

NEURODIVERSITY IN THE SERVICE OF HUMANISM OF ENTREPRENEURIAL MANAGEMENT

Piotr TOMSKI

Częstochowa University of Technology; piotr.tomski@pcz.pl, ORCID: 0000-0002-8561-8445

Purpose: The objective is to outline the role of the entrepreneurial state of mind in relation to opportunities (central for entrepreneurial management), as unquestionably human and irreplaceable by the products of technology.

Design/methodology/approach: The study is theoretical and argumentative in nature, constituting the author's own reflection and voice in the discussion, strengthening the belief in entrepreneurial management as immanently embedded in human nature. The study uses the method of literature review.

Findings: In the conditions of the critical role of the human in entrepreneurial management and the simultaneous opening of contemporary socio-economic realities to the human, with their specific, individualized perception of reality, it can be said that there is a significant potential to resist replacement by technology. The role of the human mind reinforces their role in today's economic realities. Regardless of the development of technology, the role of humans in entrepreneurship seems to be crucial and the existence of differences or even deficiencies at the neurological and psychological level, leading to unique states of mind, reinforces the role of the individual irrespective of the directions of development of economic practice. The diversification of perceptions of business environment, provided by neurodiversity, appears to be a significant contribution to entrepreneurial potential. Neurodiversity is an important factor in entrepreneurial management, and its existence generates the prerequisite for its highly humanistic character. Its outcome, manifested in the exploitation of opportunities, is marked by the results of the unique functioning of the entrepreneur's human brain and thus their state of mind.

Originality/value: In the paper it is proposed to draw attention to the impact of the specific role of neurodiversity and the resulting entrepreneurial states of mind on maintaining the key role of the human and humanity in entrepreneurial management. Many papers contain the results of research and analysis on the impact of neurological and psychological dysfunctions on the entrepreneurial process. However, they do not pay attention to the special fact that precisely these different states of mind determine the humanistic nature of entrepreneurship.

Keywords: entrepreneurial management (EM), opportunity, entrepreneurship, ADHD, emotions, mindset, neurodiversity.

Category of the paper: Viewpoint, Conceptual paper.

1. Introduction

One of the sources of the company's competitive advantage is entrepreneurial management. It is aimed at a constant search for opportunities and their effective use. It involves a deliberate and organized analysis of opportunities for economic or social innovation (Pierścione, 2007). Understanding why, when and how opportunities arise is a fundamental area of exploration in entrepreneurship (Shane, Venkataraman, 2000). Individual-opportunity (IO) nexus is the dominant approach in research into entrepreneurship, even referred to as a paradigm (Klangboonkrong, Baines, 2022).

In terms of entrepreneurial opportunities, the human plays a key role, since it is at their level that opportunities are identified, and decisions concerning their further fate made. This is crucial in the face of a universal threat to dehumanizing the operation of enterprises due to the growing role of artificial intelligence (AI) and attempts to replace human work with machines. According to Haynie et al. (2009), whether an entrepreneurial opportunity is perceived as attractive depends precisely on the individual perspective and the entrepreneur's position. While evaluating opportunities and making decisions about whether to pursue them, entrepreneurs make judgments in the conditions of uncertainty and complexity (Keh et al., 2002). Their state of mind, which is the factor that determines qualifying for or rejecting an opportunity, plays a significant role in these challenging circumstances.

Not everyone has the same ability to recognize and seize an entrepreneurial opportunity. Individual characteristics make some persons better equipped than others. These include previous experience, social network, cognitive abilities, economic conditions, and psychological factors. The population is heterogeneous, which explains why some people become entrepreneurs (Alvarez, Busenitz, 2001; Kuechle, 2011). This heterogeneity also suggests diversity at the neurological level of a human, which leads to various mindsets of entrepreneurs and thus different behavior in terms of business management. The concept of neurodiversity emerges in these circumstances - based on the belief that natural variations in the human genome lead to differences in the way of thinking (Lanivich et al., 2024).

In the light of the above, the thesis of this paper is that the heterogeneity of entrepreneurial state of mind plays a key role in reinforcing the humanistic nature of entrepreneurial management as a process inherent in human nature and resistant to replacement by machines and AI. The research problem is formulated in the form of the following research question: How does the heterogeneity of entrepreneurial state of mind affect reinforcing the humanistic nature of entrepreneurial management, based on discovering and exploiting opportunities? While staying in line with the considerations on the analysis of IO nexus, the objective of this study is to identify and indicate the role of the entrepreneurial state of mind in relation to opportunities, as outstanding, unquestionably human and irreplaceable by the products of modern technology.

The study is theoretical and argumentative in nature, constituting the author's own reflection and voice in the discussion, strengthening the belief in entrepreneurial management as immanently embedded in human nature and irreplaceable by machines. The study uses the method of literature review, the role of which in contemporary science is growing (Snyder, 2019; Najda-Janoszka, 2023), enabling the synthesis of knowledge (Breslin, Gatrell, 2020), problematizing and reinterpreting achievements through new observations or theoretical approaches (Fan et al., 2022; Snyder, 2019).

2. Various states of mind and IO nexus

The entrepreneur, while discovering and exploiting opportunities, engages their own personality traits, cognitive skills (psychological factors) and a set of skills that are non-psychological factors (affecting access to information) (Fuduric, 2008). The cognitive processes of entrepreneurs are different and influence the identification of entrepreneurial opportunities. The existence of specific mental patterns that facilitate their identification is emphasized (Franka, Mitterer, 2009). Opportunities are a subjective phenomenon, since they depend on the degree of ambiguity of the environment and the ability of social actors to create mental models, implying thinking patterns necessary to interpret, and ultimately, to define those opportunities as actually opportunities (Companys, McMullen, 2007). Through mental processes, a human creates an individual, subjective vision of the situation in which they currently operate, which can vary depending on the individual state of mind.

The identification of opportunities is related to cognitive processes, reducing, transforming and using sensory stimuli from the environment, so that the behavior results from complex interactions between cognition, environment and mind (Neisser, 1967). Entrepreneurial cognition, dependent on the state of mind, is defined as the structures of knowledge used by people to make assessments, judgments or decisions related to evaluating opportunities, creating projects and developing them (Christensen, 2024). In addition to cognitive factors, entrepreneurial alertness is particularly important to identify opportunities, as it is an outline which allows organizing and interpreting information in various areas of knowledge related to developing new opportunities (Gaglio, Katz, 2001; Kirzner, 1999). Kirzner (1973) defined alertness, referring directly to opportunities, as the ability which helps some individuals notice potential economic benefits resulting from changes, shifts, gaps and new opportunities in the market.

There is a growing number of research efforts under neuroscience aimed at understanding how neurobiological differences (brain-related) relate to entrepreneurial factors (Phan, Wright, 2018; Sharma et al., 2021). Austin and Pisano (2017) argue that neuro-different people have a different 'connection structure' from 'neurotypical' people, which means that they can bring

new perspectives to the company's activities related to value creation or recognition, which may include the perception of opportunities. While there are many ways to understand neurodiversity and neurological functioning, Rosqvist et al. (2020) suggested that its key element is a “broader continuum of sensory, affective and cognitive processing”. As pinpointed by Irish (2025), research into neurodiversity in a narrow sense focuses primarily on specific, neurodiverse ways of being, but there is also a more general approach. In this view, the concept of neurodiversity reflects the fact that there is natural variability in cognitive, emotional, and sensory functioning in the human population, and neurological styles occur with varying frequency. These differences in neurological functioning lead to a wide range of internal subjective experiences and external behavior that shape the way a human interacts with the world. Human minds and bodies are infinitely different in the way they work (Irish, 2025). Thus, each person in a way is differently capable, for all are born and reared differently. Thinking patterns are the result of both innate “mechanism” and “experiences” that have “programmed” people (Austin, Pisano, 2017).

3. Neurodiversity in entrepreneurial activities – against schematic thinking

Scientific interest in the functionality of mental health disorders in entrepreneurship is growing (Leung et al., 2020; Hatak et al., 2021). People who experience mental disorders are, by definition, atypical. To a certain extent, entrepreneurs are essentially non-stereotypical entities, which indicates the validity of studies aimed at identifying areas common to both mentioned groups. As an example, it can be indicated that energy levels, extroversion, risk-taking and optimism of individuals with a bipolar disorder in a hypomanic state are consistent with variables that have received considerable attention in the literature on entrepreneurship (Frese, Gielnik, 2014). Particular attention should also be paid to the line in entrepreneurship research focused on the impact of mental health and related disorders, such as attention deficit hyperactivity disorder (ADHD), on entrepreneurial processes and performance (Antshel, 2018; Lerner et al., 2018; Stephan, 2018; Wiklund et al., 2018). Wiklund et al. (2024), claim that the concept of neurodiversity considers neurological differences, such as autism, ADHD, and dyslexia, as natural variants of human cognition, not deficits. This approach, they argue, is important for the field of entrepreneurship since it highlights the unique skills and perspectives that neurodiverse entrepreneurs can bring.

Based on neurocognitive perspectives, ADHD is seen as a result of biological differences in specific brain areas causing deficits in higher-order cognitive control and reward functions that are critical to goal-oriented decision-making (i.e., executive functions of the brain). Executive functions enable adaptive, goal-oriented thinking and behavior in new or changing situations (Roebers, 2017) - similar to those experienced by entrepreneurs operating in the

conditions of lack of information and uncertainty, making decisions related to seizing opportunities (Mitchell et al., 2007). ADHD additionally extends the span of attention of individuals (Kasof, 1997), which may help to identify new opportunities (Shepherd et al., 2007). ADHD symptoms, related to negative consequences in many areas of life, have positive implications in the context of entrepreneurship. ADHD is characterized, among others, by thrill seeking, focusing on activities with little thought, and a desire for autonomy. Entrepreneurship, therefore, is a particular area where ADHD-related traits are an asset (Wiklund et al., 2017).

It is argued that intuition, commonly used in decision-making by individuals with ADHD and dyslexia (Logan, 2009), is important for the effective development of large packages of opportunities which are too large to be subjected to systematic analysis in a timely manner. Kickul et al. (2009) claim that people with intuitive cognitive styles are more likely to scan and search for information and more confident in identifying and recognizing opportunities. At the same time, the characteristics associated with the symptoms of mental disorders contribute to generating large sets of opportunities. Therefore, one of the benefits generated by the symptoms of mental disorders (e.g. increased number of recognized opportunities) is amplified by another symptom of the same or another disorder (e.g. intuitive decision-making) to increase the effectiveness of entrepreneurial activity related to opportunities (Logan, 2009). In the case of bipolar disorders and ADHD (Kasof, 1997), which are linked to higher levels of creativity, people generate more innovative opportunities. These people often develop original ways of analyzing and redefining situations, enabling them to identify opportunities that others cannot even imagine. (Logan, Martin, 2012).

Entrepreneurs with ADHD exhibit a significantly higher level of entrepreneurial alertness - a mental pattern conducive to the identification of opportunities (Gaglio, Katz, 2001; Tang et al., 2012) than those without ADHD. Entrepreneurs with ADHD are constantly looking for new opportunities, since they are biologically predisposed or even programmed to do so. However, this tendency can also make it difficult for them to focus on one opportunity long enough to make it seized (Moore, 2021).

Entrepreneurial performance depends on openness to new situations and curiosity (Zhao et al., 2010), which seems to be consistent with the sensation seeking which is typical of ADHD symptoms. People with high levels of sensation seeking are naturally curious (Jackson, 2011) and take a more positive approach to new situations (Nicolaou et al., 2008), especially when the environment is highly exploratory and contains new stimuli, as is the case of entrepreneurship (Wiklund et al., 2017). This stimulation is essential in identifying and exploiting opportunities.

All states of mind, including those resulting from a state of neurodiversity, are accompanied by emotions that are about the uniqueness of an individual and their 'non-technical' nature. Entrepreneurs' cognitive processes, motivation and all actions are influenced by discrete emotions (e.g. Welpe et al., 2012) and dispositional affect (e.g. Baron et al., 2012). Emotions influence both the evaluation of opportunities and decisions regarding their exploitation

(Hayton et al., 2012; Welpé et al., 2012). Under the process of preceding opportunity exploitation, emotions affect the impact of the cognitive evaluation of an opportunity on the tendency to exploit it.

4. The unquestionable role of a human in entrepreneurial management

The literature emphasizes that those aspects of business activity that require social and creative skills, particularly those related to decision-making in situations of uncertainty and the development of innovative ideas are less at risk to automation, and thus dehumanization (Skrzypek, 2020), and these can be discovering or even creating entrepreneurial opportunities and taking a decision to exploit them.

The significant role of the human mind in entrepreneurial management allows for the conclusion that this role is inscribed in the ideas of Industry 5.0, which introduces the anthropocentric approach, in which technologies support human creativity and capabilities (Breque et al., 2021) rather than replace them. This is also confirmed by the findings by Bielawski (2024), that the overriding skills in the Industry 5.0 era include, among others, an entrepreneurial mindset, which is crucial for the competitiveness of enterprises. It is claimed that even the most advanced technology should not be above humanity (Sułkowski et al., 2021; Carayannis, Morawska-Jancelewicz, 2022; Ingaldi, Ulewicz, 2020). In conclusion, it can be stated with confidence that, thanks to entrepreneurial mind, the entrepreneur's role is not threatened, and so the role of entrepreneurs, inscribed in the Society 5.0 concept, crucial in shaping the future social landscape (Ćoćkalo et al., 2024) will be preserved.

In the above circumstances, which constitute contemporary socio-economic realities, the role of entrepreneurship appears to be fundamental, and the role of a human in entrepreneurial management is immanent and crucial. It is human characteristics that determine the way in which the entrepreneurial process is carried out, and entrepreneurial management, based on the discovery and exploitation of opportunities, is rooted in human nature, which, due to its diversity arising from biological conditions, constitutes an inexhaustible and unlimited resource supporting entrepreneurship, understood both at organizational and individual levels.

In the conditions of the critical role of the human in entrepreneurial management and the simultaneous opening of contemporary socio-economic realities to the human, with their unique nature, strengths and weaknesses and specific, individualized perception of reality, it can be said that there is a significant potential to resist replacement by technology. The role of the human mind reinforces their role in today's economic realities. Regardless of the development of technology and the replacement of selected aspects of reasoning by artificial intelligence, the role of humans in entrepreneurship seems to be crucial and the existence of differences or

even deficiencies at the neurological and psychological level, leading to unique states of mind, reinforces the role of the individual irrespective of the directions of development of economic practice.

5. Conclusions

Today's business world needs entrepreneurs who proactively create economic reality by looking at and analyzing the world from a broader perspective, which will contribute to a more creative and development-oriented discovery and exploitation of opportunities. Any diversified openness to new ideas, willingness to accept non-standard ideas and approaches, and unleashing the entrepreneurial spirit are key features for getting entrepreneurship moving.

Just as Taylorism no longer refers to the contemporary conditions in which enterprises operate, the diversification of perceptions of the environment, provided by neurodiversity, appears to be a significant contribution to the empowerment of entrepreneurial potential and thus the creation of new business ventures based on the exploitation of unique opportunities.

Machines do not have human senses, emotions or social skills (Kaplan, Haenlein, 2019; Raisch, Krakowski, 2021). Entrepreneurship, on the other hand, involves specific social tasks (Seyb et al., 2019) and can provide the human element, emotions and high-quality relationships that support AI (Shepherd, Majchrzak, 2022) but technological advances in computation cannot replace the competitive discovery process that takes place within the context of the market (Boettke et al., 2023). Referring to opportunities requires an appropriate level of mental commitment, human creativity and intuition, and machines do not have enough intelligence to propose solutions that are beyond the reach of the entrepreneurial mind (Ge et al., 2022). Thus, in defense of the thesis set out in the introduction to the present study, it is possible to quote Van Den Hauwe, L. (2023), that machines will not replace entrepreneurs whereas neurodiversity in particular is about the humanistic nature of entrepreneurial management.

In the light of the above considerations, it should be confirmed that broadly understood neurodiversity is an important factor in entrepreneurial management, and its existence generates the prerequisite for its highly humanistic character. Its outcome, manifested in the exploitation of opportunities, is marked by the results of the unique functioning of the entrepreneur's human brain and thus their state of mind.

The article is theoretical in its nature, therefore, the major limitation of the conducted study, based on the analysis of literature, is the lack of empirical results. Among the directions for further research one may indicate testing neurodiversity-performance relationship or designing inclusive entrepreneurship programs.

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