

THE SIGNIFICANCE OF MASLOW'S HIERARCHY OF NEEDS

Andrea Strelicz^{1*}, László Berényi²

¹ Department of Border Policing, Faculty of Law Enforcement, Ludovika University of Public Service, Hungary, <https://orcid.org/0000-0002-9939-1974>

² Institute of Management Science, Faculty of Economics, University of Miskolc, Hungary, <https://orcid.org/0000-0003-0596-9315>
<https://doi.org/10.47833/2025.2.ECO.020>

Keywords:

Maslow
pyramid
motivation

Article history:

Received 30 March 2025
Revised 28 April 2025
Accepted 1 June 2025

Abstract

All professionals are familiar with Maslow's hierarchy of needs, typically represented by a pyramid. It is well known that there is no relevant empirical support for the model. Still, the needs themselves are indisputable at a basic level, so as a generic approach, development theorists, motivation researchers, and experts are attracted to the verification, validation, or refutation of these needs. In this article, the authors summarize what Maslow started with his motivational research and where subsequent generations of experts have arrived in terms of known needs.

1 Introduction

We have been part of a global technological and social transformation, which we have felt even more acutely since the COVID-19 pandemic in 2020. Global transformation is a developmental process that affects all areas of life at the individual level through fundamental values and collaborative dynamics. Companies and other economic associations contribute significantly to the financial stability of a country through their performance and efficiency [26] [29] [30] [28]. To demonstrate the necessary stability, effectiveness, and future potential, attention must also be paid to the organizational structure and management system. Individual suitability and maturity are critical factors in achieving secure, future-oriented internal structural stability [35] [43] [65]. The lean philosophy also places continuous development on a human-centered foundation based on respect; therefore, motivational tools and factors emphasize individuals [22]. It is much more common for organizations to use an indicator-based approach, primarily focusing on management plans and expectations, which pushes the critical role of human factors into the background [66], underscoring the need to refocus on motivational theories.

Assuming that current global development is linked to individual-level needs-based motivations, it is also worth examining theories of human development, as individual-level, model-based development offers new perspectives. Humans are the key to all change and development, as all innovation and implementation originate from humans in both conceptual and technical terms [15] [60] [58]. Need-driven motivations determine the direction and speed of these changes and developments [47] [59], so it is natural to refer to the work and findings of Maslow. [48] [33] [76].

It is important to note that this study approaches Maslow's theory of needs from a management science perspective. The work of psychologists is fundamental to understanding the true nature of human needs, which management science can only reflect to a limited extent. As Robbins [57] emphasizes, the simplified, pyramid-based interpretation of Maslow's model in an organizational context often ignores individual differences and psychological complexity. Nevertheless, the authors see potential in the interconnectivity between psychology and management science in relation to

* Corresponding author.
E-mail address: sterlicz.andrea@gmail.com

human behavior and the functioning of organizational systems. Therefore, in the authors' interpretation, Maslow's theory is not primarily diagnostic, but rather a structural and interpretive framework through which human needs – as basic psychological phenomena – can be modeled at the system (corporate) level.

In agreement with Maslow, several leading experts note that motivational theories cannot be interpreted in the context of developmental theories. At the same time, human motivation contributes to human development, and this approach may be sufficient to improve human strategies at the corporate level. Kenrick et al. [33] reinterpreted Maslow's original motivational theory as an evolutionary-developmental model, thereby giving a dynamic systems approach to the hierarchy of needs. In Wilber's integrated developmental theory, Maslow's hierarchy of needs represents levels of individual psychological maturation, alongside other classical developmental theories (e.g., Piaget, Loevinger, Erikson) [76].

Several studies have been published that have attempted to apply Maslow's need model as a framework for motivation and organizational development. Although the theory of the hierarchy of needs is widely known and taught, its practical implementation has been moderately successful. The reason is the simplification of the theory; the comprehensive psychological interpretation is not directly applicable in all organizations, leading to model adaptations for satisfactory decision-making [14] [78] [44] [38]. While psychology explores the dynamics and deep structure of individual motivations, management sciences examine these phenomena at the levels of organizational functioning, cooperation, and development. These two approaches complement each other, enabling essential understanding and practical application. According to these, the aim of the study is not to reinterpret psychological findings, but to integrate them at the system level so that needs-based thinking can also be used in organizations to promote internal satisfaction, people-centered development, and sustainable motivation.

The research topic of validating an integrative systems approach emerged, which attempts to build a bridge between global changes and individual needs, with humans as the source of innovation [15] [60] [58], needs → motivation → development [47] [59] [13] [50], and Maslow's legitimacy and contemporary relevance (Maslow's own book, Kenrick's reinterpretation, Wilber's embedding in developmental theory) along a logical chain [33] [76].

Maslow's hierarchy of needs model has been popular among researchers, management, and HR professionals from the outset, as evidenced by the numerous critiques, its presence in the education system, and the development and spread of other models inspired by it.

2 Trends in Development Theories

Human development can be traced throughout history within the framework of values and needs [48] [61]. Through trends, regulations, and teachings formulated in political, religious, and educational systems [69] [18]. Values and needs defined at the social level, embedded in the daily routine of the individual, have shaped humanity as a whole [7] [62]. The key to the development of humanity is values and the needs identified and regulated behind them [59] [76], which determine individual development [5], the nature and quality of relationships and cooperation between individuals [11] [68], and the results, situations, and conditions arising from cooperation [53] [63]. In his research on motivation, Maslow contributed to developmental theories by generically identifying individual needs, providing a kind of interpretative framework [76] [33]. Maslow himself examined the needs he focused on in the context of human development, interpreting them as a system [47]. When we talk about developmental theory, four main trends can be distinguished.

Classic stage theories are characterized by dividing an individual's development into clearly distinguishable phases or stages. The models are usually represented linearly and assume that the stage order is fixed and cannot be changed. Such models are primarily suitable for analyzing patterns in life stage development of children in psychological studies by age or other grouping factors. Table 1 shows the relevant representatives of classic stage theories.

Table 1. Classical developmental theory models

Model	Context	Empirical method	Developmental arc
Piaget [55]	Individual, child cognition	Objective experiments, observations	Linear, stage-based
Erikson [16]	Individual psychosocial	Case studies, cultural analysis	Linear, stage-based
Freud [17]	Early psychoanalysis, instincts	Clinical cases	Linear, psychosexual
Loevinger [41]	Individual personality	Sentence Completion Test	Linear, ego stages
Kohlberg [36]	Individual morality	Interview-based dilemma analysis	Linear, moral stages
Maslow [46] [47]	Individual, social, professional	Observations, clinical experience, inductive logic	Linear, phased

Social and contextual models are characterized by interpreting individual development as a context-dependent, dynamic process. Context refers to the interaction between the individual and communities (family, workplace, cultural environment). The related models examine the processes of connection and the changes that occur within them, emphasizing that development is strongly embedded in the social and cultural environment. Table 2 summarizes the relevant representatives of the social and contextual approaches.

Table 2. Social and contextual models

Model	Context	Empirical method	Development curve
Vygotsky [72]	Individual–cultural learning	Theoretical & interaction studies	Continuous, interactive
Bandura [3]	Individual–social modeling	Experimental laboratory studies	Continuous, dynamic
Bronfenbrenner [10]	Individual–system level development	Natural experiment, longitudinal	Continuous, system-interactive

Spiral models are characterized by describing individual development not as a linear path, but as a repetitive pattern punctuated by developmental thresholds. Experiencing recurring situations and states at a new level is a key element of self-development. In these models, development is integrative in nature: previous experiences are incorporated at a higher level. Their representation often resembles a practice curve, in which recurrences refer to the gradual nature of development. Table 3 summarizes the relevant representatives of spiral/holarchy models.

Table 3. Spiral/holarchy models

Model	Context	Empirical method	Development curve
Graves [21]	Individual–collective, values	Inductive logic and qualitative methods	Spiral, cyclical
Beck & Cowan [4]	Corporate, social change	Questionnaire-based memetic profiles	Spiral, holistic
Washburn [74]	Individual, transpersonal	Clinical cases	Spiral regenerative
Wilber [75]	Individual–social–spiritual	AQAL, qualitative and quantitative methods	Holarchic, mixed

Quantum cognition, dynamic systems, and epigenetic models adopt an approach that interprets development as the interaction of complex, nonlinear systems, in which even small changes can cause significant qualitative transformations (emergent phenomena). Quantum

cognition describes decision-making and thinking using the probabilistic logic of quantum mechanics; the theory of dynamic systems treats development as a self-organizing, continuously adapting pattern. At the same time, epigenetic models emphasize the interaction between genetic code and environmental influences, pointing out that experiences can have a lasting effect on gene expression. Representatives of this school are shown in Table 4.

Table 4. Quantum cognition, dynamic systems, and epigenetic models

Model	Context	Empirical method	Development curve
Quantum Cognition [65]	Individual cognition	Experimental and mathematical models	Nonlinear quantum modeling
Quantum-like modeling [34]	Individual, language, decision	Concrete phenomena and quantum algorithms	Nonlinear, complex
Epigenetics [77]	Biological development in childhood	Longitudinal MBD sequences	Continuous, dynamic
Dynamic systems [70]	Movement-cognition in childhood	Experiment and system analysis	Emergence, nonlinear
Dynamic systems overviews [64] [40]	Cognitive + motor development	Experiment, meta-analysis	Complex system, emergence

3 Maslow's motivation theory in the context of developmental theory

Given that Maslow states that he does not consider his research to be complete, he himself did not include his findings among developmental theories. However, Wilber [75] clearly included Maslow's motivation theory and identified needs among the classic stage theories alongside the models of Piaget [55], Kohlberg [36], Loevinger [41]. At the same time, Wilber integrated the Spiral Dynamics theory into his own AQAL (All Quadrants, All Levels) model, in which developmental levels are not linear but holaric, encompassing different dimensions of consciousness. In the AQAL model, he developed developmental levels (altitudes) in such a way that they can be compared with other developmental models, such as Maslow's hierarchy of needs [75]. Graves [22] followed the same direction, developing the "Emergent Cyclical Levels of Existence" (ECLET) theory. The ECLET theory also assumes spiral development in human needs and values. Graves himself drew parallels between Maslow's hierarchy of needs and his own spiral model. Beck and Cowan [4] further developed the Spiral Dynamics theory based on Graves' work and marked the different levels of development with color coding. The Spiral Dynamics model also shows parallels between Maslow's needs and Graves' spiral levels.

4 Maslow and the Pyramid of Needs

The US psychologist, Maslow, achieved lasting results with his research into human motivation, in which he based motivation itself on needs. His basic concept was that people are motivated by what they need. His first relevant and published findings were a hierarchy (ranking) identifying five human needs, later broken down and supplemented with new items.

Table 5: Maslow's hierarchy (ranking) of needs

	Maslow 5 (1943) [47]	Maslow 7 (1954) [48]	Maslow 8 (1971) [46]	
Level 1	Physiological needs	Physiological needs	Physiological needs	Deficiency-based needs
Level 2	Safety needs	Safety needs	Safety needs	
Level 3	Sociological needs	Sociological needs	Sociological needs	
Level 4	Esteem needs	Need for recognition and esteem	Need for recognition and esteem	
Level 5	Self-actualization needs	Cognitive needs	Cognitive needs	Growth-based needs
Level 6		Aesthetic needs	Aesthetic needs	
Level 7		Need for self-actualization	Need for self-actualization	
Level 8			Need for self-transcendence/transcendence	

Maslow distinguished the eight needs into two categories:

- Deficiency needs (D-needs): physiological, safety, love/belonging, esteem.
- Being needs (B-needs, growth-based needs): self-actualization, and later transcendence.

It must be noted that Maslow established a hierarchy of human needs and their relative positions [42]; the popular pyramid shape of the hierarchy of needs was later elaborated. The first known and published pyramid diagram is probably associated with a management consultant, McDermid [45], which spread primarily through management and educational handbooks in the 1960s and 1970s, building the levels of physiological, safety, social, esteem, and self-realization needed from bottom up.



1. Figure. Maslow's pyramid model of needs, made famous by McDermid (Source: own editing)

The pyramid became popular as a standard in educational and human resource management, eroding and simplifying Maslow's dynamic line of thought. The development of the pyramid diagram is explored in detail by Bridgman, Cummings, and Ballard. Based on their 2017 study, McDermid's work is credited with the first pyramid model associated with the hierarchical representation of needs [8] [9], as a result of which management science representatives began to apply this simplified approach, forwarding the limited interpretation of motivation. Maslow's needs (Table 5) and their representation in the pyramid shape known today can still be classified as classic, linear theories.

Although the research methods behind the identified needs model do not include any repeatable methodological approaches, quantitative analysis, or results, it has become popular. Observations, case studies, and general conclusions derived from them are even less accepted in scientific research; however, the need to understand motivation is still recognized. Critical evaluations of Maslow's work aim to fill such methodological gaps and make measurements scientifically valuable, valid, and repeatable.

5 Critical view of Maslow's needs

Professional practice shows that those who deal with individual and/or team motivation in a corporate environment, regardless of their qualifications and position, do not know what to do with Maslow's needs. The general reasoning is that the needs themselves are true, but the pyramid model feels distorted, so they are reluctant to rely on it. Work-related needs are further complicated by the lack of a globally accepted measurement instrument to yield straightforward, comparable data on human behavior and its link to motivation. So, no methods are available to formulate recommendations for organizational development purposes.

Maslow's legacy, preserved in the Cornell University Library, has been reviewed by several scholars. Maslow himself stated in one of his notes that "The hierarchy is too rigid; people are much more dynamic" [9]. Hierarchical representation was not characteristic in his work [45]; rather ratios and proportions were used (e.g., 85% physiological needs).

Bridgman et al. [8] in 2017 asked university educators in the abstract of their article to pay attention to what they teach students in management science courses and on what historical basis.

Criticism about Maslow's work can be divided into two groups:

1. Maslow's own criticisms, cited by researchers who actually worked from Maslow's notes and works, confirm that he did not complete his research
2. Criticisms by experts who relied on a distorted literature or on the results of the early stages of research. These criticisms typically revolve around two main themes: on the one hand, the lack of support from quantitative methods, and on the other hand, the overly general definition of needs and the lack of specific segmentation (whether social, cultural, organizational, or other). This would help the work of experts in the field of motivation.

However, critical opinions related to the lack of qualitative validation have inspired many researchers to fill this gap. Remarkable reviews are summarized in Table 6.

Table 6. Criticisms of Maslow's work

Author	Main criticism	Comment
Wahba & Bridwell [73]	No empirical confirmation	Lack of a qualitative method
Neher [51]	Validity and methodological shortcomings	Lack of a qualitative method
Gagnidze [19]	Individual differences, lack of scientific rigour	Lack of qualitative methods
Trigg [71]	Underestimation of social structural influences	Criticism of segmentation
Nevis [52]	US model, not global	Criticism of segmentation
Bouzenita & Boulanouar [6]	Lack of spiritual dimension, ethnocentrism	Criticism of segmentation
Deci & Ryan [13]	Basic needs are parallel	Inspiration for the development of self-determination theory (SDT)
Alderfer [1] [2]	Multiple levels can be activated simultaneously	Inspiration for the development of the ERG model
Kenrick et al. [31] [32]	Dynamic model instead of rigidity; hierarchy is not evolutionarily realistic	Inspiration for the development of a reformulated pyramid
Hofstede [26]	Ignoring collectivist cultures	Culture typology model
Tay & Diener [67]	Culturally variable order	Inspiration for developing the Dynamic Need Satisfaction Model

Beyond the pure critical approach, many researchers aimed to find the factual basis of Maslow's work. It means that experts, who found Maslow's work lacking in methodological and validation results, promoted empirical validation of the existence, the order and the values of the needs (Table 7).

Table 7. Verification of Maslow's work

Author	Agreement Description	Justification / Empirical Support
Graham & Balloun [20]	They experimentally verify the basic validity of the hierarchy.	Questionnaire data (n=148) showed that satisfying needs in the order of the hierarchy increases motivation.
Hagerty [23]	National welfare data support the hierarchy.	Analyzing data from 88 countries, he showed that as economic development progresses, higher-level needs (e.g., self-esteem) become more important.
Tay & Diener [67]	The hierarchy is fundamentally correct, although not entirely rigid.	According to data from 123 countries, the satisfaction of needs generally follows the order of the hierarchy (e.g., basic material needs precede social needs).
Lester [39]	The hierarchy applies in the educational environment.	For students, the satisfaction of safety and social needs improves academic performance (n=320).
Caulton [12]	Despite Alderfer's ERG model, Maslow's hierarchy remains valid.	Meta-analysis: hierarchy remained useful in analyzing workplace motivation, especially in stable environments.
Martínez-López et al. [49]	The hierarchy can be applied in digital marketing.	Analysis of consumer behavior (e.g., the impact of security needs on online shopping).
Koltko-Rivera [37]	Supports Maslow's later model, which also includes a transcendent level.	Philosophical and psychological analysis: the need for transcendence complements the pyramid.
Pardee [54]	In a comparative analysis, Maslow's theory is the most comprehensive.	Literature review: the hierarchy helps to understand the complexity of motivation.

6 Conclusion

Looking at Maslow's pyramid today in management applications, the human resource management may be confused by the truthfulness of the representation, because it does not fit with the experts' prior studies and knowledge, as well as company needs. As a result of this dissonance, representatives of management sciences strive to choose methods that allow quantifiable indicators of the development and exploration of patterns of opinions both among staff members and managers in corporate applications. The challenge is constant: individual motivations must be managed for taking organizational level benefits. Reviewing the opportunities and the critical analysis of Maslow's work, the following conclusion can be drawn:

- Management representatives (especially outside the academic sphere) distort and simplify the theories, thereby exposing economic associations and economic actors to unknown effects.
- Due to the association of motivations with the pyramid shape, Maslow's needs have been included among the classic stage theory models. At the same time, he did not complete his research, and it can be assumed that due to the complex forms of needs, it requires enhancing the research background to new developmental theories.

- According to the criticisms, science does not accept the available observations and empirical results, and the inductive logical approach behind them. Further development of the measurement methods is a crucial challenge.
- Proportions of individual needs identified by Maslow were ultimately confirmed in terms of cross-cultural [23] [67], area-specific (education, workplace) [39] [12], and spirituality [28] deficiencies.

Maslow's types of needs, which are also motivational directions related to life, can serve as a basis for shaping society, culture, community, and cooperation within companies. Where needs can be shaped as motivational tools, a common value emerges that shapes and holds together different organizations, which in turn determines the success, business is stable and reliable, it is more likely that the economic situation of society and the country will also be stable and reliable.

The study summarizes some initial considerations for a new model building. Corporations need a quantitative management tool that can be coordinated with the indicators about business interests. Further research to develop the model, a deeper exploration and supplementation of the theoretical basis is required, incorporating the psychological aspects more complete. Another task is establishing a management-oriented tools and survey the interested parties to validate the concepts.

References

- [1] C. P. Alderfer, "An empirical test of a new theory of human needs", *Organizational Behavior and Human Performance*, vol. 4, no. 2, pp. 142–175, 1969, doi: 10.1016/0030-5073(69)90004-X.
- [2] C. P. Alderfer, *Existence, Relatedness, and Growth: Human Needs in Organizational Settings*. New York, NY, USA: Free Press, 1972.
- [3] A. Bandura, *Social Learning Theory*. Englewood Cliffs, NJ, USA: Prentice-Hall, 1977.
- [4] D. E. Beck and C. C. Cowan, *Spiral Dynamics: Mastering Values, Leadership, and Change*. Malden, MA, USA: Blackwell, 1996.
- [5] L. E. Berk, *Development Through the Lifespan*, 7th ed. Boston, MA, USA: Pearson, 2018.
- [6] A. I. Bouzenita and A. W. Boulanouar, "Maslow's hierarchy of needs: An Islamic critique", *Intellectual Discourse*, vol. 24, no. 1, pp. 59–81, 2016. [Online]. Available: <https://journals.iium.edu.my/intdiscourse/>
- [7] P. Bourdieu, *Outline of a Theory of Practice*. Cambridge, U.K.: Cambridge University Press, 1977.
- [8] T. Bridgman, S. Cummings, and H. Ballard, "Who built Maslow's pyramid? A history of the creation of management studies' most famous symbol and its implications for management education", *Academy of Management Learning & Education*, vol. 18, no. 1, pp. 81–98, 2019, doi: 10.5465/amle.2017.0351.
- [9] T. Bridgman, S. Cummings, and J. A. Ballard, "Triangulating Maslow's Hierarchy of Needs: The Construction of Management Studies' Famous Pyramid", *Academy of Management Proceedings*, vol. 2017, no. 1, p. 14177, 2017, doi: 10.5465/AMBPP.2017.14177.
- [10] U. Bronfenbrenner, *The Ecology of Human Development: Experiments by Nature and Design*. Cambridge, MA, USA: Harvard University Press, 1979.
- [11] M. Buber, *I and Thou*. New York, NY, USA: Scribner, 1970.
- [12] J. R. Caulton, "The development and use of the theory of ERG: A literature review", *Organizational Psychology Review*, vol. 2, no. 4, pp. 324–346, 2012.
- [13] E. L. Deci and R. M. Ryan, "The 'what' and 'why' of goal pursuits: Human needs and the self-determination of behavior", *American Psychologist*, vol. 55, no. 1, pp. 68–78, 2000.
- [14] N. Demir and F. Yılmaz, "Organizational Overview of Maslow and Management Research", *Turkish Psychological Research Review*, vol. 9, no. 2, pp. 115–129, 2024. [Online]. Available: <https://dergipark.org.tr/en/doi/10.17066/tpdrd.1332600>
- [15] P. F. Drucker, *Innovation and Entrepreneurship: Practice and Principles*. New York, NY, USA: Harper & Row, 1985.
- [16] E. H. Erikson, *Childhood and Society*. New York, NY, USA: W. W. Norton & Company, 1950.
- [17] S. Freud, *Three Essays on the Theory of Sexuality*, J. Strachey, Trans. New York, NY, USA: Basic Books, 1962. (Original work published 1905)
- [18] E. Fromm, *Man for Himself: An Inquiry into the Psychology of Ethics*. New York, NY, USA: Rinehart, 1947.
- [19] A. Gagnidze, "Critical analysis of Maslow's hierarchy of needs", *European Journal of Business and Management Research*, vol. 7, no. 5, pp. 41–44, 2022, doi: 10.24018/ejbmr.2022.7.5.1613.
- [20] K. Graham and J. Balloun, "An empirical test of Maslow's need hierarchy", *Journal of Humanistic Psychology*, vol. 13, no. 1, pp. 97–108, 1973.
- [21] C. W. Graves, "Levels of Existence: An Open System Theory of Values", *Journal of Humanistic Psychology*, vol. 10, no. 2, pp. 131–155, 1970, doi: 10.1177/002216787001000205.
- [22] C. W. Graves, "Emergent cyclical levels of existence", *Journal of Humanistic Psychology*, vol. 10, no. 2, pp. 131–155, 1970.
- [23] M. R. Hagerty, "Testing Maslow's hierarchy of needs: National quality-of-life across time", *Social Indicators Research*, vol. 46, no. 3, pp. 249–271, 1999.
- [24] M. Helmold, "The Human Side of Lean Management", in *Lean Management and Kaizen*. Cham, Switzerland: Springer, 2020, pp. 123–129, doi: 10.1007/978-3-030-46981-8_13.

- [25] A. Hirschi, N. D. Läge, and D. M. T. Meyer, "Career Maturity and Social Adjustment", *Journal of Career Development*, vol. 38, no. 5, pp. 395–411, 2011, doi: 10.1177/0894845310378506.
- [26] G. Hofstede, *Culture's Consequences: International Differences in Work-Related Values*. Beverly Hills, CA, USA: Sage Publications, 1984.
- [27] J. Hollingsworth and R. Boyer, *Contemporary Capitalism: The Embeddedness of Institutions*. New York, NY, USA: Cambridge University Press, 1997.
- [28] A. K. Tyagi, "Chamber of Commerce: What It Is, What It Does, and How It Makes Money", *Investopedia*, Nov. 14, 2010. [Online]. Available: <https://www.investopedia.com/articles/08/chamber-of-commerce.asp>
- [29] P. Jones and I. Sakong, *Government, Business, and Entrepreneurship in Economic Development*. Cambridge, MA, USA: Harvard University Press, 1980.
- [30] K. Katits and É. Szalka, "Analysis of the Economic Performance and Financial Stability in the Hungarian Food Industry", *GAZDÁLKODÁS: Scientific Journal on Agricultural Economics*, vol. 64, no. 3, pp. 228–255, 2020, doi: 10.22004/ag.econ.303797.
- [31] D. T. Kenrick, N. P. Li, and J. Butner, "Renovating the pyramid of needs: Contemporary extensions built upon ancient foundations", *Perspectives on Psychological Science*, vol. 5, no. 3, pp. 292–314, 2010, doi: 10.1177/1745691610369469.
- [32] D. T. Kenrick, N. P. Li, and J. Butner, "Dynamical evolutionary psychology: Mapping the domains of the new interactionist paradigm", *Personality and Social Psychology Review*, vol. 6, no. 4, pp. 347–356, 2002.
- [33] D. T. Kenrick, V. Griskevicius, S. L. Neuberg, and M. Schaller, "Renovating the pyramid of needs: Contemporary extensions built upon ancient foundations", *Perspectives on Psychological Science*, vol. 5, no. 3, pp. 292–314, 2010.
- [34] A. Khrennikov, "Quantum-like modeling of cognition", *Frontiers in Physics*, vol. 3, p. 77, 2015, doi: 10.3389/fphy.2015.00077.
- [35] H. Kiker, *Human Capital: The Concept, Its Measurement, and Its Importance*. Cambridge, MA, USA: Harvard University Press, 1966.
- [36] L. Kohlberg, *Essays on Moral Development: Vol. 1. The Philosophy of Moral Development*. San Francisco, CA, USA: Harper & Row, 1981. (Based on doctoral dissertation, 1958)
- [37] M. E. Koltko-Rivera, "Rediscovering the later version of Maslow's hierarchy of needs: Self-transcendence and opportunities for theory, research, and unification", *Journal of Humanistic Psychology*, vol. 46, no. 4, pp. 427–457, 2006.
- [38] M. R. Landy and J. M. Conte, *Work in the 21st Century: An Introduction to Industrial and Organizational Psychology*, 6th ed. Hoboken, NJ, USA: Wiley, 2023, pp. 120–122.
- [39] D. Lester, "Maslow's hierarchy of needs and student academic success", *Teaching in Higher Education*, vol. 18, no. 4, pp. 403–415, 2013.
- [40] M. D. Lewis and L. B. Smith, "How cognitive and emotional processes organize development: A dynamic systems approach", *Trends in Cognitive Sciences*, vol. 7, no. 10, pp. 447–453, 2003, doi: 10.1016/j.tics.2003.08.005.
- [41] J. Loevinger, *Measuring Ego Development*. San Francisco, CA, USA: Jossey-Bass, 1970.
- [42] T. Lomas, "Climbing the needs pyramids: Hierarchy, self-actualization and transcendence", *The Journal of Transpersonal Psychology*, vol. 45, no. 2, pp. 114–138, 2013.
- [43] G. Luthans, F. Youssef, and B. Avolio, *Psychological Capital: Developing the Human Competitive Edge*. Oxford, U.K.: Oxford University Press, 2007.
- [44] C. J. Madsen, "Of Maslow, motives, and managers: The hierarchy of needs in American business, 1960–1985", *Journal of the History of the Behavioral Sciences*, vol. 55, no. 3, pp. 179–199, 2019, doi: 10.1002/jhbs.21941.
- [45] C. D. McDermid, "How money motivates men", *Business Horizons*, vol. 3, no. 4, pp. 94–100, 1960.
- [46] A. H. Maslow, *The Farther Reaches of Human Nature*. New York, NY, USA: Viking Press, 1971.
- [47] A. H. Maslow, "A Theory of Human Motivation", *Psychological Review*, vol. 50, no. 4, pp. 370–396, 1943, doi: 10.1037/h0054346.
- [48] A. H. Maslow, *Motivation and Personality*, 3rd ed. New York, NY, USA: Harper & Row, 1987.
- [49] F. J. Martínez-López, L. Gázquez-Abad, and M. Luna-Nevarez, "Maslow's pyramid and digital marketing strategies", *Frontiers in Psychology*, vol. 11, Art. no. 665330, 2020.
- [50] D. C. McClelland, *Human Motivation*. Cambridge, U.K.: Cambridge Univ. Press, 1987.
- [51] A. Neher, "Maslow's theory of motivation: A critique", *Journal of Humanistic Psychology*, vol. 31, no. 3, pp. 89–112, 1991, doi: 10.1177/0022167891313010.
- [52] E. C. Nevis, "Using an American perspective in understanding another culture: Toward a hierarchy of needs for the People's Republic of China", *Journal of Applied Behavioral Science*, vol. 19, no. 3, pp. 249–264, 1983, doi: 10.1177/002188638301900304.
- [53] E. Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge, U.K.: Cambridge Univ. Press, 1990.
- [54] R. L. Pardee, *Motivation Theories of Maslow, Herzberg, McGregor & McClelland: A Literature Review*. Washington, DC, USA: Office of Educational Research and Improvement, US Department of Education, 1990.
- [55] J. Piaget, *The Origins of Intelligence in the Child*. London, U.K.: Routledge & Kegan Paul, 1952.
- [56] E. M. Pothos and J. R. Busemeyer, "Can quantum probability provide a new direction for cognitive modeling?", *Behavioral and Brain Sciences*, vol. 36, no. 3, pp. 255–274, 2013, doi: 10.1017/S0140525X12002214.
- [57] S. P. Robbins, *Organizational Behavior*, 15th ed. Upper Saddle River, NJ, USA: Pearson Education, 2013.
- [58] E. Rogers, *Diffusion of Innovations*, 5th ed. New York, NY, USA: Free Press, 2003.
- [59] R. M. Ryan and E. L. Deci, "Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being", *American Psychologist*, vol. 55, no. 1, pp. 68–78, 2000.

- [60] J. Schumpeter, *The Theory of Economic Development*. Cambridge, MA, USA: Harvard Univ. Press, 1934.
- [61] S. H. Schwartz, "Basic human values: Theory, methods, and applications", *Revue Française de Sociologie*, vol. 47, no. 4, pp. 929–968, 2006.
- [62] A. Sen, *Development as Freedom*. New York, NY, USA: Alfred A. Knopf, 1999.
- [63] P. M. Senge, *The Fifth Discipline: The Art and Practice of the Learning Organization*. New York, NY, USA: Doubleday, 1990.
- [64] L. B. Smith and E. Thelen, *A Dynamic Systems Approach to Development: Applications*. Cambridge, MA, USA: MIT Press, 1993.
- [65] T. A. Judge and B. A. Livingston, "The Genetics of Economic and Social Attitudes, Behaviors, and Values", *Personnel Psychology*, vol. 61, no. 2, pp. 447–466, 2008, doi: 10.1111/j.1744-6570.2008.00121.x.
- [66] S. Solaimani and J. Rajagopalan, "Human factors involved in lean management: a systematic literature review", *Procedia CIRP*, vol. 81, pp. 26–31, 2019.
- [67] L. Tay and E. Diener, "Needs and subjective well-being around the world", *Journal of Personality and Social Psychology*, vol. 101, no. 2, pp. 354–365, 2011.
- [68] H. Tajfel and J. C. Turner, "An integrative theory of intergroup conflict", in *The Social Psychology of Intergroup Relations*, W. G. Austin and S. Worchel, Eds. Monterey, CA, USA: Brooks/Cole, 1979, pp. 33–47.
- [69] C. Taylor, *Sources of the Self: The Making of the Modern Identity*. Cambridge, MA, USA: Harvard Univ. Press, 1989.
- [70] E. Thelen, G. Schöner, C. Scheier, and L. B. Smith, "The dynamics of embodiment: A field theory of infant perseverative reaching", *Behavioral and Brain Sciences*, vol. 24, no. 1, pp. 1–34, 2001, doi: 10.1017/S0140525X01003910.
- [71] A. B. Trigg, "Deriving the Engel curve: Pierre Bourdieu and the social critique of Maslow's hierarchy of needs", *Review of Social Economy*, vol. 65, no. 3, pp. 279–300, 2007, doi: 10.1080/00346760701473344.
- [72] L. S. Vygotsky, *Mind in Society: The Development of Higher Psychological Processes*, M. Cole, V. John-Steiner, S. Scribner, and E. Souberman, Eds. Cambridge, MA, USA: Harvard University Press, 1978.
- [73] M. A. Wahba and L. G. Bridwell, "Maslow reconsidered: A review of research on the need hierarchy theory", *Organizational Behavior and Human Performance*, vol. 15, no. 2, pp. 212–240, 1976, doi: 10.1016/0030-5073(76)90038-6.
- [74] M. Washburn, "Two Patterns of Transcendence: Developmental and Regenerative Spirituality", *Journal of Humanistic Psychology*, vol. 30, no. 3, pp. 9–35, 1990, doi: 10.1177/0022167890303002.
- [75] K. Wilber, "An Integral Theory of Consciousness", *Journal of Consciousness Studies*, vol. 4, no. 1, pp. 71–92, 1997.
- [76] K. Wilber, *Integral Psychology: Consciousness, Spirit, Psychology, Therapy*. Boston, MA, USA: Shambhala, 2000.
- [77] M. Xu et al., "Developmental dynamics of the epigenome: epigenetic regulation of gene expression during development", *Child Development*, vol. 88, no. 1, pp. 92–101, 2017, doi: 10.1111/cdev.12682.
- [78] L. Zhang and Y. Li, "The Limitation and Optimization of Maslow's Hierarchy of Needs Theory in Enterprises' Application", *Frontiers in Business, Economics and Management*, vol. 4, no. 3, pp. 67–73, 2023. [Online]. Available: <https://bcpublication.org/index.php/BM/article/view/388>