



Psychological determinants of the effectiveness of cybersecurity specialists

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◆ **Abstract.** The professional activities of cybersecurity specialists are becoming particularly relevant in the context of the digital transformation of society and the growth of cyber threats. The effectiveness of their professional tasks is largely determined by the formation of professionally important personality traits, which necessitates a scientifically based definition of psychological criteria for the professional and psychological selection of specialists in the field of cybersecurity. The aim of the study was to identify the psychological factors that influence the effectiveness of the professional activities of cybersecurity specialists by developing a psychogram that reflects the functional and dynamic structural components of the psyche that ensure their success at work. 120 cybersecurity specialists took part in the study. A set of psychodiagnostic techniques was used, in particular: Smirnov's "Motivational Structure of Personality" technique; Klimov's "Determining the Optimal Type of Profession" technique; Eysenck's personality questionnaire; a modified Landolt ring technique; Karamushka and Moskalyova's adaptive mobility technique; the analytical thinking test; methods for assessing long-term visual and working memory; Cattell's 16-factor personality questionnaire; Ryff's "Psychological Well-Being" method; Kokun's "Professional Resilience" method. Correlation and factor analysis were used to process the results. Five key components of the psychogram of cybersecurity specialists were identified: motivational, psychophysiological, cognitive, individual psychological, and social. It was determined that the leading component is motivational, the structure of which is dominated by motives of life support, social usefulness, and creative activity. In terms of temperamental characteristics, individuals with sanguine (40%) and phlegmatic (35%) types were found to be the most suitable. The cognitive sphere is characterised by a high level of analytical thinking and professional memory. The individual psychological profile includes practicality, firmness, normativity, self-control, and diplomacy. The social component is represented by a high level of professional resilience, control and acceptance of challenges. The developed psychogram can be used as a scientifically based tool for professional and psychological selection and career guidance of cybersecurity specialists, allowing to determine the suitability of candidates and predict the success of their professional activities

◆ **Keywords:** psychogram; professional and psychological selection; motivational component; psychophysiological properties; cognitive sphere; resilience

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◆ Introduction

The current stage of development of the information society is characterised by a rapid growth in cyber threats, which highlights the problem of ensuring the information security of organisations. The effectiveness of countering cyber threats largely depends on the professional competence of cybersecurity specialists, which necessitates a scientific justification of the psychological criteria for their professional and psychological selection. The issues of professional analysis of activities are discussed in detail in the work of K.O. Kushnirenko & N.D. Hordynia (2020), who focused on various areas of professional activity, in particular banking, trade and educational management. The peculiarities of the motivational sphere of professionals were considered in studies of professional motivation and its impact on performance. E. Voitenko & S. Myronets (2020) found that motivation determines 50% of professional success and psychological well-being. The structure of professional motives includes motives of personal work, social significance, self-affirmation, and professional skill. In the publication by L.I. Kolomiets *et al.* (2023), motivation is defined as an internal drive that stimulates activity and determines a person's focus, influencing their behaviour, performance, professional self-determination and satisfaction with their work. Professional motivation is shaped by factors in the surrounding reality and by career guidance work carried out at school or in relevant career guidance centres. In general, career guidance is a dynamic, changing and continuous process that takes place under the constant influence of objective and subjective factors. The structure of professional motives can be identified at different stages of a professional's formation and development: at the stage of choosing a speciality, in the process of working in the chosen speciality, when changing jobs or transitioning from one job to another. M. Didukh (2021) examined the psychophysiological determinants of professional aptitude in the context of studying the typological features of the nervous system and their influence on the course of cognitive and sensorimotor processes. It has been proven that the course of cognitive and sensorimotor mental processes is associated with the typological characteristics of a person and practically does not change under the influence of training or learning. Temperament is determined by the type of nervous system and manifests itself in general activity, emotionality, and professional activity. The concept of individual style of activity as an indicator of professional suitability is important. Temperament in psychophysiology is considered as an individual-typological property of a person, which manifests itself in the strength, mobility and balance of the course of basic nervous processes. S. Boltivets *et al.* (2025) considered temperament to be a general characteristic of personality that determines the dynamics and uniqueness of an individual's inner life and determines their worldview, education and character. This general characteristic affects all vectors of human life and psyche. It has been proven that temperament is most clearly manifested in general activity, the emotional sphere and motor

skills, which significantly influence the formation of many professionally important qualities and competencies that determine a person's professional suitability. Psychophysiology considers the close connection between professional suitability and individual style of activity (ISA) as an indicator of professional suitability. ISA is a personality trait that is formed in the process of activity and under its direct influence through the active search for ways and means of action that enable the individual to adapt to the requirements of the profession and best perform professional tasks, as noted by O. Lavrentieva & O.P. Krupskiy (2022). The most important condition for the formation of ISA is the motivation and activity of the individual in professional activity. Cognitive aspects of professional activity are represented in studies of thinking, memory, and attention of specialists. The importance of analytical thinking for professions of the "human-sign system" type, which includes cybersecurity, has been established. Professional memory, which ensures the memorisation, storage, and activation of professionally significant information, is of particular importance. The cognitive sphere of the personality, in particular higher mental cognitive processes, which include such professionally significant cognitive components as thinking, memory, and attention properties, is of significant importance in choosing a career in cybersecurity and subsequent successful professional and career development. I. Prykhodko *et al.* (2022) have developed a step-by-step methodology for forming psychological profiles of professions, taking into account their specific requirements, which is based on a multi-criteria assessment of psychological and psychophysiological indicators and a comparison of the candidate's profile with a reference model of a successful specialist. Socio-psychological determinants are presented in the concepts of professional resilience and psychological well-being by O. Kokun & O. Bezverkhyy (2024). Resilience was considered by the authors as a system of beliefs about oneself, the world and one's relationship with it, which includes the components of inclusion, control and risk acceptance. Psychological well-being encompasses self-acceptance, positive relationships, autonomy, environmental control, life goals, and personal growth. Despite significant achievements in studying individual aspects of the professional activities of specialists, there is a lack of comprehensive research on the psychological determinants of the effectiveness of cybersecurity specialists in particular. Scientifically based criteria for their professional and psychological selection remain insufficiently developed. The aim of the study was to scientifically substantiate the psychological factors of effective professional activity of cybersecurity specialists by constructing a psychogram that represents the key functional and dynamic components of the psyche involved in ensuring professional success.

◆ Materials and Methods

The study involved 120 cybersecurity specialists working in organisations of various forms of ownership. Inclusion

criteria: at least one year of experience in cybersecurity, relevant education or certificates in information security. The study was conducted in 2024-2025 individually with each participant. The psychodiagnostic examination was carried out in two stages with an interval of 2-3 days to avoid respondent fatigue. The total duration of the examination was 4-5 hours. All participants were informed about the purpose of the study and gave their consent to participate. The study was based on the functional-dynamic structure of personality, which includes motivational, psychophysiological, cognitive, individual-psychological, and social components. The theoretical and methodological basis for studying professionally significant qualities was the functional-dynamic structure of personality by M. Korolchuk & V. Krayniuk (2006). Based on the prevalence of factor loads and the level of correlation with the integral indicator of performance, five factors were identified which, as structural components of personality, determine professionally important qualities and determine the success of professional activity. The motivational component was studied using Milman's "Motivational Structure of Personality" methodology and Klimov's "Determining the Optimal Type of Profession" methodology, which allow assessing the motivational orientations of the personality and their correspondence to professional interests. The psychophysiological component was studied using the following methodologies: Eysenck's personality questionnaire to determine the type of temperament; the Landolt Rings Test to assess information processing speed, accuracy, productivity, and endurance; the Karamushka and Moskalyova Adaptive Mobility Methodology; and the Stange and Genchi Functional Tests to assess the functional state of the respiratory and cardiovascular systems. The cognitive component was determined using Boltsev's analytical thinking test and methods for assessing long-term visual and working memory, which made it possible to assess the level of development of cognitive processes necessary for effective work with information. The individual psychological component was studied using Cattell's 16-factor personality questionnaire, which made it possible to identify a wide range of personality characteristics. The social component was studied using Ryff's Psychological Well-Being and Kokun's Professional Resilience methodologies, which allow for the assessment of subjective feelings of life satisfaction and the ability to function effectively in a professional environment. Mathematical statistics methods were used to process the empirical data: descriptive statistics, Pearson's correlation analysis, factor analysis using the principal component method with Varimax rotation. Statistical processing was performed using the SPSS Statistics 23.0 software package. The critical level of significance was set at $p < 0.05$. The study was conducted in accordance with international ethical guidelines for health-related research involving human subjects, developed by the Council for International Organizations of Medical Sciences in collaboration with the World Health Organization (CIOMS, 2016).

◆ Results and Discussion

An analysis of the results of a study of the motivational sphere of cybersecurity specialists has made it possible to identify a hierarchy of leading motives that determine their professional activity and focus. In first place are life support motives, aimed at material prosperity and health preservation. These motives directly affect earnings and are related to maintaining one's own health, which is especially important in conditions of intense mental activity (Bertash *et al.*, 2024). In second place is the motivation of social usefulness, associated with a sense of usefulness, responsibility, demand and respect in the team. Respondents feel satisfaction and a sense of authority in their professional environment, which increases their commitment to work. Creative activity ranks third – the desire to acquire new knowledge, innovations and inventions. Such respondents are motivated by discoveries in the course of their professional activities and derive satisfaction from this. They strive for innovation and the introduction of new technologies in the field of cybersecurity. Fourth place goes to social status – the desire for professional improvement and career growth. To this end, the individual is active in gaining authority among specialists in the organisation and participates in professional conferences and events. The fifth place in the ranking is occupied by the characteristics of the individual's general activity. Such individuals are focused on work, achieving success in life, learning, improving their qualifications, and obtaining new information. The sixth position is related to the desire for comfort, i.e., the ability to provide oneself with comfortable working conditions, as well as to relax and have fun. The seventh position in the ranking of the motivational structure of cybersecurity specialists belongs to communication. This means communication in informal and business settings to gain authority and recognition in the organisation, participation in certain meetings, conversations, communication with family members and friends. In terms of interest in certain types of professions, cybersecurity specialists have a clear preference for professions of the "human-symbol system" type, which manifests itself in working with numbers, symbols, information, developing programs for computing technology, searching for and correcting errors. At the average level, there is a pronounced inclination towards "human-technology" professions, which manifests itself in a tendency to process materials, construct, design and manufacture finished products. Interest in "human-human" professions was less pronounced. When studying the motives for professional activity, they are conditionally divided into four groups: motives for chosen work, motives for socially significant work, motives for self-affirmation in professional activity, and motives for professional mastery (Voitenko & Myronets, 2020). The motives for choosing a profession are manifested in curiosity about the process of professional activity, its results, and the opportunity to derive satisfaction from it. The motives for the social significance of work are manifested in the fact that the individual strives to benefit those around them through their work. It

has been found that, as a result, the most significant motives in the motivational profile of cybersecurity specialists are social usefulness and creative activity, while in the general life profile, the most significant are life support and social status. Figure 1 shows the results of the analysis of the temperamental characteristics of the participants, which made it possible to characterise individual differences according to the main typological indicators.

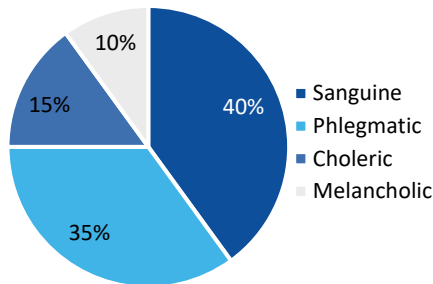


Figure 1. Results of the study
of temperamental characteristics of cybersecurity specialists
Source: compiled by the authors

The analysis of temperamental characteristics showed that among cybersecurity specialists, sanguine (40%) and phlegmatic (35%) temperament types predominate, while choleric (15%) and melancholic (10%) types are represented to a lesser extent. The obtained data indicate the dominance of temperament types that are considered the most adaptive for professional activity under conditions of increased cognitive load and responsibility. Sanguine individuals are characterised by balance, strength, and mobility of the nervous system; they adapt quickly, are initiative-taking and communicative. Such individuals adapt rapidly to changing conditions, are active, and are able to achieve their goals, thus possessing professionally important qualities required for cybersecurity specialists. Phlegmatic individuals have a balanced but inert nervous system, which manifests in diligence, the ability to perform prolonged routine work, and the capacity to complete tasks thoroughly. Such individuals adapt more slowly; however, their adaptation is stable and sustainable. Professionally important qualities in individuals with a phlegmatic temperament are expressed at a high level, enabling them to achieve their professional goals. As for individuals with a choleric temperament, they are characterised by a strong nervous system that is extremely unbalanced and highly mobile. Temperamental manifestations in choleric individuals depend on personality orientation, and under certain conditions they may achieve professional success. At the same time, these individuals are extremely active, emotionally unstable, irritable, and prone to frequent changes in decisions and plans. Activity and optimism are positive manifestations when combined with socially oriented goal-setting. However, such negative traits as impulsivity, irritability, instability, and affectivity are behavioural characteristics that may hinder the effective professional activity of

cybersecurity specialists (Korolchuk & Krainiuk, 2006). Individuals with a melancholic temperament were the least represented in the sample. Such individuals have a weak nervous system that is low in mobility and poorly balanced. They tend to be pessimistic, reserved, anxious, and vulnerable to obstacles, and are extremely sensitive to the problems of others. These temperamental characteristics do not contribute to effective professional activity in the field of cybersecurity (Teptyuk, 2021). Overall, the sanguine and phlegmatic temperament types were most frequently observed in the sample, which corresponds to the requirements of professional activity for cybersecurity specialists.

According to the Landolt Rings method, high and medium levels of information processing speed, productivity, accuracy, and endurance were identified among the participants. These indicators serve as criteria for professional and psychological selection (Bertash *et al.*, 2024). This method makes it possible to determine the main parameters of an individual's work capacity based on interpretative criteria such as the speed of information processing in the visual analyser, excitation strength, inhibition, and balance. A high level of functional characteristics of the respiratory and cardiovascular systems, as demonstrated by the results of the Stange and Genchi functional tests, determines an appropriate level of adaptive mobility in specialists (Udod, 2021). With regard to adaptive mobility indicators, the most pronounced characteristics were the ability to adapt to new living and working conditions, assume responsibility, switch tasks easily, and a tendency towards monotonous work. A high level of openness to new ideas, their implementation, a creative approach to problem-solving, and innovative transformation of tasks was also identified. The participants demonstrated readiness to solve urgent tasks quickly, resist destabilising influences, and maintain an orientation towards achievement and success. L.M. Karamushka *et al.* (2022) noted that the set of scale indicators reflects the diversity of individual adaptive characteristics depending on the capacity for rapid change and adjustment to activity conditions, acceptance of new ideas, and the ability to implement them. Such manifestations of adaptive capacity among the participants make it possible to assess personal readiness for adaptation in new conditions of professional activity. In general, it was established that, in terms of temperamental characteristics, individuals with pronounced sanguine and phlegmatic temperament types are the most suitable for cybersecurity activities. At the same time, given a high level of motivation, well-developed motivational qualities, and individual orientation towards socially significant goals, a positive assessment of professional and psychological suitability is also possible for individuals whose functional characteristics of the nervous system were found to be lower.

In the context of the cognitive component, a high level of analytical thinking was established among the respondents. Analysis, synthesis, comparison, generalisation of information, and formation of conclusions are professionally significant for the prevention and elimination of challenges

in the field of cybersecurity (Jachens, 2019). The high level of thinking is based on the analytical and synthetic function of mental operations, which provides the basis for the practical implementation of analytical conclusions in the professional activities of cybersecurity specialists. Practical thinking is considered an intellectual activity aimed at solving professional tasks. It cannot be carried out without mnemonic knowledge, skills, and the ability to memorise and activate professional information. For cybersecurity specialists, the skills of memorising symbolic digital information related to the causes and consequences of security incidents are professionally significant. At the same time, it is necessary to be able to filter professionally significant information to ensure the information security of the organisation. Preventing and counteracting information risks in the field of security is a professional necessity that determines the level of professionalism of a cybersecurity specialist in an organisation. All mental cognitive processes, states, and properties of education form a single whole. To solve practical problems of professional and psychological selection, a scientific and methodological approach makes it possible to identify and analyse each psychological component of the cognitive sphere separately (Korolchuk & Krainiuk, 2006). It is through thinking that the harmonious combination of individual cognitive processes of the cognitive sphere takes place, thus forming human intelligence, which ensures individual characteristics of manifestations in the process of learning and professional activity. A high level of analytical thinking, combined with developed long-term and working memory, enables specialists to make adequate decisions regarding security in an organisation. Thanks to a high level of analytical thinking, all professionally significant information for cybersecurity in the organisation, which is stored in long-term and working memory, enables specialists to make and propose adequate decisions regarding security in the organisation.

The following individual psychological characteristics have been established according to their degree of significance in accordance with Cattell's methodology. The most pronounced is the practicality factor (factor M), which characterises motivation for success, focus on practical tasks and generally accepted norms, interest in specific facts and circumstances, and focus on reality. The second most significant factor is firmness (I), which determines responsibility, integrity, realism, and understanding of practical circumstances. Such a person takes responsibility, relies on themselves, and acts in accordance with their understanding of immediate practical circumstances. The normativity factor (G) means persistence in achieving goals, willingness to adhere to social norms and overcome difficulties. Such a person is very persistent and determined in achieving their goals and is able to overcome difficulties. The self-control factor (Q4) characterises a high level of willpower, discipline, a desire to strictly comply with the requirements of the organisation and control emotions. Such a person has a high level of willpower, self-control, discipline, strives to accurately fulfil the social requirements of the organisation,

control their emotions, and care about their reputation in the organisation. The diplomacy factor (N) determines effective interaction, tact, understanding of people's mental states, and the ability to resolve conflicts. Such a person has trained self-control, aesthetic sense, tact, knows people's mental states and is able to regulate relationships and conflicts. In addition, such people are characterised by emotional stability, which is characterised by stress resistance and the ability to overcome difficulties. At the same time, with regard to openness and willingness to interact, caution and prudence are necessary in this case, and this is a professionally significant trait for cybersecurity specialists (Teptyuk, 2021). These results confirm the importance of volitional and regulatory qualities for professions of high responsibility, which is consistent with studies of individual psychological determinants of professional effectiveness (Kushnirenko, 2018). It has been determined that the most significant individual psychological components are practicality, which determines integrity, responsibility and professional motivation, as well as firmness, bringing matters to a logical conclusion; normativity, which determines perseverance, goal achievement and adherence to social norms.

Within the social component, according to Kokun's "Professional Resilience" methodology, it has been established that among the components of resilience, the level of professional control prevails, which indicates the ability of specialists to effectively regulate their own activities in a professional environment. For cybersecurity specialists, this is a professionally significant feature – constant control and mutual control contribute to the information security of the organisation. According to the author's interpretation of the methodology, when for certain reasons it becomes difficult or impossible to predict information challenges in advance in order to prevent them, such individuals believe that constant control and mutual control contribute to information security in the organisation. At the same time, cybersecurity professionals also believe that self-control for the organisation's cybersecurity is ultimately beneficial. The second most important factor is the level of professional acceptance of challenges, which consists of increasing responsibility and performance in non-standard situations. This is an important criterion of professionalism, which consists in the fact that the occurrence of non-standard situations at work increases a person's professional responsibility and does not reduce their performance, but rather increases their focus on success. The increased responsibility of each employee and the ability to organise personal and joint work to overcome cybersecurity challenges or threats in the organisation have a positive impact on the final result and security in the organisation. Cybersecurity specialists must be able to work continuously for long periods of time to eliminate threats, even in conditions of uncertainty. According to the author of the methodology, the characteristics of the level of professional involvement were less pronounced than those of professional control and professional challenges. At the same time, such individuals are characterised by an

average level of satisfaction with the work process, and they need to maintain and focus their attention on their professional responsibilities. The most pronounced components of resilience are motivational, professional and emotional. The motivational component manifests itself in the desire to be knowledgeable about security issues, to take personal responsibility, and to constantly monitor achievements in the field. It manifests itself in the desire to be constantly aware of all security issues in the organisation, focus on solving them, take personal responsibility, eliminate non-standard situations, and work to overcome and prevent them. To this end, there is a tendency to constantly monitor achievements in the field of cybersecurity and implement them in the organisation. The professional component is represented by a focus on verifying compliance with cybersecurity requirements and a desire for professional growth. It manifests itself in the focus of cybersecurity specialists on verifying compliance with the requirements set by the organisation for its cybersecurity and how they are implemented by employees, as well as the desire for professional growth in the field of IT security (Bertash *et al.*, 2024). The emotional component is characterised by the ability to function effectively in stressful conditions. Emotional stability as a component of a specialist's resilience is defined as a professionally significant feature for cybersecurity specialists, as it significantly affects the success of their activities, especially when there is a shortage of time, information, or work in stressful conditions (Voitenko & Myronets, 2020). In the professional activities of specialists, this manifests itself in situations of sudden unforeseen professional challenges, but their resolution does not cause irritation in the professional, but is accompanied by activity to overcome them, and it is this process that brings success and emotional professional satisfaction. The social component of resilience manifests itself in interaction with employees, the ability to mobilise colleagues at work, and direct them towards teamwork to overcome security challenges, which characterises the professionalism of a cybersecurity specialist. This is particularly evident in the ability of specialists to interact socially with colleagues in non-standard situations, as well as when it is necessary to quickly resolve unusual, non-standard issues.

According to Ryff's "Psychological Well-Being" methodology, a hierarchy of indicators has been established: life goals, meaningful life management, autonomy, personal growth, self-acceptance, and positive relationships with others. The highest rating for life goals means having clear life goals and a well-developed sense of purpose, awareness of one's direction in life and destiny. Meaningful control over one's life indicates the ability to effectively plan and control one's environment, organise one's life and feel in control of one's surroundings. Autonomy manifests itself in the ability to resist social pressure and make independent decisions, act independently of the influence of others, and feel a sense of internal control over one's personality. Personal growth consists of a sense of continuous self-development, self-improvement, and realisation of one's potential.

Self-perception is a positive attitude towards oneself, as well as positive recognition and acceptance of one's past and personal diversity with negative and positive characteristics (Karamushka *et al.*, 2022). A lower assessment of positive relationships with others may be professionally motivated – cybersecurity requires a certain degree of caution in relationships. Cybersecurity professionals must maintain restrained positive relationships and, at the same time, they must not go beyond the level of trusting, close relationships. Cybersecurity requires a certain degree of caution and suspicion in relationships with colleagues and others. These results are consistent with L. Jachens' (2019) study of professional well-being, which showed the specificity of its structure depending on the characteristics of professional activity. The results obtained allow to consider the psychogram of cybersecurity specialists as a system of five interrelated components. The combination of life support, social utility, and creative activity motives creates an optimal motivational profile for long-term effective activity in the field of cybersecurity. The significance of the psychophysiological component is consistent with the results of A. Drozdovski (2015), which demonstrated the determinism of professional suitability by the typological properties of the nervous system, in particular the strength, balance and mobility of nervous processes. The advantage of sanguine and phlegmatic temperament types is explained by the need to combine activity with attentiveness and consistency in information security work. The determination of the level of suitability is not limited to the general psychophysiological characteristics of a person's personality, but also includes motivation, activity, the level of cognitive sphere, individual psychological and typological characteristics of the personality. The typological properties of the nervous system are decisive for the work of a specialist in extreme conditions. The results obtained were consistent with the study of professional motivation by Ø. Jøsok *et al.* (2019), which showed the importance of internal motives for intellectual professions. A high level of cognitive component corresponds to the specifics of the activities of cybersecurity specialists, which belong to the "human-sign system" type of professions and require constant work with large amounts of information. An individual psychological profile with pronounced indicators of practicality, self-control and diplomacy ensures effective interaction in a professional environment and an adequate response to crisis situations. The structure of the social component, dominated by control and acceptance of challenges, reflects the specifics of the profession, which requires constant vigilance and readiness for non-standard situations. Features of psychological well-being with a lower rating of interpersonal relationships may be adaptive for a profession that requires a certain degree of caution in communication. As noted by J. Dawson & R. Thomson (2018), the social component in the system of professional and psychological selection of cyber specialists is of significant importance due to the fact that disposition, i.e., personality traits, influences a person's readiness for

consistent behaviour, effective interaction, achievement of goals, and well-being in a specific social and professional environment. In turn, in the study by V. Barko *et al.* (2020), the individual psychological characteristics of professionals were analysed within the framework of factor models of personality. The authors established the significant role of such traits as responsibility, normativity, self-control and emotional stability in ensuring professional effectiveness. A study of psychological selection for the National Guard of Ukraine by I. Dekhtyarenko (2022) showed that it is based on both qualitative and clearly defined quantitative criteria for assessing professional suitability, which ensures the effective performance of tasks, especially in conditions of martial law. In addition, the selection and support system provides for the protection of psychological health, minimisation of the impact of stress factors in combat operations, timely psychological correction work and support for the psycho-emotional state of military personnel.

◆ Conclusions

Based on empirical research, a psychogram has been developed that reveals the functional and dynamic structural components of the psyche that determine the effectiveness of their professional activities. Five key components of the psychogram have been identified: motivational, psychophysiological, cognitive, individual psychological, and social. The leading component is motivational, the structure of which is dominated by motives of life support, social usefulness, and creative activity with a pronounced interest in professions of the “human-sign system” type. The results also showed that the psychophysiological and temperamental characteristics of cybersecurity specialists meet the requirements of professional activity in conditions of increased cognitive load, with a predominance of sanguine and phlegmatic temperament types, high indicators of working capacity, adaptive mobility, and functional reserves of the organism. It was found that specialists with sanguine

and phlegmatic temperament types, high levels of information processing speed, productivity, accuracy and adaptive mobility are the most suitable in terms of psychophysiological characteristics. These indicators can be used as criteria for professional and psychological selection. The professional significance of the cognitive component, characterised by a high level of analytical thinking, long-term visual and working memory, which ensure quick and adequate decision-making regarding the elimination of information threats, is emphasised. The individual psychological profile of successful cybersecurity specialists has been determined, which includes practicality, firmness, normativity, emotional and volitional self-control, and diplomacy with the necessary caution in interpersonal relationships. The analysis confirmed that the social component is represented by a high level of psychological well-being with a predominance of life goals, meaningful life management and autonomy, as well as professional resilience with pronounced indicators of control, acceptance of challenges and a motivational component. Prospects for further research may focus on a more in-depth study of the dynamics of the structural components of the psychogram of cybersecurity specialists at different stages of professional development, as well as in the development and empirical testing of programmes for professional and psychological selection, training and psychoprophylaxis, taking into account the identified motivational, psychophysiological, cognitive, individual psychological and social determinants of effective professional activity.

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◆ Conflict of Interest

None.

◆ References

- [1] Barko, V., Okhrimenko, I., Medvediev, V., Vagina, O., & Okhrimenko, S. (2020). Professional psychological profile of a modern patrol officer as the basis of efficient official activities. *Postmodern Openings*, 11(3). doi: 10.18662/po/11.3/197.
- [2] Bertash, M., Polishchuk, S., Burdun, V., Ivanyshyn, N., & Zhulkovskyi, V. (2024). The utilization of European experience in the formation of professional competencies of future specialists of the Ukrainian vocational education system. *Journal of Curriculum and Teaching*, 13(3), 147-158. doi: 10.5430/jct.v13n3p147.
- [3] Boltivets, S., Gonchar, T., Uralova, L., Honchar, O., & Chelyadyn, Y. (2025). Stress and psychological support: Mechanisms and psychological coping strategies for patients with posttraumatic disorders. *Eastern Ukrainian Medical Journal*, 13(1), 93-102. doi: 10.21272/eumj.2025;13(1):93-102.
- [4] CIOMS. (2016). *International ethical guidelines for health-related research involving humans* (4th ed.). Geneva: Council for International Organizations of Medical Sciences.
- [5] Dawson, J., & Thomson, R. (2018). The future cybersecurity workforce: Going beyond technical skills for successful cyber performance. *Frontiers in Psychology*, 9, article number 744. doi: 10.3389/fpsyg.2018.00744.
- [6] Dekhtyarenko, I. (2022). Theoretical and methodological foundations of professional psychological selection of military personnel to the National Guard of Ukraine. *Legal Psychology*, 3(2), 47-53. doi: 10.33270/03223102.47.
- [7] Didukh, M. (2021). Professional orientation as a dynamic personality trait. *Yurydychna Psykholohiia*, 28(1), 56-64. doi: 10.33270/0321280.

- [8] Drozdovski, A. (2015). The connection between typological complexes of properties of the nervous system, temperaments, and personality types in the professions and sports. *Open Access Journal of Sports Medicine*, 6, 161-172. [doi: 10.2147/OAJSM.S75612](https://doi.org/10.2147/OAJSM.S75612).
- [9] Jachens, L. (2019). Humanitarian aid workers' mental health and duty of care. *Europe's Journal of Psychology*, 15(4), article number e2221. [doi: 10.5964/ejop.v15i4.2221](https://doi.org/10.5964/ejop.v15i4.2221).
- [10] Jøsok, Ø., Lugo, R., Knox, B.J., Sütterlin, S., & Helkala, K. (2019). Self-regulation and cognitive agility in cyber operations. *Frontiers in Psychology*, 10, article number 875. [doi: 10.3389/fpsyg.2019.00875](https://doi.org/10.3389/fpsyg.2019.00875).
- [11] Karamushka, L.M., Kredentser, O.V., & Tereshchenko, K.V. (2022). Adaptation of the "Modified BBC Subjective Well-being Scale (BBC-SWB)" and "Positive Mental Health Scale (PMH-scale)" methods on a Ukrainian sample. *Organizational Psychology. Economic Psychology*, 3-4(27), 85-94. [doi: 10.31108/2.2022.3.27.8](https://doi.org/10.31108/2.2022.3.27.8).
- [12] Kokun, O., & Bezverkhyi, O. (2024). Ukrainian students' personal resources and resistance to war stress: A cross-sectional survey. *Journal of Loss and Trauma*, 29(8), 976-993. [doi: 10.1080/15325024.2024.2325084](https://doi.org/10.1080/15325024.2024.2325084).
- [13] Kolomiiets, L.I., Shulga, G.B., & Lebed, I.B. (2023). Theoretical and empirical aspects of studying problems of professional subjective wellbeing of young specialists. *Scientific Notes of V.I. Vernadsky Taurida National University. Series: Psychology*, 34(73)(6), 39-47. [doi: 10.32782/2709-3093/2023.6/07](https://doi.org/10.32782/2709-3093/2023.6/07).
- [14] Korolchuk, M., & Krayniuk, V. (2006). *Theory and practice of professional psychological selection*. Kyiv: Nika-Center.
- [15] Kushnirenko, K.O. (2018). Conceptual model of psychological features of the professioniography of banking specialists. *Scientific Notes of the University "KROK"*, 48, 143-150. [doi: 10.31732/2663-2209-2017-48-143-150](https://doi.org/10.31732/2663-2209-2017-48-143-150).
- [16] Kushnirenko, K.O., & Hordynia, N.D. (2020). Professionally important qualities of public authorities employees. *Scientific Bulletin of Kherson State University. Series "Psychological Sciences"*, 3, 177-186. [doi: 10.32999/ksu2312-3206/2020-3-22](https://doi.org/10.32999/ksu2312-3206/2020-3-22).
- [17] Lavrentieva, O., & Krupskyi, O.P. (2022). Psychological and pedagogical bases of formation of the future specialists' individual style of professional activities. *Bulletin of Alfred Nobel University. Series "Pedagogy and Psychology"*, 2(24), 41-49. [doi: 10.32342/2522-4115-2022-2-24-4](https://doi.org/10.32342/2522-4115-2022-2-24-4).
- [18] Prykhodko, I., Horielyshev, S., & Matsehora, Y. (2022). Automation of psychological selection procedures for personnel to specific activities. *Pertanika Journal of Science and Technology*, 30(1), 761-776. [doi: 10.47836/pjst.30.1.41](https://doi.org/10.47836/pjst.30.1.41).
- [19] Teptyuk, Yu.O. (2021). *Psychological conditions for the development of stress resistance in social workers of different age categories*. (PhD dissertation, National Pedagogical Dragomanov University, Kyiv, Ukraine).
- [20] Udod, M.O. (2021). *Psychological features of professional selection of emergency medical care and disaster medicine specialists*. (PhD dissertation, Institute of Psychology named after H.S. Kostiuk, Kyiv, Ukraine).
- [21] Voitenko, E., & Myronets, S. (2020). Emotional burnout as a result of professional stress in the work of managers. *Behavior Studies in Organizations*, 3, 5-12. [doi: 10.32038/JBSO.2020.03.02](https://doi.org/10.32038/JBSO.2020.03.02).

Психологічні детермінанти ефективності діяльності фахівців з кібербезпеки

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♦ **Анотація.** Професійна діяльність фахівців з кібербезпеки набуває особливої актуальності в умовах цифрової трансформації суспільства та зростанні кіберзагроз. Ефективність виконання ними професійних завдань значною мірою визначається сформованістю професійно важливих якостей особистості, що зумовлює потребу у науково обґрунтованому визначенні психологічних критеріїв професійно-психологічного відбору фахівців у сфері кібербезпеки. Метою дослідження було виявлення психологічних факторів, що впливають на ефективність професійної діяльності фахівців з кібербезпеки, через розробку психограми, яка відображає функціонально-динамічні структурні компоненти психіки, що забезпечують їх успішність у роботі. У дослідженні взяли участь 120 фахівців з кібербезпеки. Використано комплекс психодіагностичних методик, зокрема: методику «Мотиваційна структура особистості» Смірнова; методику «Визначення оптимального типу професії» Клімова; особистісний опитувальник Айзенка; модифіковану методику з кільцями Ландольта; методику адаптаційної мобільності Карамушки та Москальова; тест аналітичного мислення; методики оцінки тривалої зорової та оперативної пам'яті; 16-факторний опитувальник особистості Кеттелла; методику «Психологічне благополуччя» Ріфф; методику «Професійна життєстійкість» Кокуна. Для обробки результатів застосовано кореляційний та факторний аналіз. Встановлено п'ять ключових компонентів психограми фахівців з кібербезпеки: мотиваційний, психофізіологічний, когнітивний, індивідуально-психологічний та соціальний. Визначено, що провідним є мотиваційний компонент, у структурі якого переважають мотиви життєзабезпечення, соціальної корисності та творчої активності. За темпераментальними особливостями найбільш придатними виявилися особи з сангвінічним (40 %) та флегматичним (35 %) типами. Когнітивна сфера характеризується високим рівнем аналітичного мислення та професійної пам'яті. Індивідуально-психологічний профіль включає практичність, твердість, нормативність, самоконтроль та дипломатичність. Соціальний компонент представлений високим рівнем професійної життєстійкості, контролю та прийняття викликів. Розроблена психограма може використовуватись як науково обґрунтований інструмент для професійно-психологічного відбору та профорієнтації фахівців з кібербезпеки, дозволяє визначати рівні придатності кандидатів та прогнозувати успішність їхньої професійної діяльності

♦ **Ключові слова:** психограма; професійно-психологічний відбір; мотиваційний компонент; психофізіологічні властивості; когнітивна сфера; життєстійкість