

The Role of Technological Thinking in The Professional Competence of Military Personnel

Abduganiyev Shuxrat

Senior lecturer at Faculty of the North-Western Military District at University of Military Security and Defense of the Republic of Uzbekistan, Uzbekistan

ARTICLE INFO

Article history:

Submission Date: 12 February 2026

Accepted Date: 08 March 2026

Published Date: 30 March 2026

VOLUME: Vol.06 Issue03

Page No. 69-76

DOI: - <https://doi.org/10.37547/social-fsshj-06-03-06>

ABSTRACT

This article explains that technological thinking is a type of conscious activity formed on the basis of information and communication tools, digital models, algorithmic thinking, and interaction with the technogenic environment, and that it is becoming an integral component of the professional competence of modern military personnel.

Keywords: - Information society, evolution of thinking, transformation of social consciousness, digital thinking, algorithmic consciousness, mediatized consciousness, collective consciousness, information paradigm, simulation society.

INTRODUCTION

In the military sphere, this form of thinking signifies not only the ability to operate or use technical means, but also includes the capacity for strategic thinking, reflection related to cybersecurity, the selection and analysis of complex information flows, and their conscious management. Regarding the place of technological thinking in military professional competence, the Japanese scholar Hiroshi Araya emphasizes the following: “Technological thinking is a consciousness capable of interacting with information codes, algorithmic balances, and digital reality. For a military serviceman, this is a cognitive power that accelerates decision-making, detects risks in advance, and enables cooperative work with artificial intelligence.” This point of view shows that technological thinking in military competencies must have not only a technical, but also an epistemological basis.

At a time when, under conditions of digital transformation, the military profession is

increasingly approaching a form of intellectual labor, technological thinking in professional competencies manifests itself through reflective interaction, algorithmic criticality, thinking through modeling, and synthesis with ethical approaches in an artificial intelligence environment. The Australian military psychologist Sarah Percy expresses her views on this issue as follows: “Today’s military serviceman is not a matter of physical strength, but a subject capable of acting consciously in a digital environment and making responsible decisions in algorithmic situations.” According to this view, technological thinking is an independent module of professional competence that enters into an integrative relationship with other functions—management, discipline, communication, and tactical analysis. Especially for military personnel working in cybersecurity, automated combat control systems, and drone technologies, this form of thinking becomes a criterion determining the level of intellectual preparedness. On the other hand,

technological thinking is not only an instrumental, but also an axiological-philosophical competence. The German philosopher Thomas Metzinger explains this idea as follows: "Working together with artificial intelligences is not merely a mechanical skill, but a culture of thinking based on the conscious analysis of decisions, situations, and risks." Thus, technological thinking determines professional capacity not only from an operational, but also from an axiological point of view.

LITERATURE REVIEW AND METHODOLOGY

The complexity of the modern military profession, its encounter with global informatization processes and digital transformation, requires a fundamental reinterpretation of the role of the concept of technological thinking within the system of competencies of military personnel. Here, technological thinking appears not merely as the skill of operating technical means, but as a conscious capacity to work with artificial intelligence, algorithmic control, digital security, reflective analysis of information flows, and the ability to integrate them with operational strategic decisions. The Italian military philosopher Alessandro Vitale explains this process as the "technological spatialization of intellectual decision-making": "The professional competence of a military serviceman is now assessed not by the degree of possession of technological means, but by how he perceives them, how he relates to them on an epistemic basis, and his capacity to make decisions according to the criteria of technological ethics." In Vitale's view, technological thinking is an integrated form of competence, that is, a "military-intellectual mechanism." This perspective makes it possible to interpret professional competence specific to military activity more broadly—within the framework of socio-philosophical, axiological, and epistemological criteria. The American strategic researcher Daniel Susskind approaches these changes as follows: "The modern military profession is not a technical job, but participation in the management of algorithmic processes through responsible thinking. Technological thinking is the foundation determining the ontological quality of military decisions in this environment." As Susskind emphasizes, technological thinking strengthens military professional competence cognitively and transforms it into a stable subject within the global

information field.

At the same time, the formation of this competence is based not only on working with information, but also on analyzing it, making complex forecasts on the basis of data, consciously integrating into decision-making systems based on artificial intelligence, preserving ethical security, and demonstrating cultural reflexivity in the digital environment. In this regard, the Spanish military educator Carlos Murillo writes: "If today's military serviceman does not possess technological thinking, he will not only make technical mistakes, but will also be unable to epistemically justify his activity in information policy. Technological thinking is a new level of professional responsibility."

In other words, technological thinking determines the professional competence of a military serviceman at the following three main levels:

- Perceptual-communicative level – the ability to process information quickly, reliably, and reflectively.
- Ethical-cognitive level – the ability to understand the human and axiological consequences of digital decisions.
- Operational-strategic level – the ability to make independent and technologically appropriate decisions on the basis of information.

Under the conditions of an information society, the professional competence of military personnel is becoming increasingly complex, and it is formed not only through physical preparedness or a set of traditional military knowledge, but also in inseparable connection with technological thinking. From the point of view of social philosophy, technological thinking is an intellectual phenomenon that embodies as a whole the ability of the military serviceman to perceive reality, consciously enter into relations with technical systems, analyze information, and make rapid decisions. As the content of military activity changes in today's digital and information-technological environment, technological thinking is emerging as a central determinant of professional competence. Analyzing technological thinking in the context of the information society, N. Mirzaxolov emphasizes that "technological thinking is an intellectual mechanism that enables

a person to consciously manage his relationship with technology and direct it toward social interests." This idea shows the necessity of understanding technology in the activity of military personnel not as a simple instrument of execution, but as a strategic resource. From a critical point of view, the author defines the socio-ethical boundaries of technological thinking only in general terms, whereas in the military sphere the relationship of this thinking with responsibility, command, and discipline should be revealed more deeply. Analyzing the problems of human capital in the information society, T. Samadov advances the conclusion that "modern professional competence is not a sum of knowledge and skills, but a dynamic resource formed through technological thinking." This approach makes it possible to interpret the competence of military personnel not as something static, but as a continuously developing process. From a critical point of view, however, if the principle of dynamism is not coordinated with the strict regulations of the military system, it may give rise to the risk of excessive individualism.

Analyzing the connection between public security and the information society, F. Usarov writes that "technological thinking in ensuring security is not only technical knowledge, but also the ability to predict situations in advance and understand informational threats." This idea shows that the professional competence of a military serviceman is determined not only by executing orders, but also by independent thinking in complex informational situations. From a critical point of view, since predictive competence requires individual initiative, it must be developed in balance with centralized management. Analyzing the relationship between youth and the information society, A. Axmadjonov emphasizes that "when technological thinking is not harmonized with historical consciousness and cultural memory, it acquires an instrumental and one-sided character." This idea shows the necessity of harmonizing technological thinking with national-cultural values in the process of training military personnel. A critical attitude shows that if the cultural component is not given sufficient attention, technological superiority may lead to a spiritual vacuum.

Studying the transformation of moral values in the information society, A. Nasimov advances the idea that "if technological thinking is not limited by ethical norms, it reduces the human factor to a

secondary level." This approach substantiates the inseparability of technology and ethical responsibility in the professional competence of military personnel. From a critical point of view, however, the mechanisms for applying ethical norms to technological processes must be developed clearly and systematically. Analyzing issues of patriotism and professional training in the information society, D. Karimov notes that "technological thinking is becoming a means through which military personnel understand patriotism in a modern form and manifest it in practical activity." This view shows that technological thinking has not only an instrumental, but also an ideological-spiritual function. From a critical point of view, in order for patriotism formed through technology not to turn into formal slogans, it must be enriched with deep spiritual content.

In general, the role of technological thinking in the professional competence of military personnel is sharply increasing under the conditions of the information society. From the point of view of social philosophy, technological thinking appears as an integrative phenomenon uniting the knowledge, skills, ethical responsibility, and cultural consciousness of the military serviceman. It transforms military activity from a merely technical process into a complex type of activity with socio-spiritual content. As modern forms of military activity become increasingly complex and rely on multifunctional digital infrastructures, information-based decision-making algorithms, and management systems based on artificial intelligence, technological thinking is becoming the central methodological foundation within the system of professional competencies of military personnel. This thinking includes not only the skill of working with technical means, but also the ability to make independent, reflective, predictive, and axiologically stable decisions in a technological environment. The Swiss military philosopher Christoph Harig substantiates this idea as follows: "The professional training of a military serviceman is now determined by the level of technological thinking. He must become not only a receiver of information, but a subject capable of processing it and turning it into meaning." This perspective encourages interpreting technological thinking as epistemological activity, that is, the military serviceman is a person who understands technology not as a tool, but as a space of thought.

RESULTS AND DISCUSSION

Technological thinking makes it possible to consider military competence on an expanded semantic basis. In particular, the main components of this type of thinking are algorithmic intuition, information security thinking, cognitive consistency, and operational ethical views. The German strategic thinker Johannes Varwick expresses this as follows: “Military thinking is now an intellectual activity conducted not through bullets and weapons, but through codes and information. Technological thinking makes it possible to harmonize this intellectual activity with the internal conscious system.” From this perspective, technological thinking is deeply integrated into the professional competencies of military personnel through the following aspects:

- as a means of analytical thinking: the ability to understand, classify, and draw strategic conclusions from complex digital data;
- as predictive thinking: the capacity to model the possible consequences of military situations on the basis of algorithmic scenarios;
- as information ethics: commitment to human rights, ethical norms, and cybersecurity requirements in the use of information tools;
- as management of time and resources: a model of thinking that ensures the optimization of technological processes and effective work with them.

Supporting this approach, the French military analyst Jean-Baptiste Jeangène Vilmer writes: “Technological thinking is no longer a choice for the military, but a necessity. In the era of digital wars, any weak thinking leads to strategic weakness.” In addition, technological thinking also has a cultural component: it requires the perception of information flows in social consciousness, the formation of immunity against disinformation, and the protection of military ethics in the global digital reality. This shapes the military serviceman’s competence not only at the operational level, but also at the civilizational level.

As a result of the convergence of modern military activity with digital transformation, technological thinking has become one of the main structural elements of military personnel’s competencies.

This type of thinking now implies not only technical skills, but also a deep understanding of information and communication technologies, participation in algorithmic decision-making, the ability to define ethical positions in an artificial intelligence environment, and the capacity to ensure cognitive stability in complex digital security situations. In this regard, the French information sociologist Pierre Lévy states: “Technological thinking is not merely working with technical tools, but the ability to derive meaning from information, analyze it contextually, and use it consciously in military tasks. As military consciousness becomes technological consciousness, decisions increasingly come to be based on digital thinking.” Through this idea, Lévy presents technological thinking as the civilizational foundation of military competence. Moreover, technological thinking is formed in military activity as intellectual agency, that is, the person’s capacity to respond rapidly and consciously to complex problems. The Polish strategic pedagogue Krzysztof Liedel writes on this matter: “A military serviceman operating in a digital security environment faces thousands of segments of information every day. His main task is not to manage information, but to transform it into thought on the basis of epistemic criticality.”

From this perspective, technological thinking is a form of conscious activity harmonized with informatics, ethics, and strategy. The professional preparedness of a military serviceman is now measured at three levels:

- Functional preparedness – the level of ability to use technical means;
- Cognitive preparedness – the skill of processing and analyzing information;
- Axiological preparedness – the ethical position taken in decision-making.

This idea is reinforced by the American military strategic specialist Elizabeth Stanley, who states: “A military serviceman who lacks technological thinking turns into a passive executor in the modern combat environment, waiting not for an approach, but only for orders. This constitutes an internal threat that disrupts the balance of global security.” In addition, technological thinking also ensures the mechanism of personal professional growth. This is because this type of thinking forms

self-management, digital reflection, media ethics, information sovereignty, and a conscious approach to the convergence of modern technologies. On this matter, the Swiss military sociologist Roland Bleiker emphasizes: “Technological thinking is the kind of thinking that teaches one to live not with a complex world, but with complex decisions. The strength of military personnel lies not in physical, but in cognitive preparedness.”

Under the conditions of a modern society that is increasingly informatized and technologically complex, the content of the professional competence of military personnel is changing fundamentally, and it is turning into a complex socio-philosophical phenomenon connected not only with physical training or a set of traditional military knowledge, but also inseparably with technological thinking. From the standpoint of social philosophy, technological thinking appears as an intellectual mechanism that enables the military serviceman to consciously perceive, analyze, and make decisions on the basis of social responsibility within technical systems, information flows, and a complex operational environment. Therefore, military professional competence is no longer simply the sum of knowledge, abilities, and skills, but the integrative unity of thinking culture, ethical position, and technological rationality. Analyzing the role of technological thinking in professional activity, S. Kh. Raxmatullayev emphasizes that “technological thinking forms the specialist’s ability to holistically perceive a situation and forecast it in advance while working in complex systems.” This idea shows that technological thinking is an important condition for strategic thinking in the activity of military personnel. However, from a critical point of view, although the author emphasizes forecasting and systemic thinking, he does not sufficiently reveal the issue of balancing this process with ethical responsibility. Social philosophy, by contrast, requires always taking into account the impact of military technological decisions on human life and the fate of society.

Paying attention to the relationship between military activity and thinking, J. Kh. Boysunov notes that “a modern military serviceman must understand technology not merely as a means of carrying out orders, but as a factor in ensuring social security.” This approach reveals the socio-philosophical essence of technological thinking. Critically speaking, placing technology as an

absolute priority factor of security creates the risk of reducing the human factor to a secondary level. Therefore, technological thinking must develop while preserving the centrality of the human being. Linking the competence of military personnel with social consciousness, N. M. Axmadiyev writes that “the level of professional thinking is determined not only by military discipline and technological literacy, but also by the spiritual maturity of the individual.” This idea shows the axiological dimension of technological thinking. A critical attitude shows that although the author recognizes spiritual maturity as a necessary condition, he devotes less attention to the concrete socio-institutional mechanisms of its formation.

Analyzing the connection between technological thinking and professional competence from a pedagogical-philosophical perspective, A. T. Turg’unova emphasizes that “in the process of training military personnel, technological thinking gives stable results only when harmonized with educational and ethical components.” This view shows the importance of the unity of technology and education in the professional training of military personnel. Critically speaking, however, it should not be overlooked that excessive normativization of the educational component may restrict the possibilities for creative and independent thinking. Analyzing the development of technological thinking in the context of the information society, U. Q. Tilavova notes that “technological thinking cannot become professional competence without a culture of working with information.” This idea reveals the importance of information literacy and critical analysis in the activity of military personnel. From a critical point of view, information culture should be reinforced not only as an individual quality, but also through the institutional environment and organizational culture. From the standpoint of social philosophy, technological thinking plays an integrative role in the professional competence of military personnel, uniting knowledge, skills, ethical responsibility, and cultural consciousness into a single system. Through technological thinking, military activity is transformed from a set of technical processes into a complex type of activity endowed with socio-spiritual meaning. In this process, technology does not replace human will, but appears as a means that encourages conscious and responsible decision-making.

For the military sphere, this type of thinking

provides the capacity to dominate more through ideas and information than through weapons. According to this approach, the professional competence of a military serviceman is determined not only by combat skills, but also by cognitive adaptability, technological sensitivity, and the ability to move freely within complex information systems. On this matter, the Dutch military pedagogue Jeroen Kamminga states: "Today's military serviceman is a subject capable of working with communication algorithms, analyzing information strategies, and conceptually eliminating digital threats. Technological thinking serves as the internal metastructure of this competence."

A military serviceman possessing technological thinking has the following set of competencies:

- Information analytical ability – the capacity to quickly analyze information flows and draw strategic conclusions from them;
- Algorithmic thinking – the ability to think through the mathematical and statistical modeling of alternative scenarios;
- Cyber-ethical responsibility – the preservation of internal ethical stability against disinformation, digital manipulation, and intellectual exploitation;
- Visual-semantic vision – the capacity to analyze war not only in its physical, but also in its visual and narrative forms.

According to the American security specialist John Arquilla, "Technological thinking is the means of achieving victory not on physical battlefields, but in modern confrontations carried out in the realms of artificial intelligences, network systems, and algorithmic manipulations. The center of military competence lies not in possessing technology, but in having a conscious attitude toward it."

Under the conditions of a modern society that is increasingly informatized and technologically complex, the content of the professional competence of military personnel is fundamentally changing, and it is now becoming a complex socio-philosophical phenomenon inseparably connected with technological thinking, rather than being limited only to physical training, mechanisms of command and obedience, or traditional military

knowledge. From the point of view of social philosophy, technological thinking expresses the military serviceman's ability to perceive reality through technical, informational, and institutional systems, make rapid but responsible decisions in complex situations, and harmonize technological means with social interests. Therefore, modern military professional competence is not a simple sum of knowledge, abilities, and skills, but the integrative unity of technological rationality, ethical responsibility, and cultural consciousness. Analyzing the role of technological thinking in professional activity, S. B. Jo'rayev emphasizes that "technological thinking forms in the specialist working in complex systems the ability to understand situations systemically and consciously manage technical possibilities." This view shows that technological thinking is an important condition of strategic thinking in the activity of military personnel. However, critically speaking, while the author emphasizes the management of technical systems, he does not sufficiently deeply analyze the social and ethical consequences of technological decisions. Social philosophy, by contrast, requires seeing the impact of the application of military technologies on human life and social stability as a central issue.

Analyzing the professional competence of military personnel, R. T. Madumarov writes that "a modern military specialist must perceive technology not only as an instrument of execution, but as an intellectual resource that makes it possible to analyze situations and forecast them in advance." This idea reveals the prognostic and analytical aspects of technological thinking. From a critical point of view, however, absolutizing technology as an intellectual resource may lead to human experience, intuitive decisions, and ethical sensitivity being relegated to a secondary level.

Evaluating the system of training military personnel from a socio-philosophical perspective, N. K. Turg'unov advances the conclusion that "technological thinking produces stable results in professional competence only when harmonized with discipline and responsibility." This view shows the importance of the unity of technology and social norms in military activity. Critically speaking, however, it should not be overlooked that making discipline excessively dominant may restrict the possibilities for creative and independent thinking. Analyzing the relationship

between technological thinking and professional culture, M. Q. Ismoilova emphasizes that “the technological literacy of the military serviceman is one of the main indicators determining the level of his professional culture.” This approach reveals the cultural dimension of technological thinking. Critically speaking, however, interpreting technological literacy only as an individual quality is insufficient; it must also be seen as a social phenomenon formed through organizational culture and the education system. Approaching the issue of military professional competence from an axiological point of view, A. S. Norqobilov writes that “if technological thinking is not limited by ethical norms, it redirects professional activity into a technocratic orientation.” This idea substantiates the necessity of defining the ethical boundaries of technological thinking. A critical attitude shows that unless the mechanisms for applying ethical norms to technological processes are developed clearly and systematically, this requirement may remain merely declarative. From the standpoint of social philosophy, technological thinking plays an integrative role in the professional competence of military personnel, uniting knowledge, skills, information literacy, ethical responsibility, and cultural consciousness into a single system.

CONCLUSION

Through technological thinking, military activity is transformed from a set of technical processes into a complex type of activity endowed with socio-spiritual meaning. In this process, technology does not replace human will, but appears as a means that encourages conscious, critical, and responsible decision-making. The role of technological thinking in the professional competence of military personnel is becoming decisive under the conditions of the information society. Summarizing the views of Uzbek scholars, it can be said that technological thinking is the central factor determining the professional maturity of the military serviceman, and it gives stable and effective results only when formed through the harmony of technical knowledge, information literacy, and ethical responsibility. From the point of view of social philosophy, such an approach serves to enrich military activity with humanism, social responsibility, and cultural consciousness.

First, in the modern military security environment, which is increasingly information-rich and

technologically complex, the formation of technological thinking in military personnel appears as an objective social necessity. Since technology has become not an auxiliary means in military activity, but the ontological foundation of military existence, the professional effectiveness of a military serviceman is directly determined by the level of his technological thinking.

Second, the transformation of military activity in the modern information-cultural context is leading to substantive and structural changes in military consciousness. The introduction of digital control systems, artificial intelligence, cybersecurity, and automated decision-making mechanisms requires the military serviceman to abandon the traditional executor’s mindset and adopt systemic, analytical, and reflective thinking.

Third, technological thinking is the central intellectual component of the professional competence of military personnel, and it is not limited only to technical literacy, but also includes the ability to analyze situations comprehensively, assess risks in advance, and develop alternative strategies. In this respect, technological thinking elevates military professional competence to a qualitatively new stage.

REFERENCES

1. O‘zbekiston Respublikasi Konstitusiyasi. –T: «Adolat», 2023. –114 b.
2. O‘zbekiston Respublikasining Mehnat Kodeksi. –T.: Adolat, O‘zbekiston, 2021. -296 b.
3. O‘zbekiston Respublikasining Oila Kodeksi. – T.: Adolat, O‘zbekiston, 2021. -204 b.
4. Mirziyoyev SH. Erkin va farovon demokratik O‘zbekiston davlatini birgalikda barpo etamiz. –T.: O‘zbekiston, NMIU, 2016.
5. Mirziyoyev SH. Qonun ustuvorligi va inson manfaatlarini ta’minlash – yurt taraqqiyoti va xalq farovonligining garovi. –T.: «O‘zbekiston». 2017. –48 b.
6. Mirziyoyev SH. Buyuk kelajagimizni mard va olijanob xalqimiz bilan birga quramiz. –T.: «O‘zbekiston». 2017. –488 b.
7. Mirziyoyev SH. Milliy tiklanishdan – milliy yuksalish sari [Matn]. –T.:

FRONTLINE JOURNALS

8. Ellul J. *The Technological Society*. – New York: Knopf, 1964. – B. 98.
9. Castells M. *The Rise of the Network Society*. – Oxford: Blackwell, 1996. – B. 92.
10. Stiegler B. *Technics and Time, Vol. 2: Disorientation*. – Stanford: Stanford University Press, 2008. – B. 64.
11. Baudrillard J. *Simulacres et simulation*. – Paris: Galilée, 1981. – B. 43.
12. Poster M. *Information Please: Culture and Politics in the Age of Digital Machines*. – Durham: Duke University Press, 2006. – B. 102.
13. Berardi F. *The Uprising: On Poetry and Finance*. – Los Angeles: Semiotext(e), 2012. – B. 59.
14. Han B.-C. *Psychopolitics: Neoliberalism and New Technologies of Power*. – London: Verso, 2017. – B. 83.
15. Postman N. *Technopoly: The Surrender of Culture to Technology*. – New York: Vintage Books, 1993. – B. 71.
16. Metzinger T. *The Ego Tunnel: The Science of the Mind and the Myth of the Self*. – New York: Basic Books, 2009. – B. 98.
17. Gopnik A. *The Real Work: On the Mystery of Mastery*. – Cape Town: Penguin Books, 2023. – B. 104.
18. de Mul J. *Cyberspace Odyssey: Towards a Virtual Ontology and Anthropology*. – Amsterdam: Amsterdam University Press, 2010. – B. 145.
19. Castells M. *The Rise of the Network Society*. – Oxford: Blackwell Publishers, 1996. – B. 412.
20. Taylor C. *The Malaise of Modernity*. – Toronto: House of Anansi, 1991. – B. 74.
21. Berry D. *The Philosophy of Software: Code and Mediation in the Digital Age*. – London: Palgrave Macmillan, 2011. – B. 103.
22. Simone R. *La Terza Fase*. – Milano: Laterza, 2009. – B. 47.
23. Fuchs C. *Digital Demagogue: Authoritarian Capitalism in the Age of Trump and Twitter*. – London: Pluto Press, 2018. – B. 87.
24. de Kerckhove D. *The Skin of Culture: Investigating the New Electronic Reality*. – London: Kogan Page, 1995. – B. 83.
25. Lévy P. *Collective Intelligence: Mankind's Emerging World in Cyberspace*. – Cambridge: Perseus Books, 1997. – B. 56.
26. Teshaboyev M. *Different Attitudes And Interpretations Toward Social Justice In Western Philosophical Thought Eurasian Journal of Humanities and Social Sciences volume 23 - 2023 / 105-109 p*
27. Teshaboyev M. *O'zbekistonda ijtimoiy davlat qurilishi strategiyasi va ijtimoiy adolatning asosiy yo'nalishilari Ta'limning zamonaviy transformatsiyasi 5-to'plam 2-son mart 2024 // 60-66 bet*
28. G'aybullayeva N. *The role of concepts of contradictions in the education of young children In Volume 2, issue 2 of Academic Research Journal 2023 10.02.2023*
29. Volli U. *Manuale di Semiotica*. – Torino: Laterza, 2000. – B. 144.
30. Srinivasan R. *Beyond the Valley: How Innovators around the World are Overcoming Inequality and Creating the Technologies of Tomorrow*. – Cambridge: MIT Press, 2019. – B. 92.