differentiators and implications of embracing neuroleadership as a progressive framework for leading people.

One of the central elements of neuroleadership is the acknowledgment of the human brain's plasticity and high capability of adapting, which is rooted in the human primordial need of survival. People can adapt, learn, unlearn, relearn and develop new neuronal connections through neuroplasticity in order to enhance their leadership competences and skills throughout their professional journey. Neuroleadership components and what makes it stands out from traditional leadership emphasize the significance of emotional regulation, growth mindset, cognitive flexibility, all of them aiming to create environments that foster trust, collaboration, psychological safety. These elements become very important in engaging and motivating employees in the knowledge economy, where autonomy and innovation are highly valued and ensure competitive advantage.

The paper analyzes how leadership evolves from the industrial age, to information age, to imagination age, how traditional leadership styles and practices were developed and applied at individual, team, and organizational levels, how neuroscience field is connected to leadership, how human brain works, and how integrating neuroscience into the leadership models we know today will create a framework which brings together the best of both worlds – neuroleadership - best practices from traditional leadership and cutting-edge insights from neuroscience.

Keywords: *neuroleadership, leadership, knowledge economy, neuroscience, brain-based leadership..*

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Self-Regulated Learning, Self-Efficacy, and Life-Long Learning: The mediating role of Future Orientation

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ABSTRACT

This study embarks on a comprehensive exploration to unravel the intricate correlations between self-regulated learning, life-long learning, academic self-efficacy, and their conjunction with future time orientation, within the context of the Romanian secondary education system. The significance of this research lies in its endeavor to elucidate how future time orientation mediates the relationships between the key constructs, providing pivotal insights for educational strategies aimed at fostering life-long learning. Employing a cross-sectional research design, the study amassed data from 2,943 Romanian secondary school students, predominantly female and in 11th and 12th grades, utilizing structured questionnaires. The digital administration of the survey ensured a diverse representation from theoretical, vocational, and technological high schools, across nine cities, and meticulous ethical considerations and approvals were incorporated to uphold the integrity of the research process. A suite of established instruments was employed, including the Future Orientation scale from the Zimbardo Time Perspective Inventory (ZTPI), an 11-item Academic Self-Efficacy questionnaire, the Self-Regulated Learning Questionnaire, and the Lifelong Learning Scale (LLS). These instruments offered reliability and

discerning insights into individual differences in future planning, confidence in academic capabilities, implementation of self-regulated learning strategies, and inclination towards lifelong learning.

The findings corroborate that self-regulated learning and academic self-efficacy, when mediated by future time orientation, bolster life-long learning ($z=8.49$, $p<.001$ and $z=13.98$, $p<.001$, respectively). These findings, indicative of a positive correlation between future orientation and adaptive self-regulatory study strategies, resonate with existing scholarly discourse (de Volder & Lens, 1982; Zimbardo & Boyd, 1999) and are pivotal in accentuating the pivotal role of goal orientation in motivation and effort directed towards desired outcomes (Bandura, 1986).

This research aligns with prior studies, emphasizing that a pronounced future time orientation is inextricably linked with the utilization of adaptive learning strategies and propensities for life-long learning. The mediating influence of future orientation provides a strategic direction combining emotional, cognitive, and social dimensions across the educational experience. Therefore, educational initiatives aiming at developing future orientation and reflective functions can potentially mitigate academic failure and facilitate academic success by enabling learners to comprehend the rationale behind behaviors and strategize effectively for future endeavors (Phalet et al., 2004; Esposito & Freda, 2014).

This study fortifies the understanding of the relationships between self-regulated learning, academic self-efficacy, and life-long learning, elucidating the paramount mediating role of future time orientation. The practical ramifications of the findings are profound, suggesting that instilling a comprehension of future time orientation within educational frameworks can substantially elevate the propensity for life-long learning. The insights derived beckon a reconceptualization of educational strategies to equip learners with the competencies and confidence indispensable for navigating and contributing to a knowledge-based society. Future research could enhance our understanding of the relationships between self-regulated learning, lifelong learning, and future time orientation by exploring these concepts in varied contexts such as university settings or other formal adult learning environments, as well as across different countries for broader comparative analysis.

By elucidating the nuanced interplays and mediating influences between self-regulation, academic self-efficacy, future orientation, and lifelong learning, this study provides a reservoir of insights, enabling educators to recalibrate teaching methodologies and foster an environment conducive to the cultivation of lifelong learners, thereby bridging the gap between theoretical aspirations and practical implementations in the educational realm.

Keywords: *Life-Long Learning, Self-Regulated Learning, Academic Self-Efficacy, Time Perspective, Future Time Orientation, Mediation.*

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INDUSTRY 4.0 AND 5.0 - CHALLENGES FOR THE NEW NORMAL

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Skills for Industry 5.0 from the Perspective of Higher Education Stakeholders

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ABSTRACT

The article **aims** to establish a conceptual vision for future higher education development based on a discussion of the skills for Industry 5.0 from the perspective of higher education stakeholders.

Theoretical and methodological approaches. The formation of a conceptual vision is based on a holistic approach. This method is useful for studying complex systems, viewed as coherent wholes in which components are best understood in context and with each other and the whole. Holistic thinking in interdisciplinary studies is highly accepted and is a method employed by many scholars. In our opinion, this methodological approach is useful and acceptable for creating a vision of the future of the higher education system, considering that this system should be developed based on the interests of stakeholders from different sectors.

The new wave of development, known as Industry 5.0, creates a new overall context in which functioning requires appropriate skills.

In the last decade, automation powered by advanced technologies, such as cloud computing services, big data, and artificial intelligence (AI), coupled with solid computing capabilities and sophisticated software algorithms with creative business and organization models have been supercharging new smart services and therefore increasing innovations in business and society (Three Scenarios for 2030, 2021).

Relevant skills development is one of the key intersection objects of stakeholders involved in the field of education, including the field of higher education. Identifying these skills is the task of our research. At the same time, emphasis will be placed on transferable skills dictated by new circumstances. In this

regard, the works devoted to the discussion of 21st-century skills are noteworthy (Joynes, et al., 2019). For example, the researcher (Chalkiadaki, 2018) gathered similar skills based on the literature review: creativity, divergent thinking, critical thinking, teamwork (especially in heterogeneous groups), work autonomy, developed cognitive and interpersonal skills, social and civic competencies, responsible national and global citizenship, the consciousness of interdependence, acceptance, and understanding of diversity, recognition, and development of personal attributes, interactive use of tools, communication in mother tongue and foreign languages, mathematical and science competence, digital competence, sense of initiative and entrepreneurship, accountability, leadership, cultural awareness and expression, physical well-being.

Different surveys indicate that demand for physical and manual abilities in repeated and predictable jobs is predicted to shrink by nearly 30% in Europe and the United States over the next decade, while demand for basic literacy and numeracy skills is expected to fall by nearly 20%. In contrast, the demand for technological abilities (particularly coding and communicating with technology) is predicted to increase by more than 50%, while the demand for advanced cognitive skills is expected to increase by one-third. High-level social and emotional abilities, such as initiative, leadership, and entrepreneurship, are also predicted to increase by more than 30% (Ellingrud, et al., 2020).

Based on the stakeholder theory, the interests that drive the parties involved in the higher education system to develop these skills are defined. In the framework of this study, the main stakeholders were defined as higher education institutions as providers of knowledge, industry/employers, the state, and students.

Given that the interests of stakeholders are realized in a common environment, the overarching goals of sustainable development as a common background will be involved in the study. Because modern transformation increasingly includes the so-called "twin" transition - green and digital, even within the vision of expanding the possibilities of achieving long-term competitiveness, this approach requires a great effort from stakeholders in any direction so that the process does not lose its human content.

The study was based on scientific literature dedicated to the contemporary challenges of higher education, stakeholder theory, holistic systems, and international organizations' relevant surveys and evaluations.

The limited number of studies cover the issues of transformation of universities in the context of Industry 5.0. Some research discusses institutional change and incentive structures that influence the ability of universities to engage in (digital) social innovation within digital and green transitions (Carayannis &

Morawska-Jancelewicz, 2022). We address to fill this gap from the crossroads of stakeholders' interests. In achieving the research aim assisted with a variety of scholarly papers developed by the authors: Argôlo, et al. (2022), Bakir & Dahlan (2023), Boffo (2019), Jackson & Bridgstock (2021), Hadiyanto, et al. (2022), Lekashvili & Bitsadze (2021), Papachashvili et al. (2021), Poláková et al. (2023), Vesperi & Gagnidze (2021), Seturidze & Topuria (2021), Carayannis & Morawska (2023).

Industry 5.0 - What kind of work will be in demand?

The new wave of development is followed by several peculiarities. Different definitions cause confusion and many questions arise: What is Industry 5.0? What kind of society is formed? What challenges do people face?

According to the McKinsey Global Survey on Future Workforce Needs, nearly nine out of ten executives and managers believe their firms either have skill gaps or expect to have them within the next five years (Beyond Hiring, 2020). World Economic Forum (WEF, 2019) defines Society 5.0 as an Imagination Society, where digital transformation combines with the creativity of diverse people to bring about "problem-solving" and "value creation" that lead us to sustainable development. It is a concept that can contribute to the achievement of the Sustainable Development Goals (SDGs) adopted by the United Nations.

Among the fundamental pillars of the 5.0 industrial paradigm which pertains to future work and skills policies, the European Commission marks: human-centricity, requiring due attention to human-machine cooperation and a redefinition of job quality; resilience, which implies a new approach to skills, industrial organization, and the adoption of decentralized forms of governance; and sustainability intended in its economic, social, and environmental dimensions (Dixson-Declève, et al., 2023).

In the face of new challenges, universities can play a positive role by promoting “soft transformation“ on the basis of timely and correct strategy development.

Value. A conceptual framework for a systemic view of the future development of universities was developed, shown in the form of a diagram of connected elements. The findings will be useful for future scientific research to study higher education stakeholders' effective coordination and cooperation. The paper develops conclusions and recommendations for the development of an effective strategy for higher educational institutions in the conditions of the new normal.

Keywords: *Industry 5.0; I5.0; Skills development; Higher education Stakeholders.*

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Whither Industry 5.0 in Ukraine?

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ABSTRACT

Modern challenges faced by humanity during the transformation of economic development models are intensified by the aggravation of geopolitical tensions and the deterioration of the climatic situation on the planet. The paradigm of eco-social development is not new, although the discussion of the need to shift the measurement of the efficiency of economic growth from economic indicators such as GDP to indicators of the impact on social and environmental well-being began only several decades ago. The political will and integration of the efforts of the majority of the world's countries around the issues of overcoming poverty, reducing inequality in society and at the workplace, ensuring access to education, overcoming the consequences of climate change through the formalization of development priorities and tools for their implementation, such as the goals of sustainable development, a set of Green Deal political initiatives are aimed at accelerating the transformation of national economies and business models towards sustainable development. Industry 5.0 is focused on the green transition of digital transformation to overcome social and environmental issues.

Ukraine is currently facing many challenges on the way to the transition to development based on Industry 5.0. One of these challenges is related to the heterogeneity of the structure of the national economy in terms of technological development, as most enterprises still operate on the basis of Industry 3.0. Digitization of state institutions and the public sector is taking place at a noticeable pace. The business sector in Industry 4.0 is largely represented by international corporations operating in Ukraine.

The transition of their activities to the principles of Industry 5.0 is an important driver of achieving the goals of sustainable development for Ukraine, establishing partnerships and spreading successful practices among Ukrainian businesses, and strengthening the resilience of supply chains. Industry 5.0's focus on increasing the resilience of supply chains is particularly relevant for Ukraine, as the military invasion in Ukraine has led to the destruction of many of them. More flexible and adaptive SMEs have fewer opportunities and resources for digital transformation. Strengthening the private-state partnership should become an effective resource for accelerating the transformation of Ukraine in the direction of development on the basis of Industry 5.0. Corporate social responsibility of business is usually aimed more at forming an attractive image and stimulating sales. Expanding business awareness of both the consequences of climate change and ways of mitigating it, which should be a source of additional benefits for both organizations and society, supported by the stimulation of regional and state programs and policies, should shift the focus of CSR in companies towards using digital technologies for the worker's protection strengthening and green innovation implementation. Among the priority external stakeholders of business' CSR should be society and the environment. The transition to a model of sustainable development and climate neutrality should become the main priority in the transformation of the national economy of Ukraine and business models at all levels. The military invasion of the aggressor country in Ukraine makes it difficult to overcome the challenges, but at the same time, the post-war recovery of the country should become a strong impetus to the development of the economy and society on the basis of sustainability and eco-innovation.

Keywords: *Industry 5.0, Ukraine, digitalization, sustainable development, green transition*.

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Time use Challenges in the Digital era (Case of Georgia)

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ABSTRACT

The beginning of the 21st century is distinguished by the development of high technologies, which became even more visible during the period of Covid-19. The digital economy, which is an important area of modernity, puts new development demands on the world's population.

Shepherd (2022) argues that the Digital Era is characterized by technology which increases the speed and breadth of knowledge turnover within the economy and society. Evolutionary theory explains the system we live in and states that sustainability relies on knowledge turnover. In parts of the system that are relatively stable, knowledge turnover is low, and new variation, when produced, is rarely retained. In other, less stable parts of the system, faster knowledge turnover is advantageous as new knowledge is produced more frequently allowing for adaptation to the changing surrounding environment.

The digital era changes everything in the world. The covid-19 changed our life as well. The Covid-19 pandemic raging around the globe has caused large-scale institutional and behavioral "shock effects" in various areas of human activity. Online working including education is a flexible instructional delivery system that encompasses any kind of activity that takes place via the Internet.

Online studying at universities has different demands from the education system. On the one side it is easy for studying from the original home and on the other side, without face-to-face studying it could be not of high quality. Nowadays, Covid-19 is not in progress and it is possible to base new methods of studying, which is very important. To find more or less the golden mean, to make studying more attractive and useful (Charekishvili, 2022a).

The main outline of other researchers is different, but the timeless tools of time management can be applied in all areas of life such as personal, professional, and social lives. Some of the economic activity

continues to work remotely. In this case, the material features of mobile technologies offer five specific affordances that mobile workers use in managing work-life boundaries: mobility, connectedness, interoperability, identifiability, and personalization. These affordances persist in their influence across time, despite their connection to different technology features (Cousins and Robey, 2015; Rao, 2014).

What is changed in the structure of using time after Covid-19? As for the concept of the "new normal", scholars consider it from different aspects. They develop the same idea: the study by Turi and Sorooshian (2022) finds that leaders are supposed to develop strategies to balance the organizational needs and workers' priorities in unforeseen situations and the new normal. Principals with better time management skills allocate more time in classrooms and managing instruction in their schools but spend less time on interpersonal relationship-building. (Grissom, 2015). These are two different approaches last seven years, with an absolutely changed reality.

Education and literacy are very important to obtain Information and Communication Technology (ICT) skills, which are necessary for modern digital management. Technology can make a difference in improving services and cutting costs, but it can do more than that. ICT makes a business more efficient, and effective and promptly responds to customers' needs. ICT can assist business activities including design, manufacturing, R&D, distribution, and sales and feedback.

All schools in Georgia are equipped with computers and one of the compulsory subject is ICT, which is studied in I-st, V-th, VI-th grade. In 2022, the Internet is used by 79.8% of Georgia's population aged 6 and above, instead of 58.5% in 2016, who never used the Internet accordingly 19.0 % vs. 40.1 %.

As previously stated, the share of the population aged 15 and older by purposes of internet use in Georgia is changed over 7 years. For example, telephoning over the internet/video calls (via webcam) over the internet increased from 53.7% in 2016, to 91.2 % in 2022 and for internet banking – accordingly 23.0% to 41.3 %.

As mentioned above, ICT plays a crucial role in the development of businesses. According to the National Statistics Office of Georgia, Innovations of business processes in most cases were originally developed by the enterprises, accordingly 79.7 percent. In other cases, 20.6 percent were developed with other enterprises or organizations, 18.9 percent were developed by enterprises by adapting or modifying processes originally developed by other enterprises or organizations, and 17.6 percent by other enterprises or organizations. The share of enterprises that used CRM (Customer Relationship Management) software for the collection, storing, and making available information on customers to

various business functions in 2022 – 3.4% instead 2.8 % in 2021; for the analysis of information on customers for marketing purposes (e.g. setting prices, sales promotion, choosing distribution channels, etc.) – 2.6 %. (Charekishvili, 2022b).

The Time Use Survey holds significant importance globally, making it imperative for it to undergo adaptation in the digital era. The TUS aimed at generating statistically reliable and internationally comparable data improving gender statistics, estimating indicators for the Sustainable Development Goals (SDGs), and informing policy focused on gender mainstreaming. The survey collected data about the time spent by the population on various activities, including paid and unpaid work, domestic work, childcare, studies, leisure, travel, socialization and etc.

GeoStat implemented Georgia's first-ever Time Use Survey 2020-2021. The survey included persons from the age of 15 and above who, in their time use diaries, described the activities they conducted over 10-minute intervals for two pre-assigned full days.

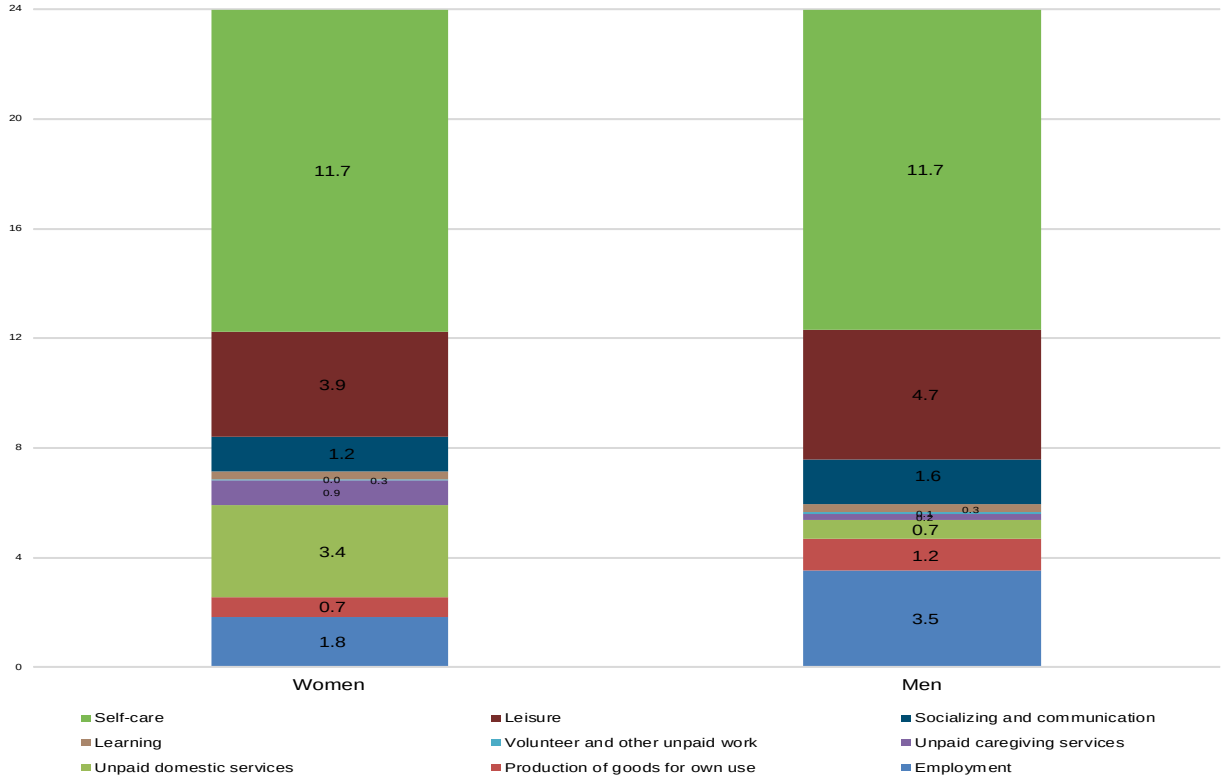
In general, the SDGs act as a guiding framework aimed at creating a fair, prosperous, and sustainable world for both present and future generations. They advocate the notion that economic, social, and environmental well-being are interrelated and should be pursued harmoniously to attain sustainable development. Goal 5 of the 2030 Agenda for Sustainable Development aims to "achieve gender equality and empower all women and girls". The indicator recommended for monitoring progress in achieving this target is SDG indicator 5.4.1, defined as the "proportion of time spent on unpaid domestic and care work, by sex, age and location". The overall proportion of time spent by women on unpaid domestic and caregiving work is 17.8 percent, which is about 4.8 times that of men's time (3.7 percent). The gender ratio in Tbilisi is 4.6, in other urban areas – 5.1, and in rural areas – 4.5. In all types of settlements and in all age groups, the time spent by women on unpaid domestic and caregiving work is significantly higher than that of men. The indicator is the highest among women aged 25-44 and is 23.0 percent. (Charekishvili, 2023).

The United States time use survey results show that the average hours per day spent on personal care is about 9.5 hours for men and 10.0 for women. Working and work-related activities for men were 4.1 hours and 2.9 hours for women. For leisure and sports 5.6 hours for men and 4.8 hours for women (TUS, 2022).

Considering the information provided above, it can be inferred that the survey methodology is accessible; however, it requires updating to address contemporary challenges. Nowadays disaggregation data is by the following activity: (a) necessary time, serving basic physiological needs such as sleeping, eating, and

personal hygiene; (b) explicitly contracted time, related to gainful employment and attendance in regular education activities; (c) committed time for which one is obligated in some sense, covering unpaid domestic and caregiving services and volunteering; and (d) free time, which remains when the other three types have been accounted for. For the survey was used classification ICATUS 2016. This classification does not meet modern challenges. It needs to be updated. The digital era brings forth new demands for these types of classifications and standards.

Chart 1. AVERAGE HOURS SPENT PER DAY ON VARIOUS ACTIVITIES *(HOUR)*



It is necessary to allocate new types of activities that have emerged during COVID-19 and now play a leading role in the working area. Activities carried out through information technologies should be classified under a separate code to account for these differences. Developing a new methodology for time-use surveys is of vital importance. Merely calculating data for the aforementioned activities (chart 1) does not provide an accurate representation of the modern landscape.

We would like to mention that the expansion and development of survey methodologies, which we mentioned earlier, require the incorporation of information and communication technologies in households and enterprises. Additionally, the existing standards need to be revised to align with the

evolving landscape of economic activities as well as training and education. These changes reflect the new vision that has emerged in recent years.

Furthermore, distance learning methods implemented in educational institutions and remote work arrangements in the workplace can prove to be highly beneficial and cost-effective for establishments and enterprises. Transport is the place where the population spends more time, people spend a fraction of the time that they could use for other more useful purposes or transportation consumes a significant portion of the population's time, leaving only a fraction of it available for more productive activities.

Information and communication technologies are widely invaded in our everyday life. The daily schedule of our lives has changed also with delivery services from shops, pharmacies, and other service facilities widespread was introduced. This frees up our time from these activities and enables us to allocate that time toward more productive endeavors.

When we are freed from certain activities, it creates an opportunity to utilize our time in more productive ways. By eliminating or automating tasks that are repetitive, time-consuming, or low-value, we can allocate our resources, energy, and attention to activities that yield greater benefits or align more closely with our goals and priorities. These processes are still developing. These issues need to be taken into account in the statistical methodology.

Keywords: *Time Use, Statistics, Education, Digitalization, ICT.*

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Enhancing Economic Growth through Digital Technologies: A Focus on Electronic Tax Services

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ABSTRACT

In our ever more interconnected world, the integration of digital technologies into economic systems has become imperative. It is the aspiration of every nation to forge a tax system that not only bolsters economic growth but also aligns with the country's economic objectives and aspirations.

Enhancing the efficacy of revenue services is paramount for the economic advancement of a nation. A robust tax system forms the bedrock upon which economic growth, development, and the resolution of socio-economic challenges hinge. Such a system operates optimally when endowed with the right technological tools.

In today's modern landscape, organizations are increasingly transitioning towards electronic services. Progress in any field has become contingent upon innovative technologies and information systems. Automation, by simplifying and mitigating risks and human resource overheads, imbues the process with greater flexibility, speed, and transparency. Also, it is noteworthy that the utilization of technology varies significantly across different nations.

As the author of one of the scientific articles Pitic, G. And all points out, the existing tax regulations are not sufficient and adequate for virtual companies that do business all over the world and their number is increasing day by day. According to them, the digital transformation of tax administration is the biggest

challenge for countries, although the digitalization of tax authorities can strengthen it, determine, control and collect tax revenues. Digital transformation allows the tax system to be more organized and efficient, as well as significantly improve its quality (Pitic, G and all, 2019).

This article elucidates the transformative potential of electronic tax services, illustrating how they streamline tax processes, bolster compliance, and foster a more efficient and transparent fiscal environment. By harnessing cutting-edge digital platforms, governments and tax authorities can automate tax-related operations, thereby curtailing bureaucratic inefficiencies and minimizing the likelihood of errors. Additionally, electronic tax services empower taxpayers by providing them with user-friendly interfaces and convenient avenues for filing returns and managing their tax obligations.

Over the past decade, the Revenue Service of the Ministry of Finance of Georgia has spearheaded the implementation and refinement of modern information systems (Oracle, Asycuda, eDocument) catering to both internal (i.e., employees of the Revenue Service) and external (e.g., entrepreneurs) users. This concerted effort has culminated in the inception and advancement of electronic tax services, as exemplified by the portal www.rs.ge. In lieu of the traditional relationship with tax services, companies have been offered e-services (as the only option), with the web-portal of the Revenue Service of Georgia (www.rs.ge) offering a number of significantly improved e-services. The portal incorporates informative materials (all the necessary information on taxation, legal materials, e-calculators of fees) (R.Seturidze, 2021).

To further our inquiry, a survey was conducted with legal and natural persons who actively engage with the electronic tax services of the Revenue Service on a daily basis, employing a questionnaire developed by the authors. The objective was to evaluate the process of introducing and updating electronic tax services, analyze the merits and demerits of electronic tax systems, and pinpoint the challenges and deficiencies faced by taxpayers. Interviews were conducted in alignment with the specificities of the research topic, encompassing two focus groups: users of electronic tax services (taxpayers) and employees operating within the internal systems of the Revenue Service. Both qualitative and quantitative research methodologies were employed.

Building upon the foregoing, this article furnishes a comprehensive overview of the transformative potential of digital technologies in the domain of taxation. Through incisive analysis and empirical substantiation, the article advocates ardently for the sustained advancement and integration of electronic tax services in contemporary economies, thereby fostering sustainable economic growth.

Keywords: *Electronic Tax Services, Information Systems, Digital Technologies, Economic Growth.*

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Labour market challenges and the role of Education during Industry 4.0

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ABSTRACT

Studies related to the human aspect of Industry 4.0 (I4.0) cover an important part of the current literature, and research studies are spread into different areas. For the preparation of this abstract we reviewed the relevant literature and studied documents, reports, surveys, and reviews from the European Commission and other international organisations, and established research centres, such as the World Economic Forum, the McKinsey Global Institute and OECD, among others.

The World Economic Forum (WEF) has been publishing Future of Jobs reports since 2016. This report mentioned that present primary school pupils are expected to enter a labour market that has been modified by 65% of its current activity (WEF, 2016). According to another study, "14% of existing jobs could disappear as a result of automation in the next 15-20 years, and another 32% are likely to change radically as individual tasks are automated.' (OECD, 2019, p.3). A study by McKinsey & Company suggests that by 2030, up to 375 million workers will need to switch occupational categories due to automation and all workers will need to adapt to co-exist alongside increasingly capable machines (Manyika et al., 2017, p.2). Daheim and Wintermann (2016) outline, that "The global unemployment rate could rise to 24% (or more) in the year 2050. If we do nothing or nothing fundamental to adapt to the new realities of work, the social gap will continue to widen"(p.9).

This year's WEFs' report brings together the perspectives of 803 companies – collectively employing more than 11,3 million workers – across 27 industry clusters and 45 economies from all world regions. It is mentioned that while tight labour markets are prevalent in high-income countries, low- and lower-middle-income countries continue to see higher unemployment than before the COVID-19 pandemic

(WEF, FoJ, 2023, p.4). According to our topic, we would like to outline the most relevant key findings from this report, namely:

✓ Technology adoption will remain a key driver of business transformation in the next five years;

✓ Employers anticipate a structural labour market churn in 23% of jobs in the next five years;

✓ The human-machine frontier has shifted, with businesses introducing automation into their operations at a slower pace than previously anticipated;

✓ The fastest-declining roles relative to their size today are driven by technology and digitalization;

✓ The largest losses are expected in administrative roles and in traditional security, factory and commerce roles;

✓ Employers estimate that 44% of workers' skills will be disrupted in the next five years;

✓ Six in 10 workers will require training before 2027, but only half of workers are seen to have access to adequate training opportunities today;

✓ Surveyed companies report that investing in learning and on-the-job training and automating processes are the most common workforce strategies which will be adopted to deliver their organizations' business goals, etc.

On the other hand, small and medium-sized enterprises (SMEs) represent 99% of all businesses in the EU. This share varies by country, but it is more than 90% throughout the region. It should be noted that the expected fluctuations on the labour market are different in high-income, low-income, and lower-middle-income countries.

As Ozkan-Ozen and Kazancoglu (2022) mention digitalisation through the Fourth Industrial Revolution brought many opportunities to organisations, however at the same time, it required significant changes in managing human resources including performance management practices, needed skill sets, and context of the training and education programs. In Italy "I4.0 was designed as a common and strategic vision for the future of Italian industry, building on two conceptual pillars: innovative investment and skills. Since SMEs are a cornerstone of the country's economy, the target audience are primarily SMEs" (DTM, 2017, p.4-5). Schröder (2017) argue that, in Germany the challenge for SMEs is to create flexible organisational structures and to boost their employees' interdisciplinary thinking. I4.0 requires a reallocation of tasks and new responsibilities that need to be underpinned by appropriate further training measures, as well as consensus-oriented concepts of data protection and mobile work. In France

"Industrie du Futur is structured around five pillars: technological offerings, business transformation, training, international cooperation and IdF promotion. It also seeks to identify 550 experts to help SMEs identify transformation projects" (DTM, 2017, p.4)

The implementation of I4.0 technologies has been addressed from different perspectives in the literature. Gupta et al., (2021) identify factors in India that are important for logistics organisations from the perspective of manpower-readiness for the digitisation of logistics operations. These factors are organisational, behavioural, and technological. Under these three major categories of factors, 18 sub-factors are identified. Alam and Dhamija (2022) find that Institutional pressures (coercive) positively influences the workforce skills (technical and managerial) in the fourth industrial revolution in Bangladesh apparel manufacturing industry. Kanna and Garad (2021) outline that, quality professionals will require technical competencies to interpret large amounts of data from processes to make strategic decisions, the use of new AR tools and be aware of data security risks. The authors use a case study strategy at an electronics manufacturer in southern Malaysia, to adapt their role to be relevant in the industry 4.0 environment. Shettima and Sharma (2020) argue that, despite having a high potential for future growth, the SMEs in Nigeria are said to experience some challenges such as lack of digital strategy trainings, lack of usage of digital technology for business purposes and lack of safe cybersecurity intelligence among others.

Van Dun and Kumar (2023) Argue, that employees' contribution to high-tech initiatives is key to successful Industry 4.0 technology adoption, but few studies have examined the determinants of employee acceptance. Tommasi et al., (2022) outline that, data analysis revealed a partial consensus between current scientific literature and practitioners' views on skills and competences for Industry 4.0. The EU will advance large-scale investments and reforms in education that have the potential to make an impact in the medium to long-term. It making up about 30% of the total spending on education (EUR 13, 8 billion) (EC, 2021). "Employers face difficulties in recruiting highly skilled workers across a number of economic sectors, including in the digital sector" (COM (2020) 624, p.1). Schröder (2017) argues that Industry 4.0 can unfold its potential only by means of the practical knowledge, acumen and adaptability of employees. Anshari and Hamdan (2022) outline, that there is a demand in "must-have" skills related to Industry 4.0 such as capability for complex decision-making, complex problem-solving, collaborative innovation, project management, creativity and critical thinking, social skill and social responsibility.

Beside this, it should be mentioned that the challenges in different industries are also different.

The literary analysis on Digital Transformation problems shows that in order to effectively overcome these challenges, it is necessary to find effective tools to deal with them. We consider the education system to be one of these tools. Thus we can conclude that in the digital era, the education system has long-, medium-, and short-term challenges facing it. These are related to the introduction/implementation of technologies relevant to Industry 4.0 and the change/adaptation of employees' attitudes. We think it is for this reason that the World Economic Forum predicts that employment will increase in the education sector.

We think it is necessary:

- To develop the right skills for the I4.0, such as interdisciplinary teaching, complex decision-making, complex problem-solving, analytical, critical and creative thinking by changing curricula at all levels of Education System (long-term challenges);
- Organise 3–6-month training for employees out of the workplace for reskilling and upskilling (short- and medium-term challenges);
- Organise workplace training to address industry specifics (short-term challenges);
- As the challenges in high-income, low-income and lower-middle-income countries are different, the activities offered by the education system of any country should be different as well;
- Low- and lower-middle-income countries should learn from the experience of high-income countries (medium- and long-term challenges);
- The shortage of properly qualified personnel in different countries can be filled through online training.

In general, in the digital era, cooperation between countries is necessary. The reason for this is that the three main directions of Industry 5.0 (Human-centric; Sustainable development; and Resilience) cannot be realised without international efforts.

Keywords: *Industry 4.0, SME, Labour market, Future of Jobs, Education.*

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Trends in teaching green economy using modern information technologies in higher education institutions

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ABSTRACT

This paper embarks on an exploration of the evolving trends in teaching green economy, with a specific focus on the incorporation of modern information technologies within higher education. It underscores the instrumental role played by e-learning platforms, educational software, and an array of digital resources in enriching students' comprehension of green economy concepts. Moreover, it delves into the strategies for seamless integration of these technologies into the curriculum, fostering heightened student engagement and collaborative learning environments.

In our endeavor to harness the full potential of modern information technologies, it is imperative to confront and address the challenges associated with their integration. This paper diligently examines these hurdles and offers insights on how they can be effectively mitigated to ensure optimal learning outcomes. It is our contention that the judicious use of modern information technologies can indeed revolutionize the teaching and learning of green economy concepts within higher education institutions.

We advocate for the development of tailored national indicator frameworks, responsive to each country's unique developmental priorities and statistical capacities, while concurrently bolstering their endeavors

in monitoring progress towards the realization of a green economy. This tailored approach is crucial in catalyzing sustainable growth while preserving our precious natural resources.

At present, it is clear that the modern philosophy of quality management implies the use of contemporary concepts in quality management processes, which are based on the application of both administrative tools and innovative technologies and approaches (R.Seturidze, 2021) The relationship between higher education and economic development has long been emphasized in the research on economics and education. Results show that higher education plays a significant role in building a green economy (Wenjuan Gao and all., 2019)

As previously mentioned, the genesis of the green economy concept emanates from the broader idea of sustainable development, anchored in a strategic, long-term perspective. The primary thrust of sustainable development and green economy lies in economic progress tempered by a steadfast commitment to minimizing adverse environmental impacts and judiciously managing our natural resources. It is imperative that we accord precedence to innovation and technological advancement in resolving the challenges inherent in the transition towards a green economy and sustainable development. In this endeavor, technologies such as artificial intelligence, Internet of Things, big data, cloud computing, and others assume a pivotal role in steering our trajectory.

The heightened competitive landscape in higher education necessitates an unwavering commitment to continually enhance quality management systems and operational efficiency. Central to this pursuit is the establishment of effective internal quality assurance mechanisms, representing a paramount challenge for higher education institutions. At present, it is evident that contemporary quality management philosophies demand the seamless integration of administrative tools and innovative technologies and approaches.

Empirical evidence underscores the profound interplay between higher education and economic development, affirming that higher education institutions serve as linchpins in fostering a green economy. This research advances the discourse, offering a comprehensive review of teaching methodologies pertinent to the green economy, while accentuating the pivotal role of modern information technologies within higher education.

The authors have diligently conducted surveys, distributed questionnaires, and engaged with faculty, students, and relevant stakeholders to amass data on current trends, challenges, and best practices. In

addition, interviews with field experts were conducted to glean qualitative insights into the efficacy of diverse teaching methods.

This article culminates in a nuanced discussion on theoretical models for the integration of modern information technologies within higher education, with a specific focus on the teaching of green economics. It also contemplates specific tools, software, or platforms currently employed in the teaching of green economics and evaluates their effectiveness. Furthermore, it addresses the imperative of teaching digital sustainability from a transdisciplinary perspective within higher education.

In conclusion, this research provides valuable conclusions and recommendations, aimed at fortifying the teaching of green economy concepts within higher education institutions through the judicious incorporation of modern information technologies. It is our fervent hope that these insights will galvanize progress in the field, nurturing a generation of professionals equipped to navigate the challenges inherent in sustainable economic development.

Keywords: *Higher Education; Green Economy; IT; Sustainable Development.*

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Opportunities for green hydrogen production and policy for their development in Georgia

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ABSTRACT

The purpose of the article is to characterize the possibilities of green hydrogen production and analyze the policy for its promotion in Georgia. The methodological basis of the study is the approaches and tools used in the documents of the international organization IRENA (1) and European Union studies (2), such as: logical analysis, comparison, reasoning based on statistical data, as well as activities and decisions of the Georgian government.

Green Hydrogen is the fuel that will dominate in the future. it is a clean fuel that can be produced without greenhouse gas emissions and used in a variety of energy applications. It is commonly used in hydrogen fuel cell vehicles as an alternative to electric vehicles. Like gasoline, hydrogen can be stored in liquid form and pumped into a vehicle using the same processes as a traditional gas station. It can also be used in heating and energy storage. Hydrogen fuel can be produced through several processes, including thermal, electrolytic, solar and biological. When hydrogen fuel is consumed in a fuel cell, the only byproduct is water, creating a completely clean energy source. Green hydrogen is primarily produced from water through Electrolysis. It is a carbon-free method for producing hydrogen from renewable and nuclear resources. Electrolysis is the process of using electricity to split water into hydrogen and oxygen. Electrolysers (hydrogen production plants) can range in size from small instrument-sized equipment that is well suited for small-scale distributed hydrogen production, to large-scale central production facilities that can be directly linked to renewable or other non-greenhouse-emitting forms gases. The global community has set a goal of reducing the cost of pure hydrogen by 80% to $1 per 1 kilogram (produced

from 9 liters of water) over 1 decade ("1 1 1"). Hydrogen produced through electrolysis can result in zero greenhouse gas emissions, depending on the source of electricity used. (3)

Opportunities for green hydrogen production in Georgia

Georgia is rich in freshwater resources, including a large number of small and medium-sized rivers and lakes. There is great potential for hydroelectric power generation in Georgia. In addition to the existing capacities, in the next 10 years it is planned to build another 123 new ones in the country - large, medium and small hydroelectric power stations. Taken together, all these new power generation facilities are designed to generate up to 15 million 500 thousand kWh of electricity. Thus, the volume of electricity generation will more than double in 10 years. But there are some pitfalls here.

The first and most important thing is the commercial terms. Georgia is interested in ensuring that tariffs for domestic consumers, including those for the production of "green" hydrogen, are as low as possible. Otherwise, Georgian hydrogen simply will no longer be competitive.

The second condition is environmental friendliness. Moreover, these are not only potential risks for the environment and microclimate. This is also a question of the status, credit rating and securities quotes of the Georgian hydroelectric power generation and green hydrogen production facilities. The fact is that in the new energy era there will be quite high environmental standards. Green companies will be able to easily attract cheap debt and investment resources. Then, the loss of "green" status can entail not only significant difficulties in the process of attracting capital, as well as its rise in cost, but also tough international sanctions. Unfortunately, there are still too many questions regarding both priority conditions. And, these problems still need to be solved.

In Georgia, in particular in the Adjara region, studying the potential of green hydrogen began back in the 90s of the last century. For this purpose, studies of the Black Sea coast of Georgia were carried out within the territorial waters. The research showed interesting results, but the difficult political situation in the country and the lack of technologies for studying and using hydrogen fuel stopped the process. In 2021, a declaration of intent was signed between the Ministry of Economy and Sustainable Development of Georgia and the German Development Bank (KfW). As a result, the first pilot project will be implemented in Georgia, which will ensure the development of clean and renewable energy in the country.

The Government of the Federal Republic of Germany and, in particular, the German Development Bank (KFW) have been our partners for many years in various areas - infrastructure development, reforms, etc. and have made a particularly large contribution to the energy reform process in terms of supporting Georgia. The next stage of cooperation with the German Development Bank concerns innovative technologies in the field of green energy.

Green hydrogen is the latest technology that many countries are currently exploring.

According to the ministry, the main objectives of the declaration signed with the German Development Bank (KFW) in 2021 are:

• Assessing the potential and benefits of green hydrogen in Georgia;

• Implementation of the first pilot project, which will provide benefits to the economy and, accordingly, will help attract investment into the country for the development of clean and renewable energy;

• Reducing dependence on imported gas and increasing reliability of supplies;

• Increasing the pace of development of renewable energy projects;

• Reduced carbon emissions and

• Create green hydrogen export opportunities for the country.

It is important that Georgia has already appeared on the map of green hydrogen research, in particular, the Energy Development Fund is actively working on developing a pilot project that will create the first green hydrogen production in Georgia. This technology, which makes it possible, especially in countries with renewable energy sources, to convert electricity into green hydrogen, resulting in

It will be possible to transport energy from regions saturated with renewable energy projects to regions with energy shortages.

This is the technology of the future, and Georgia will be one of the first countries in the region to bring this technology to life with the support of German partners. The signed memorandum expresses the parties' intention to jointly develop both the green hydrogen pilot plant and its entire value chain (including supply and demand). Georgia, which has great potential for the development of renewable energy projects, plans to use this opportunity and position itself in the global green hydrogen market.

At the first stage, we consider municipal transport in Batumi as a way to use hydrogen. Its use in urban transport will be a clear example demonstrating to society how useful, necessary, clean and safe green hydrogen is for the modern world.

The European Union pays great attention to the production of green hydrogen; Georgia, as a member of the International Energy Union, takes into account the latest international trends. Many countries have already committed to largely replacing natural gas with alternative energy sources by 2050. Developed countries are ready to gradually switch to hydrogen and thereby prevent climate change. It has many prospects for use: generation and backup of electricity, alternative and clean energy for transport, it is planned to transfer factories and production to hydrogen energy, use it for heating buildings, etc. Europe is taking serious steps in this direction. For them it is an investment in the future. Georgia can produce it not only for domestic consumption, but also export it. Demand is constantly growing as many countries are already trying to replace natural gas with hydrogen.

Conclusion

At the initiative of the Ministry of Economy and Sustainable Development, a hydrogen council was created, which includes local and foreign experts, which is working on creating a strategy for the development of green hydrogen. At this stage, the Council is pursuing policy-making issues that are particularly relevant for future activities.

As a result of the work of the council, the relevant legislation will be changed and improved, steps will be taken that will give local and foreign investors the opportunity to see and evaluate the business potential of green hydrogen development in Georgia.

Preparatory work will take approximately several years. In a year, we will know specifically the amount of hydrogen produced, the standard of use and the stages of production and distribution.

Keywords: *green hydrogen, green hydrogen production policy in Georgia, cost of pure hydrogen, electrolysis, renewable energy.*

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Redesigning Talent Management: The Great Reset Produced by COVID-19 Pandemic

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ABSTRACT

In 2020 the global economy faced a crisis as never before: the COVID-19 pandemic. Most of the organizations were unprepared for this type of challenge, therefore they were forced to adapt to a new reality. Organizations began to look for solutions to continue and develop their activity in the new conditions imposed by lockdown and the ever-expanding pandemic and the solutions found were based on the unprecedented expansion of the use of digital platforms and an innovative transformation of talent management. For a faster adaptation, organizations relied on talent suggestions. Coculova, J., Svetozarovova, N., & Bertova, D. (2020, p. 254) consider that in today's economies, organizations are able to increase their creativity and innovation capacity by considering talented employee proposals.

Around the world, the organizations' need for talent is growing, in order to be able to ensure continuous innovation and competitiveness. Studies have shown that there is an ever-growing gap between talent demand and supply. This has led many organizations to identify and attract talent not only locally, but also regionally and even internationally. However, this can produce negative effects that can be felt by both employees and organizations. Talent's well-being can be affected when they relocate to a country other than their home, especially if they face cultural differences there. At the same time, branches of organizations may face a lack of talent due to the fact that, acute lack of talent, organizations may decide to attract them from branches to the center. The disruption produced by COVID-19 forced organizations to adapt to a new normal and to generalize a new work style, mainly remote-work, which until then, generally, was offered only as a benefit and by very few organizations (work from home). The organizations implemented this work style only after the pandemic started, even though the teleworking legislation was adopted in many countries for a long period of time. We tried to verify if the literature reflects this reality and we performed a bibliometric analysis using articles indexed in Web of Science,

using only the articles included in the research areas "Business Economics" and "Behavioral Sciences". The strongest link strength and the highest number of occurrences were identified between COVID-19 (we included in this topic all the keywords related to it) and remote-work (containing the keywords remote-work, remote working, telecommuting, telework, teleworking, virtual work, work from home, work-from-home, working from home). Organizations were forced to develop or implement online platforms that allowed employees to operate from places that offered greater health safety, allowing them to avoid travel. The development of digital platforms allowed talents to operate from virtually any location, which was beneficial for organizations: a person located within a branch could also contribute to supporting the activity within the parent company, without having to relocate it, or vice versa. Talent's well-being was positively influenced, partly due to the fact that they had the opportunity to work from the locations they wanted, and which gave them the opportunity to develop their creativity and innovative spirit. At the same time, work-life-balance has seen continuous improvement, due to the longer periods of time that talents had the opportunity to spend within the family. The close connection between remote-work and employee well-being/work-life balance was also identified by bibliometric analysis: these three concepts, together, with virtual teams' topic, were identified within the same cluster. Strong semantic links have also been identified between remote-work/virtual teams and numerous concepts related to talent management: employee engagement, job satisfaction, leadership, mindfulness, organizational commitment, knowledge management, performance management, turnover intention.

However, remote-work has also imposed new challenges for talent management. Organizations had to learn to manage virtual teams, discover new ways to manage them and evaluate their results. Organizations must learn to communicate more effectively with employees and provide them with the necessary managerial support, so that they are not forced to overtime in order to accomplish their job tasks at the expected performance (Al-Jubari, I., Mosbah, A., & Salem, S. F., 2022, p. 9). Otherwise, work-life balance and, implicitly, employee well-being would be affected.

Remote-work, combined with the entrepreneurial spirit of talent, can be another challenge for talent management. Talent may be driven to give up the status of employee of a single organization and become freelancers, offering their services to multiple employers. In the current situation, characterized by acute talent shortages and the unprecedented development of remote-work/hybrid-work, organizations can turn the adoption of a freelance status by talents into an opportunity: the coopetition. Coopetition (cooperation and competition) is a very innovative idea on talent management (Jooss, S., Lenz, J, & Burbach, R., 2022; van den Broek, J., Boselie, P., & Paauwe, J., 2018). Organizations should learn, in

order to counteract the permanent shortage of human resources and capabilities, to create an intraorganizational talent-pool. This way, they will be able to co-attract, co-develop and co-retain talents. Coopetition can be also used in the R&D process, when the research is considered to be too risky or too expensive (van den Broek, J., Boselie, P., & Paauwe, J., 2018, p. 143).

Digital solutions have begun to support the effective implementation of talent management. More and more digital platforms are used for online education and learning, supporting talent management development. COVID-19 pandemic contributed to accelerate this way of personal development. Our bibliometric analysis reveals strong semantic connections between COVID-19 and: digital technologies, distance education/learning, e-learning, online education/teaching/learning. Montero Guerra, M.J., Danvila-del-Valle, I., & Mendez-Suarez. M (2023, p. 7-8) note that the digital transformation of organizations will lead to new ways of attracting, retaining and motivating staff, will influence talent management and new technologies increase the role of employees as strategic resources. Studies have however identified a challenge regarding talent management that can arise from the implementation of digital transformation: the very small number of people who possess both the necessary advanced digital knowledge and the qualities necessary for a manager.

Keywords: *COVID-19, digital transformation, remote-work, talent management, well-being.*

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Stakeholders' self-organization and adaptive governance in social enterprises: membership representation, worker control and client orientation

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ABSTRACT

The article draws on elements of complexity theory and new institutionalism to discuss stakeholder self-organisation in non-profit social enterprises governance in Italy. Self-organisation partakes an evolutionary process of trial and error aimed at achieving resilience, adaptability to changing economic conditions and social innovation. When the legal framework does not impose the control of one specific stakeholder group over the organisation, it can be observed that stakeholders self-organise and self-position themselves also in relative terms within governance boundaries. Survey data on social cooperatives, the most widespread form of social enterprise in Italy, are used to shows how different stakeholders self-organize and self-position in the main governance bodies (membership base and board of directors). The results show that, in the absence of investor ownership, producers, especially salaried workers but also volunteers, assume most of the decision-making power and strategic control. On the other hand, although clients and beneficiaries are mostly excluded from decision-making and governance bodies, their participation is ensured by other organizational channels such as co-production, co-management and by a strong propensity of the non-profit enterprise to improve their welfare by establishing trusting relationships and distributing non-market resources in their favour.

This paper uses complexity and new institutional theory to highlight how different stakeholder groups can self-organise and self-position within the boundaries of organisational governance in social enterprises. The importance of stakeholder self-organisation is demonstrated by the need for multi-stakeholder governance (MSG) to adapt spontaneously to changing economic and social conditions, which may require different forms of involvement of different social groups to meet emerging needs. While MSG has received limited attention in orthodox organisational theory, which focuses largely on

investor-owned organisations and shareholder dominance, the study of social economy organisations, such as social enterprises, non-profit organisations and some forms of cooperative enterprises, has shown a much greater multi-stakeholder bias, given their tendency to pursue social and community goals (Vidal, 2014; Borzaga and Depedri, 2015; Sacchetti and Borzaga, 2021; Tortia and Troisi, 2021). This trend often requires the active participation of different stakeholders. Active participation does not necessarily imply inclusion in the membership of the organisation, or in other governance bodies such as the board of directors. However, some social enterprise typologies in countries that developed appropriate legal frameworks do explicitly foresee the possibility of creating composite memberships, and of having decision-making bodies whose members represent different social groups. This is the case, for example, of social cooperatives in Italy, mutual benefit enterprises characterized by the MSG and a public benefit objective, that were introduced by special legislation in 1991. The legislation allows the possibility for one or more stakeholder groups to create the organization or to be included in the membership and governance bodies at later stages of organizational development, paving the way for complex interactions, strong relational ties and inclusion, mutual recognition processes, co-optation or consultation of new stakeholders.

Different stakeholders (e.g. paid workers, voluntary workers, clients/users, funders, associations, the local community) can self-position themselves in governance in very different ways, in some cases with decision-making power and membership rights, in other cases only with consultative roles in the co-production and co-management of service provision. This paper exploits data from an Italian survey on social enterprises that includes a nationally representative sample of 210 social cooperatives producing social services. The data allow for a detailed description of governance bodies and boards' composition, indicating which stakeholders initially gained or eventually attained an active role as decision-makers, which stakeholders are the most representative, the number of different stakeholder groups present in the organization's bodies, and their relative position in governance. Since one of the most important stakeholders, customers/users, is rarely represented in the main bodies, the present study asks how customers/users participate in production governance by exploiting the same survey data that express managers' assessment of customer orientation in their organizations.

The findings in the descriptive empirical analysis show: (i) in SCs, employees are almost always the main controlling stakeholder, both in the composition of membership and on the board of directors. Moreover, they are the only stakeholder in about one-third of the organizations; (ii) CSs are multi-stakeholder organizations that actively pursue the welfare of clients/users, benefit from and participate

in the organization, but do not control it. In more detail, SCs: (a) consider clients' welfare and service quality in their objectives; (b) distribute resources (services and other resources) to clients and beneficiaries below market value or for free; (iv) are characterized by a positive correlation between the volunteering and action of all key stakeholders with the welfare of users and weaker social groups in the community.

The combination of theoretical arguments and empirical evidence in this paper supports the idea that, given an adequate institutional framework, stakeholders may be able to self-organise by positioning themselves in different roles and with different objectives within a pluralistic governance structure. Although Italian legislation does not require a minimum number of stakeholders higher than one in the organisational bodies, nor does it require the presence of a specific stakeholder, most cooperatives are characterised by more than mono-stakeholder governance, which implies that stakeholders are able to recognise the need to include plural interests explicitly in decision-making processes. In the case of the organisation's members, the modal number of stakeholders ranges from one to three, while the board of directors is predominantly populated by one or two stakeholders.

Clear patterns emerge with regard to composition of pluralistic governance in social cooperatives. Since control by investors is prohibited by law (investors can have at most one third of the votes of the members and in the election of board representatives; moreover, appointed board members cannot be a majority on the board), producers appear as the stakeholder group that has most of the control in this kind of organization. Salaried workers are almost always present in the membership and on the board and are the only stakeholder in a substantial part of the organisations. Voluntary workers represent the second most important stakeholder in both governing bodies, followed by the financial members who are, as mentioned above, a minority but relevant group. The predominance of producers in the governance structure is consistent with the idea that this type of social enterprise is supply-driven. Workers' control over the production process and business objectives represent the dominant observed pattern in the evolution of governance, given the need to apply horizontal control (peer pressure among members) and to develop innovative organisational routines and business strategies that especially exploit specific investments in human capital, enterprise-specific knowledge and local social capital in the production of relational services (Tortia and Troisi, 2021). On the other hand, stakeholders who are excluded from decision-making processes, especially customers, service users and beneficiaries, are involved in governance through alternative channels such as open innovation, co-production and co-management schemes, consultation processes and access to information flows.

In line with the neo-institutionalist of Hansmann (1996), the non-profit character of social cooperatives favours the inclusion of clients, users and beneficiaries in governance through the high importance attached to the pursuit of their well-being and the establishment of mutual trusting relationships. Indeed, the survey data show that trust, quality of relationships and mutual understanding with customers and beneficiaries represent dominant features of the business model and management style. Self-organisation of stakeholders seems to be not only a positive, but even a necessary feature of pluralistic governance in the production of social services. The main reasons lie in the fact that only the free and unprogrammed interaction and relative self-positioning of the different stakeholders in their roles as decision-makers and service recipients as an open-ended process of trial and error seem to be able to guarantee an adequate degree of flexibility, resilience and adaptability to the external conditions of society (satisfaction of needs) and internal conditions (in the reconciliation of different motivations, interests and business objectives).

Keywords: *social enterprises; multi-stakeholder governance; self-organization; adaptive governance; social innovation; worker control; client orientation.*

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A Comprehensive Analysis of Factors Influencing Internationalization of Micro- and SMEs in Central Europe in process of organizational change

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ABSTRACT

Purpose: Globalization and increasing client demands have heightened the importance of national companies expanding beyond domestic borders. Small and medium-sized enterprises (SMEs) should recognize the potential to extend their product reach into the global market, as emphasized by various researchers (e.g., Dzikowski, 2018; Garcia-Lillo et al., 2017). Becoming an international company is a strategic change that presents many new challenges and risks, especially for micro- and small to medium-sized enterprises (SMEs). This organizational change forces management to improve internal activities, including strategic planning, risk assessment, and product adaptation to succeed in the international market. To access new market opportunities, companies must revise their strategic foundations (Mura, 2019). According to Garcia-Lillo et al. (2017), strategic management and dynamic capabilities are crucial components in the internationalization process of small and medium-sized enterprises (SMEs). SMEs face a disadvantage compared to larger companies due to their limited resources and capabilities, which prevent them from predicting international risks (Malca et al., 2020). Therefore, SMEs need to comprehend all the factors that can influence their success in the international market. The main objective of this paper is to construct a comprehensive model that includes the relationships among various factors that significantly impact the internationalization process of micro- and SMEs within Central European countries.

Methodology: To fulfil the objective, the research thorough investigation was realized. In total, 1,585 micro- and SMEs participated in this research by responding to an online questionnaire during the period

of 2020-2021. The research was organized by Tomas Bata University in Zlín and four countries from Central Europe was included (Czech Republic, Slovakia, Poland and Hungary). More than 34,000 questionnaires were sent directly to owners of small and medium-sized businesses chosen from national registers. The research employed principal component analysis as an initial step, aiming to derive latent components associated with innovation, strategic management, and barriers of entering in international market. Logit regression and ANOVA was applied to analyse the relationships and factors under consideration. Moreover, the study incorporated the analysis of two crucial control variables: company size and company age, in understanding their influence on selected factors and barriers concerning internationalization.

Findings: The findings of this study confirm the importance of understanding and addressing barriers that influence the internationalization process for micro- and SMEs. These must be incorporated into the change of strategies during this organizational change. Foremost among these barriers is the noticeable difference in tax policies, considered the most significant among SMEs. The results demonstrate that companies engaged in exporting perceive fewer obstacles to export, regardless of their level of experience (age) or resource availability (size). Additionally, medium-sized companies demonstrate a greater propensity for implementing innovation and strategic management compared to their smaller counterparts. The study confirms a strong correlation between strategic management and barriers, as well as between innovation and barriers. Innovation as a crucial source of economic growth (Ivanova et al., 2019) was found to be influenced by both the size and age of the company, implying that younger and smaller companies may need to place greater emphasis on innovation to navigate the challenges of internationalization. On the other hand, strategic management was primarily influenced by the size of the company.

The research emphasizes the importance of understanding and effectively navigating tax policies across various countries, particularly for micro and SMEs venturing into international markets. Additionally, the study concludes that exporting companies, regardless of their age or size, perceive and encounter lower barriers during the internationalization process. This finding underscores the need for adapted support and strategies to facilitate smoother internationalization for all exporting companies. Moreover, the research suggests that medium-sized companies should place a strong emphasis on innovation and strategic management in their internationalization strategies. These aspects are vital for addressing

barriers and achieving successful international expansion, particularly within the first five years of a company's activity. Furthermore, the study confirms that innovation and strategic management hold greater significance for export-oriented companies compared to those focused on domestic markets. These insights provide valuable guidance for businesses seeking to expand their global activity. The research aims to contribute to a better understanding of the dynamics surrounding international business expansions, decision-making, and strategic planning in terms of organizational change during internationalization.

Keywords: *SMEs, internationalization, organizational change, strategic management.*

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Are Public Administrations ready for change? Exploring the use of Artificial Intelligence in Judicial Offices

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ABSTRACT

The use of Artificial Intelligence (AI) within public administrations has become increasingly pervasive in recent years, leading scholars to question its potential effectiveness in all of them.

The European Commission proposes to define AI as "systems that exhibit intelligent behavior by analyzing their environment and taking actions with a certain degree of autonomy to achieve specific goals" (the European Commission's Communication to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions – "Artificial Intelligence for Europe", Brussels, April 25, 2018 The document can be found at https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai). This expression entails the idea of a machine capable of thinking and acting as a human. The keyword in artificial intelligence is "algorithm", a sequence of instructions specifying a combination of actions to solve a problem. Clearly, the reliability of the algorithm depends on the quality of the data used, which always presupposes human choices and the accuracy of data collection and processing activities to derive useful information for supporting decisions and/or creating effective and efficient organizational models.

The integration of technology into the justice system has focused on the interplay between technological innovation and increased efficiency. Judicial offices represent one of the main areas in which the search for quality of public sector lies, as the backlog which affects them requires a shift that considers the possibility of harnessing the concrete opportunities offered by AI.

This bond between the quality of the judicial system and disposition times has become a prominent topic on the worldwide public policy agenda. Technologies in European courts were the subject of an in-depth study conducted by CEPEJ in 2016, which preceded the development of a “European Ethical Charter on the Use of Artificial Intelligence in Judicial Systems”. Conversely, in the United States, "robot lawyers" are already at work, and they seem capable of conversing with humans. Instead, in China, in the Shanghai Pudong Prosecutor's Office, the first "robot judge" has been "hired." This is an artificial intelligence software that, after reviewing thousands of similar cases from around the world between 2015 and 2020, is capable of deciding.

To date, the question on how AI can be employed in the justice system still remains unanswered.

In fact, its applications are still largely unchallenged and unexplored, particularly on the organizational and ethical level. Therefore, by leveraging this literature gap, the goal of this contribution is to address the current use of artificial intelligence in judicial offices through both an exploratory literature review and an analysis of secondary sources. The results of this analysis will be discussed to determine whether, at the current state, AI can be considered a driver of organizational change in judicial offices or if it is still a long-term process. It is expected to gain a comprehensive understanding of the positive and negative impact that artificial intelligence may have on judicial offices and to contribute to the advancement of knowledge in both managerial and justice domains.

Keywords: *Organizations, Judicial Offices Reorganization, Artificial Intelligence, backlog reduction.*

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Investigating Employer Branding strategies in Public Administration: an exploratory literature review

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ABSTRACT

The landscape in which public administrations operate is evolving at an unprecedented pace. Factors such as technological advancements, shifting demographics, and increasing public expectations are forcing these organizations to reconsider their traditional approaches to governance. In light of these challenges, there is a compelling necessity for public administrations to undertake a comprehensive review of their organizational processes, making it increasingly crucial to manage and address organizational change while also prioritizing human resources (Boselie et al., 2021).

Employees play a central and multifaceted role in organizations across all sectors, so it is crucial to understand how to manage, attract, and retain them effectively (Kravariti & Johnston, 2020). This aspect has gained particular importance due to the allocation of significant resources to the public sector through the National Recovery and Resilience Plan (NRRP).

Consequently, public administrations have been adopting strategies aimed at attracting and retaining new talents, investing in skills and innovation to promote the compelling change that it requires (Gagliardi, 2021; Lee et al., 2023). This objective aligns seamlessly with the public administration's need for employer branding, which aims to attract the best talents (Ruffini, 2022). Employer branding is a process through which organizations attract and retain the most talented human capital, and it promotes a clear

vision of the aspects that make an organization unique and attractive as an employer (Fernandes et al., 2023), enabling it to communicate to current and potential employees what the values are that guide the organization itself (Weske et al., 2020; Theurer et al., 2018; Love & Singh, 2011). The factors that make up employer branding include reputation, culture, values, and the general perception of the employer as an attractive place (Pakhare et al., 2023).

Literature has only recently addressed employer branding within the public sector, possibly because it has not traditionally been configured as a strategic driver in public organizations (Ingrassia, 2017).

To fill this gap, the objective of this study is to explore the role of employer branding strategies in facilitating and managing organizational change in public administration (Keppeler & Papenfuß, 2021). Through an exploratory literature review, an identification of the critical variables that influence employer branding in public administration will be carried out, providing a comprehensive understanding of the challenges and opportunities associated with the attraction and retention of new talents (Chopra et al., 2023).

Furthermore, this study not only contributes to the growing body of knowledge on employer branding within the public sector but also provides valuable insights for policymakers, public administrators, and researchers seeking to enhance the attractiveness and competitiveness of public sector organizations in today's dynamic and competitive labor market.

Keywords: *Employer branding, Public administration, Attraction, Retention.*

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Does my job make sense? The mediating role of meaningful work between attitude and participation towards change in organizations

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ABSTRACT

Organizational change often involves significant shifts in the way employees work, which could be disruptive and unsettling and could generate uncertainty and anxiety among employees. Furthermore, organizational change may be met with resistance from employees who are comfortable maintaining a balance in their professional *status quo.*

Despite these challenges, organizational change is often essential for organizations to remain competitive and successful in the current rapidly changing environment. To be effective, it requires the active participation of employees, who need to generate meaning in both their job routine and the change itself. In fact, employees who perceive their work as meaningful are more likely to have a positive attitude towards change in organizations, which in turn leads to greater participation in change initiatives.

In such a complex environment as higher education, this aspect is particularly challenged, especially for temporary staff (research fellows, post-docs, Ph.D. students, and young researchers) whose tasks and career goals are often not formalized. In fact, their work tends to diverge from what is expected and to turn towards duties that make them lose sight of their professional growth goals, rejecting any changes even if they possess both attitude and readiness.

Therefore, the aim of this study is to explore the mediating role of meaningful work in the relationship between attitude and participation in change in organizations. A sample of researchers completed a

survey measuring attitude, meaningful work, and organizational change participation. Structural equation modeling (SEM) was used to test the mediating effect of meaningful work.

Keywords*:* *Meaningful Work, attitude, organizational change, participation, higher education*.

AI implementation within organizations. A systematic literature review

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ABSTRACT

Artificial intelligence (AI) is currently viewed as the most important and disruptive technology for organizations. Rapid progress and advancements in AI have captured the attention of both researchers and practitioners, unlocking many opportunities for its integration into organizations. The advantages of AI applications are extensive and span various domains with far-reaching possibilities. AI has been demonstrated to be effective in unmanned vehicles, medical diagnosis, transport and air traffic management, and environmental sustainability. However, as AI continues to be integrated into various aspects of society, its potential to reshape the way organizations operate cannot be underestimated. Thus, understanding the potential effects of AI is crucial for informed decision making and responsible deployment in organizations worldwide. The aim of this work is to detail the current challenges and implications that might arise from AI applications and to highlight ways to overcome such challenges to realize the potential of this emerging technology. First, this paper provides a brief history of AI and an overview of AI typologies. To map the state of the art, consolidate the heterogeneous corpus of knowledge, investigate the current impacts on organizations of AI technology, and provide insight into the possible challenges and risks associated with this technology, applying a methodological approach based on a systematic review of the literature conducted with the PRISMA method and a third type of content analysis. The research findings highlight various AI application areas, outlining their value-creation and operational mechanisms, thereby offering an overview of the most popular artificial intelligence techniques used within organizations. Moreover, the results shed light on different topics attributable to three themes: enablers, challenges, and AI systems. This study highlights the potential implications of AI within organizations, emphasizing the need for multidisciplinary research, collaboration, and ongoing assessment to ensure that AI applications align with organizational values and goals. The analysis provides researchers and practitioners with a meaningful overview of the body

of knowledge to exploit AI as an effective enabler of value creation within organizations. Finally, a research agenda is proposed to guide the directions of future AI research in private sector addressing the identified trends and challenges.

Keywords: *Artificial Intelligence (AI), Change, Systematic literature review*

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Rethinking smart working organizations for innovation

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ABSTRACT

Today, the advent of emerging information and communication technology is driving modernisation and innovation in public administration, leading to digital, smart, agile and sustainable government. Following both a service logic view to public value creation (Osborne, 2018) and a public value management view (Stoker, 2006), public organisations are rethinking how to develop a smart view in order to achieve sustainability as a vision for change, driving public decision-making, management and governance (Goodsell, 2006; Fiorino, 2010), promoting cooperation and social exchange with civil society and governance networks within social ecosystems (Dumay, Guthrie and Farneti, 2010), driving innovative collaboration as a key source of public innovation (Törfing, 2019; Törfing, 2016).

Smart and sustainable organisations perform better (Matheson and Matheson, 2001), placing the development of human capital at the heart of their strategic approach (Pfeffer, 1996; Pfeffer, 2010), promoting collaborative relationships and innovation within work environments (Aggerholm, Esmann, Andersen and Thomsen, 2011). Sustainable competitive advantage relies on promoting the role of people within the organisation, working with people, empowering them and enhancing their participation at work (Pfeffer, 1995). Sustainable companies empower the employees and enable the managers to promote collaborative and cooperative spaces within the organisation (Leon, 2013). Sustainable future refers to long term strategic and organisational orientation and requires that «managers need to embrace a process that identifies, prioritizes and processes sustainability issues» (Perrott, 2015, p. 50). Embedding sustainability in the organisation implies to support the continuous learning and organisational capacity in order to develop the orientation to change and the commitment to improvement and innovation (Haugh and Talwar, 2010). Smartness has become a desirable outcome and key source for sustainability. The advent of pandemic Covid-19, originated by the rise of a new *coronavirus* (Sars-Cov2) as a virus of the

species severe acute respiratory syndrome-related coronavirus (SARS-CoV) which is able to infect also the humans, causing, in particular, many cases of pneumonia, has led to a worldwide health crisis which impacted on the life of people and organisations, leading companies to redesigning the organisational arrangements, accelerating digitalisation, and enabling information technology as a key source for driving and managing changes, a means for driving innovation. The use of information technology at work opens to a space of collaboration by revisiting the work organisation and leading to an increase of remote working, teleworking and online working, supporting smart working practices. During the most acute phase of the emergence from Covid-19, for example, smart working involved the 97% of large companies, the 94% of Italian public administrations and the 58% of Small and Medium Enterprises (SMEs), for a total of 6.58 million agile workers, about one third of Italian employees, more than ten times more than the 570 thousand surveyed in 2019 (Politecnico di Milano, 2021).

Employees in private, small, medium and large companies and public employees have therefore experienced a different way of working as enabled by ICT in transition from telework and remote working to smart working coherently with an organisational view to rethinking both work organisation and the role of organisation becoming smart developing the potential of ICT (Viceconte, 2020). During pandemic Covid-19 health crisis, the information technology has increasingly impacted on life of people and organisations leading to considering the smart working as an emerging and innovative phenomenon and work design experiment, becoming part of a process of profound cultural and organisational changes (Torre and Sarti, 2018), empowering managers and followers in improving the ICT-enabled work relationships (Harris, 2003). While teleworking refers to a work organisation that involves working at a distance from the company's main office and the use of information technology (Dambrin, 2004) in response to energy crisis in the early '70s (Munir *et al.*, 2018), in virtue of the acceleration provided by pandemic crisis, the developments of technology and digitalisation are leading to promoting smartness at work and within organisations are opening to smart working and driving a new way for work organisation, leading to innovation in work processes, environments and behaviours of people at work that concern and involve the relationships between employees and managers. Smart working requires that managers have to assume new behaviors in order to make more collaborative and productive the work relationships, improving cooperation with employees.

Keywords: smart organizations, smart working, innovation.

CONSUMER BEHAVIOR

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Clustering consumers on an emerging market: A K-means analysis in the New Normal

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ABSTRACT

The COVID-19 pandemic has triggered an unparalleled transformation in various aspects of human life, including consumer behavior. The global crisis has led to rapid adjustments in the way individuals perceive, respond, and interact with the world around them, and nowhere has this change been more evident than in the realm of consumer activities. Bottlenecks, social distancing measures and widespread uncertainty caused by the pandemic have reshaped consumer preferences, attitudes, and shopping behaviors. As companies grappled with the challenges posed by the pandemic, researchers and businesses alike recognized the need to understand and adapt to the evolving landscape of consumer behavior. Rapidly changing circumstances called for a nuanced exploration of how individuals adapt to the new normal, cope with stressors, and alter their consumption patterns. This study sought to deepen these dimensions, shedding light on the distinct ways in which consumers navigated the complexities introduced by the pandemic. It has been found that people with high levels of adaptability and resilience may tend to seek new ways of meeting their needs, including by adopting innovative technologies and methods of purchasing.

The aim of the research is to unveil the different consumer groups based on their adaptability and resilience during the pandemic, as well as their subsequent shopping preferences. Using advanced methodologies such as the K-means clustering algorithm, this study aimed to provide a comprehensive overview of the diverse responses presented by consumers. Furthermore, this analysis aimed to contribute

to the existing body of literature on consumer behavior in times of crisis, providing insights that could inform marketing strategies and guide businesses in adapting to the changing consumer landscape.

The research considered a range of demographic variables such as age, urban or rural residence, education, household size and income, recognizing their potential influence on consumer responses. The results of this study could serve as a valuable resource for businesses seeking to adapt their approaches to changing consumer needs and behaviors, both during and after the pandemic. For businesses, the research pinpoints the relevant triggers that can be used by retailers to enhance customer behavior, to foster consumers attention and to determine them to buy from stores.

Keywords: *COVID-19 pandemic, cluster analysis, K-means, consumer behavior, emerging market.*

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Stakeholder Strategic Bridging in Local Area Development. A theoretical model

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ABSTRACT

The Covid crisis influenced the changing of numerous life areas such as social dynamics, organization work, demographic distribution, economic models, political programmes and others.

This scenario presented an increasing stakeholder relations/engagement trend, particularly highlighted in the economic field, characterizing a more marked stakeholder capitalism (Mazzucato, 2022). In this trend, heterogeneous agents decide, spontaneously or voluntarily, to participate in relations between them, in answering economic, social and environmental needs. Moreover, cities and tourism destinations are understood as contexts for the smartness concept. They are perceived as complex ecosystems with a vast range of participants that ultimately collaborate and cooperate to create value for themselves, including end-users (Cohen, 2011).

These changes move all economic and social models from capturing value to value co-creation objectives, which is ultimately the result of the connection between heterogenous agents such as public institutions, businesses, community, ONG, end-users, and others, which is essential (Latour, 2005; Akaka and Chandler, 2011) to generate value.

This wave characterizes the territorial ecosystem "smartization" aimed at creating value co-creation for all participants, also supported by the application of new technologies (Orlikowski, 1992; Akaka and Vargo, 2014).

In this vein, the trend finds its scientific fundamentals in the S-D logic in which Vargo and Lush (2008, p.7) argued that "all social and economic actors are resource integrators". However, in this consideration,

the researchers neglected that the actors' participation is characterized by a modular contribution based on their capabilities/skills, which is very pronounced for the participants' heterogeneity in the territorial dynamics.

In the tourist view, this model moves from a Prahalad and Ramaswamy (2004) view, in which the customer experience was the agents' activities focus, to an ecosystem view in which the end-user is considered a peer participant for mutual enrichment.

To support this trend is increasing the new technologies' role that, matching participants' data, could balance the components' behaviours aimed to reach the mutual purpose of answering economic, social and environmental needs in an open innovation approach. Therefore, as Albino et al. (2015) argued, these stakeholders connected them to collaborate, cooperate and co-create to contribute to sustainable and more extended conditions, validating the concept argued by Mazzucato (2022) that when value is created collectively, it should be shared collectively.

This consideration evokes the innovation ecosystem model characterized by heterogeneous stakeholders in relations between them to reach, in a modular way, a mutual purpose aimed at communal and individual value creation (Pidorycheva et al., 2020).

This value co-creation approach has been exploited even in new territorial management processes. In this new approach, exemplified by the Italian National Strategy for the Inner Areas (Strategia Nazionale per le Aree Interne – SNAI), a broad local area is seen as a stakeholder network that should managed by engaging the local communities following the principle that "when value is co-created, it should also be shared".

In this work, we focus on the role of Strategic Bridges as one or more local agents, emerging from the interactions between the local actors taking into account their stakeholder culture (Jones et al., 2007) – i.e., the sum of the various actors activities that "reflect the collectively learned behavioral response to problems that the organization has encountered" while "provid(ing) agreed upon heuristics", their stakeholder integration capabilities – i.e., "a set of behavioral practices that links stakeholder management orientation with the capability to learn from and coordinate with a broad range of stakeholders" (Plaza-Úbeda et al., 2010), and their stakeholder context – i.e., "the external environment in which firms and their stakeholders operate" (O'Riordan & Fairbass, 2014) – that may help to create a more fruitful environment, a viable solution that may overcome the pre-existing difficulties such as mistrust between some of the actors, or different specific traditions, or more in general, the resource

imbalance. Accordingly, we first propose a theoretical model to consider the emerging engagement processes in the local area co-creation processes that we later apply to study how the emerging network may differ or complement the institutional network designed to help a given local area develop in an Italian inner area.

Keywords: *stakeholder engagement, s-d logic, knowledge management, peer-to-peer participation, sustainable tourism, strategic bridging*.

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Pressing need for safety and security: An innovative approach to competitiveness of destinations.

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ABSTRACT

Adaption to novelty and change in traditional societies and economies requires sometimes a change of organizational, political, economic, social structures, but the most crucial is human thinking and perception. Perception of danger and threat might be decisive factor, which could significantly undermine the image, reputation and lead to decrease of competitiveness power and consequently to the elimination of the economic potential of the region or a territory (a continent, state, etc.) and tourism growth as well. Crisis management as one of the factors of competitive advantage tools requires in the contemporary period the active collaboration of the public and private entities as well as the co-operation of the community dealing with the threats of externalities, which could occur. Dealing with the crises and disasters in our society might be one example of the necessity of the innovative approach despite of the fact that crises and disasters also occurred in a past, however the impact and the spread of danger was not so striking as it is now, in a period of globalization and technological change, moreover the frequency of disturbing events due to human activities or global environmental changes.

The purpose of this study will be the explanation of importance of image and reputation of territories as an important source of product in tourism sector and the impact of managerial decisions in tourism sector dealing with a crisis management. A method of comparison of several case study approaches of some countries dealing with crisis situation as for instance SARS and COVID-19 will be used in this paper.

Keywords: *risk management, competitiveness, image, reputation, safety and security* .

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Enhancing Visitors' Digital Experience in Museums through Artificial Intelligence.

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ABSTRACT

Museums have long been recognized as the guardians of culture, history, and art, offering visitors the opportunity to delve into the past and explore the world's treasures (Johnson et al., 2015). In recent years, the integration of artificial intelligence (AI) into the museum experience has transformed the way visitors engage with exhibits, artifacts, and interactive displays (Giannini and Bowen, 2019; Wang, 2021). With this research we present a qualitative study conducted through abductive interviews (Awuzie and McDermott, 2017; Janiszewski and van Osselaer, 2022), to understand the impact of AI, and the related services, on enhancing visitors' experiences in museums.

AI-powered applications in museums allow visitors to tailor their museum journey according to their interests, receiving relevant information and recommendations. This personalization increases visitor satisfaction and engagement (Ioannakis et al., 2020). Moreover, with reference to enhanced learning opportunities, AI tools offer educational benefits by providing in-depth information, interactive content, and real-time translations, making exhibits more accessible and informative for a diverse audience. AI-driven immersive technologies such as augmented reality (AR) and virtual reality (VR) enrich the visitors' experience by leading them to different historical eras or allowing them to interact with virtual artifacts. This immersion fosters emotional connections and a deeper appreciation for the exhibits.

Nevertheless, AI tools increase accessibility and inclusivity; in fact, in line with extant literature (Jobin et al., 2019; Vinuesa et al., 2020), features such as speech recognition, text-to-speech conversion, and audio descriptions cater to individuals with disabilities, ensuring that museums became more inclusive and welcoming spaces for all visitors.

Beyond the accessibility dimension, an important aspect is related to gamification and interactivity. More precisely, gamified elements powered by AI encourage visitors to actively engage with exhibits, turning the museum visit into an enjoyable and interactive adventure (Liarokapis et al., 2017; Tan and Ng, 2022). As already highlighted by Ioannakis et al., (2020), this approach increases dwell time and encourages repeat visits. At the same time, data on visitor preferences and behavior helps museums to refine exhibits, optimize pathways, and create content that resonated with their audience, thus improving the overall visitor experience (Yulifar et al., 2021). In conclusion, the integration of artificial intelligence in museums has a central role in enhancing visitors' digital experiences.

Accordingly, our research aims to investigate the evolving role of AI-related technologies in museums and how they are affecting the ability of these institutions to engage their visitors. Leveraging the main characteristics of this approach, this research delves into the perceptions, experiences, and emotions of visitors who have been engaged with AI-driven tools and their explicit, and implicit, applications during their visits in a museum. In our research we want to understand how the interaction with AI-driven museum services and exhibitions have been able to excite the vision, augmenting his/hers experience and enriching them. Accordingly we try to highlight the AI potential to revolutionize the museum experience, offering personalized, immersive, and inclusive encounters with culture and history.

However, the study has some limitations. First, focusing on a single museum may limit the generalizability of the study's findings. The experiences and perceptions of visitors in one museum may not represent the broader population of visitors or may not apply to museums with different characteristics. Indeed, the sample characteristics, interests, or expectations and selection of interviewees may not fully represent the diversity of the museum. Second, from a methodological point of view, while abductive interviews can provide valuable qualitative insights, they may also introduce subjectivity and potential interviewer bias.

Keywords: *artificial intelligence, museum, digital, experience, visitor.*

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A critical analysis of "fair value" as a valuation method in the Italian financial statement

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ABSTRACT

Introduction

The aim of the analysis is first of all to understand the degree to which the possession of derivative financial instruments is included in the Italian financial statements. In addition, to analyse the impact of accounting on the company's financial situation.

Derivatives accounting is a major innovation that the transposition of Directive 2013/34/EU has introduced into Italian legislation. Prior to the entry into force of Legislative Decree 139 of 2015, derivatives were only included in the notes to the financial statements. For financial years beginning on or after 1 January 2016, the Italian legislator has provided that derivatives will be included in the determination of the company's profit or loss for the year and in the company's balance sheet by being recognized at their fair value (Manchiraju et al. 2016; Gope and Mitra 2018).

The transposition of Directive 2013/34/EU into Italian law implemented through Legislative Decree 139 of 2015 led to a strong alignment of the financial statements drawn up according to the rules of the Italian Civil Code (and the national accounting standards OIC) with those drawn up according to the international accounting standards IAS/IFRS (Di Pietra 2017).

One of the main changes introduced by the reform is "fair value" as a valuation method. Fair value is a valuation method that is based on the assumption that the values shown in the financial statements reflect their exchange value. Therefore, the values shown are current values, which could correspond to a sale consideration on that date (Amelio, Gavana and Gazzola 2014).

The entry into force of a sophisticated accounting novelty such as the one concerning derivative financial instruments, increases the administrative burden and requires in-depth knowledge on the part of those in charge of drawing up the financial statements.

The analysis will therefore be useful to critically understand whether the possession of such instruments can have a significant influence on the financial statements at an economic and equity level and whether the benefit to third party disclosure outweighs the increased administrative burden on the company.

The analysis is conducted using a substantial dataset comprising more than 750 firms over three years. It examines whether the possession of derivative financial instruments is a distinguishing factor in Italian financial reporting and if the shift to fair value recognition has a statistically significant influence on the ROI Index. Additionally, the study explores potential variations when the dataset is segmented by geography and company size, as well as by employee count.

The findings reveal that the presence of derivative financial instruments does not significantly differentiate Italian financial statements or substantially alter ROI values. Even when the dataset is stratified based on geographic regions or company workforce size, no statistically significant effects were observed.

This research contributes original insights into the treatment of derivative financial instruments in Italian financial reporting following the implementation of fair value recognition rules. The study's use of a large dataset and its exploration of various segmentation factors provide valuable perspectives on the impact of these accounting changes on financial performance metrics.

Keywords*:* *fair value, financial statement, ROI, Derivatives accounting.*

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CSR as an important factor in obtaining external financial sources for SMEs.

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ABSTRACT

Corporate social responsibility (CSR) is currently a widely discussed topic in the field of sustainable business and there is an increasing emphasis on it. It is the focus of many scholars. Several studies exist which proves the corporate social responsibility positively impact firms in different aspects such as building a positive brand image, enhancing customer loyalty, motivating employees, enhancing loyalty among employees and their commitments, improving firms' performance, and increasing their profitability (Ali et al., 2020; Kunz, 2020; Lu et al., 2020; Stojanovic et al., 2020). Bank financing is one of the most reliable sources of money that a firm can obtain in maintaining a healthy cash flow (Allen et al., 2005; Huang et al., 2022; W. Zhou, 2009). According to Stevens et al. (2015), firms that follow corporate social responsibility (CSR) are more likely to obtain a bank loan because CSR enhances the firm's reputation, which helps to improve the firm's ranking. Banks can monitor not only the implementation of CSR but also its performance after the implementation of CSR. It is the good performance of CSR that indicates better accountability of the firm's management and better quality of the firm's management, which helps the bank in its lending decision (Huang et al., 2022). The implementation of CSR in the operations of firms enhances the long-term sustainability and transparency of firms. These factors help the bank to decide whether the firm is able to repay the loan granted and help firms to gain the trust of the bank to achieve bank financing (Attig et al., 2013; Bai & Chang, 2015; Gregory, 2010; Su et al., 2016; Wei et al., 2017).

The main purpose of our work is how implementation in management practice helps SMEs in obtaining external financing sources from banks and other financial institutions. This results can serve as a tool for institutions that ensure the implementation of CSR, or support and deployment programs in the context of SMEs. Overall, CSR implementation can positively influence access to external finance, but it is a complex process and results can vary depending on many factors. Small firms should pay attention to the authenticity and management of their CSR activities and assess how these activities can affect their particular situation in accessing funding.

Conclusions from the research:

- Companies with active and well-managed CSR programmes may have easier access to external finance. These companies are often perceived as less risky and can attract investors and lenders who are willing to provide better terms.
- Companies with significant CSR initiatives can achieve lower interest rates when borrowing or issuing bonds, which reduces financing costs.
- Some sectors, such as renewable energy or sustainable development technologies, may benefit more from active CSR compared to other sectors.
- CSR initiatives are authentic and well-managed. If they are perceived as a superficial effort to obtain funding, this can backfire.
- Larger companies often have larger CSR budgets and a greater ability to push their initiatives. Smaller companies have limited resources for CSR activities, which can affect their success in obtaining funding.
- Investors and lenders assess risk based on a number of factors, including financial stability, risk management and social responsibility. CSR is one of these factors, but not the only determinant.

Overall, CSR implementation could positively influence access to external finance, but it is a complex. Small firms should pay attention to the authenticity and management of their CSR activities and assess how these activities can affect their particular situation in accessing funding.

Keywords: *SMEs, CSR, organizational change, strategic management, external financing.*

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ESG and financial performance: the moderating role of digitalization

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ABSTRACT

1. Introduction

In recent years authorities and regulators around the world are showing great interest in the concept of sustainability (Zhou et al., 2022). In particular ESG (Environmental, Social and Governance) factors have become extremely important because they allow a company's environmental, social and governance performance to be measured accurately and on the basis of standardized and shared parameters (Velte, 2017). In 2019 ESG factors are recognized by the financial world with the role of "key leverage" to achieve the goal of climate neutrality by 2050: the European "Green Deal." ESGs reflect sustainability practices and are able to report a firm's progress in implementing the SDGs (Khaled et al., 2021). Many studies in the literature show that sustainable investments, in addition to protecting the environment and society, offer an opportunity to achieve financial success (Bodhanwala and Bodhanwala, 2018). Sustainable practices are a growing phenomenon around the world and there is increasing research on the correlation between ESG and corporate financial performance (Alsayegh et al., 2020; Velte, 2017).

In parallel with the increasing focus on ESG digitalization has taken center stage in the business environment. Digital transformation can reduce business costs and trade credit financing (Chen and Xu, 2023; Zhou and Li, 2023) and has positive impact on firm innovation and performance (Qincheng et al, 2022). Also, according to existing research (ElMassah et al., 2020; Sun and Saat, 2023), digitalization has a positive impact on the sustainable development of enterprises. The development of digital technology can reduce the transaction cost and the cost to obtain information (Ahluwalia et al., 2020). With the application of digital technology in finance, corporate financing has been greatly facilitated (Li et al., 2020). In this context the development of digital finance can significantly improve corporate ESG performance especially environmental performance (Ren et al., 2023). Digitalization can play a key role in integrating ESG aspects within organizations as digital technologies can be used to monitor and assess environmental impact, improve social practices, facilitate transparent governance, and promote corporate responsibility. Finally it is clear that ESG and digitalization represent two interconnected trends that are shaping the global landscape. The adoption of ESG criteria and the integration of digital technologies can offer significant opportunities for companies, enabling them to create long-term value, mitigate risks, and satisfy stakeholder expectations. Companies need to be aware of the environmental and social impacts of their activities and harness the potential of digital technologies to address the challenges and seize the opportunities offered by an increasingly sustainable and digital economy. The aim of the paper is twofold: first we investigate the relationship between ESG factors and financial performance; second we investigate the role of digitalization and we try to understand how digitalization can influence that relationship. In particular we try to understand of how digitalization can moderate the relationship between ESG and profitability goals within the business environment, and especially the correlation that exists between sustainability and profit in a sample composed of companies from the Energy and Utilities sectors all over the world.

The specific research questions are the following:

RQ1: Are ESG scores able to increase the profitability of a company?

RQ2: How does digitalization moderate the relationship between ESG and FP?

2. Relevance of the research

The strand of scientific research evaluating the impact of ESG factors on a company's financial performance has been enriched in recent years with a multiplicity of studies and empirical models (Duque-Grisales et al. 2021; Agarwal et al. 2023; Tarmuji et al. 2016). However, there is still little clarity

regarding the link between ESG and financial performance (FP), as empirical results are not univocal (Rahi et al., 2022). In fact, empirical studies could be divided into two groups: studies that do find a positive/negative correlation (Chao et al., 2023; Li et al., 2023), and studies that do not find a correlation between ESG factors and financial indicators (Atan et al., 2018; Veltri et al.,2023; Baran et al., 2022). Specifically, Chao et al., (2023) showed that financial factors (e.g., cash flow) have a positive effect on ESG performance, while ESG performance has a positive effect to fundamental factors (e.g., sales revenue). Rahman et al. (2023), found that ESG and all of its dimensions (Environmental, social and governance) have a significant positive association with ROA. The study of Baran et al. (2022), analyzing Energy companies in Poland, finds no significant correlation between ESG factors and financial performance indices (ROA and ROE). Ko et al. (2022) showed that ESG score is positively associated with long-term firm value, but not with short-term profitability. Naeem et al. (2022) analyzing the impact of ESG on performance indicators such as Roe, Roa, and Tobin's Q in Energy companies, finds positive correlation between ESG and Roe, but negative correlation with Roa and Tobin's Q. In recent years research has paid special attention to digital transformation (Strange et al., 2022), as companies through digital transformation have begun to change traditional management strategies (Zhong et al., 2023). Enterprises use digital technologies, such as information, computing, communication and connectivity, to conduct a full transformation of products, services, processes and models, building competitive advantage and producing ecological and social effects (Wimelius et al., 2021). However, there is little research on the mechanism by which digital transformation affects enterprise ESG performance. Fang et al. (2023) found that digitalization can significantly improve corporate ESG scores, in particular digitalization can help reduce information asymmetries between managers and employees, external investors and managers, improving corporate reputation and increasing enterprise governance (G) scores. The application of digital technologies can be an effective way to address environmental problems, such as air pollution, carbon emissions and climate change (Kanabkaew et al., 2019). Luan et al. (2023) studied the impact of OI (open Innovation) on firm value by integrating ESG factors, finding that OI improved firm value, but this was through the mediation of ESG factors. From an external perspective, the contribution of digital transformation to ESG performance diminishes when environmental uncertainty increases; from an internal perspective, the positive effect of digital transformation on ESG performance is more significant in larger-scale enterprises (Wu et al., 2023). The synergy between Industry 4.0 (I4.0) technologies and CE (Circular Economy) techniques leverages organizational performance, as I4.0

technologies can be viewed as enablers of the CE, and corporate transformation toward CE positively affects financial performance (Alkaraan et al., 2023).

3. Contribution

The aim of the paper is twofold: first, we investigate the relationship between ESG factors and financial performance; second, we try to understand how digitalization can influence that relationship. We investigate the role of digitalization and we try to understand whether the digitalization can contribute to improve the impact of ESG on financial performance. The novelty and contribution of our work are in the idea of understanding the moderating role of investments in digital technologies in the context of sustainability and so whether digitalization can accelerate (or not) the impact of ESGs on corporate profitability.

4. Methodology

We use panel data regression using pooled ordinary least squares (OLS), fixed effect or LSDV (Least squares dummy variable) and random effect model. Other studies used the same methods to study the relationship between ESG and financial performance (FP) (Abdi et al., 2022). From a methodological point of view, the novelty of our work is the use of an indicator of digitalization, related to the SDG 09, as a moderator in the relationship between ESG and FP. The panel covered by our study consists of a sample of listed companies belonging to the Energy and Utilities sectors observed from the year 2018 to 2021. Our data set includes financial indicators closely related to the corporate profitability, as Roa, Roe, Revenues and Ebitda Margin, sustainability-based indicators, the ESG scores and the three pillars (E,S,G) considered separately. In addition, we use, as a proxy of digitalization, an indicator that measures whether the company supports the UN Sustainable Development Goal 9 (SDG 9) Industry, Innovation and Infrastructure. The financial, sustainability and digitalization data are collected from Refinitiv Eikon ASSET 4, a database widely used in the financial industry (Pacelli et al, 2022).

5. Results

We observed that the link between ESG and financial performance is influenced by the presence of digitization strategies within the firm, even if from a general point of view results suggest that there is no a clear correlation between ESG and financial indicators, so according to the stream of research that does not recognize a strong and unique link between the two elements (Rahi et al., 2022). Anyway our results provide an understanding of how digitalization can moderate the relationship between ESG and

financial performance within the business environment and especially the correlation that exists between sustainability and profit. To do so we analyzed a sample of companies of the Energy and Utilities sectors all over the world. In particular the results show that ESG positively impacts on Revenues only and that there is a relationship between the three ESG pillars considered separately and some financial performance indicators. Also, we found that the digitalization has a positive and significant impact on EBITDA margin and Revenues.

Keywords: *ESG, Financial Performance, Digitalization, Energy, Utilities, Refinitiv-Eikon*

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