

THE “FLY AND ANALYSE” PARADOX: PROFESSIONAL SOCIALIZATION AND DIGITAL EDUCATION GAPS AMONG FUTURE FIRE OFFICERS

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Abstract

Modern emergency services are undergoing a rapid digital transformation, yet the effectiveness of this process depends heavily on the competencies of future officers. This paper analyses the results of a survey conducted among 177 cadets of the Polish State Fire Service (PSP) regarding their perception of IT tools. The study reveals a significant technological paradox: while students exhibit high enthusiasm for innovative solutions – naming advanced drones and Artificial Intelligence (AI) as the most promising tools – their self-assessed knowledge of fundamental systems, such as Geographic Information Systems (GIS), remains alarmingly low (average score of 2.15/5.0). The author argues that the professional socialization process in fire academies does not diminish technological enthusiasm but rather realizes it. Cadets increasingly recognize that effective firefighting in the 21st century requires more than just tools. It demands mastery of complex, data-heavy systems such as GIS and Command Support Systems (SWD-ST). However, the results indicate a clear educational gap: cadets “want to fly and analyse”, yet they lack the digital cartography fundamentals necessary to utilize such data. These findings serve as a critical signal for decision-makers to reform the curriculum by shifting from theoretical lectures to integrated practical workshops and simulations. Without strengthening these digital foundations, even the most advanced hardware will remain underutilized in the field.

Keywords: *GIS, education, professional socialization, state fire service*

1. Introduction

The traditional image of a firefighter is primarily associated with fighting flames. However, in the modern world, the concept has become merely a fragment of the broad spectrum of activities undertaken by the Fire Department. Today's service is a multidisciplinary rescue unit, standing on the front lines in the face of threats unimaginable decades ago. The challenges faced by the unit transform into comprehensive rescue unit. Their tasks include, among others, medical assistance in the form of pre-hospital medical assistance, chemical and ecological rescue, including the neutralization of hazardous substance leaks and broadly defined environmental protection, as well as technical and road rescue, enabling the extrication of victims of traffic accidents using advanced tools. Operations following earthquakes, floods, or structural collapses, requiring precise equipment and specialized engineering knowledge, should also be mentioned (Childs et al., 2004, Bugajska et al., 2007, Simcock, 2021, Wnuk, 2022). Moreover, actions are taken in response to asymmetric threats, i.e., following terrorist incidents (Marino, 2015). The diversity of threats – from complex chemical incidents to cascading technological disasters – necessitates a fundamental revision of existing operational frameworks and a shift from intuitive responses to precise management. This necessity is not an isolated but rather fits into the broader trend of professionalisation of state security structures. Analysis of the evolution of command and management systems in the defence sector and the ongoing development of civilization have led to the emergence of such complex crisis situations that the natural, socio-intuitive human decision-making mechanism is simply no longer sufficient. This has forced a historic shift from decisions based on intuition to those based on objective scientific methods and multi-criteria data analysis (Szkudlarek, 2016). We see the same mechanism of forced intellectualization and structuring of the decision-making process on the firefighting battlefield today. The foundation of this change is modern command, which must be based on systemic, interdisciplinary training of command staff capable of coordinating the actions of multiple specialized components simultaneously (Calo, 2012). However, in times of such enormous dynamics of events, even the best-trained officer is unable to act effectively without access to data and without their dynamic analysis (Glick & Barbera, 2014). Access to data also allows for increased safety of rescuers participating in operations (Childs et al., 2004, Simo et al., 2022). Traditional pen-and-paper is no longer sufficient to manage the chaos of the modern battlefield. Today, key decisions must be supported by advanced IT systems. These systems enable rapid data aggregation, real-time risk analysis, and digital situation visualization through situational awareness, transforming raw information into a strategic advantage that saves lives (Kedia et al., 2022). Given this situation, the question of the model for educating future officers becomes crucial. A 21st-century fire service officer cannot be merely a skilled mechanic or field tactician. They must also be an

information manager and analyst. The future (and present) of rescue services lies not only in muscular strength and pump efficiency, but also in the ability to quickly synthesize data and optimally utilize available technologies. However, it's important to remember that such a technological revolution drastically shifts the focus of occupational hazards from strictly physical exertion to the burden of mental and psychological workload (Suchacka & Jasik-Ślęzak, 2020). The need to navigate complex interfaces, rapidly decode signals, and analyse information under enormous time pressure generates a new kind of stress, which, without proper preparation, can lead to tragic errors. This means that modern officer education must incorporate not only digital competencies but also build resilience to massive information overload.

The current generation of future commanders is "digital natives" for whom operating advanced computer systems or piloting drones seems almost intuitive. However, the literature on the subject denigrates this simplification. Considering young people as innate technology experts solely because they were born in the digital age is a "dangerously simplistic" approach, ed popular belief rather than hard scientific evidence. Technological proficiency is not an innate generational trait but a form of digital literacy that is heavily influenced by socioeconomic factors such as income level and location. Furthermore, researchers note a clear disconnect between everyday recreational use of technology and its professional applications. The creator of the term "digital natives" himself noticed this problem back in 2001, noting that the implementation of advanced professional tools (such as specialized engineering software) meets with initial resistance among young people and presents them with a steep learning curve, which proves that the intuitiveness of complex systems is not innate for them (Prensky, 2001). Habits developed in the virtual world – such as quick information scanning or superficial media consumption – do not automatically prepare for the deep, critical data analysis that is crucial in a formalized educational and rescue environment (Bennett & Maton, 2010, Reid, 2018). Blind reliance on generational labels and the mismatch of advanced tools with actual predispositions creates a frustrating "digital dissonance", which is why the emphasis should be placed on developing "digital wisdom" - that is, the prudent use of innovation to expand our natural abilities (Gilbert & Bauman, 2022). The challenge isn't simply operating the technology itself, but rather the ability to fully integrate it with strictly operational knowledge and the rigorous demands of the time-sensitive battlefield. To ensure that the current technological skills of young personnel don't remain merely a flashy addition, they must be thoroughly "improved" in terms of rescue craft. Future officers must understand that drone images are useless without knowledge of building mechanics or fire dynamics, and that an advanced IT system won't make decisions for a commander who doesn't feel the physical risk on the front lines. Operational success, therefore, lies at the point of intersection, where technology ceases to be an end

in itself and becomes a tool precisely calibrated to the tactical realities and physical exertion of rescuers (Skorek, 2025). As analyses show, the fact that young people have embraced digitally advanced devices since early childhood doesn't automatically translate into their skills in professional and analytical environments. The intuitive, everyday habits of “digital natives” are typically based on harmful multitasking and superficial “scanning” which actually undermines the effectiveness of their actions and decision-making processes. Therefore, just because a young person subconsciously “feels” the technology interface and can efficiently press the right buttons doesn't mean they can critically process the information they receive, filter out communication noise, and use this data to make accurate, professional, tactical decisions under time pressure (Palfrey & Gasser, 2010, OECD, 2018). In the era of digital transformation in the public safety sector, analysing modernization barriers in emergency response units is becoming a priority. Although the literature extensively documents the technical aspects of implementing innovations, a significant research gap exists regarding the end-user perspective. Current scholarly discourse focuses primarily on structural and infrastructural conditions, marginalizing the voice of future command personnel – individuals currently in the education process and soon to be responsible for the operational use of these technologies (Hill, 2015, Stanley-Lockman, 2021, Del Pozo et al., 2024).

2. Methodology

This study attempts to deconstruct the technological aspiration paradox, which manifests itself as a disconnect between technological optimism and the fundamental digital skills deficits of future command personnel. Taking the above into account, the following research hypotheses were formulated:

H1. There is a statistically significant disproportion between the level of technological optimism towards innovations (such as drones or AI) and the low level of competence in fundamental data analysis systems derived from these tools.

H2. With increasing professional socialization and subsequent years of education, enthusiasm for IT technologies evolves from a general fascination with novelty towards a critical awareness of institutional barriers and the shortcomings of the education system.

The primary objective of this study is to analyse the subjective opinions and attitudes of 177 cadets and fire academy cadets regarding digitalization and the implementation of modern technologies in the State Fire Service (PSP). Instead of focusing on objectively measuring actual technical competence, the study focuses on respondents' perceived importance of innovations such as GIS systems, unmanned aerial vehicles, and artificial intelligence in the context of their future operational service. A crucial element of the analysis is to understand how these beliefs and the identification of systemic barriers – including perceived

resistance from command staff and deficiencies in practical training – change during professional socialization at subsequent stages of uniformed education. Ultimately, the study aims to illuminate the paradox of technological aspirations, i.e. the dissonance between an enthusiastic attitude toward modern solutions and a subjective sense of lack of readiness to utilize them professionally in the realities of service.

The collection of empirical data, based on a diagnostic survey method using questionnaire technique, was conducted between July and October 2025. Purposive sampling was used, focusing on a specific group of fire service cadets and cadets serving in a barracks system. The final sample size was 177, including 117 students of the Fire Service Academy (APoż) and 60 students of the State Fire Service Aspirant Schools (SA PSP) in Częstochowa and Krakow. It should be noted that, despite being invited, the SA PSP in Poznań did not participate in the study. The study population consists of young adults who were under 25 years of age at the time of recruitment, making them representative of the "digital natives" generation. Their education and key stages of socialization occurred during the era of access to mobile technologies and social media, suggesting their intuitive aptitude for navigating the digital landscape. This provides an important backdrop for analysing the respondents' subjective opinions, allowing for a deeper interpretation of the identified paradox between their natural technological proficiency and their perceived readiness to operationally utilize specialized IT tools in emergency response structures.

A full understanding of the underlying causes of the diagnosed paradox requires a closer look at the specific training model for PSP officers in Poland. This system is based on a centralized, strictly hierarchical structure, in which the educational process is carried out by five specialized institutions. The architecture of Polish firefighting education is tripartite, categorized according to the level of professional qualifications obtained and the ranks assigned to them.

- Academic level (officer education): At the top of the educational hierarchy is the APoż, formerly the Main School of Fire Service, which, as an academic institution, educates future officer cadres. Studies in the field of „Safety Engineering” culminate in the award of a professional engineer or master's degree in fire engineering and appointment to the first officer rank – junior captain. In this study, this group constituted the largest representation, comprising 117 officer cadets.
- Post-secondary level (aspirant education): The SA PSP are a link in post-secondary education (level 5 according to the ISCED classification), implementing a two-year full-time curriculum in a full-time barracks environment. Their goal is to prepare technical staff and mid-level commanders (squad and section commanders) for service in Firefighting and Rescue Units (JRG). Graduates, including 60 respondents from

schools in Częstochowa and Kraków, obtain the title of firefighting technician and the rank of junior cadet.

- Non-commissioned Officer and Private levels: The final element of the educational ladder is firefighting training, conducted by the SA PSP and the State Fire Service Non-Commissioned Officers' School in Bydgoszcz. This program is dedicated to individuals preparing for direct rescue operations in the field and fulfilling leadership roles at the lowest operational levels, such as a company or squad (KG PSP, 2025).

The presented structure is crucial for analysing the professional socialization process of the surveyed respondents. It is within these institutions that technological aspirations and visions clash with the harsh realities of a hierarchical training system and the specificity of rescue procedures.

The procedure for selecting the research sample among APoż cadets included specific exclusion criteria, stemming directly from the dynamics of systemic changes occurring within the university. Fifth-year students were intentionally excluded from the research process, which was dictated by the ongoing transformation of the educational model – a shift from a two-cycle system to a single master's degree program, formally implemented starting in the 2025/2026 academic year (Akademia Pożarnicza, 2025). This decision was intended to ensure homogeneity of the study population in terms of the curriculum being implemented, which is essential for a reliable analysis of the stages of professional socialization and the evolution of attitudes toward technological innovation within the group of 177 respondents. Applying these criteria allowed us to focus on students in the first-fourth grades, where the process of “realizing” technological attitudes occurs within a unified educational cycle.

Empirical data collection was conducted using a proprietary survey questionnaire designed to assess the attitudes of cadets and officer cadets towards digitalization in rescue formations. The tool's design, in addition to an extensive demographic section, was based on three thematic pillars:

- assessment of general digital competences and technological hygiene,
- verification of the level of knowledge of specialized domain-specific systems along with a diagnosis of educational needs, and
- analysis of the perceived potential and barriers related to the computerization of PSP structures.

The study utilized closed-ended questions, including those based on a 5-point Likert scale to measure the intensity of attitudes, and open-ended questions, allowing respondents to formulate in-depth, free-form responses.

A purposive (non-probabilistic) sampling approach was employed, based on the availability of respondents in their home units and their voluntary consent to participate in the research process. The study included cadets and candidate service cadets at the threshold of a professional career in the public service. The final sample size was $n = 177$, which, given the estimated total population of 613,

represents a representation of over 28%. It should be noted, however, that due to the non-probabilistic nature of the sampling and the lack of participation from one of the key institutions (the SA PSP in Poznań), the obtained results are exploratory in nature. Although the collected material allows for the identification of significant trends and the deconstruction of the paradox of technological aspirations in the studied subgroups, full generalization of the statistical conclusions to the entire population of officers entering service requires methodological caution.

Certain shifts in the study sample's structure relative to the general cadet population should be noted. The ratio of respondents from the APoż to the number of SA PSP students in this study was 0.51, while in the general population this ratio was 0.74. Despite this disparity, the collected material retains high cognitive value, allowing for a reliable deconstruction of attitudes within the identified paradox of technological aspirations.

Data collection was conducted using CAWI (Computer-Assisted Web Interviewing) in the form of a digitized survey questionnaire. The tool was distributed digitally – participants accessed the questionnaire via a dedicated link activated by a QR code, which corresponded to the digital literacy level of the study group. Before participating, each respondent was thoroughly familiarized with the study's research objectives and procedures. The study was conducted in compliance with rigorous ethical standards. Participation in the project was entirely voluntary, and the system guaranteed complete anonymity of participants. The procedures used prevented the identification of individual responses, and the collected data were subjected to collective (aggregated) analysis for research purposes only. Statistical analysis of the collected empirical material was conducted using IBM SPSS Statistics version 10.

3. Results

Analysis of the collected research material, focused on identifying critical points in the preparation of future command staff in fire protection units, reveals an exceptionally interesting and complex picture of the reality in which young firefighter cadets operate. The clash of high digital aspirations with the systemic realities of education allows for the identification of a specific tension between personal technological prowess and a subjective sense of operational helplessness. This picture provides empirical confirmation of the “flying and analysing” paradox signalled in the title.

Having defined the respondents' profile as a group with high baseline digital potential, the key point of the analysis was to examine how this “personal proficiency” correlates with their vision for the future of the service. The first research hypothesis (H1) assumes an asymmetry between high optimism towards

innovation and the subjectively perceived deficit of competencies necessary to use it. A preliminary comparative analysis, conducted using the Wilcoxon signed-rank test, provided the first hard evidence for the existence of this assumed asymmetry. A comparison of the overall self-assessment of digital proficiency with the declared importance of IT for the development of the Fire Service (questions “How do you assess your overall level of proficiency in using a computer and standard software?” and “To what extent do you agree with the statement: modern IT technologies are crucial for the effectiveness and development of the State Fire Service”) revealed a highly statistically significant discrepancy (Standardized test statistic, Z-score = -5.158, p-value < 0.001).

As the data presented in the table below (Table 1) indicate, the dynamics of this paradox are based on the dominance of positive ranks (n = 93). More than half of the respondents (52.5%, n = 93) rate the importance of modern technologies for the development of the formation higher than their own digital competencies. The predominance of the sum of positive ranks (6167) over negative ranks (2089) provides the first evidence of the aspiration paradox – future officers of the PSP place great hopes in the digitalization of the service, while simultaneously identifying competency deficits in this area.

Table 1. Wilcoxon rank test of overall level of proficiency in using computers and standard software and to what extent do you agree with the statement: Modern IT technologies are crucial for the effectiveness and development of the State Fire Service.

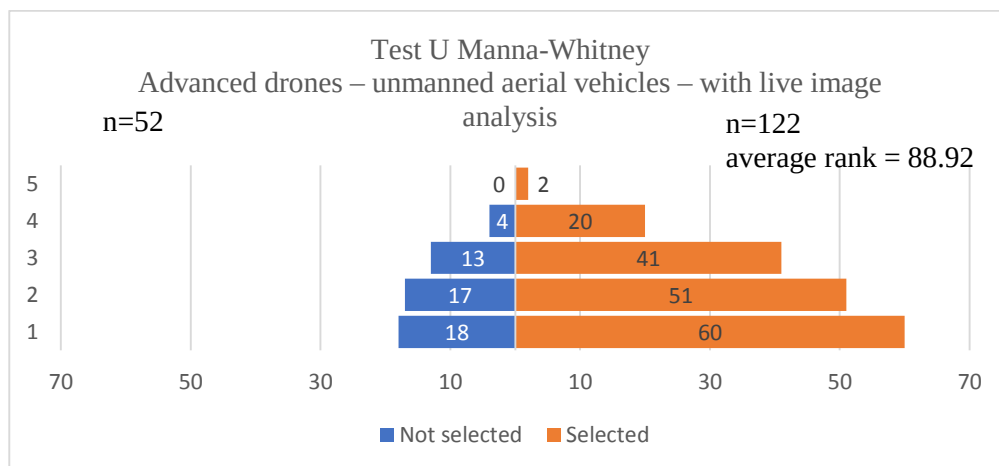
		N	Average rank	Sum of ranks
To what extent do you agree with the statement: Modern IT technologies are crucial for the effectiveness and development of the State Fire Service - How do you assess your overall level of proficiency in using a computer and standard software?	Negative Ranks	35	59.69	2089.00
	Positive Ranks	93	66.31	6167.00
	Links	49		
	Total	177		

Source: Results of own research in firefighters school.

However, to determine whether this optimism is substantive or merely superficial, the analysis was further expanded to include a comparison of the specific technology used in the fire service (drones) with the level of familiarity

with spatial data analysis tools (GIS). A Mann-Whitney U test was conducted to determine whether cadets who declared the highest aspirations for unmanned aerial vehicle technology (the question allowed for selecting the three most important technologies with the greatest potential for use in the fire service over the next five years – the analysis included results where “advanced drones – unmanned aerial vehicles – with live image analysis” was selected) were characterized by higher competencies in the field of spatial information systems (“Rate your familiarity with the following IT systems and tools used in the fire service – Likert scale – 1 – never heard of, 5 – very familiar, understand the purpose and method of operation”). The analysis (Diagram 1) revealed no statistically significant differences between the drone enthusiasts (n = 122) and the remaining respondents (n = 52) in terms of their knowledge of GIS systems (U = 3345, p-value = 0.553). The nearly identical mean ranks in both groups (88.92 and 84.17, respectively) demonstrate that high expectations for hardware innovations are not matched by substantive preparation for operating data analysis systems. This confirms the existence of an educational gap, where the fascination with new operational tools is not supported by the actual digital competencies of future officers.

Diagram 1. Comparison between specific technology used in the fire service (drones) and the level of familiarity with spatial data analysis tools (GIS)



Source: Results of own research in firefighters school.

This distribution of results allows for the validation of H1. It confirms that in the studied population, technological optimism is not based on hard skills, but on a specific “myth of innovation”. Cadets want to use advanced tools but are not prepared to operate the systems that constitute their analytical base.

Verification of hypothesis 2 required examining how the subjective assessment of technological preparedness changes over the years of study. The Kruskal-Wallis test (Table 2) demonstrated statistically significant differences in the evaluations of IT curricula at both institutions. However, the analysis of ranks at the APož provides the most compelling arguments in support of the hypothesis of growing awareness of systemic barriers.

Table 2. Differences in the evaluations of IT curricula at Apož and SAPS.

School	Question	Year of studying	N	Average rank
SA PSP	How do you assess the extent to which the current curriculum prepares you to effectively use IT systems in your future service?	1 st	7	16.64
		2 nd	50	30.73
		Sum	57	
APoż		1 st	47	42.53
		2 nd	38	73.79
		3 rd	8	47.63
		4 th	22	67.55
		Sum	115	

Source: Results of own research in firefighters school.

In the SAPSP groups, a statistically significant difference was noted between the age groups ($H = 5.303$, $p\text{-value} = 0.021$). The average grade rank increased from 16.64 in the first year to 30.73 in the second. This suggests that in the short, two-year cycle of practical education, trainees gradually gain confidence in the usefulness of the knowledge they are learning, and the “critical realization” phase may not occur before the end of their education. In the case of the Apož, the results are statistically significant ($H = 23.473$, $p\text{-value} < 0.001$) and demonstrate a nonlinear process of attitude formation.

- Enthusiasm phase (years 1 and 2): A sharp increase in satisfaction is visible – the average rank soars from 42.53 in the first year to a peak of 73.79 in the second year.
- Critical breakdown phase (year 3): In the third year, the curriculum's rating drops to 47.63. This is the point at which, in line with H2's assumptions, the general fascination with technology is replaced by an awareness of competency gaps. As cadets near the end of their studies, they begin to notice a discrepancy between theory and the real needs of rescue and firefighting units.
- Realignment phase (year 4): grades increase again (rank 67.55), which can be interpreted as a process of adaptation and acceptance of the existing system before entering service.

The next step in the analysis was to determine whether a high self-assessment of overall digital proficiency translates into a sense of confidence in operating professional IT systems used by the PSP. The Wilcoxon signed-rank test (Table 3) revealed a statistically significant difference between overall IT proficiency and the predicted confidence in operating systems at command posts and in rescue operations ($Z = -4.365$, $p\text{-value} < 0.001$).

Table 3. Wilcoxon rank test of self-assessment of overall digital proficiency translates and sense of confidence in operating professional IT systems used by the State Fire Service.

		N	Average rank	Sum of ranks
How confident are you that after graduating you will be able to efficiently operate basic IT systems in a command post or in rescue operations? - How would you rate your overall level of proficiency in using a computer and standard software?	Negative Ranks	71	55.48	3939.00
	Positive Ranks	32	44.28	1417.00
	Links	65		
	Total	168		

Source: Results of own research in firefighters school.

The obtained result allows us to accept the hypothesis of the occurrence of operational dissonance. The direction of this relationship is clearly unfavourable for the professional sphere. Nearly 42% of respondents reported a lower level of confidence in using professional systems than their general computer proficiency. Only 19% of respondents reported greater confidence in the operational sphere than in the general sphere. For the remaining individuals (39%), both values remain at the same level. The predominance of the sum of negative ranks (3939) over positive ones (1417) provides statistical confirmation of the regression of self-confidence upon transitioning from a "private" to a "professional" digital environment. The mean rank for negative results (55.48) is higher than for positive results (44.28), which may suggest that the decline in confidence in individuals experiencing dissonance is relatively profound.

4. Discussion

The conducted research allows for the formulation of a synthesis of the phenomenon, which this paper refers to as the paradox of technological aspirations in Polish firefighting education. The primary goal of the analyses was to deconstruct the attitudes of future command personnel towards the inevitable

digitization of rescue services, and the obtained statistical results confirmed that the contemporary education model is at a critical juncture, where traditional methods of professional socialization clash with the superficial optimism of a generation of “digital natives”. The first dimension of this paradox, addressed in the verification of the first hypothesis, revealed a profound asymmetry between the declared importance of modern technologies and the subjective sense of one's own digital proficiency. The Wilcoxon signed-rank test result ($Z = -5.158$) may provide mathematical evidence of the enormous trust that cadets and officer cadets place in IT solutions, while simultaneously diagnosing themselves with competency deficits. More than half of respondents rate the importance of technology higher than their own skills, which may suggest that their optimism is based not on hard technical knowledge but on a myth of innovation, treated as a panacea for the growing complexity of the modern threat landscape. This phenomenon becomes even more striking when we compare the fascination with innovative tools, such as drones, with the actual knowledge of the systems necessary to operationalize them. The lack of differences in GIS knowledge between drone enthusiasts and the rest of the survey demonstrates the superficiality of these aspirations. For the surveyed group, drones are a visually appealing gadget, but they lack the awareness that without proficiency in spatial data analysis and geographic information systems, drone images remain merely impressive but operationally ineffective video recordings. This confirms the theses presented in the literature on the subject that the innate digital proficiency of young people is often an illusion limited to the sphere of entertainment and social media, which does not automatically transfer to the field of professional digital literacy.

The second research axis, focused on the process of professional socialization, allowed us to capture the dynamics of these attitudes evolving over the course of years of education in the barracks system. The results of the Kruskal-Wallis test revealed the nonlinear and tense nature of this evolution, particularly evident in the academic model of the APož. The observed sharp decline in the curriculum's usefulness ratings in the third year of studies constitutes a turning point in the professional biographies of future officers. It can be interpreted as a moment of painful realization, where the initial fascination with technology and trust in systemic educational solutions are confronted with a growing awareness of the real demands of operational service. Third-year cadets, having completed their first internships and courses related to rescue tactics, begin to perceive a gap between the theoretical preparation within the walls of the university and the brutal demands of the command post, where managing information under time pressure requires more than just familiarity with interfaces. Unlike the APož, in the SA PSP, this process is more linear and optimistic, likely due to the shorter, two-year, highly technical education cycle, which does not allow for a profound socialization crisis before entering service. However, in both cases, it was demonstrated that the fire service training school is not perceived as a primary

source of added value in terms of digital competences, and the high number of bindings in statistical tests may suggest that for a large portion of trainees, the formal education system remains neutral, offering no tools to alleviate the fear of operational responsibility. The most disturbing finding from the research appears to be the confirmation of the phenomenon of operational dissonance, manifested by a statistically significant decline in self-confidence when transitioning from private to professional life. The fact that nearly 42% of respondents feel less confident in operating professional systems than in general technology use ultimately debunks the myth of digital natives as naturally ready for modern command. Intuitive habits developed in the virtual world – such as rapid content scanning or multitasking – prove to be a hindrance in a formalized rescue environment, which requires in-depth data analysis and accountability for decisions based on them. This decline in self-confidence demonstrates that future personnel are entering service feeling unprepared, which, in real-world threats, may lead them to shun technology in favour of proven, yet outdated, analog methods. The modernization success of a rescue unit depends not on the equipment purchased, but on the ability of its personnel to fully integrate it with tactical knowledge in the conditions in which they operate. Operational success therefore lies at the intersection of technology and human competence. It is worth noting that today's command problem is no longer technological barriers – the speed and stability of data transfer or interference in difficult operating conditions are no longer critical factors. Research on transmission infrastructure demonstrates that modern 5G antenna systems, thanks to signal beam directing technologies and dynamic adaptation to the environment, ensure a lossless and stable flow of information. The communication infrastructure is now fully ready for the extreme challenges of rescue. (Pytel & Szkudlarek, 2025). The real problem remains what happens to information after it is flawlessly delivered to the commander's tablet. The hardware perfection of ICT systems will not compensate for the gap in analytical training of so-called "digital natives" who, under stress and responsible for human lives, often fall victim to technological overstimulation. These conclusions may suggest a revision of training programs toward building digital intelligence that goes beyond simply operating devices and focuses on risk management in an information-saturated environment. It is necessary to close the gap between flying a drone and analysing data so that the technological optimism of future commanders does not remain just empty words but becomes the foundation of modern and safe 21st-century rescue. Ultimately, the study shows that without a shift in the educational paradigm from "learning systems" to "managing data" the PSP risks having an advanced fleet of devices whose full operational potential will remain untapped due to the psychological and competency barriers of the rescuers themselves.

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